Furniture &cabinetmaking

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A project for your hand tools only workshop

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The Award Winning 14 TWELVE

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LEG STAND KITS FOR CTS10D AND CTS11 ONLY £27.59 INC VAT

FROM ONLY £72.99 EXC.VAT £87.59 INC.VAT

BEST SELLER

INCLUDES LEFT & RIGHT TABLE EXTENSION

CTS10D

MODEL	MOTOR	BLADE	EXC.VAT	INC.VAT
CTS800B	600W	200mm	£72.99	£87.59
CTS11	1500W	254mm	£149.98	£179.98
CTS10D	1500W	254mm	£169.98	£203.98

Clarke TABLE SAW WITH EXTENSION TABLES (250mm)

CTS14

• Ideal for cross cutting, ripping, angle and mitre cutting • Easy release/locking mechanism for table extensions • 0-45° tilting blade • Cutting depth: 72mm at 90° / 65mm at 45°

£129.98 EXC.VAT £155.98 INC.VAT

SHOWN WITH OPTIONAL LEG KIT CLK5 £19.98 EXC.VAT £23.98 INC.VAT

Clarke TABLE SAW WITH STAND

NEW

CTS16

• 1600W motor • 250mm blade size • 0-45° tilting blade • Cutting depth: 73mm at 90° / 53mm at 45°

INCLUDES LEFT & RIGHT TABLE EXTENSION

£99.98 EXC.VAT £119.98 INC.VAT

Clarke 40" WOODTURNING LATHE

Ideal for woodturning in the workshop

• 1016mm distance between centres allows for turning longer spindles • Inc. tool rest, tail stock, drive centre, face plate & 3 chisel • Large turning capacity of 350mm • 4 turning speeds

CWL1000B

ONLY £136.99 EXC.VAT £164.39 INC.VAT

LOCKABLE TAILSTOCK

BENCH MOUNTED

Clarke WOODWORKING VICES

STANLEY. Record

WV7

FROM ONLY £14.99 EXC.VAT £17.99 INC.VAT

MODEL	MOUNTING	JAW (WIDTH/OPENING /DEPTH)mm	EXC.VAT	INC.VAT
Clarke CHT152	Bolted	150/152/61	£14.99	£17.99
Stanley Multi Angle	Clamped	72/60/40	£18.99	£22.79
Record TV75B	Clamped	75/50/32	£22.99	£27.59
Clarke WV7	Bolted	180/205/78	£29.98	£35.98

Clarke 13" MINI WOOD LATHE

£159.98 EXC.VAT £191.98 INC.VAT

CWL325V

• Ideal for enthusiasts/ hobbyists with small workshops • 325mm distance between centres • 200mm max. turning capacity (dia) • 0.2HP motor

Clarke GARAGES/WORKSHOPS

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BRIGHT WHITE INTERIOR

LENGTH UP TO 24'

• Ideal for use as a garage/workshop • Extra tough triple layer weatherproof cover • Heavy duty powder coated steel tubing • Ratchet tight tensioning

ZIP CLOSE DOOR

MODEL	SIZE (LxWxH)	EXC.VAT	INC.VAT
CIG81015	4.5 x 3 x 2.4M	£229.00	£274.80
CIG81020	6.1 x 3 x 2.4M	£289.00	£346.80
CIG81216	4.8 x 3.7 x 2.5M	£279.00	£334.80
CIG81220	6.1 x 3.7 x 2.5M	£339.00	£406.80
CIG81224	7.3 x 3.7 x 2.5M	£419.00	£502.80

Clarke 4" BELT/ 6" DISC SANDER

• Dust extraction facility • 4" x 36" belt tilts & locks 0-90° • 225mm x 160mm table, tilts 0-90° • 370W, 230V motor

CS4-6E

£96.99 EXC.VAT £116.39 INC.VAT

Clarke 6" BELT/ 9" DISC SANDER

• Includes stand • 1 HP/ 230V/ 1ph motor

CS6-9C

£249.00 EXC.VAT £298.80 INC.VAT

Clarke 1" BELT/ 5" DISC SANDER

• Includes 2 tables that tilt & lock

£69.98 EXC.VAT £83.98 INC.VAT

CBS1-5B

NEW

• Quality Induction 250W motor

Clarke DUST EXTRACTOR/ CHIP COLLECTORS

CDE7B

CWVE1

FROM ONLY £109.98 EXC.VAT £131.98 INC.VAT

• Powerful 1100W motor • 50 litre bag capacity • Flow rate of 850M3/h

MODEL	MOTOR	FLOW RATE	BAG CAP.	EXC.VAT	INC.VAT
CWVE1	1100W	183 M3/h	50Ltrs	£109.98	£131.98
CDE35B	750W	450 M3/h	56Ltrs	£144.99	£173.99
CDE7B	750W	850 M3/h	114Ltrs	£159.98	£191.98

Clarke HIGH VELOCITY FANS

CFF18C100

18" BLACK FLOOR FAN

18" CHROME FLOOR FAN

FROM ONLY £36.99 EX.VAT £44.39 INC.VAT

*chrome #black

CFF18B100

MODEL	SIZE/TYPE	EXC.VAT	INC.VAT
CBF20	20" Box Fan	£36.99	£44.39
CFF18C100*	18" Floor Fan	£39.98	£47.98
CFF18B100#	18" Floor Fan	£39.98	£47.98
CPF18B100	18" Pedestal Fan	£49.98	£59.98

Clarke DETAIL SANDERS

• Perfect for smooth and fine finishing along with hard to reach areas or curved surfaces

CDS-1V

FROM ONLY £19.98 EX.VAT £23.98 INC.VAT

MODEL	WATTS	EXC.VAT	INC.VAT
PS105	105W	£19.98	£23.98
CDS-1V	280W	£29.98	£35.98

ALL MODELS INC. SANDING SHEETS

Clarke DRILL PRESSES

• Range of precision bench & floor presses for enthusiast, engineering & industrial applications

FROM ONLY £69.98 EX.VAT £83.98 INC.VAT

B = Bench mounted F = Floor standing

CDP152B

MODEL	MOTOR (W) SPEEDS	EXC. VAT	INC. VAT
CDP5EB	350 / 5	£69.98	£83.98
CDP102B	350 / 5	£79.98	£95.98
CDP152B	450 / 12	£149.98	£179.98
CDP202B	450 / 16	£189.00	£226.80
CDP10B	370 / 12	£199.98	£239.98
CDP452B	550 / 16	£239.00	£286.80
CDP352F	550 / 16	£229.00	£274.80
CDP502F	1100 / 12	£549.00	£658.80

Clarke 4" BELT/ 8" DISC SANDER

• Includes two tables • 550W 230V motor

£159.98 EXC.VAT £191.98 INC.VAT

CS4-8

Clarke BELT SANDERS

• Ideal for surface removal, sanding and finishing

Makita

ABRASIVE SANDING BELTS IN STOCK

BS1

FROM ONLY £37.99 EX.VAT £45.59 INC.VAT

MODEL	MOTOR	M/MIN	EXC.VAT	INC.VAT
Clarke BS1	900W	380	£37.99	£45.59
Clarke CBS2	1200W	480	£79.98	£95.98
Makita 9911	650W	75-270	£99.98	£119.98

Clarke HARDWOOD WORKBENCH

• Includes bench dogs and guide holes for variable work positioning • 2 Heavy Duty Vices • Large storage drawer • Sunken tool trough • LxWxH 1520x620x855mm

CHB1500

£149.98 EXC.VAT £179.98 INC.VAT

Clarke DISC SANDER (305MM)

• Powerful, bench mounted • 900W • Dust extraction port

£129.98 EXC.VAT £155.98 INC.VAT

CDS300B

Clarke RANDOM ORBITAL SANDER

• Adjustable front handle improves control • 7000-14000rpm

ONLY £32.99 EX.VAT £39.59 INC.VAT

CROS3

INC DUST BAG AND SELECTION OF 125MM DIAMETER SANDING DISCS

Clarke ELECTRIC POWER FILE

CPF13

• Variable belt speed • Tilting head

*Black & Decker

FROM ONLY £49.98 EX.VAT £59.98 INC.VAT

MODEL	MOTOR	BELT SIZE (mm)	EXC.VAT	INC.VAT
CPF13	400W/230V	13x457	£49.98	£59.98
KA900E*	350W/230V	13x455	£59.98	£71.98

Clarke CIRCULAR SAWS

• Great range of DIY and professional saws • Ideal for bevel cutting (0-45°)

CON185

*Includes laser guide

FROM ONLY £41.99 EX.VAT £50.39 INC.VAT

was £75.59 inc.VAT

MODEL	MOTOR	MAX CUT 90/45 (mm)	EXC.VAT	INC.VAT
CCS185B	1200W	65/44	£41.99	£50.39
CON185*#	1600W	60/40	£59.98	£71.98

Clarke SHEET SANDERS

• Ergonomic design for optimum comfort

FROM ONLY £16.99 EX.VAT £20.39 INC.VAT

CON300

MODEL	SHEET SIZE	MOTOR	EXC.VAT	INC.VAT
COS200	190X90mm	150W	£16.99	£20.39
CON300	230X115mm	330W	£29.98	£35.98

Clarke CORDLESS STAPLE/ NAIL GUN

• All models include nail/staple pack and tough moulded case • 18V 2Ah Li-ion power pack • 18 Staple/Nail Gauge

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CONSN18LIC

SPARE NAILS / STAPLES IN STOCK

ELECTRIC AND CORDLESS MODELS IN STOCK

Clarke CONTRACTOR 18V BRUSHLESS COMBI DRILLS

• 2 forward and reverse gears

powered by Li-ion

CON180LI

FROM ONLY £109.98 EX.VAT £131.98 INC.VAT

MODEL	VOLTS	BATTS	EXC. VAT	INC. VAT
CON18LIC	18V	2x 2.0Ah Li-Ion	£109.98	£131.98
CON180LI	18V	2x 4.0Ah Li-Ion	£159.98	£191.98

VAC KING WET & DRY VACUUM CLEANERS

FROM ONLY £49.98 EX.VAT £59.98 INC.VAT

* SS = Stainless Steel

• Compact, high performance wet & dry vacuum cleaners for use around the home, workshop, garage etc.

MODEL	MOTOR	CAPACITY DRY/WET	EXC. VAT	INC. VAT
CVAC20P	1250W	16/12ltr	£49.98	£59.98
CVAC20SS*	1400W	16/12ltr	£59.98	£71.98
CVAC20PR2	1400W	16/12ltr	£64.99	£77.99
CVAC25SS*	1400W	19/17ltr	£69.98	£83.98
CVAC30SSR*	1400W	24/21ltr	£89.98	£107.98

Clarke OSCILLATING BOBBIN SANDER

COBS1

• Dust collection port • Inc. 6 sanding sleeves/bobbins

£129.98 EXC.VAT £155.98 INC.VAT

Clarke OSCILLATING BELT & BOBBIN SANDER

• Sand concave, convex, straight or multi-curved pieces • Dust collection port • Inc. sleeves, drum & belt

£179.98 EXC.VAT £215.98 INC.VAT

COEBS1

NEW RANGE

Clarke BOLTLESS SHELVING/BENCHES

• Simple fast assembly in minutes using only a hammer

FROM ONLY £29.98 EX.VAT £35.98 INC.VAT

SAVE 10% WHEN YOU BUY ANY MIX OF 4 FROM THIS RANGE SAVE UP TO £23.99 INC. VAT

150 KG (evenly distributed) Strong 9mm fibreboard shelves PER SHELF

CHOICE OF 5 COLOURS RED, BLUE, GREY, SILVER & GALVANISED STEEL

350 KG (evenly distributed) Strong 12 mm fibreboard shelves PER SHELF

MODEL	DIMS WxDxH(mm)	EXC.VAT	INC.VAT
150kg	800x300x1500	£29.98	£35.98
350kg	900x400x1800	£49.98	£59.98

Clarke WHETSTONE SHARPENER (200MM)

• Produces razor sharp cutting edges on chisels, planes, etc. • Inc. 3 tool holding jigs, workpiece clamp & support frame, polishing paste & water trough

CWS200B

ONLY £119.98 EX.VAT £143.98 INC.VAT

Clarke PLANERS & THICKNESSERS

CPT800

• Ideal for DIY & Hobby use • Dual purpose, for both finishing & sizing of timber

FROM ONLY £179.98 EX.VAT £215.98 INC.VAT

MODEL	PLANING WIDTH	MAX THICK. CAPACITY	EXC. VAT	INC. VAT
CPT600	6"	120mm	£179.98	£215.98
CPT800	8"	120mm	£219.98	£263.98
CPT1000	10"	120mm	£299.00	£358.80

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Clarke SLIDING COMPOUND MITRE SAWS

BEST SELLER

- For fast, accurate cross, bevel & mitre cutting in most hard & soft woods • 1800W motor • Laser guide

MASSIVE PRICE CUTS NOW FROM ONLY £79.98 EXC.VAT £95.98 INC.VAT WAS £107.98 inc.VAT

CMS10S2

MODEL	BLADE DIA/BORE (mm)	MAX CUT DEPTH/ CROSS	EXC. VAT	INC. VAT
CMS210S*	210/30	60/120	£79.98	£95.98
CSM250S NEW	250/30	85/250	£109.98	£131.98
C2MS210MP NEW	216/30	65/305	£139.98	£167.98
CMS10S2	254/30	78/340	£139.98	£167.98
C2M250MP NEW	255/30	90/305	£189.00	£226.80

Clarke SCROLL SAWS

- 50mm max cut thickness • Air-blower removes dust from cutting area • Table tilts 0-45°

CSS400C

FROM ONLY £79.98 EXC.VAT £95.98 INC.VAT

BEST SELLER

MODEL	MOTOR	SPEED RPM	EXC. VAT	INC. VAT
CSS400D	120W	400-1600	£79.98	£95.98
CSS16VB	90W	550-1600	£94.99	£113.99
CSS400C	90W	550-1600	£119.98	£143.98

Clarke BENCH BANDSAWS

- Produces fast, precise mitre & longitudinal cuts • 350W motor • 7.5" throat size • Cuts in all types of wood

£129.98 EXC.VAT £155.98 INC.VAT

CBS190B

- Great for both home & professional use • Induction 300W motor • Table tilts up to 45° • 9" throat size

£189.98 EXC.VAT £227.98 INC.VAT

REMOVABLE DUST TRAY

CBS225

Clarke PROFESSIONAL BANDSAWS

Top Quality Bandsaws - ideal for professional workshop use. Strong steel body with solid cast iron table

- Table tilts 45° • Adjustable blade guide • Supplied with stand, 4TPI wood cutting blade, rip fence, mitre guide, mitre gauge and push stick • Induction motors • Includes stand

CBS300

FROM ONLY £219.98 EXC.VAT £263.98 INC.VAT

MODELS ALSO FEATURE:

MODEL	THROAT DEPTH	MAX CUT 90°	MAX CUT 45°	EXC. VAT	INC. VAT
CBS250	250mm/10"	100mm	75mm	£219.98	£263.98
CBS300	305mm/12"	165mm	115mm	£389.00	£466.80
CBS350	340mm/14"	225mm	160mm	£489.00	£586.80

TURBO AIR COMPRESSORS

airmaster

- Superb range ideal for DIY, hobby & semi -professional use

FROM ONLY £89.98 EXC.VAT £107.98 INC.VAT

* 'V' Twin Pump

8/250

MODEL	MOTOR	CFM	TANK	EXC.VAT	INC.VAT
8/250	2HP	7.5	24ltr	£89.98	£107.98
7/250	2 HP	7	24ltr	£94.99	£113.99
11/250	2.5HP	9.5	24ltr	£109.98	£131.98
8/510	2HP	7.5	50ltr	£119.98	£143.98
11/510	2.5HP	9.5	50ltr	£139.98	£167.98
16/510*	3 HP	14.5	50ltr	£209.00	£250.80
16/1010*	3 HP	14.5	100ltr	£259.98	£311.98

Einhell BISCUIT JOINTER

- 11000rpm Operating Speed • 860W motor • 14mm Cutting Depth • Inc. dust bag, storage case and face spanner for cutter change

2 YEAR GUARANTEE

TC-BJ900

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Clarke ROUTERS

CONTRACTOR

BOSCH

NEW

- Powerful heavy duty machines ideal for trade and DIY use

CR4

CR1200

FROM ONLY £44.99 EXC.VAT £53.99 INC.VAT

MODEL	MOTOR (W)	PLUNGE (mm)	EXC.VAT	INC.VAT
CR1200	1200	0-55	£44.99	£53.99
Bosch POF1400ACE	1400	0-55	£89.98	£107.98
CR4 NEW	2000	0-66	£109.98	£131.98

Clarke GRINDERS & STANDS

- Stands come complete with bolt mountings and feet anchor holes

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6" & 8" AVAILABLE WITH LIGHT

STANDS FROM ONLY £47.98 INC.VAT

POLISHING KITS 4" TO 8" FROM ONLY £27.59 INC VAT

With sanding belt *8" whetstone & 6" drystone

MODEL	DUTY	WHEEL DIA.	EXC.VAT	INC.VAT
CBG6RP	DIY	150mm	£32.99	£39.59
CBG6RZ	PRO	150mm	£42.99	£51.59
CBG6RSC	HD	150mm	£54.99	£65.99
CBG6SB#	PRO	150mm	£56.99	£68.39
CBG6RWC	HD	150mm	£59.98	£71.98
CBG8W* (wet)	HD	150/200mm	£58.99	£70.79

Clarke STATIC PHASE CONVERTERS

- Run big 3 phase woodworking machines from 1 phase supply • Variable output power to match HP of motor to be run

PC60

FROM ONLY £229.00 EXC.VAT £274.80 INC.VAT

ROTARY PHASE CONVERTERS ALSO IN STOCK

CONVERT 230V 1PH TO 400V 3PH

MODEL	MAX. MOTOR HP	FUSE	EXC.VAT	INC.VAT
PC20	2HP	10Amps	£229.00	£274.80
PC40	3.5HP	20Amps	£269.00	£322.80
PC60	5.5HP	32Amps	£319.00	£382.80

Clarke CONTRACTOR Clarke JIGSAWS

CON750

FROM ONLY £15.99 EXC.VAT £19.19 INC.VAT

*DIY #Professional ^ was £59.98 inc.VAT

MODEL	POWER (W)	DEPTH OF CUT (WOOD/STEEL)	EXC. VAT	INC VAT
CJS380*	420W	55/6mm	£15.99	£19.19
CON750#	750W	80/10mm	£27.99	£33.59
Bosch PST700E*^	500W	70/4mm	£44.99	£53.99

Clarke WORKSHOP AIR TOOLS

£39.98 EXC.VAT £47.98 INC.VAT

CAT160

£39.98 EXC.VAT £47.98 INC.VAT

CAT165

HEAVY DUTY

HUGE CHOICE IN-STORE/ONLINE

Clarke MULTI FUNCTION TOOL WITH ACCESSORY KIT

- Great for sawing, cutting, sanding, polishing, chiselling & much more • 250W motor • Variable speed

PRICE CUT £37.99 EXC.VAT £45.59 INC.VAT WAS £47.98 inc.VAT

CMFT250

Clarke WORK TABLE SUPPORTS (PAIR)

SIMPLY ADD YOUR OWN TOP

- Ideal if you have your own work top or want to build a steel or wood workbench • Inc. mounting holes for worktop, shelf and floor

CWTS1

BEST SELLER

ONLY £29.98 EXC.VAT £35.98 INC.VAT

Clarke 12" DOVETAIL JIG

- Simple, easy to set up & use for producing a variety of joints • Cuts work pieces with a thickness of 8-32mm • Includes a 1/2" comb template guide & holes for bench mounting

CDTJ12

£57.99 EXC.VAT £69.59 INC.VAT

Clarke ROUTER TABLE

CRT-1

Router not included

BEST SELLER

- Converts your router into a stationary router table • Suitable for most routers (up to 155mm dia. Base plate)

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Welcome to...

...the future

I have been at the helm of *F&C* for 10 years I am now moving on to pastures new. It has been a privilege to work and talk with such wonderful craftspeople from around the world. The 20 working day production cycles certainly kept me on my toes and it will be a different pace of life from here on in but just as interesting.

During my time at the magazine we recorded the passing of two of the most influential craftsmen in our field, James Krenov and Alan Peters, both within a month of each other and just a few weeks after I took the job. Though I'm certain these events weren't related they were formative in shaping my knowledge of what was important to the readers of *F&C*. Their work was about as far away as you could imagine from the commercial world I'd been part of previously. I delved into their past and quickly became acquainted with the minutiae of things like back bevels, tool steel, battery life and the East vs West saw conundrum – all of which have made me an insufferable bore at family gatherings on occasion but a better woodworker and much richer in friends than I could ever have imagined. Not quite the win, win, win I was hoping for but two out of three…

The folk left holding the reins from now are seasoned pros in the woodworking field and have an excellent eye for detail and I they know will do all they can to deliver good, safe advice to support you in all your woodworking endeavours. My parting shot is a simple request; support the next iteration of this fine institution.

Thank you for all your help, support and encouragement.

