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Dave Campbell
Editorial Content Chief, *WOOD* magazine

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Small in size, BIG on storage

Shop Cart/Workbench

Whether you need mobile storage or a steady worksurface, this portable helper with its fold-out extension perfectly suits a space-squeezed workshop.

If you've put off making drawer-based shop storage because you doubt your drawer-making skills, then relax. The combination slides/drawer sides used for this cart eliminate that obstacle.

AT A GLANCE

- Overall dimensions: 26½" wide × 21" deep × 35½" high (on casters).
- Raising the fold-away top creates a 58½" wide × 21" deep worksurface.
- Build it from two sheets of ¾" Baltic birch plywood and a quarter-sheet of 3/16" perforated hardboard.
- Two-way locking swivel casters hold the cart in position when used as a tool or assembly stand.

See a Slide Show of this project coming together at: woodmagazine.com/slides

Skill Builders

- Learn how a guide called a story stick helps you repeat layout marks.
- Make sturdy utility drawers using drawer sides with built-in slides.

Begin by building the case

1 Cut the sides (A) and the top and bottom (B) to size [**Materials List,** *page 11*].

2 Cut a 3/16" groove 3/8" deep on the *inside* face of each side [**Drawing 1**].

3 Tape a ¾×2×30" story stick to the front edge of a side (A), keeping one end of the stick flush with the bottom end of the side [**Photo A**]. Use a square to draw centerlines where shown [**Drawing 1**] on the side and the story stick. Remove the story stick, retape it on the other case side, and transfer the story stick lines to the other side part.

4 Sort the case-mounted parts of the drawer side slides into left and right sides. (Wheels on the case-mounted slide should be closest to the bottom.) Center a case-mounted slide on one of the case side (A) layout lines [**Photo B**], and punch screw-starting holes with an awl. Repeat for the remaining slides on both case sides.

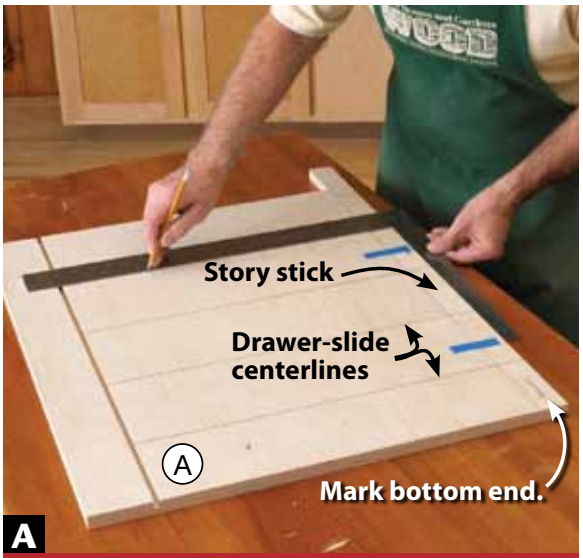
5 Wrap tape around a 3/32" bit, with the tape edge 5/8" from the bit tip for a visual depth stop. At each awl mark on the sides (A), drill a 3/32" pilot hole 5/8" deep, and mount the slides. Screw the slides to the sides.

6 On the underside of the top (B), drill countersunk mounting holes [**Drawing 2**] to later attach the fixed top (E). (For all #8 screws, drill countersunk 5/32" shank holes and 7/64" pilot holes.)

7 Drill countersunk shank holes into the top and bottom (B) and pilot holes in the sides (A) [**Drawing 1**]. Dry-assemble the sides to the top and bottom, and measure between the bottoms of the grooves on the sides.

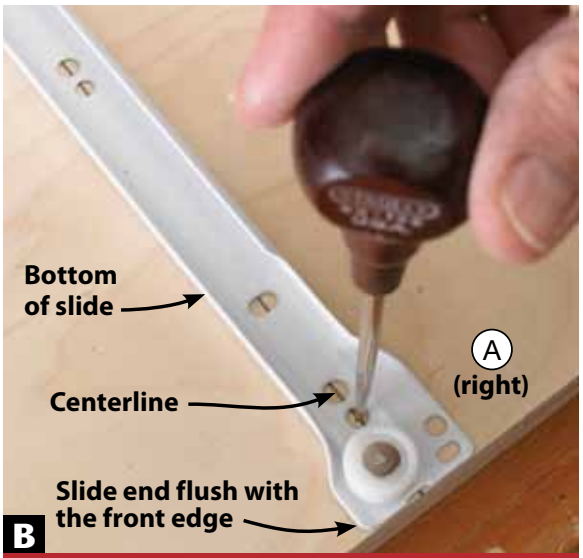
8 Cut the back (C) to length and the measured width. Then disassemble the case.