Best wishes,

Derek Jones
derekj@thegmcgroup.com

CONTENTS Issue 288 October 2019

DESIGN & INSPIRATION

Meet chairmaker Charles Brock, visit a 17th-century workshop and plan your next day trip

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PROJECTS & TECHNIQUES

This month's projects include a curved chest of drawers, Louis XV-style furniture legs and the next stage of the Roubo-inspired workbench

YOUR *F&C*

Don't forget there are plenty more articles and discussions to be found on the Woodworkers Institute & Forums
www.woodworkersinstitute.com

Woodworking is an inherently dangerous pursuit. Readers should not attempt the procedures described herein without seeking training and information on the safe use of tools and machines, and all readers should observe current safety legislation.

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Meet the contributors

Kieran Binnie

Kieran's passion for woodwork started when, at the end of law school, he enrolled at the Totnes School of Guitar Making. His focus has since expanded to include furniture making as well as lutherie. He writes a regular blog at www.overthewireless.com.
Web: www.overthewireless.com
Instagram: @overthewireless

Mark Harrell

After a 28-year career with the US Army, Mark retired to Wisconsin and set up Bad Axe Toolworks, where he restores vintage tools and strives to build the best woodworking handsaws around in his (relatively) unplugged workshop.
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Geoffrey is a Chartered Safety Practitioner, Chartered Ergonomics Practitioner and Fellow of the Royal Society for the Protection of Health.

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Web: www.jleko.com

Israel Martin

Israel graduated as a forestry engineer in Madrid in 2000, but he decided to change his career to furniture making. He makes every piece of furniture using hand tools exclusively and also makes tools. Together with other Spanish craftsmen he has been organising the Spanish woodworking event, LIGNORUM, for the past three years.
Web: www.lacabraenlaescalera.com

Richard Wile

Richard lives in Nova Scotia, Canada; he is an accomplished IT professional and has been an amateur woodworker for a lifetime. Using a variety of hand and machine techniques, Richard has crafted many unique furniture pieces, hand tools, turnings, miniatures, and acoustic stringed instruments from his basement workshop.
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Hendrik Varju

Hendrik is a fine furniture designer/craftsman who provides private woodworking instruction and DVD courses. His business, Passion for Wood, is located near Toronto, Canada. Using only the highest quality materials, he uses time-tested joinery techniques to ensure that every piece he makes is of heirloom quality.
Web: www.passionforwood.com

F&C reflects the interests and aspirations of our customers with some of our best articles coming from readers. If you'd like to propose an idea for an article drop me a line at: derekj@thegmcgroup.com

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Curved chest of drawers

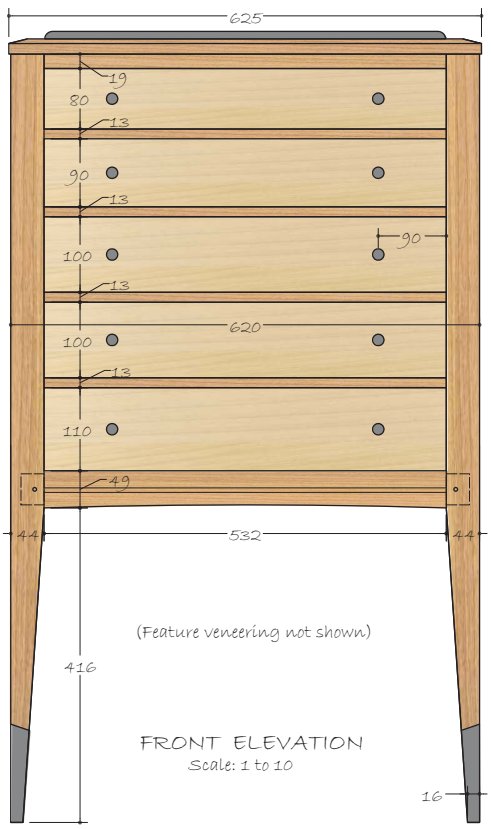
Israel Martin uses hand tools to make this chest of drawers from cherry and figured maple

When designing a piece that will be built exclusively using hand tools, you have to take in to account not just all the joinery or the wood species but also how long it will take to make, and the limitations of the tools. In this case, I wanted to add a slightly curved front to the chest of drawers.

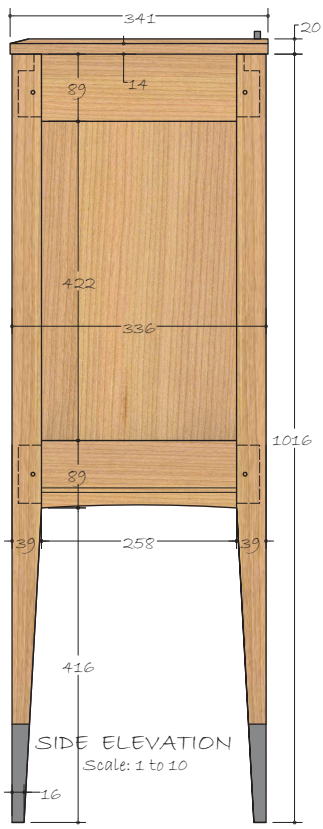
Making the carcass for the chest of drawers was the easiest part. The challenge was how to make the curved drawers. I had different choices, and I chose what I think was the fastest one – shaping the maple bases for the fronts and then adding a thick veneer of figured maple to them. Using a thick veneer allows you to make slight changes in the shape of the finished drawers' fronts. I made two templates for the carcass, one to lay out the curve and one to check the curve, and that was all.

I decided to use cherry for the carcass because it really is a hand-tool friendly wood, very stable for what you normally find in Spain, and also it has been in my shop for a while. I wanted to use a contrasting wood for the drawers, so I've used some figured maple that I got from a tone wood supplier serving the luthiery community, ripped into 4mm thick veneer. I also wanted to add some decorative details and used small ebony and holly squares to make a pattern across the front and side lower aprons. In order to lighten the appearance, I tapered the legs on the inside faces below the aprons and added ebony feet.

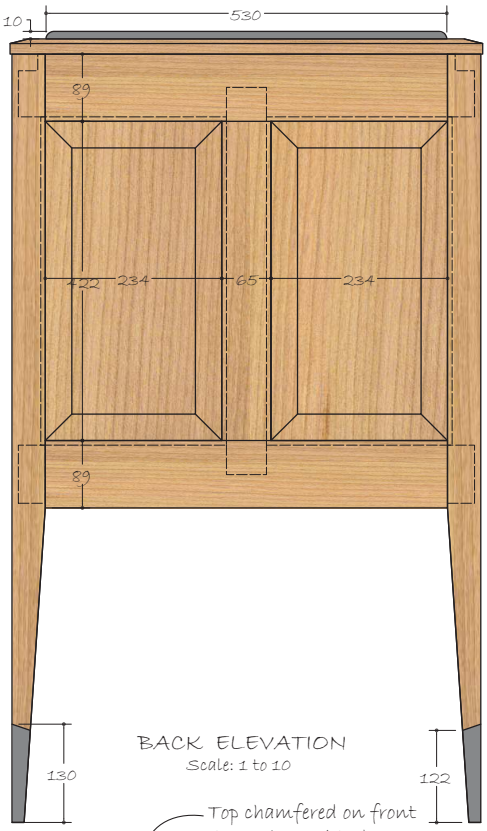
PHOTOGRAPHS BY ISRAEL MARTÍN



FRONT ELEVATION
Scale: 1 to 10



SIDE ELEVATION
Scale: 1 to 10



BACK ELEVATION
Scale: 1 to 10

Making a strong carcass

I think frame and panel carcasses are probably the most stable way to make solid wood furniture. I wanted a strong yet lightweight carcass, so except for the legs most of the pieces are around 16mm thick. I used mitred mortise and tenons to join the legs with the aprons. Then I made twin mortises and tenons to join the drawer dividers with the front legs and then dry fitted the carcass to mark the double dovetails to join the upper front dividers to the legs and upper side aprons. That makes a total of 26 joints in the piece, plus the mortise and tenons I used to join the drawer guides to the front dividers and the half lap joints to join the drawer guides to the back legs. For strength and to improve stability, the side and back aprons are made up from two bookmatched sections of quartersawn material 40mm wide each to achieve the 80mm required. This type of material is often hard to find in Spain. In order to be able to shape the fronts, I left an excess on all the horizontal pieces of the carcass front.

Sawing the legs of the chest of drawers

Working on the mitred mortises

Legs and aprons are jointed

Twin mortises and tenons dry fit

Marking double dovetails

Double dovetails dry fit

Shaping the carcass front

As I said previously, I used two templates. I drew the shape using the first slightly oversized template and used the second final profile template to check the shape as I was working on it, simple! I clamped the four dividers together to shape them all at once with a spokeshave, making it easier to maintain a uniform shape. I used a similar approach to create the front of the lower front apron. To make the groove for the inlays I used a plough plane and a small router plane, given that it was a curved groove.

LEFT: Detail of the blades shape
RIGHT: Shaping the lower front apron

Making curved drawers with figured maple veneer

I first made the drawer fronts base perfectly straight, then marked the curve, and with a panel saw removed the excess material before working it with planes to get a smooth surface for the veneer. After that I adjusted each piece to fit the appropriate opening on the carcass. Then I ripped the veneers from thicker panels with a kerfing plane and frame saw. I then planed the veneers to a uniform thickness and glued them to the existing drawer fronts. They required a little more shaping to match the curve of the carcass and the drawer fronts. The drawers were constructed using half blind dovetails to join the front with the sides and sliding dovetails to join the back and sides. The fronts are recessed slightly from the drawer dividers to disguise any difference between both shapes and counter any movement with the components in the future.

Shaping the maple drawer front base

All the front bases and sides are done

Working with the kerfing plane

Sawing the figured maple veneer

Figured maple veneers ready

Gluing veneer to their cores

All drawers are done and adjusted

Adding ebony and holly inlays

I enjoy adding decorative details to my work and in this case I decided to add a row of ebony and holly squares. After making strips of 6mm square material, it was a simple case of cutting the blocks off to suit and gluing them into the groove slightly proud of the surface for planing off later.

Detail of the ebony and holly squares before planing

Ebony and holly shavings

Glue-up of a complex piece

One of the most challenging aspects of every project is planning the right sequence for the glue-up. I had to separate it into three steps. First the front, but without the upper divider as it has dovetails and joints that connect the legs to the side aprons. Next came the back aprons and legs and finally the most challenging part, joining all the sub-assemblies together with the drawer runners.

Gluing up front and back RIGHT: Detail

An ebony detail on the top

Adding simple details can make a piece look smarter and also add an element of function. I used a curved strip of ebony to create a gallery rail for the back edge of the worktop. I cut a groove into the top and made a long stub mortise on the bottom edge of the ebony rail. Before gluing it in place I applied a coat of shellac on the top. It could be done more easily by just making a wider groove and then just introducing the ebony piece, but I think that creating a shoulder makes for a cleaner joint.

Checking how the ebony detail fits on its groove

Shaping the legs

Adding a taper to your legs is probably one of the simplest things you can do to completely change the appearance of your piece. The legs are 35mm square at this point and taper down to 15mm at the bottom. Working just below the apron line, I mark the taper with a pencil line and then remove the waste material with a panel saw before finishing with planes. When every leg is done, I chamfer the edges to prevent damaging them later.

Planing the bottom of the leg

Chamfering the edges

A sample of the tapered front legs

Ebony socks for the legs

In this case the socks are a trapezoidal shape. Frist of all I made the recess for the ebony socks in the legs, marking it first with a marking gauge and then by using a router plane but leaving a small part at the end to support the tool. That part I removed with my 102 plane later to the gauge marks. A good sequence is to start with the fronts and glue them to the leg, overhanging the width of the leg. Follow up with the sides, again leaving them proud at the back, and finally add the backs. These will need to be fitted between the two side walls. The ebony pieces are a bit thicker than needed to plane them plush at the end with the cherry legs.

Making the recess for the ebony feet

Testing the first ebony strip in its place

Ebony feet detail

News&Events

Contribute to these pages by telling us about matters of interest to furniture makers. Call Anthony Bailey on 01273 477 374 or email anthonyb@thegmcgroup.com

Please accompany information with relevant, hi-res images wherever it is possible

Wood Awards shortlist announced

Twenty structures and 12 products have been nominated for the Wood Awards 2019 shortlist. The shortlisted projects will be showcased at 100% Design, held at Olympia from 18 to 21 September.

The Awards are split into two main categories: Buildings and Furniture & Product; within the latter category, there are awards for Bespoke, Production and Student Designer. The nominees for these awards are:

Bespoke

- The Kissing Benches by Alison Crowther
- Littoral Chances 1&2 cabinets by David Gates
- My Seoul collection by Cristina Zani

Production

- Bench by Ian McChesney
- Latis Chair by Samuel Wilkinson Studio
- Max Table by Max Lamb
- Science Museum Lab Stool by King and Webbon

Student designer

- Bio Iridescent Sequin by Elissa Brunato, Central Saint Martins
- Burnout by Francesco Feltrin, Royal College of Art
- Kent Stick Chair by Matthew Hensby, Building Crafts College
- Iso Cabinets by Jack Bibbings, Building Crafts College
- Udon Stool by Anton Mikkonen, The Sir John Cass School of Art

The winners will be revealed at the annual Wood Awards ceremony at Carpenters' Hall on 19 November.

Contact: The Wood Awards
Web: woodawards.com

Student designer award nominee: the Kent Stick Chair is a contemporary version of the traditional Windsor style. Matthew Hensby produced this chair as part of his degree at the Building Crafts College

PHOTOGRAPHS COURTESY OF THE WOOD AWARDS

Bespoke award nominee: Alison Crowther designed and made the Kissing Benches for the gardens at Glyndebourne, East Sussex. They are made from English oak

Production award nominee: King and Webbon collaborated with the Science Museum to create this stackable stool, made from European beech ply

Construction begins on the Fenland Black Oak Project

Regular readers of *F&C* will remember our feature on the Fenland Black Oak Project in issue 284. This extraordinary project aims to turn a 5000-year-old, over 13 metre-long black oak into a 'table for the nation'.

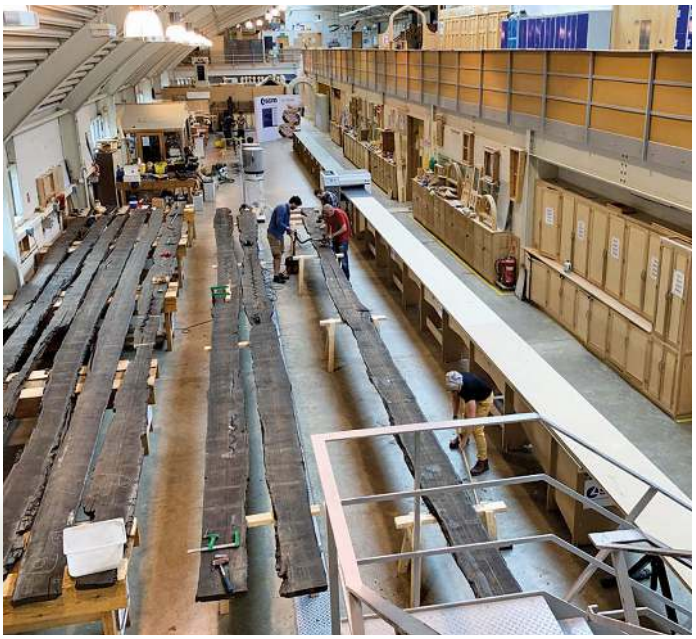
The project's story began in 2012 when a farmer in the Cambridgeshire Fens was ploughing a field and he hit something. This 'something' turned out to be the biggest, finest example of an ancient sub-fossilised black oak ever discovered. This 5000-year-old section of tree trunk had crashed to the ground and buried itself into the peat below when the Fens flooded. Preserved anaerobically, it was perfect for excavation and preservation. Over the following seven years, a team worked to unearth the tree, cut it into 13.2 metre planks, build a kiln and dry the planks – extracting 400 gallons of water.

On 24 July the project moved on to the next phase when 10 of the planks were delivered to the Building Crafts College in Stratford, east London. Here, a team of craftsmen will work on the construction of the table top. Three open workshop events were held at the college so that visitors could experience this remarkable spectacle.

If you would like to help support this project, you can donate at: www.justgiving.com/fenlandblackoak

When it's completed, the table will be displayed at numerous locations around the country, starting out with an 18-month residency in Ely Cathedral.

Contact: The Fenland Black Oak Project
Web: www.thefenlandblackoakproject.co.uk



PHOTOGRAPHS COURTESY OF THE FENLAND BLACK OAK PROJECT

A team of craftsmen are working on the planks at the Building Crafts College

A model of how the finished table will look

New furniture making course at John Lloyd school

The new 16-week Furniture Making course at the John Lloyd Furniture School represents the prefect accelerated learning opportunity for anyone wanting to learn to make exceptional furniture to a professional standard in as short a time as possible.

Suitable for complete novices or enthusiastic amateurs, the course starts with the basic techniques and hand tool skills, but also involves more complicated techniques and working with modern machines like routers, the Domino and the biscuit jointer. Sourcing raw materials, design principles, technical drawing, marketing, estimating and photography are also looked at in some detail. No course would be complete without a project, and making a small but intricate cabinet on a stand will provide the opportunity to put those new skills and techniques into practice.

The 2019 course is full but the school is now taking bookings for August 2020.

Contact: John Lloyd Furniture School
Web: www.johnlloydfinefurniture.co.uk

Events

Information correct at time of publication, check websites before planning your visit

EVENT OF THE MONTH

The London International Woodworking Festival

Held in a brand new purpose-built technical college (London Design & Engineering UTC), the London International Woodworking Festival will deliver a range of demonstrations and seminars from some of the world's most influential craftspeople across a range of disciplines. Over the weekend you'll be able to mingle with the crowds and enjoy a drink and a bite with like-minded folk and take part in one of the drop-in classes. For something a little more in depth and hands-on, you can enrol in one of the premium three- and five-day short classes taught by Chris Schwarz or David Barron in the weeks before and after the festival.

The event is supported by Classic Hand Tools and Axminster Tools & Machinery, and will feature demonstrations from Lie-Nielsen Toolworks, Tormek and Veritas. Yannick Chastang, Israel Martin, Shane Skelton, Vic Tesolin and many more will also be demonstrating their woodworking skills at the event.

When: 26–27 October
Where: London Design & Engineering UTC, 15 University Way, Royal Docks, London E16 2RD
Web: londoniwf.co.uk

LONDON International Woodworking Festival

London Design Festival

This annual festival celebrates and promotes London as the design capital of the world. Events include 100% design, designjunction and the London Design Fair.

When: 14–22 September
Where: Various venues in London
Web: www.londondesignfestival.com

Autumn Long Point

Organised by the Long Eaton Guild, the Autumn Long Point event will feature 20 showrooms displaying the Guild members' latest collections.

When: 23–25 September
Where: Various locations in Long Eaton, Derbyshire
Web: www.longeatonguild.co.uk

The Toolshow

The top brands will be presenting their newest ranges at The Toolshow, there will also be plenty of demonstrations and masterclasses from Record Power, Festool, DeWalt and more.

When: 4–6 October
Where: Kempton Park Racecourse, Staines Rd E, Shepperton, Sunbury-on-Thames TW16 5AQ
Web: www.thetoolshow.com

Decorex International

Decorex celebrates the people who take interior design to the next level. It features international brands and designers, each presenting their newest collections of exquisite furniture, fabric, lighting, decorative craft, contemporary art and much more.

When: 6–9 October
Where: Olympia London, Hammersmith Road, Hammersmith, London W14 8UX
Web: www.decorex.com

Mid-Century East

Over 55 dealers will be trading at the latest Modern Show, with everything from rare collectable pieces to more functional 20th-century furniture.

When: 13 October
Where: Haggerston School, Weymouth Terrace, London E2 8LS
Web: modernshows.com/shows

High Point Market

The High Point Market is the largest furnishings industry trade show in the world, bringing more than 75,000 people to High Point, North Carolina, every six months.

When: 19–23 October
Where: International Home Furnishings Center, 210 E Commerce Ave, High Point, NC 27260, USA
Web: www.highpointmarket.org

Level 2 Furniture Manufacturer apprenticeship standard at risk without urgent financial support

PHOTOGRAPH COURTESY OF THE FURNITURE MAKERS COMPANY

The Furniture and Interiors Education, Skills and Training Alliance (FIESTA) is urgently appealing to UK furniture manufacturers to financially support vital work needed to renew the level 2 Furniture Manufacturer Apprenticeship Standard.

The current level 2 standard is the mainstay of apprenticeship training for the UK furnishing industry with around 1000 apprentices having been trained through the 10 pathways since its launch in 2016.

The Institute for Apprenticeships and Technical Education (IFATE), the controlling authority on apprenticeship standards, has said that the current Furniture Manufacturer standard must be reviewed before the end of 2019 as it does not meet its new guidelines.

This means that the existing single standard with pathways must be replaced by separate standards for each specialist occupation if government-funded skills training is to be maintained.

Based on demand for the existing apprenticeship standard, FIESTA is proposing to rationalise the current standard, phasing out five pathways and creating four new level 2 furniture standards that will meet the new criteria laid down by IFATE:

- Fitted Furniture Installer
- Furniture Manufacturer
- Modern Upholsterer
- Wood Machinist (incorporating Furniture CNC Specialist)

The approximate cost of creating the original standard was around £90,000, but the cost of deriving the four new standards is £5000 each.

FIESTA is calling for manufacturers to contribute towards the cost to develop the standards. The organisation is asking for a minimum of £250 from a manufacturer but would like larger businesses to consider inputting greater amounts.

Gary Baker, chairman of FIESTA, said: 'This represents a significant allocation of resource and FIESTA is asking for industry support to make sure that these new standards can be developed before the deadline at the end of 2019.

'The occupations of fitted furniture installers, cabinetmakers, modern upholsterers and wood machinists will be impacted most without a replacement, because employers will no longer have access to funded apprenticeship training, which would inevitably increase the skills gap in the furniture sector.'

If manufacturers are able to support this initiative and want to get involved in the working groups, they should contact Jeremy Stein by calling 01494 896790 or by emailing Jeremy@thebcfa.com.

For more information about FIESTA, go to www.fiestalearning.com

Educate, nurture and reward

The Bespoke Guild Mark is more than Britain's ultimate accolade for designer-makers, it's an institution. Derek Jones meets the judging panel behind the award and explains why you should get to know them

However romantic the initial appeal, the reality for many a designer-maker is to toil away in isolation, bereft of conversation and constructive discourse a lot of the time. As well as a creative space the workshop can also be a lonely place. For many perhaps that's the point; a refuge from the torture of a nonsensical commercial existence. Solace for the sake of it though can have the effect of propagating mediocre ideas or worse still, a complete stagnation of fresh ones. It's been fashionable for centuries for designers to write about the whys and wherefores of a creative existence with John Ruskin (1819–1900) and William Morris (1834–96) being the most widely read. In the world of furniture making, George Nakashima, James Krenov and more recently Peter Korn have all thrown their hat into the ring in an attempt to dissect what really doesn't need explaining to anyone that's ever started with a blank page and ended up with a rocking chair. That said, I've never met anyone that's read their books who hasn't understood or directly related to their message. Not surprising I guess when the authors' target audience are practically leaning against an open door into a utopian state of sharp tools, tight joints, clear benches and an endless supply of clamps. Masterpieces such as those produced by nature are quite capable of speaking to us; we respond to their ingenuity, evaluate their beauty and live in awe of the relationship they have with their natural surroundings. The built environment, by definition, has to work a lot harder to fit in quite as gracefully, a transition made all the easier via the medium of wise council. Having your work reviewed by a panel of peers is perhaps the fastest way of improving one's knowledge. It's also the most courageous as they will often tell you what your friends and customers won't.

A new standard

Launched 50 years ago, the Bespoke Guild Mark (BGM) is the first and longest running Guild Mark awarded by the Furniture Makers' Company and represents the pinnacle of achievement for a maker in the bespoke furniture industry. Committed to promoting excellence in all aspects of furniture making, the Company are equally passionate about supporting the progression of new ideas. The list of experts that currently make up the judging panel include some of the most gifted designers and makers of the last 30 years with hundreds of years combined service between them, and thousands of hours at the bench. Who better then to ask for a critique of one's work. While the Company don't actually offer that service, submitting a piece of work for a Guild Mark equates to much the same thing. Each application is considered on its own merits and judged on several points to an agreed standard of excellence in categories that include craftsmanship, functionality and integrity of construction. The bar is set high and rightly so for good reason. For the successful applicant it's recognition of outstanding work in all areas. For those not quite hitting the mark it's a chance to get the kind of feedback that could help raise your game forever. And once locked into a mindset of only accepting perfection, it's hard to work to anything less.

Applications can be made at any time of the year so there's no cut-off point or deadline to aim for. Panel meetings are held quarterly where the judges are presented with both written and pictorial content in order to make an initial assessment, which if approved, leads to a physical inspection of the piece by at least two of the judges. Following the inspection the judges will complete a report to present to the panel at the next meeting. Panel members then have the chance to question the inspectors about their findings and ultimately decide if the piece meets all the judging criteria. For unsuccessful applications the comments are noted and fed back to the maker with the intent that it will help future applications. It's worth pointing out that Guild Marks are awarded to the piece and not the maker meaning that it's not only possible but openly encouraged to acquire more than one Guild Mark.

Bespoke Guild Mark

Awarded by The Furniture Makers' Company

Meet the panel

Marc Fish

Marc Fish has been at the cutting edge of furniture making for 20 years. His work has been exhibited internationally and he has permanent galleries in London and New York. Marc founded the international furniture school 'Robinson House Studio' nearly 10 years ago which aims to provide high quality training in contemporary furniture design and making. Marc has twice been awarded the Worshipful Company of Furniture Makers' highest award, the Claxton Stevens Award. Firstly with L'Orchidée, a desk in 2011, and then with Vortex dining table in 2019 (see *F&C* 287). The Claxton Stevens Award is given to the best Guild Mark piece of any given year. He has been a BGM panel member for five years and is the current chairman.

Chris Emmett

After completing an MA in History of Fine Art at Glasgow University, Christopher moved to Japan for 10 years, an experience that has shaped much of his thinking and approach to design. Retraining as a cabinetmaker on his return, first at Rycotewood College and then with Richard Williams, he pursued a career in furniture design and craft. Since 2002 he has worked at the Sir John Cass School of Art, Architecture and Design, the institution that incorporates the former London College of Furniture, and is currently Head of Design, the department that teaches furniture design and craft. He continues a modest output of private commissions alongside the commitment of managing Design at the Cass.

Theo Cook

Theo completed a five-year apprenticeship at Edward Barnsley Workshop and during that time he took a year out to study at the prestigious College of the Redwoods in the USA. After nine years at the Barnsley Workshop he worked at Senior and Carmichael, gaining several awards including Guild Marks from the Worshipful Company of Furniture Makers.

Tim Gosling

In 2005, Tim founded Gosling to design bespoke furniture and interiors in a wide range of materials and stylistic parameters, while continuing his working relationship with yacht, interior and landscape designers and architects worldwide. Since 2013 many Gosling designs can be found on the finest super yachts around the world. Tim is a consummate public speaker and lectures regularly at Design events. Tim also sits on the Super yacht International Design and Innovative Awards panel and the Talk & Lectures committee of The Athenaeum Club, Pall Mall.

Daniel Hopwood

Daniel Hopwood is a past president of the British Institute of Interior Design, a Liveryman of the Furniture Makers' Company and a judge on the BBC's amateur design programme *The Great Interior Design Challenge*. Daniel graduated with a degree in Architecture and is an alumnus of the Prince of Wales Institute of Architecture. He has run his own company 'Studio Hopwood' for the past 26 years based in Marylebone, with both residential and commercial projects in London and the Far East.

Edward Johnson

Edward Johnson trained at Buckinghamshire Chilterns University obtaining a first-class honours degree in Furniture Design & Craftsmanship in 2007. Having set up his business in 2009, he now runs an established workshop and studio designing and making exclusive bespoke and limited-edition furniture for a mixture of private clients, interior designers and architects.

Edward has exhibited his work widely in the UK and has been recognised by The Wood Awards (bespoke furniture category) and has four Bespoke Guild Marks to his name.

Rupert Senior

Rupert Senior (see Moon Cabinet in *F&C* 287) is one of the UK's foremost bespoke furniture designers and makers with over 35 years experience and 16 Guild Marks including the Claxton Stevens Prize in 2018 for the best bespoke guild marked piece for that year. Based out of his design studio in the Surrey Hills, Rupert creates unique furniture driven by a strong artistic idea using outstanding British craftsmanship and materials.

Jeff Serlin

Jeff is a specialist in contract furniture, having spent the past 40 years supplying furniture to Hotels and Restaurants both in the UK and abroad. Originally entering the industry in 1978, he spent a year in the USA learning the ropes from industry giants of the time, Shelby Williams. He then returned to the UK and joined the family business that was one of the first companies to specialise in this area of commercial furniture. Jeff has extensive product knowledge and project experience. He has worked with many UK high street restaurant chains, supplying furniture for their 'Roll-Outs' as well as international 5 Star hotels and luxury cruise ships.

Derek Jones

For regular readers of *F&C* Derek should need no introduction. He became editor of the Guild of Master Craftsmen's flagship publication *Furniture & Cabinetmaking* magazine in 2009 following a career spanning almost three decades in the furniture industry. Having written, read and commissioned more than 1300 articles on the subject he has a unique insight into the world of design and craftsmanship. As well as servicing a small list of private clients from his workshop in Sussex, he teaches cabinetmaking at some the most prestigious facilities in Europe and the USA.

Bog Oak Ripples Chest by Edward Johnson was awarded BGM No.460

For more information on how to apply for a Bespoke Guild Mark contact the BGM office of the Furniture Maker's directly at guildmarks@furnituremakers.org.uk

Design and formation of a Louis XV leg

J. Leko draws and creates legs in this highly shaped French period style; covering both original work and the duplication of an existing piece

As furniture styles go, Queen Anne and Louis Quinze legs appear to share a common visual heritage. With their fair, flowing curves, many woodworkers are reluctant to work in these styles due to their perceived complexity. While the cabriole is a more familiar shape to many, the basic French leg is actually a bit simpler to construct.

Both style legs exhibit a continuous taper when viewed from the 3/4 position (see page 25), but beyond this they diverge. A proper cabriole's visible surfaces gently curve both down and across the leg. Louis XV legs however, feature chamfers, front and rear, that vary in width down their length. Finally, the side faces are concave rather than convex as one might find on a cabriole.

This article provides information applicable to the design and creation of an original leg. It also discusses applications when working with an existing piece

PHOTOGRAPHS BY J. LEKO

Drawing the leg

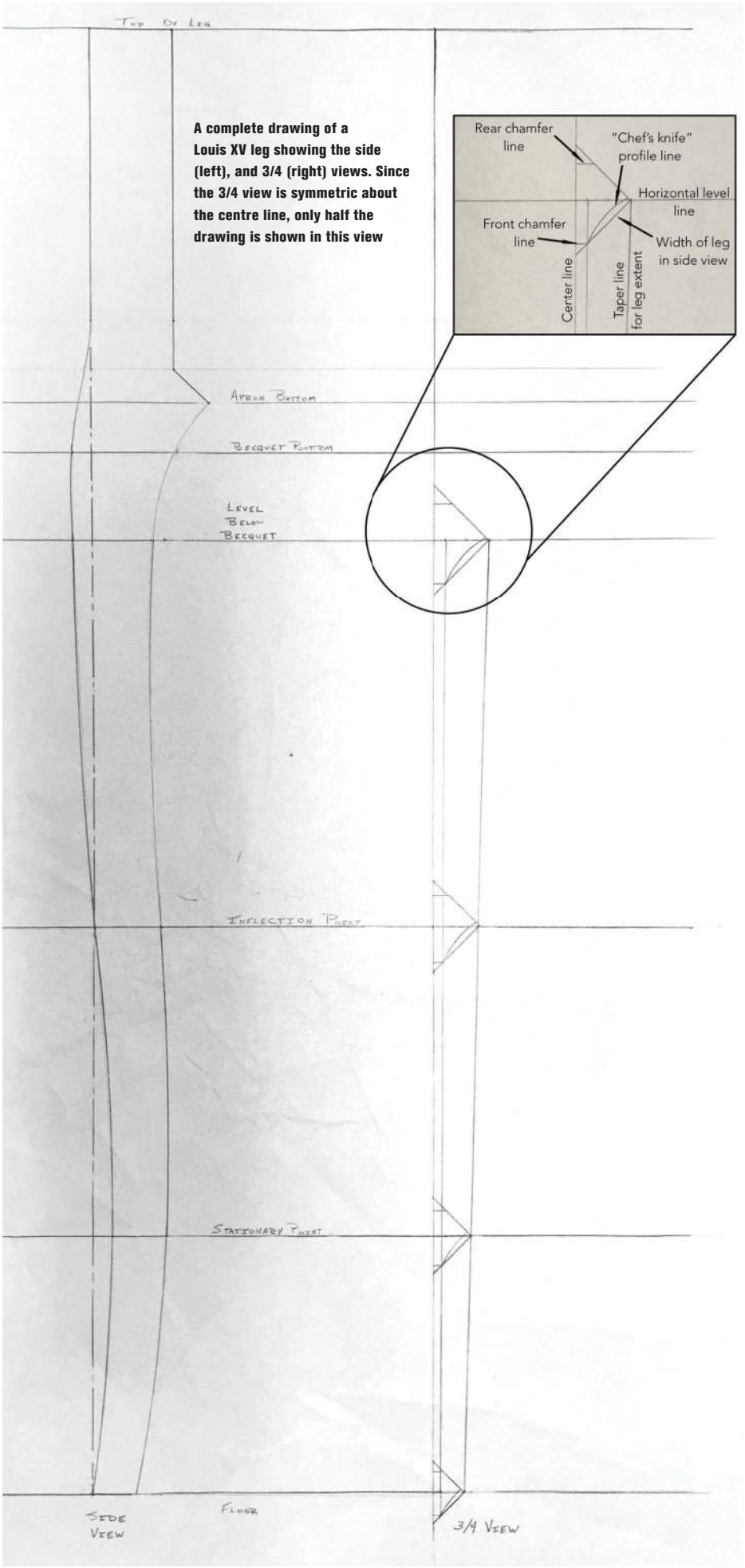
Many makers use templates as their starting point when working in the Queen Anne style. With Louis XV however, these aren't as prevalent.

Drawing the leg gives complete control over all of the elements dictating its final appearance. From a practical standpoint, it provides the template for the leg. I find it easiest to draw at full scale, the actual size of the leg. This way, the completed drawing can be adhered to suitable template stock such as MDF or quality plywood, and any dimensions can be taken directly.

Begin by measuring up from the line representing the floor plane the height of the desired leg and strike a line. We're producing two views, so be certain to sufficiently extend these. From this, draw the apron depth. The becquet (see page 25) is located along the apron bottom where it meets the leg. Typically, the leg begins to taper about 4 to 5cm below this point. So, draw another horizontal line here. For ease of presentation, we'll draw the side view first although this isn't mandatory. You can begin with whichever view makes you comfortable when creating an original (see Reproducing an Existing Piece on page 26). I like to drop a vertical from the front face of the leg/apron to the ground plane in the side view. This guideline locates the front tip of the 'foot' of the leg where it meets the floor. Next, locate the inflection, where the curve of the leg switches from being concave to convex, and stationary, the local minima/maxima, points. Strike horizontal lines across both views at these points. These four points, the level below the becquet, the front most point where the foot contacts the floor, and the inflection and stationary points, constitute the minimum necessary to define the front profile of the leg. Connect them with a smooth, continuously flowing curve. Continue this curve upward to include the point at the top of the leg, and the lowest point on the apron to complete the top of this portion of the view.

There is no requirement that the rear profile be identical to the front. However, here are a few points to consider when drawing it:

- To generate a pleasing design, the curve of the leg where it meets the lower apron should be continuous.
- Also, keep in mind that the thickest portion of the leg should occur at the level just beneath the becquet. The leg



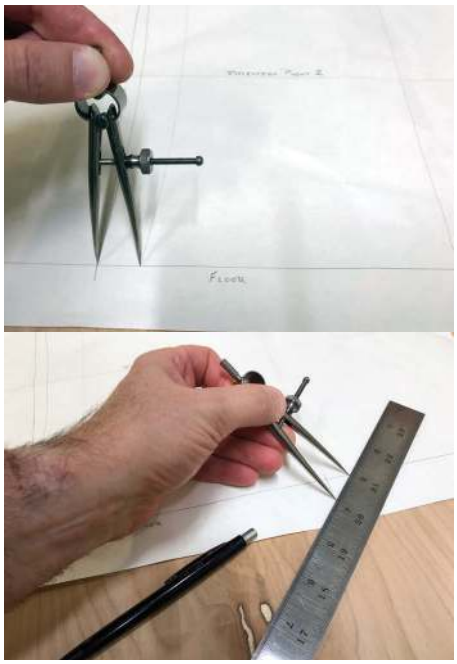
A complete drawing of a Louis XV leg showing the side (left), and 3/4 (right) views. Since the 3/4 view is symmetric about the centre line, only half the drawing is shown in this view

tapers from this point to the floor.
- Finally, you can specify the width of the foot at the floor level.

Considering this, draw the rear curve to complete the side view.

Next, switch perspectives to the 3/4 view. Draw a vertical representing the centre line from the level beneath the becquet to the floor plane. The leg is symmetric about this line, so we only draw half. Use a pair of dividers to transfer the width of the leg at each horizontal level in the side view to a 45° line extended down from that level in the 3/4 view. This line should have terminal points at the centre line, and the horizontal section line (see below). Next, extend another 45° line upward from the intersection on the horizontal to the centreline. This creates a square representing the top view profile which would be visible if the leg were sawn at this level. To establish the taper, connect the ground plane profile at the point where the two 45° lines intersect to the identical point for the profile at the level below the becquet with a straight line.

A leg in this style features facets which flatten the arrises on the front and rear. These can be drawn on the floor plain, and top profiles (below the becquet) proportionate to the scale of the leg at these levels. As above in this view, a straight line connects these points to show the extent of the chamfer on the front of the leg. The addition of the concave faces to either side of the front chamfer are the final details to the drawing. Rather than being symmetric curves, they instead take the shape of the belly of a chef's kitchen knife when viewed from the side. A French curve can be helpful for this.



For each level in the 3/4 view, the leg width at each horizontal in the side view (top) is equal to the diagonal length between the centre line and the horizontal in the 3/4 view (bottom)

Forming the leg

Mill suitable stock such that at least one face, and adjacent side are flat and perpendicular. For situations when the leg will not be veneered, I prefer to use rift or quartered material, orienting it such that the growth rings run diagonally across the end grain of the blank. This leaves a pleasing straight grain pattern down the leg, and a series of concentric circles around the knee. Size the blank square, slightly larger than the thickest section on the drawing. Typically, this occurs in the area near the becquet. While the becquet can be formed from the same blank, it is easier and a more efficient use of material to adhere suitable blocks onto the leg.

Affix the side view from the drawing to template stock such as thin MDF, or quality plywood. Then cut and smooth to your lines. A cabinetmaker's rasp is a great choice here. Carefully align and trace the pattern onto the reference surfaces of the blank such that the rear side abuts a common arris, as is customary in the cabriole process. At this point, layout and excavate for any mortises, while the blank is still square. Cut and smooth the leg to your lines. Make a special effort to keep these surfaces square to one another as this mitigates problems further on. Check your work. At this point, the centre line in the 3/4 view should be straight without deviation. Work the adjacent face to make corrections. Address all imperfections at this stage, otherwise any problems will be compounded.

With the rough leg smooth and fair, lay out for the front and rear chamfers. These are progressive. That is, they become wider/narrower as you move up/down the leg. Use a divider or compass to take the dimensions directly from the 3/4 view drawing, then mark the appropriate positions on the rough leg. Connect these with a smooth pencil line to define the extent of the chamfer. A spokeshave and rasp allow you to quickly and efficiently work to these lines. The chamfers should have a uniform width. They should not be wavy. Check progress frequently as it becomes difficult to compensate for an oversized chamfer.

With the chamfers established, check the side view faces. These need to be a pleasing proportion. If not, adjust the front and rear chamfers accordingly. As mentioned above, the faces adjacent to the front chamfer feature a concavity particularly unique to this style. Begin laying out for these 'knife blade' profiles by pencilling guidelines a couple of millimetres from their rear arrises. When working this area, these disappear, signalling your approach to the edge. I use a Veritas pullshave to rough out the material, but any laterally (as opposed to front-to-back) convex spokeshave will serve. A #4 sweep carving gouge can also be used. Pay special attention to the direction of the grain throughout the process, work from crests to troughs. The idea is to create a smoothly sweeping depression from the arris of the front chamfer to your guideline. Once established, the carving gouge refines these surfaces. Undulations down the length of the leg can be addressed using the rasp aligned in this direction, bridging the high spots in much the same fashion as a jointer plane. Finally, for a solid wood leg, remove the rasp marks with a convex scraper.