9 Glue and screw the sides (A) to the bottom (B). Insert, but don't glue, the back (C) and glue and screw the top to the sides [**Photo C**].



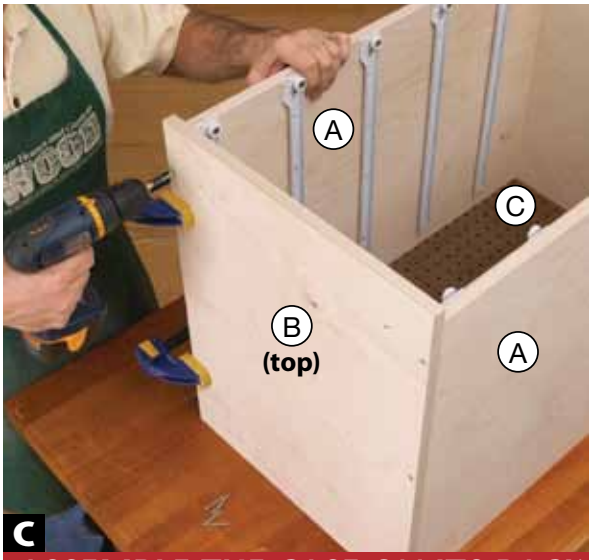
MARK SLIDE CENTERLINES

Mark drawer-slide centerlines on both case sides (A). The story stick lets you duplicate those lines on the other case side.



CENTER SLIDE HOLES ON LINES

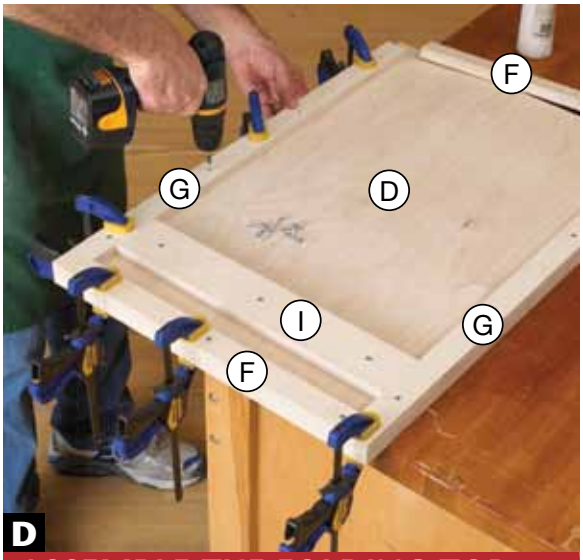
Center the slide mounting holes on the line, with the front end of the slide flush with the edge of the side (A).



C

ASSEMBLE THE CASE ON ITS BACK

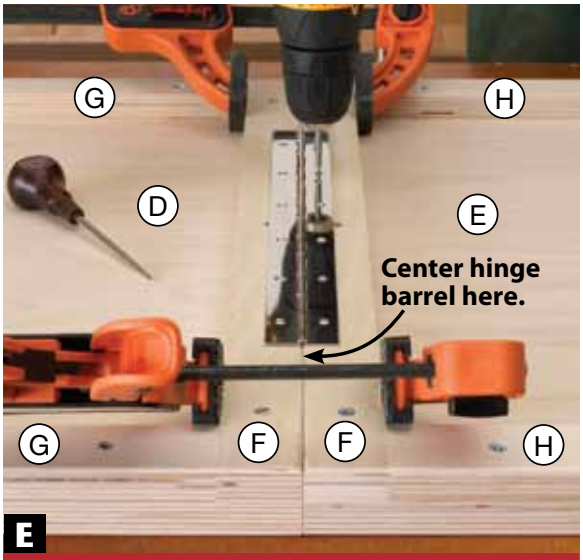
Joining the sides (A), top, and bottom (B) on a flat surface helps prevent racking. Measure between diagonal corners to ensure square.



D

ASSEMBLE THE FOLDING TOP

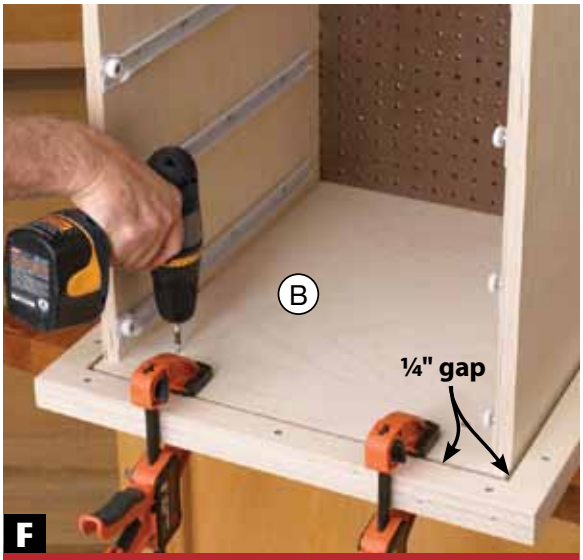
Glue and screw a stile (F) and rail (G) to the folding top (D). Then attach the leg rail (I), followed by the other stile and rail.