Choose rift sawn stock, where the growth rings run diagonal across the end grain of the blank, for legs where the solid wood will show

Carefully align and trace the side view drawing to the reference surfaces of the leg blank. Keep the 'rear' side of the template against the arris of the reference surfaces

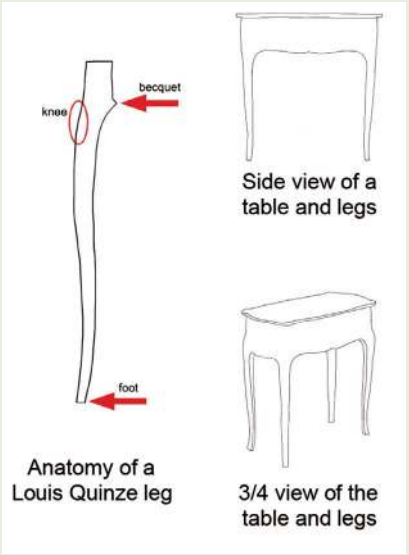
Be certain to lay out and excavate mortises before cutting to your pattern lines

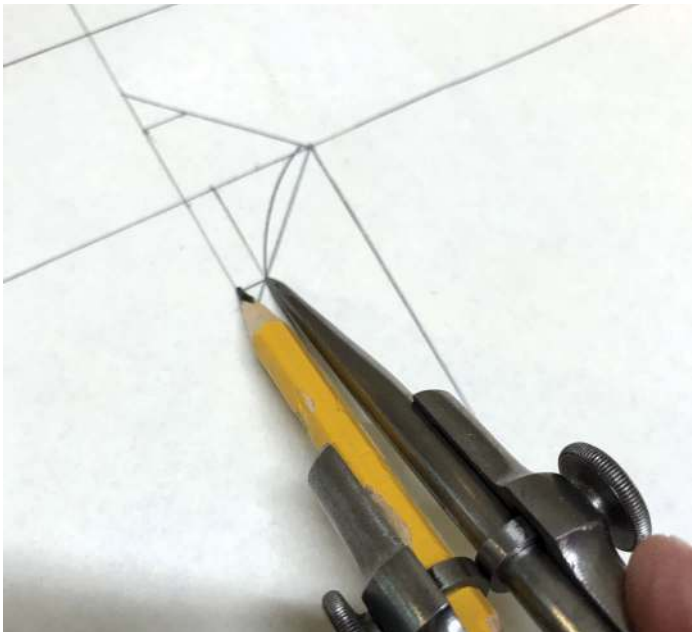
Use a rasp to smooth the blank to your layout lines...

... followed by a scraper

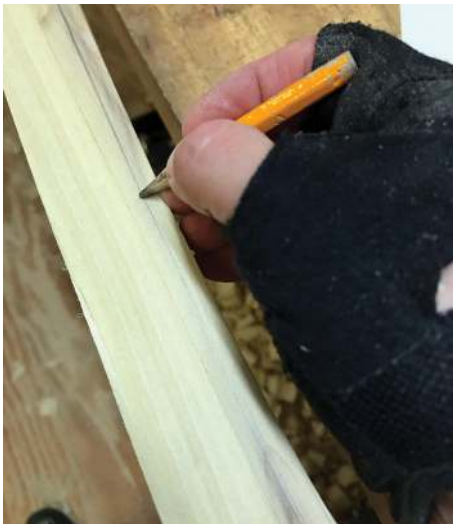
The centre arris should be straight when initial shaping is complete

Glossary



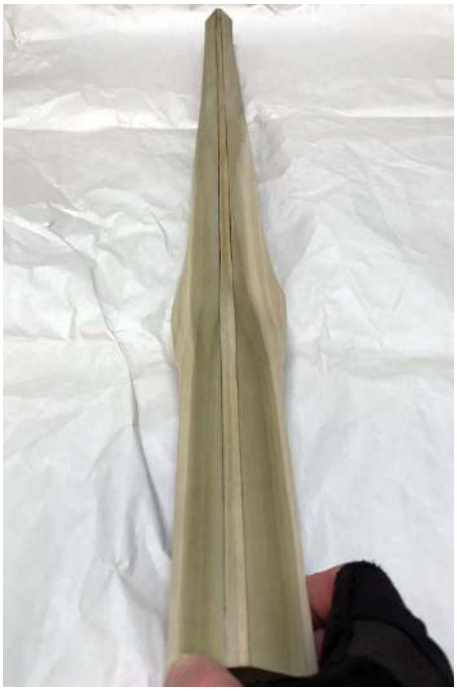


Above and right: marking the chamfer



Connect the dots to draw the width guidelines for the chamfer

Remove material down to these guidelines using a rasp and/or spokeshave



Chamfers should be straight with a uniformly decreasing width down the leg

Pencil layout lines a few centimetres away from the rear arrises on the side faces of the leg. I use a Veritas pullshave to remove material quickly, but any convex sole spokeshave will work

A #4 sweep 25mm wide carving gouge refines the concave profile

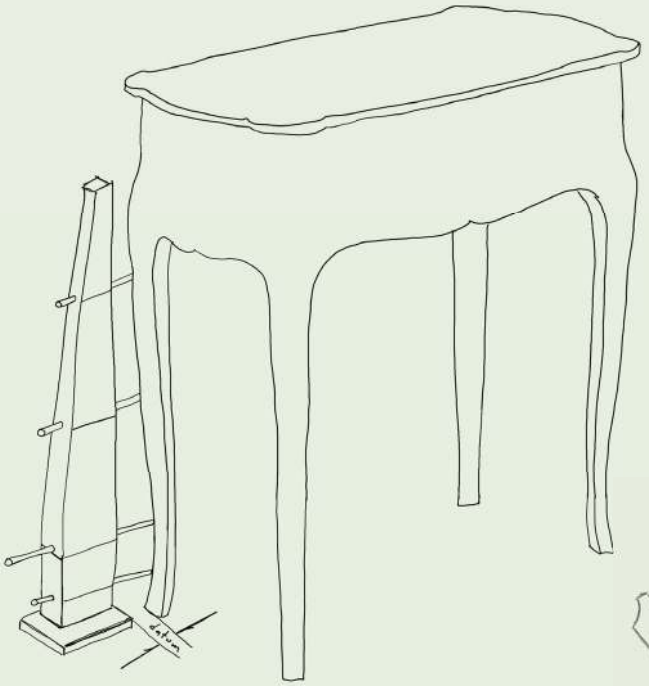
A convex scraper refines the surface

Reproducing an existing piece

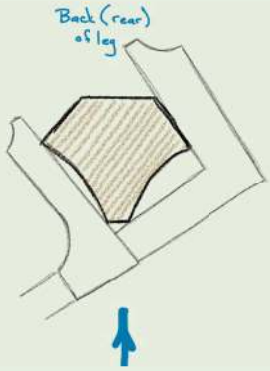
Drawing the legs of an existing piece follows much the same procedure as for an original with the following exception.

Begin by drawing the 3/4 rather than the side view. As before, divide the height of the leg into multiple levels making certain that the previously discussed points are included. Add additional levels to further refine the leg shape. The greater the number of sample points, the closer the reproduction will be to the existing piece. A profile or finger gauge can assist with this process. A purpose-built version has as many fingers as levels desired for the drawing. By specifying a datum, the distance each finger protrudes can be recorded and plotted.

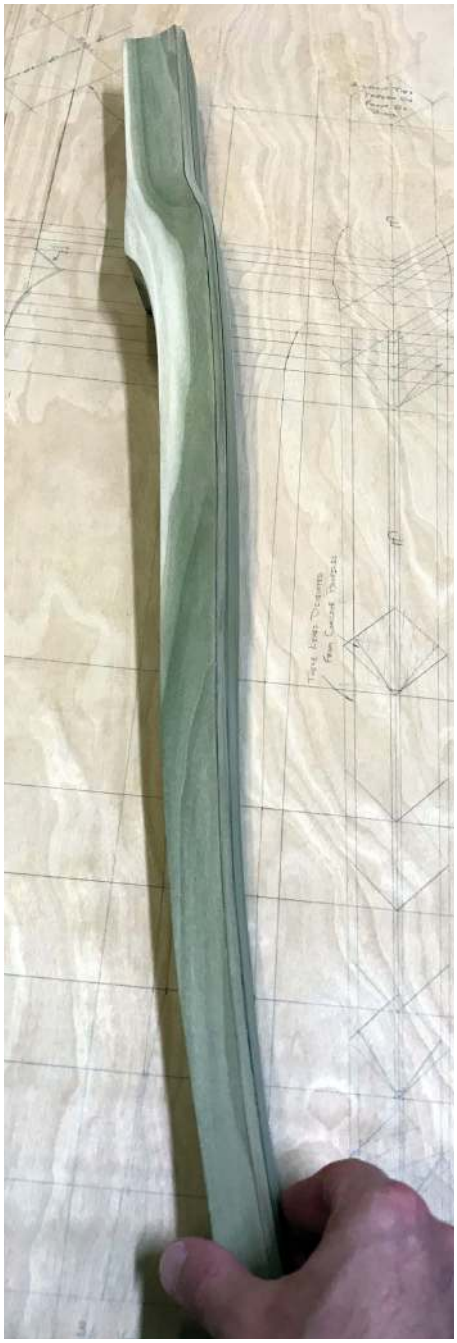
At each level, use a caliper (with masking tape covering its jaws to preserve the subject's finish) to measure the widths of the profile sides, and draw the front and rear chamfers to appropriate dimension. Note: for hand-shaped pieces, expect variation. The concave side faces can be approximated in the drawing with this information.



To accurately reproduce an existing leg, a custom profile jig can be constructed. Each rod captures the measurement of the leg at that level in 3/4 view. Additional levels can be added to refine the profile



Use calipers at each level to measure the leg thickness as shown. This gives the dimension of the leg in side view



A completed leg ready to be veneered

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Saw maintenance

Mark Harrell shows how to make your own saw maintenance and sharpening system

PHOTOGRAPHS BY MICHELLE LABÉ-HARRELL

When it comes to sharpening, retensioning and maintaining your own backsaw, here's a highly effective way you can take matters into your own hands by creating your own saw sharpening vice, sawback mounting, adjustment and removal device, and handle tightening system for less than a hundred pounds. You can complete making the components for this system inside of one afternoon, using inexpensive materials readily available online or at larger DIY stores, and components you probably already have in your own shop.

System concept

Virtually everyone has an old vice in their workshop likely gathering dust. You can quite easily extend its jaws with angle iron and secure within those extended jaws a sawplate for sharpening with two 18in lengths of flat iron. Line all the clamping surfaces with rubberised cork, and you wind up with a vibration-free, and incredibly tight workholding system that allows you not only to sharpen a saw but perform various other backsaw maintenance tasks with ease. When you're done with it, simply stack the components and move them out of the way.

Here's a breakdown of the parts and how these simple tools work together as a system:

When broken down the kit is easily stored

Angle iron jaw extenders:

- Deburr two 18 x 2 x 1½in pieces of angle iron and line them with rubberised cork; you have now extended the jaws of your 4in mechanic's vice into an 18in vice. With this and the sawback lifter we'll cover in the following paragraph you can remove the sawback from a vintage saw and re-mount it to its correctly intended plate-depth under the back after having scrubbed the plate clean.
- You can also use the jaw extenders to tighten a handle gone loose over the wintertime. Just secure your backsaw in place and give the toe end of the sawback a series of taps to make it shift laterally towards the handle. This closes the little airgap between the back wall of the handle's mortise receiving the plate and back assembly and the back edge of the sawback, where wood and metal should just touch – thus fixing in place handles that loosen up over time, or as they so frequently do in the dry air of your workshop during winter.
- Sawback lifter:* Here is a simple prybar you can make to maintain correct spacing between the spine and the inside fold of the traditional folded sawback (or remove the sawback altogether). Simply deburr a 14 x 1½ x ¼in thick bar of flat iron, cut a

Angle iron jaw extenders for your mechanic's vice

2½in kerf along the middle of one end (use a metal-cutting blade with your jigsaw), line both sides at the kerf end with rubberised cork. Now you have a prybar with which to lift the sawback from a saw you've secured with your angle iron jaw extenders.

- Sawbacks on vintage backsaws picked up on eBay and flea markets are also frequently jammed all the way down onto the spine of the plate at the toe end, leading some to believe they had been deliberately canted by the maker back in the day. What actually happened is far more mundane: the owner knocked his saw off the bench (like we all do). The saw bounced on the toe end, did a somersault, chipped one of the horns and lost tension along the toothline thus creating what the owner interprets as a kink (but is simply a loss of clamping tension along the spine – super-easy to fix). The maker (cursing loudly) then tapped the toe end of the back to retension the toothline, and over time crammed it all the way inside the sawback making the plate/back assembly look like a trapezoid. The sawback lifter fixes all of that, and will become a heavily relied-upon tool in your workshop as you dive ever deeper into backsaw restoration and maintenance.

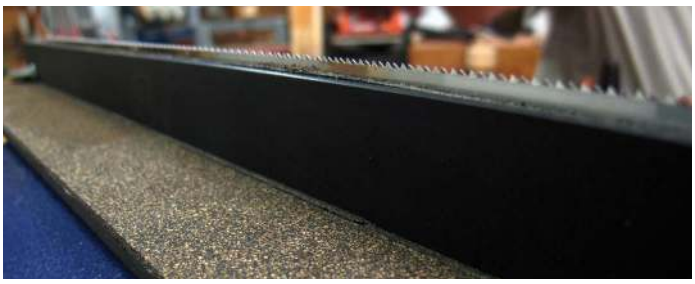
***Disclaimer:** Using the sawback lifter for retensioning purposes will only work with vintage saws and current sawmakers who employ the traditional folded sawback. Do not attempt to lift the back from static-backed saws made from the mid-1990s on, which are permanently affixed to the sawplate with epoxy and/or pins, and not intended for adjustment or removal. You'll ruin the saw otherwise.

Flat iron sharpening vice

Here we have two 18in long x 2in wide x ⅛in thick pieces of flat iron – again deburred and lined with rubberised cork, with which you can sandwich a sawplate in place with about ⅛in of exposed teeth and gullets just over the top. Clamp the ends to hold it together as a unit, then insert the assembly in-between the angle iron jaw extenders explained above and cinch the works tight with your mechanic's vice. Now you have a rigid, rock-solid and vibration-free sharpening solution. For smaller saws, you can simply put the unit in a woodworking face vice to fix it in place. It's super-easy sharpening both sides of your toothline: just flip the unit around in your angle iron or woodworking face vice with no careful readjustments required like you normally have to make with a standalone saw vice. Though set-up takes longer than a standalone saw vice, you'll come to prize the vibration-free aspect of sharpening which also adds life to your saw files (which tend to degrade faster with vibration during the sharpening process).

Gently tap the folded back towards the handle to close up any gaps

Apply rubberised cork to one end of the prybar



Clamp the saw plate into the flat iron plates and mount into the angle iron jaws

Sourcing the parts

Finding the parts for your saw sharpening and maintenance system are inexpensive and some of which you may already have at home. The one major item you'll need outside of this system is some sort of vice – which is again, something you most likely have in your shop already. If not, then pick something up at a flea market or secondhand store with 3-4in of throat depth. You'll also find quite nice vices with 6in jaws by Yost or Wilton for less than £200 on Amazon, some of which come with a modest yet very useful anvil – something you'll find many other uses for in your shop if you don't have something like it already. Finally, there are fabulous woodworking vices made by Benchcrafted (such as their new Hi-Vise), or a Moxon-style dovetailing vice which are also great solutions for cinching your saw maintenance and sharpening system in place. The bottom line? You really do not need a standalone, dedicated saw sharpening vice like one of the Acmes we use at the Bad Axe shop, which occupies a serious amount of real estate. Let's face it: most of our workshops are carved out of dedicated space in a basement or garage, where every square inch counts.

Components list

- 36 x 2 x 1½ x 3⁄16in angle iron
- 36 x 2 x ⅛in flat iron
- 14 x 1½ x ¼in flat iron
- 1⁄16in thick sheet of rubberised cork (with adhesive backing)
- 2 ea 1in C-clamps

All parts listed above can be obtained online through McMaster-Carr. Alternatively, any home store will carry the metal components and clamps, and most auto parts store will carry the rubberised cork.

Tools and Supplies

- Jigsaw with metal cutting blade.
- Drill with ¼in metal cutting drill bit.
- Craft knife
- Mill file
- Chainsaw file or Dremel with conical grinding stone.
- Your choice of spray adhesive: 3M, Loctite or Gorilla Glue works best with rubber-cork sourced without adhesive backing.
- Emery cloth
- Plastic sheeting (like cut up grocery bags or drop-cloth plastic).
- Surgical gloves
- Gun-Blue. Blue-Wonder is my favourite – it's what we use at the Bad Axe workshop for touching-up our black-oxide finishes. You can source it online at Brownell's or Blue-Wonder's webpage at shop.bluewonder.us/. Alternatively, you may simply spray-paint the colour of your choice onto the metal components.

Tool-making process

Safety first! Use appropriate eye protection and gloves when cutting metal and ensure your work area is well-ventilated.

Jaw extenders

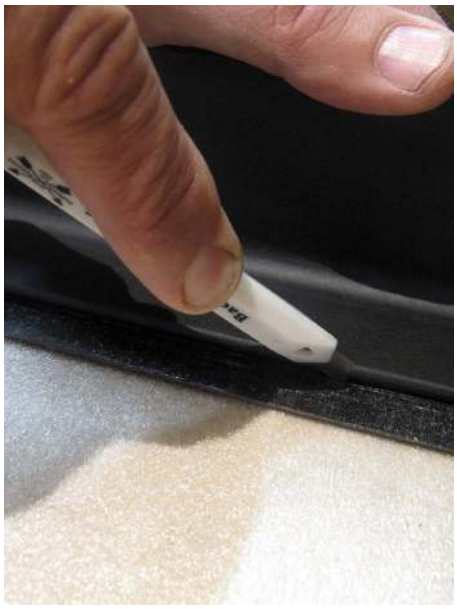
Using your jigsaw with metal cutting blade, cut a 36in piece of angle iron in half, making two 18in long pieces. Use a mill file to deburr all metal edges. Scrub all metal surfaces thoroughly with emery cloth, followed by coarse then medium sandpaper; go as fine as you want. The intent here is to ensure you strip the works down to bare metal. Put on some surgical gloves (or anything that will keep your fingerprints off the metal) and degrease the metal thoroughly with alcohol until your metal wipes clean. Apply the gun-blue or paint treatment of your choice. Allow to cure for 24 hours.

Fit your jigsaw with a metal blade

Adhere cork-rubber onto the jaw extenders

Wipe down the painted or gun-blued surface again with alcohol to thoroughly de-grease any remaining residue. Apply the cork-rubber to the angle iron, completely covering the top surfaces and inside surfaces as shown. Cork-rubber with an adhesive strip surface is fast and convenient, but I've also found 3M 90 spray adhesive to be highly effective for non-adhesive cork-rubber. My technique is to expose the surface(s) I want to adhere and mask everything else off from possible contact. Spray both cork/rubber and metal mating surfaces with a generous coat. Wait 60-90 seconds for it to start getting tacky, then lay the angle iron adhesive face down on the cork-rubber; press down for 60 seconds, then trace out the cut with your craft knife. Carefully tug the cut away from your bonded materials and examine all edges to ensure they are securely mated, adjusting where required. Set the first piece aside and repeat for the second piece. Secure both pieces into your shop vice, but before clamping them together, place a sheet of plastic between the two cork-rubber linings which will be facing one another – you don't want the adhesive to seep through and

Press the edges of the rubberised cork tightly together



Trim away the waste with a craft knife

lock up your two angle iron pieces. Even out the two angle iron jaw extenders in your vice and firmly clamp them together. Use c-clamps to tighten the ends. Feel free to use additional clamps across the length of your jaw extenders. Allow to cure overnight. Upon removing the clamps, you'll find blobs of adhesive and excess cork-rubber along the edges. Use your craft knife to trim away the excess. Ensure you run the sharp edge from the cork-rubber side towards the metal to ensure a clean trim.

Saw vice

Cut the 36in long flat iron piece in half, making two 18in pieces. Use the mill file to deburr all metal edges. Sight down each piece – you'll find that there is a very slight concave side and a convex side. Repeat the same procedure listed above to scour your metal clean, blue or paint it, and adhere cork-rubber to the two pieces on the concave sides.

Sawback lifter

Cut a 14in length from your 24in flat iron piece for the sawback lifter. Put the remainder aside for future use. Kerf one end on-centre for 2½in with your jigsaw equipped with metal-cutting blade. Use an emery cloth to sand out the rough edges inside the kerf. Drill a ¼in hang hole on the opposite end ¾in down and on-centre. Use a chainsaw file or your Dremel to deburr the rough edges. Repeat the same steps listed in previous paragraphs to scour your metal clean, blue or paint it. Adhere cork-rubber to both sides of the kerfed area for at least 6in from the kerfed end. Use your craft knife to clear away the kerf and trim all metal edges.

Use a craft knife to open up a slot in the prybar

Put your system to work

I prefer to lift the sawback completely off when restoring a backsaw, scrub off the rust and grime lines on the plate, sharpen the teeth, then re-mount the sawback forwards and high on the plate. Then I tap the back down and back towards the mounted handle, such that I achieve positive contact between wood and metal along the floor and back wall of the mortise receiving the plate/back assembly. At some point along the way before mounting the handle I treat the wood, de-gunk and gently polish the fasteners, and make any repairs to chipped horns and cracked cheeks before reassembling the saw.

Following are the disassembly, sharpening and reassembly steps in sequence:

1. Peel off the sawback

Remove the handle and clamp the plate/back assembly in the jaw extenders, leaving ½in clearance at the toe with the heel making positive contact on the surface of the jaw extenders

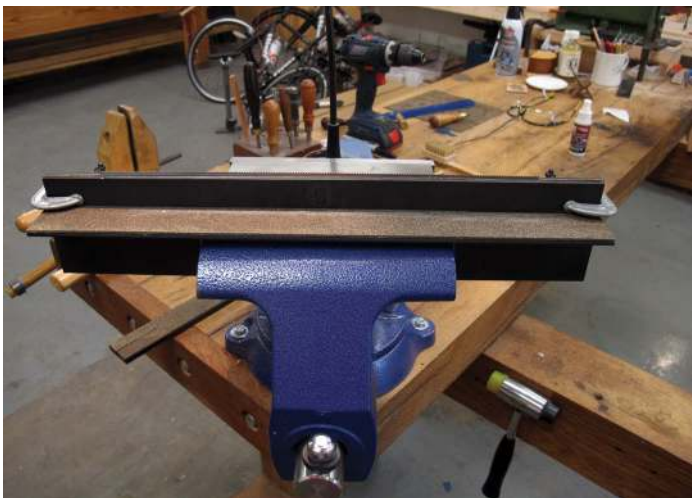
Slide your sawback lifter underneath the toe end as far as it will go. Then lift upwards. Do NOT fulcrum the lifter down, or else you'll gouge the underside of the sawback

2. Mount your plate into the flat iron vice

Once you've peeled off your sawback, remove the plate from the jaw extenders and lay it (teeth up) on one of the saw vice pieces with ⅛in to 3/16in of the toothline exposed...

...then sandwich the plate with the other half of the vice; secure both ends and inch-down with c-clamps

3.Mount the sharpening vice into the jaw extenders and file your toothline



Insert the vice/plate assembly into the jaw extenders, joint your toothline...

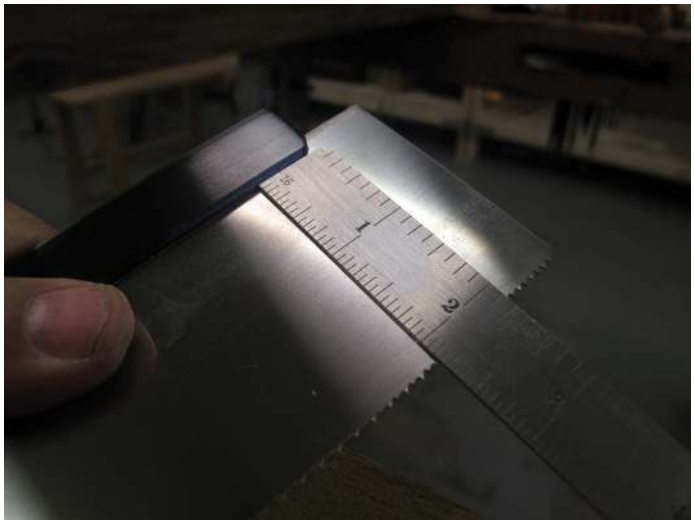
...and sharpen your saw

4. After sharpening, re-mount your sawback onto the spine of the plate

Flip the plate spine up into the jaw extenders and lubricate the exposed ¼in of spine with some canning wax. Tap the toe end of the sawback onto the lead corner of the plate

Tap the sawback onto the spine of your plate with a stout mallet and begin rotating the sawback down, tapping as you go to get the sawback to grab

5. Tap to desired plate depth below the back using a light mallet and a ruler



Frequently check plate depth adjustment with a ruler in between taps to creep up on desired plate depth

6. Re-mount the handle

Screw on the handle, mount saw into the jaw extenders and tap sawback towards the back wall of the mortise

You'll be able to keep your saws in top condition with your new maintenance system

At the end of the day, you will have constructed a simple and highly versatile saw maintenance and sharpening system without breaking the bank. Unlike a dedicated saw vice occupying valuable real estate in your shop, this system folds up into a neat little stack when not in use and can be moved out of the way onto a shelf.

And this simple and easy-to-make saw maintenance and sharpening system is a great afternoon project anyone can construct that will prove its use time and again, whether tightening your handle, restoring an old saw back to factory settings, or giving your sawplate a vibration-free sharpening.

Meet Charles Brock – The Rock'n Chairman

Richard Wile introduces us to the man behind The Highland Woodworker

Many of the people we encounter in our craft have dedicated their lives to teaching woodworking to others. Many of them start by working in the trade and learning the craft, and then making a career shift to teaching others the skills that have been acquired from decades of toil with wood.

The subject of this month's feature took an alternative approach, a man who started out his work life as a school teacher. Naturally, it would be just a matter of time before he was passing on a lifelong experience with woodworking to others through teaching. Charles Brock from Georgia in the United States taught in the public school system for over three decades, while making furniture for friends and family. Eventually in 1979 he began to accept commission work for all types of furniture; reproduction and contemporary tables, chairs, beds and chests.

Charles, or Chuck, as he prefers to be called, today works from his new studio and workshop near Nashville, Tennessee; working almost exclusively in the sculptured furniture genre specialising in a number of pieces initially inspired by the late great Sam Maloof. While being Maloof-inspired in styling, Chuck has developed his own approach to the joinery and shaping of this unique style of furniture. As woodworkers we have all taken inspiration from the greats of the past, the Shakers, Thomas Chippendale, Thomas Sheraton, Gustav Stickley or Greene and Greene, to name just a few; however, the pieces we create have our unique twist or styling that makes it our own. Chuck has clearly developed his own design language and approach to his work that makes him the Rock'n Chairman. Upon close examination of Chuck's work, the Maloof influence is clear, however some elements are clearly Danish; Hans Wegner specifically, as well as the unique hollows, lines and edges that make Brock's work unique; an evolution in fact of this classic design. Forever the teacher, and in an attempt to make his projects more accessible to students, Chuck has modified the design by shaving the curves of the rocker in key places to allow makers to use 8/4 lumber to make the chair, negating the need for 10/4 lumber that may be hard to get in some parts of the world. Indeed, Chuck's plans, videos and patterns have sold throughout the world over the past 10 years, with many thousand craftspeople building his designs, he feels quite blessed to help this many woodworkers. Chuck is currently updating his teaching tools to reflect 2019 tools and methods as well as moving to a streaming platform increasing the reach of his teachings.

Chuck is also the host of a free online video series sponsored by Highland Woodworking in Atlanta, Georgia, called

PHOTOGRAPHS BY ANNA ZAREI

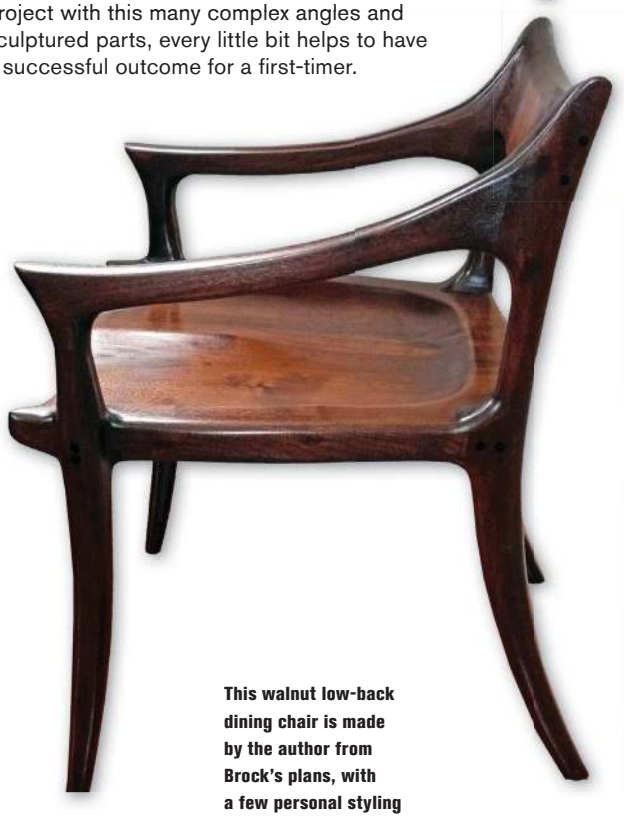
'The Highland Woodworker', a show where he interviews in his own casual style, woodworkers from all genres and skill levels, all with the objective of furthering the craft.

Over the years Chuck has taught hundreds of students from all walks of life how to make sculptured furniture, starting in the early days teaching at Highland Woodworking in Atlanta or in his home workshop. Several years ago I attended a couple of Chuck's classes at Woodworking in America (WIA), which I found inspirational, and I purchased a set of Chuck's plans for the low-back dining chair and table. This was the first time I had met Chuck and you are immediately struck by the fact that he is the quintessential southern gentleman; extremely polite, soft spoken and able to put anyone quickly at ease. As with most woodworking plans I buy; I modified it to my own taste and found it a very straight-forward build due to Chuck's great written and video instruction, as well as patterns to precut all the pieces. I have tried the DVDs and plans from most of the others teaching sculptured furniture projects, all of which make this intimidating genre achievable for most intermediate woodworkers.

In my research, I found Chuck had an interesting perspective on the use of walnut in his furniture generally and for teaching specifically. Yes, walnut has tremendous visual interest and variety of colour making it a popular choice for many woodworkers in some of their finer pieces. However, Chuck has found that one of its physical attributes aids the teaching process tremendously; walnut is a bit more flexible than some of the other hardwood choices such as cherry or maple. He has found that this flexibility has helped his students get that crest rail joint to close up just that much easier. In a project with this many complex angles and sculptured parts, every little bit helps to have a successful outcome for a first-timer.

PHOTOGRAPHS BY RICHARD WILE

This pair of chairs has been glued and rough-shaped. Now comes the sculpturing which gives this style of furniture its unique aesthetic



PHOTOGRAPHS BY RICHARD WILE

This walnut low-back dining chair is made by the author from Brock's plans, with a few personal styling changes to boot

PHOTOGRAPHS BY ANNA ZAREI

Building sculptured furniture requires many hours at the bench with hand tools to fine-tune the joinery to ensure the joint line disappears when assembled

The other interesting factoid that I came across was Chuck's emphasis on material selection as part of the build process, as well as the time allocation for the project's budget. We have all seen those projects where it is obvious the builder has not chosen wisely in the use of material with bad grain or colour matches; in a sculptured piece errors in stock selection are magnified and remain exposed for all to see, potentially ruining a project that takes over 100 hours to build. Indeed Chuck budgets time for a trip to the lumberyard and several hours of stock selection into every commissioned build. In my own experience, it took me several trips to the lumberyard going through many flitches of cherry to find material that was just right for a matching pair of sculptured rockers for my sons. Indeed, paying attention to how the grain flows out of the rocker's arms ensures a flowing appearance in the finished chair. I think this approach applies to all our woodworking where the final project is visualised in the rough material to achieve the best final result in our work – a valuable lesson.

Charles Brock, a teacher to the core, is most proud of his work when he helps others to be successful. While he was attending a recent juried woodworking show, both the winner of the pro and amateur categories used Chuck's design to build their creations. A true example of pride in a man who is most happy when he helps 'all boats rise', from his helping tide of teaching.

Today Chuck teaches regularly to sold-out classes a few times a year, but realistically for the moderately skilled woodworker the DVD and plans will provide all the details one needs to build a quality example of this stylish furniture. Like me, building a sculptured rocker was on my woodworking bucket list, I encourage you to make the leap, buy the plans or take a class from a contemporary master, I am certain you will not be disappointed. In much of my research for this piece, various authors have suggested that sculptured furniture is the most difficult to build. While I am not sure I agree with their assessment, following along with one of the masters such as Charles Brock teaching the nuances of this genre, brings it within reach of most intermediate woodworkers. If you decide to try this out, I promise you that making one will not be enough!

The view of the rear shows the coopered seat and the tight joinery providing the strength of this heirloom piece

Island Stool

Charles has also developed a unique sculptured stool, he has called it the Island Stool, which has been created as a gateway project for beginners to get into the craft of building sculptured furniture. It incorporates all the challenges of the joinery, saddling the seat, and carving one will find in a rocker, breaking down some of the barriers for the first-timer. In my own experience, I found it helpful to build a simple project like the Island Stool to develop confidence in this unique genre. The precision necessary for the joinery is very demanding and my own experience shows it helps to learn on a smaller piece initially. For those not familiar with chair-making, seat carving presents its own challenges, Chuck's instruction makes this feel like a breeze. Having made several rockers and other sculptured furniture pieces, experience is the best and only way to build confidence in taking on a rocker project that utilises £600 worth of material to build. I think the stool or a similar project is the ideal place to start.

The original design of the Island Stool incorporates all the important aspects of sculptured furniture construction in a compact gateway project for the newcomer to this genre

PHOTOGRAPHS BY ANNA ZARE

A student using Brock's templates to cut that signature profile on the front of the seat – giving the rocker its smiling face

PHOTOGRAPHS BY ALEJANDRO AURRECOECHEA

If you are looking to venture into sculptured furniture realm you can visit Charles at charlesbrockchairmaker.com/home/ and Dictum in Germany sells his rocker pattern set.

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In the 17th-century workshop

In an extract from *Joiner's Work*, Peter Follansbee dresses stock the traditional way

PHOTOGRAPHS COURTESY OF LOST ART PRESS

Forget what you think you know about 17th-century New England furniture. It's neither dark nor boring. Instead, it's a riot of geometric carvings and bright colours – all built upon simple constructions that use rabbets, nails and mortise-and-tenon joints. Peter Follansbee has spent his adult life researching this beguiling time period to understand the simple tools and straightforward processes used to build the historical pieces featured in this book.

After splitting and riving stock down to the required general sizes and shape, in this extract Peter now begins dressing the stock with planes.

The workbench

First, let's look at the workbench. Mine is loosely based on 17th-century text and engravings, with some substitutions here and there. It has a 4in-thick white pine top that is 17in wide and about 8ft long. The frame is oak, mortised and tenoned together. On the long stretchers, I used wedged through-tenons, thinking some day I might want to knock the bench apart for moving. The tops of the legs fit into blind straight mortises in the underside of the benchtop – I didn't use the French dovetail/tenon combo. It's dead simple.

The 17in plank makes a narrow benchtop that is fine for planing and cutting joinery, but for assembly, I wanted to increase the bench's depth. I added a thinner (1in thick) oak board

Once this bench was built, I almost never thought about it again. I don't look at the joinery, there's no finish applied to the bench and I rarely, if ever, re-flatten the top. Scars, dings, whacks and bangs – it's a workbench. I work at it

butted up to the pine benchtop. Together, the thick and thin top amount to about 24in of depth; I had to finagle some funny framing to support the thinner bench board. It mostly amounted to adding some blocking above the short aprons in the frame. I got the idea of using a thinner board to extend the bench's width by studying the description of the Dominy bench at the Winterthur Museum, found in the book *With Hammer in Hand* by Charles Hummel. I didn't have any more 4in-thick stock to make up a wider benchtop, but don't need that thickness at the back edge of the workbench, anyway. Good enough for the Dominys is good enough for me.

The front legs' faces are flush with the front edge of the benchtop. This is unlike the benches shown by Joseph Moxon, Randle Holme and Hieronymus Wierix, which show a shadow where the top overhangs the framing of the base. But I cared not. I wanted to be able to easily grab workpieces with a holdfast against the bench's front edge. So there are holes bored in the front legs, and I added a sliding deadman. At first, I thought this was not a period fixture. But it turns out that the workbench on the 1628 Swedish ship the *Vasa* has a sliding deadman, so it can be period-correct, but not necessarily English. In practice, I rarely use it, but once in a while it comes in handy.

I fitted a toothed iron bench hook into a wooden block and drove it in a square mortise chopped in the bench. This is the planing stop. There is no vice. When I stand at the bench, at my left-hand end is a wooden screw fitted into a notched oak attachment. This device is straight out of Moxon and Holme's writings, where it is called a 'bench screw'.

Supposedly it is for pinching your workpiece against the bench for planing the edge of the stock. It's another device I don't often use – mostly just when planing the edges of very wide stock such as chest lids. But though it sees little use, I am glad it's there when I need it.

To support the thinner oak board that extends the benchtop, I needed to add some blocking on top of the short aprons. The blocking just friction-fits on top of the apron and nestles in a notch in the rear post. The thin top gets pegged down to the blocking

The title page of the Wierix brothers' *Life of the Infant*, showing the bench and tools

The iron toothed planing stop fitted in a wooden block driven through a mortise in the bench. Simple as can be. Jennie Alexander called this a 'toothy critter', which is descriptive enough. You can see the 'single bench screw' fixed to the front edge of the bench as well

A long rail for a chest is pinned against the bench's front edge by the bench screw mentioned in both Moxon and Holme

I have two holdfasts I use regularly; mine have a long, low arm that reaches across to grab the workpiece. A wooden bench hook for sawing, making pins and other tasks is another fitting that I wasn't sure was period-correct. The *Vasa* to the rescue again – Roald Renmælmo, a researcher/scholar/craftsman from Scandinavia, showed me a photo of one that he studied at the Vasa Museum in Stockholm. Some wooden fixtures that are a cross between a clamp and a vice further expand the bench paraphernalia. These bench accessories have received a lot of attention in recent years; they are now frequently called a 'Moxon vice'. I have two sizes, but even my large one is smaller than most that are breeding in the wild these days.

You don't need to have a strict period-style bench. Many woodworkers like to fix the stock between bench dogs while planing, using a tail vice to help hold stock steady. I have a modern German bench that I used this way for years, and still do on occasion. To me, one drawback of this sort of bench is that when you are planing stock that's less than the full length of the workbench, the shavings pile up on the middle of the bench. On the period-style bench, shavings fall off the end because the planing stop is fitted near the far end of the bench. This is a small point – until you make a mound of shavings so large that you could lose a small child in them. Or some tools.

Now, to plane some stock. Sometimes I tend to dress the stock in batches – all the stiles, all the rails, panels, etc. in succession. At other times, I'm working a particular section of a log, and hewing and planing whatever it yields.

I'll start here with the short rail stock – it's similar in all joined furniture, only the carved box has no rails. For a chest, this stuff is about 20–24in long by about 3–4in wide. Place one on the bench, radial face up. The hewing was by eye but now the tolerances are getting tighter. This time, I check with two winding sticks to see if the stock is twisted, or 'in wind'. These simple sticks exaggerate the twist, making it easy to see where you should begin your planing.

Winding sticks are usually shop-made. I have an old pair that are about 17½in long and 1½in wide. Use the straightest-grained stock in your shop for these, and the driest. You want them to be reliably straight – and you want them to stay that way. When the sticks are in place, one near each end of the stock, squat down and eyeball across the top edges of the near and far winding stick. Their length will exaggerate the 'wind' or twist of the board, and show you where your first plane strokes will be.

Winding sticks are indispensable in planing stock. On this piece the planing is underway, but it's good to start with the winding sticks, too. We all have a dominant eye, like our dominant hand. This is my left-eyed squint

From the user's viewpoint, almost. The camera is higher here than the joiner should be. Remember, it's not level we're looking for, it's flat. Flat can be tilted, but not twisted

Planing

This plane was a smooth plane originally, but after grinding a generous curve in the cutting edge, it serves well in initial flattening of hewn boards. Behind it is a homemade plane with a similarly ground iron, based on some Dutch examples from the period

One of my everyday fore planes sitting on top of a typical narrow scrub plane. Either plane works just fine. I eyeball the curve when grinding.

I prefer wooden-bodied types, but metal-bodied planes will work green wood, too. You just need to be diligent about cleaning them to avoid problems stemming from the green wood. The tannic acid and moisture in oak react with iron in the steel to create a blue/black stain on both the tool and the oak. On the oak it's usually superficial, but if ignored on the tool, it will lead to corrosion. You can tackle it a number of ways – steel wool, oil-impregnated cloth, WD-40 and a brass-bristle brush, etc. The main thing is to keep on top of the job of cleaning metal-bodied planes when using green wood.

My first plane in almost every situation is a short, wide plane modified to act as a fore plane. Moxon described the use and shape of the fore plane: 'It is called the Fore Plane because it is used before you come to work either with the Smooth Plane, or with the Joynter. The edge of its Iron is not ground upon the straight, as the Smooth Plane, and the Joynter are, but rises with a Convex-Arch in the middle of it; for its Office being to prepare the Stuff for either the Smoothing Plane, or the Joynter. Workmen set the edge of it Ranker than the edge either of the Smoothing Plane or the Joynter; and should the Iron of the Plane be ground to a straight edge, and it be set never so little Ranker on one end of the edge than the other, the Ranker end would (bearing as then upon a point) in working, dig Gutters on Surface of the Stuff; but this Iron (being ground to a Convex-Arch) though it should be set a little Ranker on one end of its edge than on the other, would not make Gutters on the Surface of the Stuff, but (at the most) little hollow dawks on the Stuff, and that more or less, according as the Plane is ground more or less Arching. Nor is it the Office of this Plane to smooth the Stuff, but only (as I said) to prepare it, that is, to take off the irregular Risings, whether on the sides, or in the middle, and therefore it is set somewhat Ranker, that it may take the irregularities the sooner off the Stuff, that the Smoothing Plane, or the Joynter, may afterwards the easier work it Try.'

There is some debate about the proper length of a fore plane; I stay out of it. My preference is to use the wide, short-bodied planes (about 9–10in long, with an iron of around 1¾in or more) for this work. Mine are

either German smooth planes that have their irons re-ground, or a shop-made one based on an early Dutch example.