E

MOUNT THE CONTINUOUS

Clamp the tops together while attaching the hinge to ensure a gap-free surface when the folding top is raised.



F

FASTEN THE TOP TO THE CASE

Allow a ¼" gap between the stiles and rails of the fixed top and the case top before driving the mounting screws.

Make and mount the tops

1 Cut the folding top (D), fixed top (E), stiles (F), rails (G,H), and leg rail (I) to size.

2 Glue, clamp, and screw the rails and stiles flush to the edges of the fixed and folding tops [**Drawing 2, Photo D**].

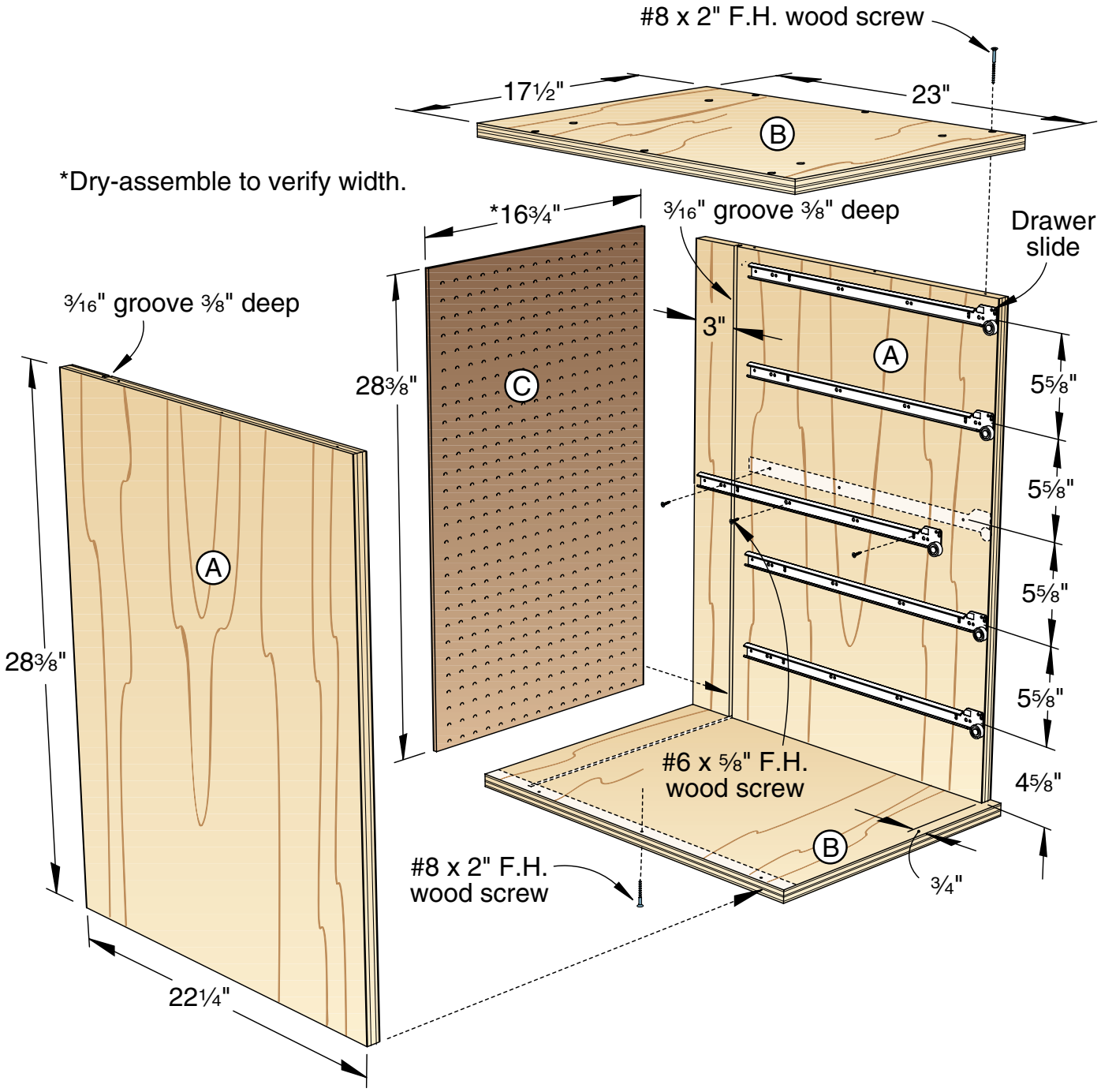
3 Sand the stile and rail edges of both tops (D, E). Rout a ⅛" round-over along the top and bottom edges of both tops [**Drawing 2**].