I have previously considered the fore plane and scrub plane to be the same sort of thing, and in a general sense they are; they're for roughing out the stock. The scrub plane's iron, though, is often quite narrow. Some wooden ones have narrow bodies, too. I find these uncomfortable for any length of time, but some people like them just fine.

The point is to work with a plane that has its iron ground to a cambered, or curved, shape. This allows it to take a heavier shaving than a smooth plane. A fore plane doesn't make a finished surface, but gets the stock roughed into shape for other planes to finish. For that reason, the bulk of my fore-plane work is directed and focused. I usually concentrate on areas that need correcting. Try using the fore plane both across the workpiece and diagonally to its length. That makes it easier to keep your planing in the area that needs it, rather than planing the whole length and breadth of the piece unnecessarily.

You can sometimes work the oak board from corner to corner so you can correct any twist discovered with the winding sticks. Carefully plane on the diagonally opposite corners, and check your progress frequently with winding sticks. At the same time, you want to check the stock with a straightedge to be sure it is flat along its length. Lay a straightedge along the board and check to see how much light peeks underneath the tool. Correct accordingly, planing the high spots until the straightedge is flat to the board along its length.

Your planing strokes need to aim toward the bench hook/planing stop. If not, then you can send the oak stock whipping around in an exciting manner. Sometimes I use a holdfast to clamp down a batten to the bench. Then the workpiece is jammed against the bench hook and this batten.

After the fore plane, switch to a smooth plane or jointer. Some keep a very strict sequence of planing; I tend to flip around to whatever I think each board requires. When I get oak that rives quite flat, I will often skip all the planes except a sharp jointer. Otherwise, I tend to work concentrated areas with the smooth plane, then follow that with the jointer to rectify any deviation from flat. When it's dead green the resulting surface is sometimes a bit fuzzier than it will be when you plane drier oak, so there's no need to try to work it to death.

When planing the stock, there is a lot of physical effort involved. Keeping the planes as sharp as you can get them helps this work go easily. Learn to use your whole body while planing; this is more effective than just pushing the planes with your arms.

Work the less-demanding short stuff first to warm up to this task. For me, the motion is from back-to-front. Start the stroke at the end of the stock, with your body's weight back on your rear foot. Apply downward pressure on the plane ahead of the iron and lean into the stroke. As you move forward, the pressure shifts from the front of the plane towards the back. At the same time, your body shifts from the rear foot to the forward foot. Once you have established a rhythm, often your forward hand (the left hand for a right-handed joiner) comes up off the plane near the end of the stroke. One function of all this body mechanics is to keep the plane from dipping off the far end of the stock. If you aren't careful, it's easy to dub over that end and make a surface that is convex instead of flat.

Another helpful technique is skewing the plane's body (and therefore its cutting edge as well) to the path of travel along the board.

This accomplishes a couple of things. It effectively lowers the cutting angle of the plane iron's edge, making slicing easier. It also puts the plane body in contact across more of the stock's width, rather than bearing only on a swath as wide as the plane itself. This helps keep the stock flat across its width, and also wears the plane's sole more evenly.

Working green wood requires a plane's mouth that is open wider than you might use on drier hardwoods. Aim for a shaving that is as thick as you can get away with, while still planing easily. If you need to adjust the opening on your plane's mouth, first be sure that any antique plane you might be modifying is not a rare or otherwise valuable plane. There are lots of user-quality planes around that you can tinker with. The normal case with used planes is that their mouths are already open wide enough for our needs. But if you need to get in there, pare away the forward ramp ahead of the cutting iron with a very sharp chisel or a planemaker's float. Alternately, you can make smaller adjustments by using a rasp or file to remove enough wood to open the mouth a bit.

When I am planing a lot of stock, I like to use a few planes in tandem. Typically, I set up a couple of jointers – one to take a heavier shaving, one to take a lighter shaving. That way, during the day's work I just switch planes to get a different result, rather than adjusting a plane back and forth all day. When I need to remove a lot of stock I use the more heavily set plane, then, to finish off the surface, I pick up the plane that is set to take a light shaving. A few strokes might be all that's required of this plane on each board.

Plane several pieces so they have a finished radial face and an outer tangential face square to that. Leave the overall width and thickness until you have the whole set of matching pieces. Once you have determined the stock dimensions, you can lay out the thickness and width using a marking gauge. Some finer marking gauges don't work all that well in green oak. If you want to highlight your line with a pencil, that's your business. I usually make framing stock somewhere around ⅞in thick. Sometimes the floor rails of chests are beefier, up to 1½in thick on their bottom edges.

This is a period-style chalk line, based on an archaeological find in England. No hook on the end, so I make a loop and drop an awl in there to fix the far end. Then I pull the line into position, chalk it and snap it

Once I'm satisfied with the radial face, I snap a chalk line to lay out the true edge. I almost always make this edge along the sapwood/heartwood demarcation. That's where the tree grew the straightest.

Once I have that line, I hew and plane this tangential face square to the established radial face. You'll find this surface is tougher to work. A lighter setting for your plane will help, as will sharpening the iron. This is another instance where it helps to set up a couple of planes, rather than adjusting one tool back and forth.

When working on the widths and thicknesses, proceed just the same as with the first two faces. If there's a lot of stock to remove, go back to the hatchet; if not, you can sometimes go right to the fore plane. The inner faces almost never have to be dead flat and true, but you want to remove excess stock and make things smooth enough so there are no splinters or other rough surfaces. In my shop, I have a hewing stump/chopping block near my workbench. That way I can switch back and forth between the hatchet and planes easily.

The green wood planes easily, with less effort than drier stock. But the resulting surface can be a bit fuzzy. Once your stock sits for a while (a couple of weeks should do it), you can take a few shavings with a finely set sharp plane to produce a nice clean surface, smoother than you had in the fresh wood.

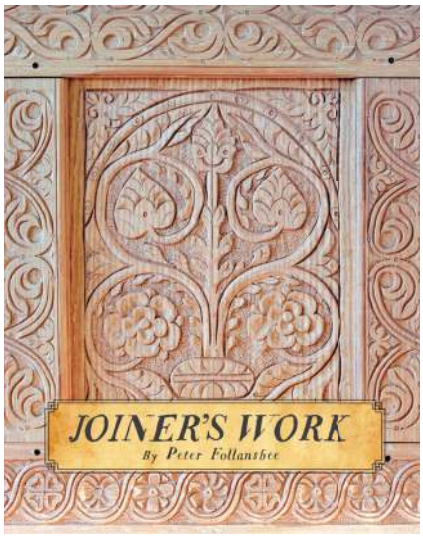
Sequence of work

Whatever my particular project is, I start just as outlined here: by riving and planing enough stock and then some. If I have a lot of oak planed up, I mark the date on the end grain just to help keep track of stuff. On thick pieces such as stiles (2in or so), I often coat the end grain with yellow glue to help reduce the risk of checking or splitting. I stack the boards flat, away from any heat source. Keep the layers of the stack separated by 'stickers', narrow sticks ¾in thick. These should be dry wood. You can't have too many of them.

On my carved furniture, I use a sequence that might seem clunky, but here goes. Once the stock is dressed to size, I lay out but don't cut the joinery. Then I mark out the carved decoration and cut that. The notion here is that when carving something with a mortise in it – chest stiles for example – were I to cut the joinery first, while carving, I'd be pounding over a void in the piece. There are ways around that, but I've found the easiest thing to do is to carve first. Similarly, I don't cut the tenons – in that case because it's easier to hold the stock to the bench while it's solid. Ultimately, my sequence is: lay out joinery; lay out and cut the carving; cut the mortises; plough the grooves; cut the tenons.

Stick with me, it will all make sense.

Joiner's Work



By Peter Follansbee, published by Lost Art Press, £43.50. Available from lostartpress.com in the USA or www.classichandtools.com in the UK.

A new wave of craftsmen

Derek Jones visits the International Boatbuilding Training College

There's a fine tradition of boat building stretched out along the shores and river banks of the UK with as many regional specialities as there are vessels. But like traditional cabinetmaking the trade as a whole has become something of a speciality itself. Traditional boats, like traditional furniture are now largely the preserve of enthusiasts with a keen sense of loyalty to the past and a passion for discovering the way things were done; at least that's the popular misconception.

As anyone that's ever experienced shaping timber by hand will tell you, the process is a metaphor for some of the most valuable lessons in life. Learning to harness the properties of an often unpredictable material teaches us patience. Adding our own experiences to centuries of those acquired by others is both humbling and rewarding.

The two trades are inextricably linked by the tools and methods they employ so it's not uncommon to find boat builders as cabinetmakers and vice versa. In recent years the lines have become even more blurry as many of the top bespoke furniture making companies are seeking commissions for the fitting out of super yachts. Today's version of the floating gin palaces of the 1930s are just as decadent as they were back then and in high demand.

While the construction of the boats themselves has changed drastically over the years the basic premise for the fit out remains – to match good design with quality craftsmanship.

PHOTOGRAPHS BY DEREK JONES/GMC PUBLICATIONS LTD

Labour of love

I visited the workshops of the International Boatbuilding Training College in Lowestoft recently to meet with owners Mike and Lyn Tupper. The college is a privately owned enterprise spread across three buildings on a 2-acre site with approximately 30 metres of moorings. The Tuppers purchased the business in 2015 after Mike attended a short course at the school while holidaying in the area. Captivated by the location and the prospect of building a business around their passion for sailing, they drew on their respective backgrounds in carpentry, joinery and commerce. It's no exaggeration to say that they loved the place so much they really did buy the company. The last four years has seen the college go from strength to strength, which is in no small way down to their unrelenting commitment to providing training in a field that's notoriously hard to access. A career in boat building is not for the faint-hearted, the work is both physically and technically challenging and the vast sheds where the work takes place can be a little harsh in the midst of winter. Despite this though Mike and Lyn have made some significant improvements to the infrastructure at the college, resulting in what is now a comfortable space in which to learn. The main workshop is home to around a dozen boats of varying shapes and sizes and in various states of repair or build. The largest, and also their personal project is a Kaufman design Maxwell Cutter named *L'espoir*. It's been the centrepiece in the workshop as long as they have been at the college. 'It may sound odd but we don't expect students to see a project of this scale through to completion during their time here,' said Mike 'There's such a variety of work and so many techniques to learn that you couldn't cover everything on one boat.' A typical project is one where the owners hand their boat over to the college for repair or restoration in lieu of work carried out on a materials-only fee. It's an attractive proposition that resembles something similar to that run by some of the furniture conservation schools in the country. Deadlines are somewhat flexible, which tends to work for both parties.

Mike and Lyn Tupper in front of a recently restored Fairey Swordsman named *Freda Mary*

The main workshop houses boats of all shapes and sizes

Students get to learn the traditional craft of caulking

The college is not averse to teaching more contemporary methods of construction to provide a commercial perspective

Set project

As well as the structured disciplines that make up the training, students complete several set pieces to build up a repertoire of joinery skills. The full range of joints are covered including dovetails, which are taught on a live project to build a tool chest. The project covers timber selection as well as construction techniques and ends with a traditional yacht varnish. The chests make an excellent display at shows. 'We've been asked to sell them before but politely decline as we feel they're a rite of passage for anyone entering the trade,' explains Mike. We climb aboard *L'espoir* and make our way down into the hull. With my cabinetmaker's hat on I'm immediately impressed with the quality of the fitting. Scribing cabinets to straight walls can be a challenge. Working to walls and ceilings that are compound curves is quite a different story. The galley is fitted out with mahogany cabinets with frame and panel doors using traditional joinery. The proportions are dainty compared to the kitchen cabinets I'm used to seeing but the build quality is robust and ultimately fit for purpose. The same level of detail continues through to the sleeping quarters where bulkheads and beams are scribed into the framework of the cabinets.

Mahogany tool chests fill the finishing shop

The IBTC tool chests have an uncanny resemblance to those made and used by cabinetmakers

The cabinet work on board extends to panelling

Bulkheads and partitions are all part of the remit for the fitters

Courses with complementary skills

It's often said that a career in traditional furniture making is more of a lifestyle choice these days and from what I've learned on this visit you can add boat building to that list as well. Unphased by the challenge though, Mike and Lyn plan to increase their range of short courses which currently include Oarmaking, Steaming and Laminating, Timber Technology and Carving with Gary Breeze. There are also plans to develop some of the waterfront site to accommodate shepherd's huts for shorter residential classes. And with the introduction of a City & Guilds 6706-26 level 2 diploma course in bench joinery coming on stream shortly, my gut feeling and their USP is to bridge the gap between the skills required for a traditional marine fitout and that which is happening in the super yacht market. A classically trained boat builder could literally hit the deck running.

For more information contact www.ibtc.co.uk

A detail that wouldn't look out of place on a piece of bespoke furniture

UNDER THE HAMMER:

Under the hammer: Modern Decorative Art + Design

We take a look at the top-selling furniture from the Bonhams auction

The Modern Decorative Art + Design auction was held in June at Bonhams' New York saleroom. The sale included 20th- and 21st-century design, including furniture, ceramics, glassware, silverware, sculpture and lighting.

$187,575 (£150,855)

Unique Industry/Perished Dressoir made by Studio Job in 2006 as a private commission. The piece is made from macassar ebony, and the exterior is inlaid with birds's eye maple. Based in Belgium and the Netherlands, Studio Job was founded by Job Smeets in 1998. The company's work combines traditional and modern techniques to produce unique sculptural art.

PHOTOGRAPHS COURTESY OF BONHAMS

$6950 (£5589)

Drop-Arm Morris Chair made ca. 1905 by Gustav Stickley. This oak chair is model no. 369 and was made at Stickley's Craftsman Workshops in Eastwood, New York. Gustav Stickley (1858–1942) was an American furniture designer and maker who created the Mission style. Initially inspired by the Arts & Crafts movement, Mission-style furniture was characterised by the simplicity of its materials and designs; its followers believed in the social virtues of good design and handcraftmanship. In 1901, Stickley began publishing *The Craftsman* magazine, which became the main 'voice' of the Mission movement.

$6950 (£5589)

Oak wardrobe made ca. 1905 by Gustav Stickley. This is model no. 920.

$5075 (£4081)

Pavot wall cabinet made ca. 1900 by Emile Gallé. The cabinet is made from walnut and inlaid with fruitwoods and burl maple. Emile Gallé (1846–1904) was a French designer and one of the leading figures of the Art Nouveau style. He is primarily known for his glassware designs, where he pioneered new techniques. His furniture designs were based on the Rococo style; his study of botany also influenced his work.

$12,575 (£10,113)

Desk and chair made ca. 1900 by Emile Gallé. They are made in walnut, and inlaid with Indian rosewood, fruitwood and palmwood.

$18,825 (£15,139)

Desk and chair made ca. 1900 by Carlo Bugatti. They are made from mixed materials including walnut, ebonised walnut, parchment, silk, copper, pewter inlay and mirror plate. Carlo Bugatti (1856–1940) was an Italian furniture designer whose work is noted for its use of mixed media. To learn more about Bugatti, see the feature in *F&C* 286.

$40,075 (£32,229)

Screen made by George and Mira Nakashima. The screen is made from redwood burl and American black walnut with three oak butterfly joints. George Nakashima (1905–90) was an American architect and furniture maker, and a pioneer of the 20th-century American craft movement. His work celebrated the natural beauty of wood, using slabs and often incorporating the natural edges. His daughter Mira Nakashima (born 1942) took over the studio after her father's death. As well as continuing to make her father's designs, she has also developed her own collection.

$10,700 (£8605)

Part of a set of eight oak chairs made in 1971 by Hans Wegner. They were commissioned for the interiors of the Weyerhaeuser company's headquarters in Washington state. Hans Wegner (1914–2007) was a Danish furniture designer whose work helped to popularise the mid-century Scandinavian style.

$13,825 (£11,118)

Set of four teak Cow Horn chairs made in 1970 by Hans Wegner. The Cow Horn chair (model no. JH505) was originally designed by Wegner in 1952. The armrests and back are made of two solid pieces, joined together in the middle. Rather than disguise this join, Wegner decided to make it in a contrasting colour to draw attention to it.

$17,575 (£14,134)

Part of a set of eight office chairs made ca. 1955 in Chandigarh by Pierre Jeanneret. The chairs are made from teak with cane seats. Pierre Jeanneret (1896–1967) was a Swiss architect and furniture designer who frequently collaborated with his cousin, Le Corbusier. After World War II, he moved to Chandigarh, northern India, where he oversaw the city's civic architecture project.

$31,325 (£25,192)

Eternal Forest table made ca. 1965 by Philip and Kelvin Laverne. The table is made from acid-etched, enamelled and patinated brass over pewter and wood. Philip Laverne (1907–87) was an American artist who, together with his son Kelvin (born 1937), created artworks incorporated into furniture.

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A grand workbench journey – part 4

Kieran Binnie drawbores the leg joinery of his 18th-century-style bench

In last month's article, we cut the mortise and tenon joinery to connect the legs and stretchers. This month we will look at drawboring the leg joinery to create a strong mechanical joint that will last hundreds of years.

In *L'Art du Menuisier*, André Roubo does not talk about drawboring the undercarriage. In fact, save for the joinery connecting the legs to the benchtop, he says very little about the joinery for the undercarriage. But the clues are there. If you look closely at Plate 11 in *L'Art du Menuisier*, you will notice what appear to be the round ends of pegs showing in the legs, just where the stretcher tenons would be situated. Drawboring as a technique has been in use for hundreds of years and would have been familiar to Roubo. It is therefore highly likely that the circular details shown in Plate 11 would have been drawbore pegs.

Introducing drawboring

Put simply, drawboring consists of driving a wooden peg through a mortise and tenon joint to provide a mechanical fixing which does not rely solely on glue. The holes for the peg are offset in the two halves of the joint, so that the peg pulls the tenon shoulder tight into the mortise. As well as strengthening the mortise and tenon joint, drawboring also highlights a key strength of the slab top bench design as a whole. As the slab slowly dries out it will shrink onto the legs, pulling those joints tighter. Drawboring the undercarriage joinery will prevent the legs and stretchers from racking as the top shrinks, and will provide a solid base for the bench. Taking wood movement into account (and making a virtue of it) in this way is similar to timber-framing techniques. The result is a bench that becomes more solidly joined as it ages – the antithesis of my current European manufactured bench, which requires tightening up periodically.

A further advantage of using drawbored joints is that drawboring resists two key causes of joint failure in furniture as it ages: glue breakdown and shrinking. A properly constructed Roubo bench should last hundreds of years, longer than the effective life span of many adhesives. If the glue fails in a drawbored joint, the peg should continue to provide a solid mechanical fixing. Similarly, wood shrinks across the grain as it dries out, which can result in tenons becoming loose over the course of time. This explains why

PHOTOGRAPHS BY KIERAN BINNIE

Drilling the peg hole in the mortise. Place a piece of scrap in the mortise to prevent blowing out the internal face of the mortise

many historic chairs have legs that protrude from the seat, or why replacing stretchers is a common repair for chairmakers. Drawboring mitigates the effect of wood shrinkage on two counts: firstly because the tenon is held in place by the peg, and secondly because even if the peg itself shrinks a little, the offset of the holes means that the peg is unlikely to work loose.

While we won't be fitting the drawbore pegs until the bench is assembled, this is a good stage in the build process to prepare the pegs and holes. Every single feature on this Roubo build is scaled up, and that includes the drawboring, so I decided to make a full-sized test joint out of leg and stretcher offcuts to test the tolerances. For the Roubo bench build I am using pegs with a ⅝in diameter, which are much larger than would normally be used for furniture-sized joints, but are sufficient to secure the large legs and stretchers for the workbench. Using a larger drawbore peg also mitigates against the risk of the peg snapping during installation.

Preparing the mortise and tenon

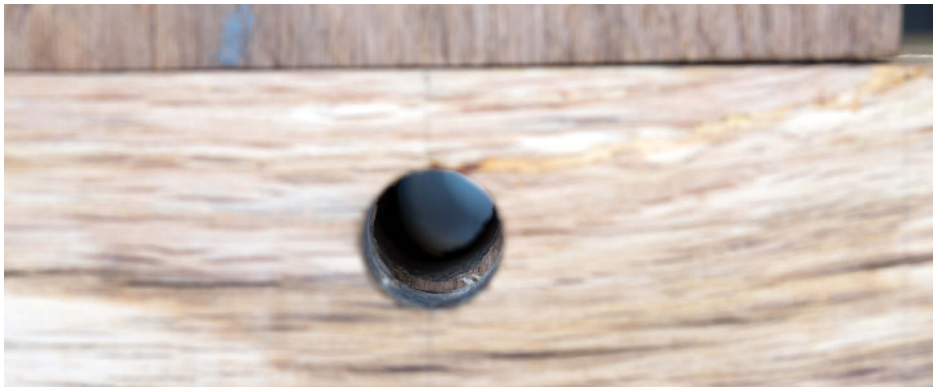
There are two elements to drawboring a joint – the hole which accepts the peg, and the peg itself. Let's start with the hole. To avoid confusion, throughout this article any reference to a 'mortise' means the mortises in the legs which accept the stretcher tenons, and 'hole' refers to the hole for the drawbore peg. The first stage is laying out the drawbore hole on the workbench leg. The drawbore hole will pass through the mortise for the stretcher, and can either go entirely through the leg to the other side, or be 'blind' and not pass all the way through the leg. The legs on my workbench are 6 pouce wide and 3 pouce thick – remember, a pouce is equivalent to 1.066 modern inches. See the conversion table in part one of this series (*F&C* 285) for a full cut list in both pouce and modern inches. I decided that the drawbore holes on the face of the legs (for the long stretchers) would pass all the way through the legs, while the holes on the sides (for the short stretchers) would be blind, so that I did not need to drive a peg through 6 pouce of hard oak.

The hole should be laid out so that it passes through the middle of the width of the tenon, and one pouce from the opening of the mortise. I have a question for anyone building along with this series – when you cut the tenons on the stretchers did you keep the blocks cut from the tenon cheeks? I have all of the blocks from my tenons stacked up on the side ready for drawboring the legs, and here's why. To prevent blowing out the inside of the mortise when boring the hole, place one of the blocks inside the mortise. If the block is a tight fit in the mortise, drive a screw into the side of the block for a convenient handle to pull it out of the mortise once you have finished drilling. I drilled the hole through the test 'leg' using a ⅝in auger bit in my North Bros brace.

With the test 'leg' bored, I placed the

Once you are through the mortise, remove the scrap and keep drilling

Drilling the peg hole in the tenon



When the tenon is placed in the mortise, you should be able to see the offset in the peg holes clearly

Splitting out the drawbore pegs ensures you have continuous grain the full length of the peg

tenon back in the mortise, and pressed my auger bit into the hole to mark, but not bore, the tenon. That mark denotes the lateral position of the hole, but you need to move the hole closer to the tenon shoulder to create the offset. The extent of offset depends on the scale of the workpiece, and the diameter of the peg. If the offset is too great the peg may snap during fitting, or the mortised component may split, neither of which is ideal (and which is why I decided to prepare a test piece first). So how much offset should you use? Research suggested an offset of between 3/32in to 1/8in (or 2.4mm to 3.2mm, if you are metrically inclined) depending on how tough your stock is, and how brave you are feeling. Oak can be prone to splitting, but the sheer mass of the components for the Roubo build help to reduce that risk, and so I went for an offset just shy of 1/8in – but I wouldn't have done so without making a test joint first! Lay out the centre point of the hole in the tenon, ensuring that the offset is towards the tenon shoulder and not away from it (which would have the effect of forcing the joint open). Then bore the hole in the tenon. Placing the tenon back in the mortise will allow you to check whether the offset is on the correct side.

Splitting pegs

The drawbore pegs have to be strong enough to endure quite a bit of force when being fitted, and it is important that the grain runs continuously from end to end as grain runout will result in a weaker peg that is more likely to snap. The stock must also be completely dry, as pegs with a high moisture content will experience significant shrinkage and may come loose over time. I rived stock for my pegs using a froe, to ensure that the pegs were made from good straight grain. This gave me blanks that were slightly oversized, and several inches longer than necessary. I removed the excess width with a drawknife, which also allowed me to shape the pegs into a roughly cylindrical shape, and to put a small chamfer on the leading end. The pegs were then brought down to final size using a dowel plate and mallet – the dowel plate is a very efficient way of cutting consistently sized drawbore pegs, and is well worth adding to your tool collection if you drawbore regularly.

Once the pegs were down to final size I tapered the front 1in to a point using a pocket knife, although a chisel or spokeshave would work just as well. A tapered point will allow the peg to snake round the offset with less difficulty, before the full width of the peg then pulls the joint tight.

Test fit

The drawbored joint is assembled like every other mortise and tenon joint. I painted a thin coat of hide glue on all surfaces of the tenon, and knocked it in with a mallet. The drawbore peg was then coated with hide glue, which acts as a lubricant before it cures, and drove the peg in with a lump hammer. Once the glue had cured, I trimmed the peg with a flush cut saw before cleaning the surface of the peg with a sharp chisel.

Making a test joint like this takes very little time, and helps to calibrate the variables of the technique. In this instance, the test joint demonstrated that the offset was sufficient to pull the joint together, and that the 5/8in peg was stout enough to withstand the offset without snapping. Satisfied that these were the right parameters for drawboring the Roubo bench, I then bored the eight holes in the legs and stretchers ready for assembling the undercarriage, and shaped the eight pegs. Drawboring as a technique is time efficient – requiring only a little extra preparation to the undercarriage joinery, and the time spent on this stage will pay off in the long run with a rock solid undercarriage for the workbench. And if your tenons are loose in their mortises, then a stout drawbore peg will reinforce the joint significantly.

Roughly shape the peg with a drawknife or spokeshave

Cut the peg to final size using a dowel plate

One peg shaped, and plenty of stock to drawbore the workbench undercarriage

Glue the joint as usual, and coat the peg in glue before driving it home

The test joint, with the peg proud on each side

Cut the peg flush and clean up the surface with a sharp chisel

The completed test joint

NEXT MONTH We will fit shelf supports to the stretchers and prepare the shelf.

NOVA Voyager

DVR 18in Variable Speed Floor Pillar Drill

Geoffrey Laycock looks in-depth at this new high tech drill

PHOTOGRAPH COURTESY OF ROBERT SORBY LTD

Yes, it's a long name for a newcomer to Europe and the UK, a fully electronically controlled large capacity drill press with unique features. Available for over two years in its home country of New Zealand and the USA, it finally arrived here in June and this test is on one of the first delivered to a customer – me. I wanted to replace several conventional pillar drills and looking around none had one feature I wanted – a drilling depth greater than 80mm, many are less than this. The NOVA has a drilling depth maximum of 150mm so I had to have a look.

The NOVA Voyager by Teknatool International is a lot of money at first glance but you can pay much more for a heavy-duty drill press still using multiple pulleys for speed changes. I know from years of experience that I tend to 'make do' with speeds perhaps not quite as they should be rather than fuss with moving one or two drive belts around. I have an electronically controlled variable speed milling machine so I know how flexible and user-friendly this feature is, plus I really wanted something that could drill nearer to 100mm depth. DVR stands for Digital Variable Reluctance drive motor, which is combined with Striatech adaptive control software. Basically a more efficient and controllable motor with very clever software. No gears, no belts, just a direct drive from the motor. Just like the NOVA woodturning lathes that have been available for several years.

The drill arrived very well packaged on a custom-made pallet, sufficient to protect it on its travels all the way from China. Be warned, the package weighs 170kg so think about where it is going to be delivered. In my case I decided to unpack it outside and move it piece by piece into the workshop. Assembly was quite straightforward but I was helped by two young builders who lifted the drilling head onto the pillar as I guided it into position. It is definitely a two/three person task if you don't have lifting equipment. Before the assembly I coated the top section of pillar and the four base securing bolts with a copper-based grease.

PHOTOGRAPHS BY GEOFFREY LAYCOCK, UNLESS OTHERWISE STATED

A single pallet contains the kit of parts...

...which requires complete self assembly

First impressions

A reasonably complete toolkit and comprehensive manual are included, along with a USB cable to allow updates to the firmware to be downloaded and installed. It doesn't include a wrench for the base securing bolts and no Allen key for the table in-fill plate. Although the combination wrench has a magnet so can live on the pillar, no storage is provided for anything else. I now always put everything together for each machine and you can see I have the manual, tools, a used paintbrush for cleaning, a pair of simple eye protectors and the test bar I use for setting up the machine – all in one plastic box easily to hand.

The eagle eyed may spot I have already removed the spring-loaded pin from the 'safety' chuck key, really annoying

I spent time looking at the manual and playing with the mechanical features of the drill. Overall the quality of castings and finish is excellent but there are a few minor things I was disappointed with. Several labels were not straight – a personal hate – and the quality of surface grinding on the table not as good as I would like although accurate enough. The table rise and fall mechanism would feel more at home on a £100 machine, it is sloppy, poor engineering. However, it does work and table rise and fall adjustments can be done quickly.

The drill feed handles are nice to use and two full rotations gives 150mm travel. There is a nice mechanical depth stop with a quick release so it's easy to go from 10mm to 150mm depth in seconds and is a back-up to the electronic depth stop available. A frequent criticism in other reviews has been the chuck capacity of 3–16mm but NOVA have obviously listened and my chuck is 1–16mm and very accurate even if it looks wobbly when rotating due to the loose fit of the operating collar. Another previous criticism was that the audible depth indication was too quiet and could not be heard above the drilling noises. Perhaps this has also been changed as I had no problem hearing it.

Engineering accuracy

Before starting to use the drill I wanted to check how accurate it was mechanically – it doesn't matter how clever the motor is if you cannot drill accurate, consistent holes. We'll cover doing this in another article but to start I checked chuck run-out – wobble side to side. Doing this at various extensions of the quill – or drilling depths – I found a maximum of 1.5 thousands of an inch, which is exactly what the Teknatool website says. (Sorry, I still think in imperial but it is 0.038mm for metric brains.) I should mention the controls can be set to use inch or millimetre measurements and I have mine in metric, yes I'm contrary! I then tested the flatness of the table and the 90° angle setting of the table tilt. Having been set up at the factory and travelled all those miles I found it accurate enough to leave as it was! The test bar in the photo of my tool kit held in the chuck was used for this along with a precision engineer's square and feeler gauges. I then checked for 90° front to back of the table to the drill, something I hardly ever see referred to in setting up a drill, or other reviews, yet if this is not accurate there is probably no adjustment you can make and will never drill holes perpendicular to your workpiece. It was 4 thousands out over 9 inches of the square, which if my calculations are correct is 0.025 degrees. I think I'll count that as accurate enough! Do remember though that whatever weight you place on the table will cause deflection and decrease the accuracy of this parameter. If you want to drill something really heavy, check if you have a perpendicular drilling or not.

After playing with the various electronic control functions I thought it time to actually do some testing.

The manual could be better

Generally the manual is OK but the first hurdle was height sensor calibration. With the metric setup I was expected to feed the quill down exactly 10, then 20, etc. to 100mm and at each stage confirm that position in the software, but there is no suggestion how you do this. There are several methods that can be used and are accurate including using a digital height gauge or large external calipers and a Vernier caliper – this process will be described in another article.

The first function I tried was auto start. A couple of clicks to set up and without turning on the motor, you begin to feed the drill down. Once it reaches around 7 to 8mm travel it will start running at the speed you have set; continue to drill and, as you return the drill to its start position, it turns itself off again. Not something to use if drilling to positional marks on your workpiece perhaps, but for repetitive drilling a revelation.

Performance to spare

Next I thought I would try out allowing the software to select the correct speed. I also wanted to try out the available power with a typical use so I selected a piece of kiln-dried beech and a previously used – dare I say not in best condition – spade bit.

I drilled a number of holes and the simple comment was: no problem. I tried a couple of really hard downfeeds and watched the display which shows 'load' which never exceeded 20% so the machine was hardly pushed with that exercise. The speed selected for me also worked well without overheating the bit or burning the wood. You can also use the auto-start function with this feature and also the auto-depth stop.

I am using a 25mm spade bit to drill a beech test piece. The setup sequence shows selecting the drill bit type, size, material being drilled and confirming that speed. I then set the self-start option, which is only two clicks

So much you can control

The next test was the auto-depth stop. I had ordered the specific table fence accessory for this drill and first impressions were good. It is a nice aluminium extrusion with a well made adjustable stop. The securing knob for the stop is one of the nicest I have seen on this type of kit. I decided to use this to do some gang drilling as I might forming a mortise. As the machine table is cast iron you have the extra option of using fixtures such as the Magswitch feather board. I would normally feed in from the left but space constraints at this time made it slightly difficult. With the workpiece under the drill I lowered the drill bit to touch the surface then hit 'zero'. Raising the drill again, the display showed a negative measurement. I then went into the set depth part of the menu and set 12mm. This would mean the drill stops 12mm below the zero point which I had reset at the workpiece surface. It took me a while to work out how to do this as the manual isn't too clear – or I'm too stupid – but I got there in the end. I used the drill bit selector to choose speed and set the self-start function.

Getting carried away at this point I also decided to change what happens at the selected depth. You can simply have the drill stop, or you can have it stop, reverse for 2 seconds or 6 seconds as you take off the feed. I went for that last option. Oh and I added braking as well.

Did it work? Yes. Position the wood, begin to feed down and the drill starts, begin to drill the wood and beeping indicates approaching the set depth. At the set depth the drill stops, reverses and you can take off the feed. As you approach the top of the feed the drill automatically stops with the braking function doing this almost instantly. The manual recommends also setting the mechanical depth stop as back-up and I did find a slight variation in hole depth due to whatever pressure I was applying as the machine told me I was at depth. But we are looking at maybe half a mm variation only. For doing repetitive blind holes like this it is brilliant.

The fence and table

Back to the fence and it looks nice and it is useful BUT… it is secured with two top quality Bristol levers but these were frustrating as the underside of the table is not machined so the TEE blocks below catch on the rough casting and the available lever travel is not sufficient to release and allow the fence to slide in the slots to remove. A bit of work with a file to smooth out the slot lower edge would solve this. I think there are bigger issues though.

There is no means of having extraction with the fence and I feel it is too short. For a little more money several suppliers have a complete false table, with fences and extraction built in. Mine is from Axminster and will need a little modification to allow clamping to this table layout. It also has the advantage of a removable insert so you can minimise breakout on through holes. The machine table has a removable metal insert, which is not level with the surface so using a false table rectifies that potential problem with thin or short workpieces. Why is this not flush?

The removable table insert does allow for use of sanding drums but only up to 50mm diameter. Personally I do not trust the chuck – fitted with MT2 taper – not to come loose

The nicely made fence does a job but could be better

as any sanding drum will create vibration and it would then drop straight through. An unusual feature of the drill is a quill lock so at any feed depth you can lock and it will stay that depth. When sanding you can then use different parts of the drum without the hassle of moving the table up/down. What I would do is make a box to sit on the table, deep enough to accommodate the full length of a drum and with extraction. If the drum/chuck combination falls out it drops into the box and if I create different diameter inserts I should be able to use my bigger drums and be relatively dust free.

LEFT: A false table such as this can be easily made or bought for around a little more than the Nova fence INSET: The low insert plate is annoying when drilling at the end of a workpiece] RIGHT: Quill lock allows height setting on a sanding drum – maximum size 50mm

Easy cross-drilling round bar

I played with all the functions but the final one I want to mention is starting a pilot hole. We have all tried to start a hole, maybe in metal, hard plastic or other material where the drill doesn't want to bite, preferring to skate across the surface. I know many woodworkers have few dedicated metalworking tools but still have the occasional need to work with metal and cross drilling round bar is one of the more challenging tasks. Normally you would use a centre punch to create an indent that you hope the drill 'point' fits into. For round bar it is essential to hold it securely so it cannot rotate and for any metal drilling you should always aim to use a proper holding device to locate on the table, not using your hand.

I selected a drill at random which was 4mm diameter, secured the steel bar in the vice and carefully judged the centre point. I did not make a centre 'pop' mark, the drill was acting directly on the metal surface. The pilot hole function starts at a slow speed irrespective of what drilling speed you chose. The software is constantly monitoring the torque being generated by the drill resistance in the workpiece and only when it reaches a certain level does the speed ramp up, in my case to 1000 rpm as chosen by 'set speed'. What it has done is slowly let the drill chisel point work its way into the surface and gradually develop the beginning of the hole. Once it is using most of the drill cutting edges it changes to normal speed mode. It worked amazingly well and as I tend to cross drill bar for several reasons it will get a lot of use.

This shows my machine vice holding the round bar. The vice is secured on the table using parts from a universal clamping set. The inset shows the completed hole

The lack of a work light is easily fixed courtesy of IKEA and about £6!

Conclusion

This is a nicely made piece of kit but with a few very minor cosmetic issues and disappointingly no cross laser or work light are fitted – especially considering the cost. The optional fence is nicely made but better alternatives are available. The drill has excellent power and outstanding drilling depth, and all the mechanical elements to ensure accuracy were superb. The various electronic functions could potentially be dismissed as gimmicks until you use them and realise every one of them is something you always wanted but hadn't known that. There are other features such as a tapping function, four F keys with one-touch speed setting which you can set to your own preferences, a jam protection function to stop the motor and more.

This is an excellent pillar drill that is easy to use after a little experimenting and one I am pleased I chose to buy. If there is one niggling doubt I do have it is longevity. I have a Startrite drill manufactured in the 1960s and so far as I know the only non-original part on it is the drive belt, which I changed. It is probably as accurate now as when made. Will the NOVA electronics still be working in 60 years' time? Actually I won't care because my personal electronics will have stopped working well before then and right now I'm just enjoying using it!

NOVA Voyager DVR 18in Drill Press

- Power output: 1.75HP / 2HP
- Power supply input: 220-240V, 10-15A, 2HP
- Chuck capacity 1–16mm
- Speed range: 50–5500 rpm
- Overall height: 70⅝in (1794mm)
- Overall base width: 17⅝in (448mm)
- Overall base depth: 22¾in (578mm)
- Spindle to table min distance: 6⅛in (155mm)
- Spindle to table max distance: 28½in (724mm)

£1599.99 from Turners Retreat
www.turners-retreat.co.uk

Veritas Panel Platform and Saddle Kit

Hendrik Varju discovers a new site accessory that has real potential in the workshop

One of the products that caught my interest at the 2018 International Woodworking Fair in Atlanta is this one manufactured by Canadian company Lee Valley under their Veritas brand as Veritas Platform Saddles. This is one of those products that seems almost too simple, yet it provides a solution to many problems. I tested three different parts of one system. The main part is called the Veritas Panel Platform Kit. It consists of a dozen polypropylene saddles with screws, as well as a carry bag. It is marketed as a kit that allows you to quickly throw together a platform on which to cut sheet goods with a circular saw. You start by screwing the saddles to two 1 x 3in pieces of construction timber. Then you slide six more 1 x 3in pieces into those saddles and you've formed a web-like platform. You can place a sheet of plywood over the top, set the circular saw blade to just cut through and then cut across the shorter 1 x 3s. In other words, the 1 x 3s act as sacrificial supports for the plywood. You can also cut between the 1 x 3s and parallel to them, allowing you to set the blade deeper and not cut into the 1 x 3s at all.

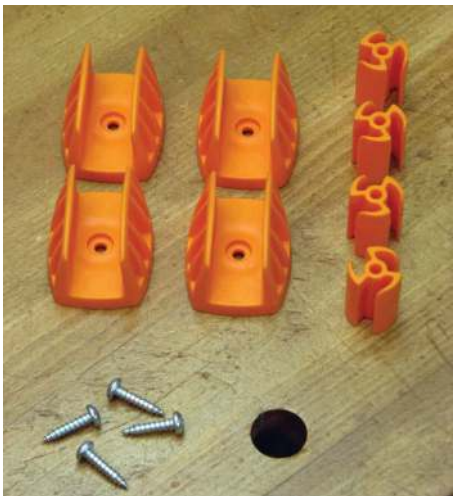
The other two parts of the system are called Platform Saddles. One set comes with 4 saddles that will hold 1 x 3s, 1 x 4s, etc. (any timber with a nominal thickness of about ¾in). The other set is nearly identical but the saddles are wider so they can hold 2 x 4s, 2 x 6s, etc. The interesting thing is that these saddles also come with polypropylene posts that can be screwed on. The posts fit into standard ¾in bench dog holes in a workbench, which my bench just happens to have. So you can use the posts for dog holes or not use them at all and just screw the saddles to a piece of wood. Note that none of these items come with the wooden parts.

Circular Saw Platform

The Panel Platform Kit is designed to give you a platform on which to cut sheet material with a circular saw. That seems to be the main goal of this system, as outlined in the marketing material that says, 'If you use a circular saw, you need this kit'. The idea seems to be that a person doing on-site carpentry work can set up the cutting platform quickly and then cut plywood with proper support. The catalogue I read said 'Less than a minute to set up'. The blue nylon bag will hold all the parts, wooden pieces and all, for easy carrying. It's a nice piece of kit. The Lee Valley website includes pictures of the kit being

Left to right what's in the box...

PHOTOGRAPHS BY HENDRIK VARJU



1in x 3in Platform Saddles suitable for use with ¾in dog holes

The Panel Platform kit allows you to build a raised working surface for cutting sheet material

2 x 4in Platform Saddles make a sturdier platform also suitable for use with ¾in dog holes

used for just this purpose, but I had other things in mind.

Other uses

As handy as this system is for cutting sheet material, I have to admit that I don't represent the correct market for that particular use. In my business, I do use plywood fairly regularly. I build fine furniture in my workshop and occasionally some installation work will be required. But I rarely build anything that could be called 'built-in'. So my work is not done 'on-site' as a carpenter would. I hoist full plywood sheets onto my tablesaw and do almost all of the cutting work there. I do occasionally break down a full sheet with a cut or two with a circular saw, but not often. However, I could immediately see other uses for the platform saddles.