4 Clamp the tops upside down and end to end on a flat surface [**Photo E**] with the leg rail (I) away from the butted edges. Center a 12" continuous hinge on the joint, and drill pilot holes to suit the screws supplied. Then fasten it in place.

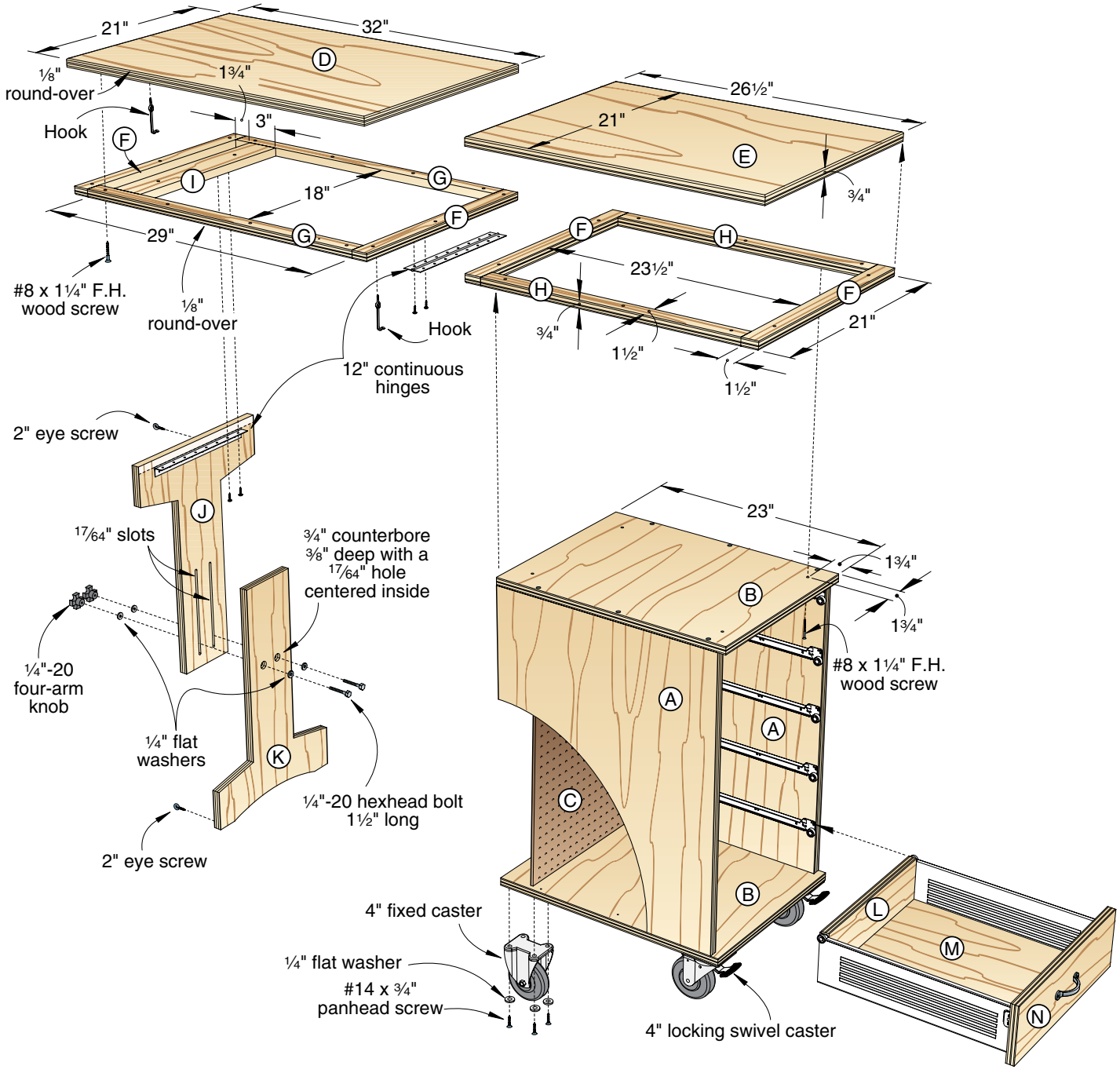
5 Center the case (A/B) between the stiles and rails on the upside-down fixed top (E). Fasten it in place [**Photo F**] using four mounting holes in the top (B).