One thing that has always bothered me is hand-held routing on my workbench top. I've always told my students that my workbench is a bit too high for heavy-duty hand plane work but a bit too low for hand-held routing. Unless you have a workbench with adjustable height, you are stuck most of the time with a compromise. I've often thought of building some form of a box or 'platform' that I can place on top of my workbench to make the height more comfortable for hand-held routing. The only thing stopping me was trying to think of a place to store it when not using it. Those of you with small workshops will know the feeling of having to justify every machine, tool and jig in terms of the square footage it will use up. In the end, I decided to do nothing.

However, I installed the plastic posts onto the 1 x 3 platform saddles and pushed them into a row of bench dog holes at the front of my workbench. A 1 x 3 piece of wood snapped into place very securely. At the back of my bench, which does not have dog holes, I used the larger 2 x 4 saddles without the posts. I ripped a 2 x 4 timber slightly narrower so that the two beams would be the same height from my bench top. A heavy piece of ¾in MDF and a non-slip router mat completed a makeshift platform that allowed me to rout decorative edges on a cherry tabletop with ease and at a much more

Use them to raise your work to a more convenient height for all manner of tasks

comfortable height. I could see myself even drilling dog holes into the MDF sheet to use Veritas 'Wonder Dogs' or 'Wonder Pups' to hold the work. I would, of course, also screw the MDF platform to the two beams.

In another test, I used the 2 x 4 platform saddles. Two of them had the posts attached and slid into bench dog holes at the front of my bench. The other two simply sat on the bench surface at the back. I inserted longer 2 x 6 beams, covered that with a thinner sheet of MDF and I now had a platform suitable for finishing. One benefit is that it raises the work higher off the bench, which would be helpful when finishing, or even assembling, smaller objects. The other advantage is that this system could increase the surface area of my workbench and also bridge right over the tool trough. Very handy indeed.

Conclusion

After using these accessories in my workshop for a few months I've come to the conclusion that they are well made and well worth having. The platform posts hold securely in my bench dog holes. The saddles themselves snap decisively onto 1 x 3 or 2 x 4 construction lumber. Veritas also explains how you can screw through

Create a temporary work area larger than your bench top

the side of the saddles into the wood to ensure a secure connection, but I did not find that necessary. So whether you plan to use these items as a platform to make cuts with a circular saw or whether you'll make other sorts of platforms as I have done, I'm sure you'll find a myriad of uses for them. This is the sort of simple but effective gadget that leaves you thinking 'Why didn't I think of that?' Highly recommended.

From: www.axminster.co.uk
Price: Veritas Panel Platform Kit £19.96
Veritas Platform Saddles £8.99

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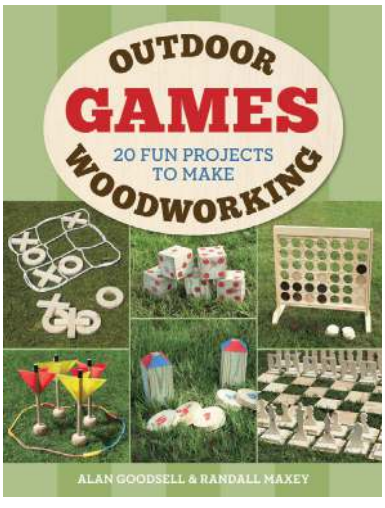

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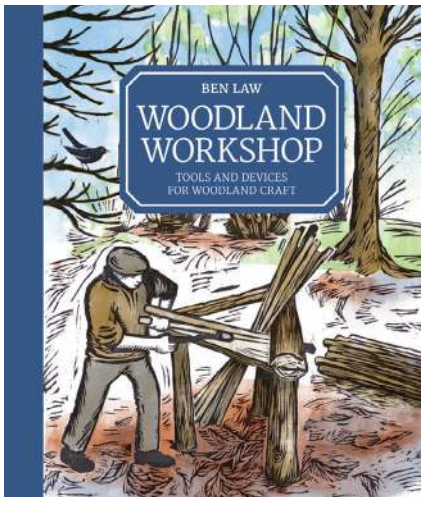

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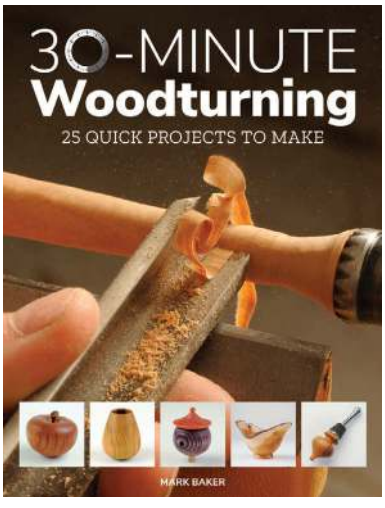

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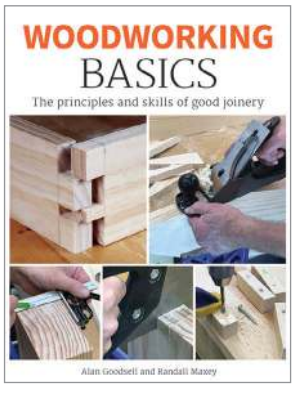

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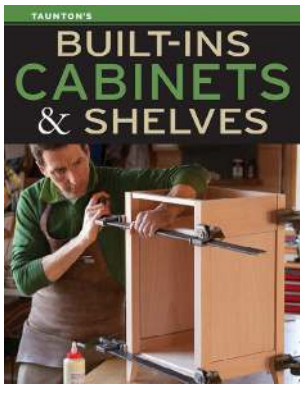

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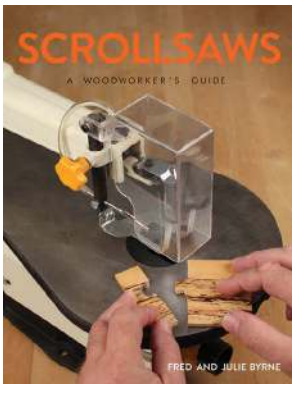

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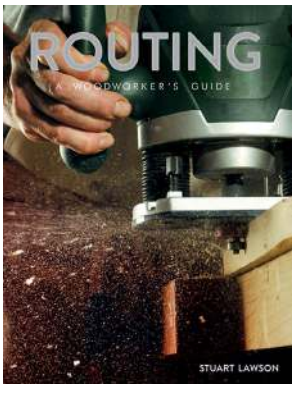

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MINI TEST: Tool roll

Some of the tools I enjoy using the most are the ones I've made in my workshop at home in East Sussex. Ranking just as high is a selection made by artisan craftsmen like me in similar workshops around the world. The satisfaction of building things with them never wanes, in fact it increases as the years of ownership pile up. It's daft and irrational I know to form attachments to inanimate objects but these items are more than that to me; they're part of a tradition in which we all have a part to play in making sure it continues.

For someone who's on the road a lot, having the means to transport my tools safely is high on my list of priorities. They get bundled into suitcases, stuffed into overhead lockers and jammed into tight spaces in the back of the car where they're often hard to retrieve. I've taken everything from a tower of Systainers to an entire English tool chest with me to teach a class in the past, but the item I reach for first when I'm packing is a tool roll. Chisels, knives, rasps, gauges, layout tools and polishing mops all seem to sit side by side quite comfortably. I've had my current one for around 10 years, it's made from thick nubuck leather and shows no sign of wearing out any time soon. However, there's a flaw in the design. It's a common feature on many tool rolls which allows the contents to exit the confines of the roll when you least expect it. I've lived with it and have got used to handling it in such a way that I can prevent an accident but it's far from perfect. On a recent trip I came home with a new tool roll made by Jason Thigpen of Texas Heritage Woodworks. It's a 12-slot chisel roll made from tough waxed canvas with double-stitched seams that are strengthened with hand-piened copper rivets at every junction. The design may not be unique, these are all tried-and-tested methods that hark back to a time when such items were made to last, but having them in a tool roll made today is virtually unheard-of.

As well as the pockets, of which there are different sizes on each side, there's a cover flap that envelops the tools, preventing them from slipping out through the end when it's bound up. It's a minor detail perhaps but I can assure you it makes a world of difference. This tool roll is the second of Jason's that I own, the first being an auger bit holder that sits somewhat neglected, I'm embarrassed to say, beneath my bench getting covered in dust. You'd be right in thinking that augers aren't a go-to tool for me, but that doesn't mean I don't want to look after them. It's probably two years since I ventured into the bowels of my Roubo in search of the set, which, on opening, were corrosion free and in perfect shape, just like the day I tucked them away. Waxed canvas is not only very good at keeping out moisture, it also resists ingress from dust like no other material in the workshop. Even the spiders can't get in. That's it, I'm sorted for tool rolls now for the rest of my days here and that makes me very happy.

From: www.txheritage.net

HiKOKI 36V Slide Compound Mitre Saws

HiKOKI Power Tools has introduced the cordless C3607DRA 36V slide compound mitre saw (185mm blade) and the C3610DRA 36V slide compound mitre saw (255mm blade) for absolute precision on tough cutting jobs. Both models have high efficiency, low maintenance brushless motors. To ensure the highest levels of accuracy and safety, both saws have a laser guide system and LED worklights.

The C3607DRA 36V slide compound mitre saw allows the user to make bevel cuts up to 45° left and right and mitre cuts up to 45° left and 57°. It can even be used in tight spaces, as the motor head slides on fixed pipe to make optimum use of space. It has a twin belt drive, which makes for smoother cutting with lower noise and a fine adjustment knob for accurate bevel cuts. The C3607DRA can make up to 320 cuts per charge.

The C3610DRA 36V slide compound mitre saw has a fast cutting speed with up to 374 cuts per charge. Bevel cuts can be made up to 55° left and 60° and mitre cuts up to 48° left and right. The soft start facility reduces recoil force at motor start up for added user safety.

Both models come with two BSL36B18 4.0Ah/8.0Ah Multi Volt batteries and charger, and are also available as body-only versions. All batteries are compatible with existing HiKOKI 18V tools. The tools also come with dust bag, vice assembly, sub fence and wrench as standard.

From: www.hikoki-powertools.co.uk

EYE-LIGHT

The EYE-LIGHT is a 1000 Lumen rechargeable LED floodlight with a choice of unique 27cm or 45cm magnetic goosenecks, which can position the light exactly where it's needed. It can be used as either a standalone light, attached to metal surfaces or even hooked over or wrapped around items or surfaces. Optional accessories include clamps, suction cups and magnetic feet. The light head only weighs 220g, has a diameter of 70mm, comes with a helpful LED battery indicator and it even acts as a power bank and can charge your phone.

From: www.classichandtools.com

Out & about:

Kenwood House

This month we visit a grand house in Hampstead

One of London's 'hidden gems', Kenwood House in Hampstead is a neoclassical masterpiece created by the famous 18th-century Scottish architect Robert Adam. Here, we learn more about its history and its fine collections of decorative art.

History

A house has been on the site since the early 17th century, originally known as Caen Wood House. Ownership changed hands several times in the 18th century until 1754 when Kenwood was purchased by William Murray, the future 1st Earl of Mansfield. Due to his growing family (his niece and two great-nieces lived with Mansfield and his wife) plus his increased wealth and status, Mansfield decided to enlarge and remodel the house. He commissioned Scottish neoclassical architect Robert Adam and his brother James to remodel the house from 1764 to 1779.

Robert Adam's changes included the addition of a new entrance on the north front in 1764, which created the existing full-height giant pedimented portico. Adam also modernised the existing interiors, notably the entrance hall, Great Stairs and antechamber, and built a new Great Room or library for entertaining. The ground-floor rooms on the south front all received Adam's new decorative schemes. These social spaces for the family included a drawing room, parlour and My Lord's Dressing Room.

Kenwood House is famed for its art collection

The entrance hall also doubled as a dining room

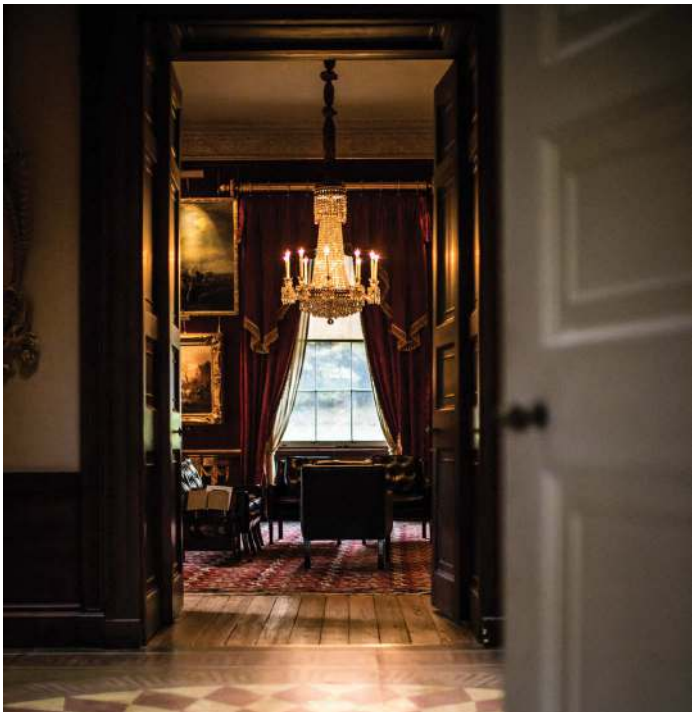
In 1793 Kenwood passed to the 2nd Earl who commissioned the little-known architect George Saunders to build the north-east and north-west wings, providing Kenwood with an elegant dining room and music room. Saunders also added a service wing with kitchens, bedrooms, a brewhouse and a laundry, as well as a new farm, stables and a dairy. The 2nd Earl also employed the celebrated landscape gardener Humphry Repton to remodel the grounds.

The Murray family sold the house in 1914 and much of the original contents were also sold in 1922. After several private owners, it was taken over by English Heritage in 1986.

PHOTOGRAPHS COURTESY OF ENGLISH HERITAGE

Lord Mansfield's dressing room

Kenwood's decorations reflect the contemporary taste for bright colours and sumptuous interiors



The breakfast room

What to see

Following an extensive repair and conservation project begun in 2012, part-funded by the Heritage Lottery Fund, Kenwood reopened to the public in late 2013. Work included repairing the Westmorland slate roof and redecorating the exterior and interior of the house, based on new paint research on the original Adam scheme.

The Great Library is one of the architectural highlights of Kenwood House and is one of Robert Adam's greatest surviving works. It was designed in the neoclassical style, with a decorative frieze and ceiling paintings by Antonio Zucchi.

Kenwood's collection boasts fine sculpture, furniture and jewellery. Despite the loss of the original contents, several pieces of furniture designed by Robert Adam to complete his decorative schemes have been reacquired for their original locations at Kenwood. Other items of furniture have been acquired from Adam houses contemporary with his work at Kenwood. The house's internationally renowned paintings include works by Rembrandt, Vermeer, Van Dyck, Gainsborough and Reynolds.

The grounds are also open to visitors, including the Repton-designed parklands, an ancient woodland and the dairy.

The Great Library

The Great Library was returned to its original colour scheme as part of a huge refurbishment project, which was completed in 2013

The parkland was landscaped by Humphry Repton

The Kenwood Dairy

The dairy was built in Kenwood's grounds in 1794–6 by George Saunders, the 2nd Earl's architect, for the Earl's wife Louisa. At the time, it was fashionable for aristocratic women to tend dairies, a trend set by Marie Antoinette. Kenwood's dairy has been restored so that visitors can see the dairy room, the dairymaid's living quarters and the tea room where Louisa entertained her guests.

The dairy room, with the original marble benches

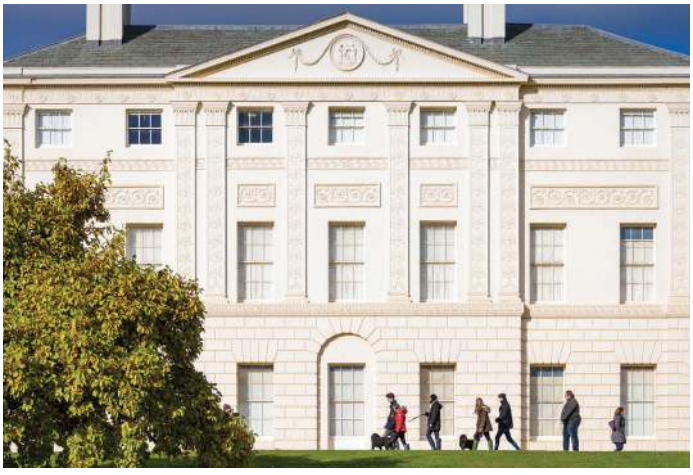
Where else to see … Historic Hampstead houses

Burgh House & Hampstead Museum
Queen Anne-era private residence that is now open to the public; contains a museum of local history.
burghhouse.museumssites.com

Fenton House
17th-century house with walled garden.
www.nationaltrust.org.uk/fenton-house-and-garden

Freud Museum
Former home of the psychoanalyst.
www.freud.org.uk

Keats House
Former home of the Romantic poet.
www.cityoflondon.gov.uk/things-to-do/keats-house/Pages/default.aspx



Designed by Robert Adam, Kenwood House is a grand neoclassical villa

Information for visiting

Address: Hampstead Lane, Hampstead, London NW3 7JR
Website: www.english-heritage.org.uk/visit/places/kenwood/
Opening times: Open daily, hours vary by season. Closed 24, 25 and 28 December and 1 January
Charges: Free entry. House and estate tour: £17.20 for adult, £10.30 for child
Information correct at time of publication, check the house's website before making your visit

Social media dashboard

Bringing you a round-up of the best from the online world, plus a selection of the latest projects that have caught our eye

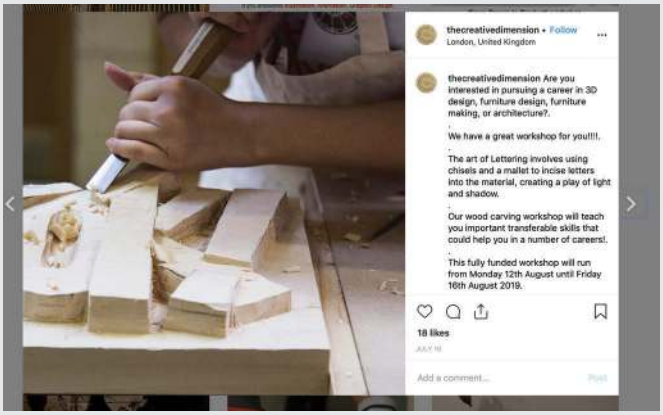
In this section of the magazine we bring together the best furniture and woodworking related content from social media. Here we'll recommend who to follow, where to comment and which online communities to join. We also feature projects we love, readers' letters, comments from the Woodworkers Institute forum and pictures of readers' work. If you'd like to see your furniture on these pages, email derekj@thegmcgroup.com

Vimeo: Charles Brock

If you enjoyed our profile of Charles Brock on page 34, then head over to his Vimeo channel for videos on making chairs, stools and tool storage, plus a glimpse inside his workshop.
Address: vimeo.com/user16926781

Instagram: The Creative Dimension Trust

The Creative Dimension Trust (TCDT) offers fully funded workshops and work experience placements to young people, enabling them to develop their fine hand skills under the guidance of leading specialists. Find out more about their creative workshops, covering furniture making, stone carving, model making and more, on their Instagram page.
Address: @thecreativedimension



Projects we love

Here we highlight the latest furniture and woodworking projects from around the world that we think deserve to be shared with our readers. If you're a member of a collective or a student group and would like to see your work here, then submit a story to: **derekj@thegmcgroup.com**

PHOTOGRAPHS COURTESY OF SEEN PR

Flagship chair by Plydesign

Highlights of London Design Fair

Several pieces showcased at the London Design Fair in September caught our eye.

Plydesign is an up-and-coming Hungarian furniture label whose work builds on extensive experience in manufacturing moulded plywood components. Its Flagship armchair, designed by András Kerékgyártó, received the Design Without Borders Award, part of the yearly Design Without Borders exhibition.

Based in Wales, Sit Still Studio designs and makes a collection of distinctly playful interior pieces. Working with Welsh makers and sustainable materials, including organic sheep wool and locally sourced ash, the studio emphasises a timeless, enduring aesthetic

London-based Flatwig Studio was founded by Erica Agogliati and Francesca Avian. At Flatwig, projects often come about from observing and studying past customs and traditions, along with folklore. In Flatwig's Ondula collection, light, mobile furnishings were designed using corrugated metal.

Bristol's KONK! is a multi-disciplinary design studio and workshop making handcrafted custom furniture. Dreamt up by architecture graduate Alex, products – from beds to bookcases – are made by hand in the brand's Bristol workshop.

www.londondesignfair.co.uk

Interiors collection by The Sit Still Studio

Ondula collection by Flatwig Studio

Oval Kross Table by KONK!

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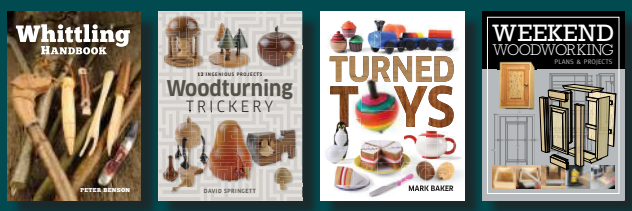

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