6 Place a locking swivel caster flush with the front and side edges of the bottom (B), then mark and drill pilot holes ⅝" deep [**Drawing 2**]. Mount the caster [**Photo G**]. Repeat for the other front swivel caster. Now mark, drill, and mount the rear fixed casters.

1 CASE PARTS VIEW



2 EXPLODED VIEW



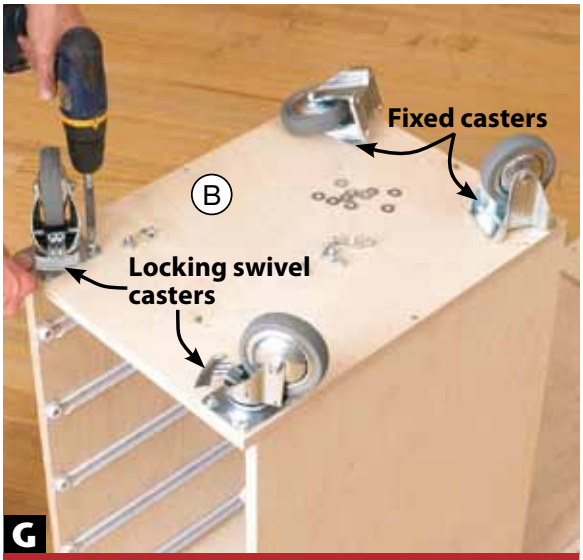
Add a folding leg

1 Using a bandsaw or jigsaw, cut the leg top (J) and bottom (K) to shape [**Drawing 3**]. Both are identical except for the arch on the leg bottom. Trace the curve on the leg bottom using a fairing stick. (For a free fairing stick plan, go to woodmagazine.com/fairing.) Lay out the leg shapes on both sides so you can flip the parts over on your bandsaw.

2 Mark the locations of the slots in the leg top (J) and counterbores/holes in the leg bottom (K) [**Drawing 3**]. Brace the leg bottom against a 14"-long fence on your drill press, and use a ¾" Forstner bit to drill a ⅜"-deep counterbore. Rotate the leg and drill a second counterbore [**Photo H**]. Without moving the drill press fence or table, replace the Forstner bit with a 17/64" brad-point bit and drill a hole centered in each counterbore.

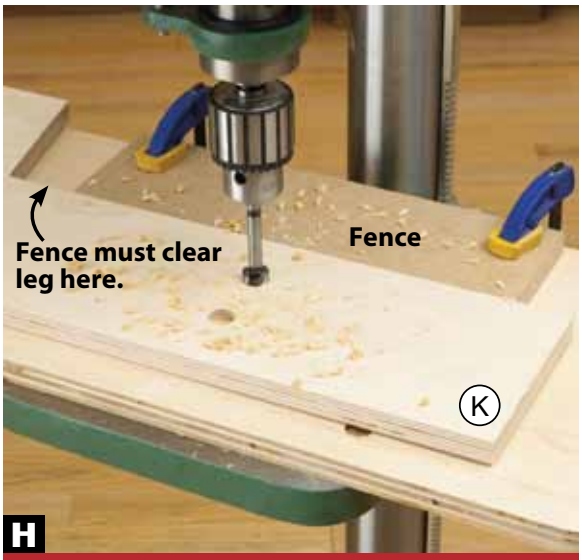
3 Without moving the fence, drill holes at each end of a leg top (J) slot layout line. Then drill overlapping holes [**Photo I**] until you form a slot with smooth sides. Rotate the leg and repeat to create the second slot.

4 Insert ¼" washers into the leg bottom (K) counterbores. Epoxy ¼×1½" hexhead bolts with



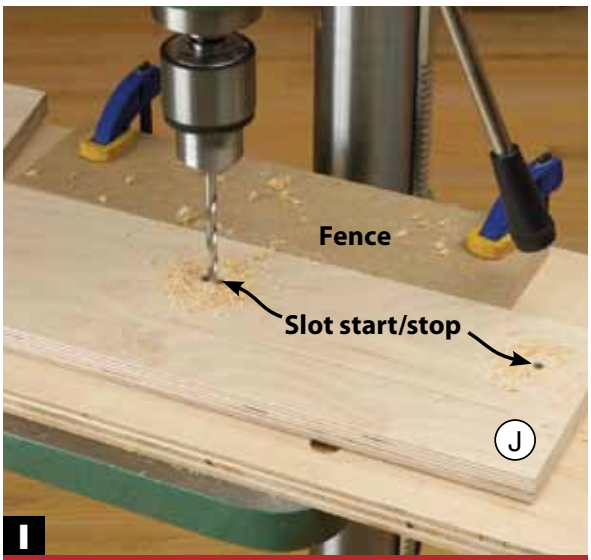
G **PUT THE CASE ON WHEELS**

Mount the locking swivel casters beneath the drawer opening end of the case to make the locking lever easy to reach.



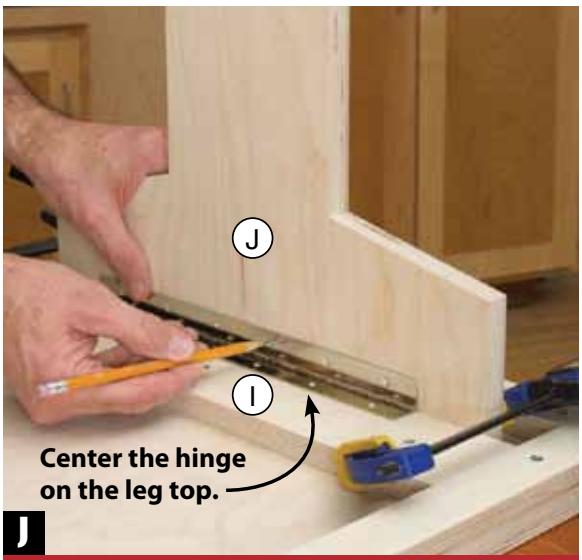
H **DRILL LEG HOLES**

The fence remains in the same position for drilling counterbores and holes in the leg bottom (K) and slots in the leg top (J).



I **CONNECT HOLES TO FORM SLOTS**

Drill 17/64" holes ⅜" apart, then drill away the waste between the holes to form slots in the leg top (J).



J **ATTACH THE CONTINUOUS HINGE**

First attach one leaf to the leg rail (I). Attach the other leaf to the leg top (J) second to allow clearance for a drill/driver chuck.

the heads inside the counterbores, keeping epoxy off exposed threads. Let cure and sand flush.

5 With the case and folding top upside down on your bench, clamp the leg top (J) against the leg rail (I). Center a 12" continuous hinge on the leg and mark the mounting screw centerpoints on the leg top and rail [**Photo J**]. Drill pilot holes to suit the screws provided, and mount the hinge.

6 Extend the leg-bottom (K) bolts through the leg-top (J) slots, and secure with washers and four-arm knobs.

Build drawers the fast way

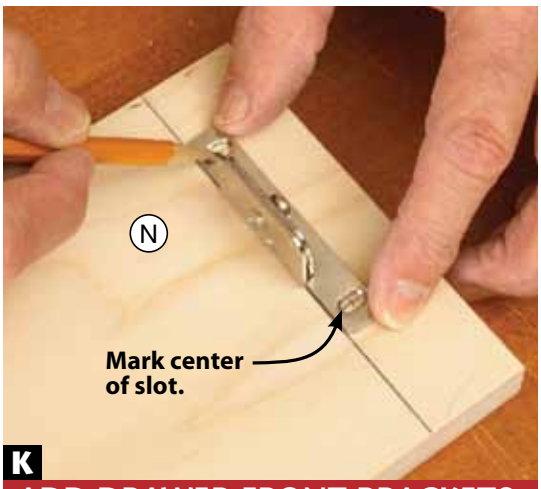
1 Measure the distance between the sides (A). If that dimension equals 16", cut the drawer backs (L) and drawer bottoms (M) to the sizes in the **Materials List.** If not, subtract 1¼" from that dimension and substitute that for the drawer-back length and bottom width.

2 Drill and countersink shank holes in the drawer bottoms (M) and pilot holes in the backs (L) [**Drawing 4**]. Glue and screw the backs to the bottoms.

3 Cut the drawer fronts (N) to size. Drill holes for the handle screws.

4 Use the story board **Shop Tip** on *page 10* to lay out the drawer-front bracket mounting locations. Align a bracket on the drawer front (N) with the slots over the mounting location lines. Mark the centers of the mounting slots [**Photo K**]. Drill pilot holes, and mount the brackets. Repeat for the remaining four drawers.

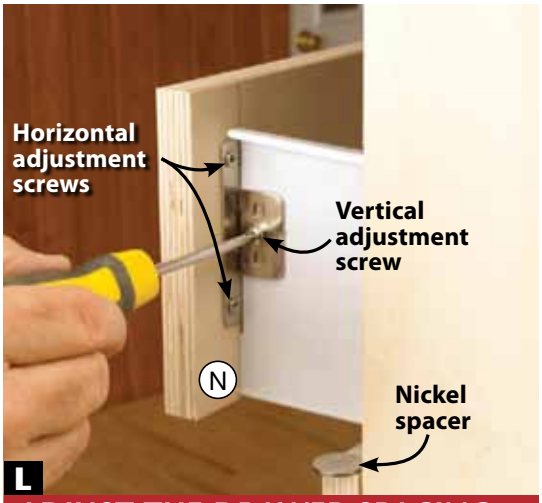
5 Refer to the metal side slide instructions to assemble the drawers.



K

ADD DRAWER-FRONT BRACKETS

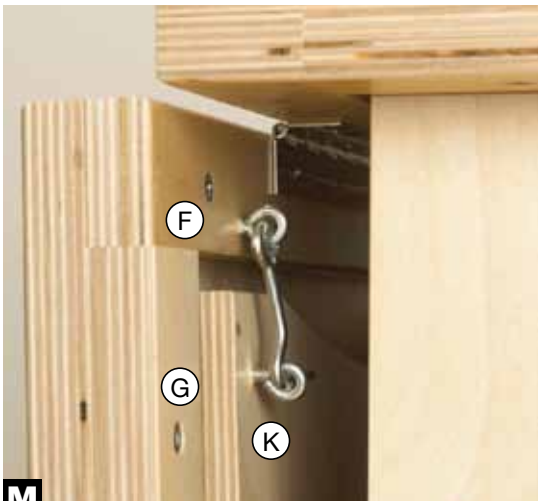
Center bracket mounting screws in the slots to horizontally adjust the drawer front.



L

ADJUST THE DRAWER SPACING

The drawer-front bracket can be loosened to fine-tune the drawer-front position.

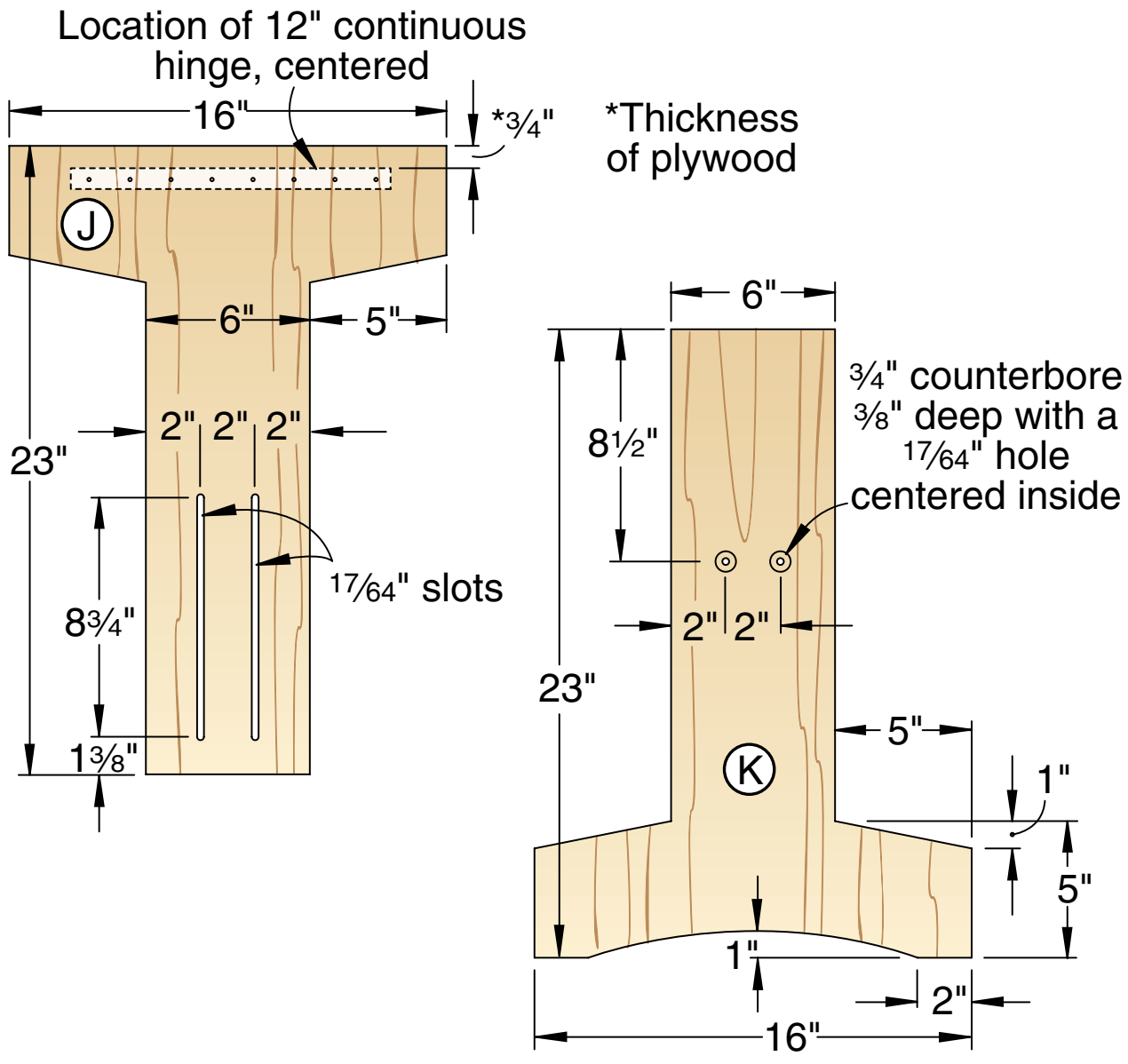


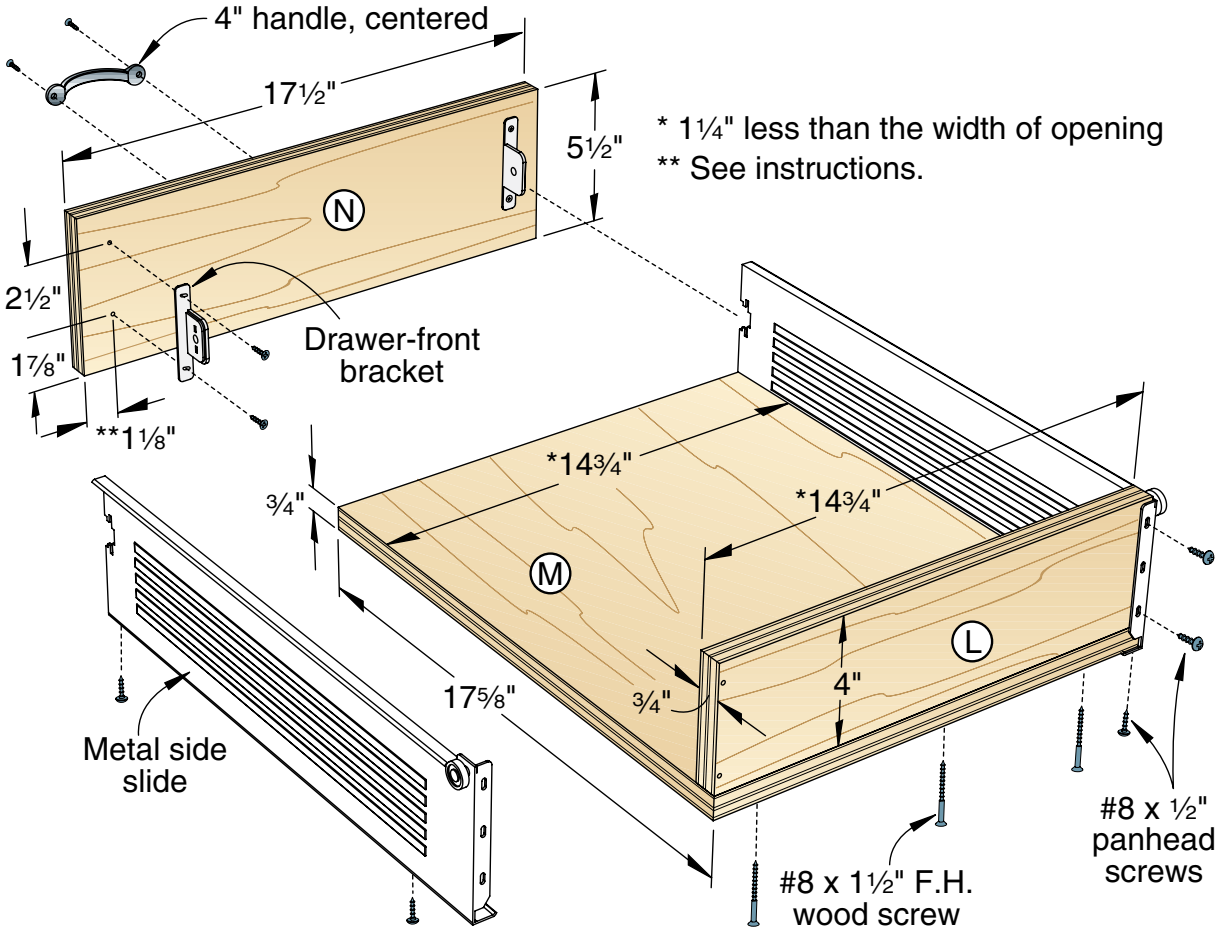
M

INSERT THE HOOK-AND-EYE LATCHES

Drill and insert the hook eye. Then position the second eye to hold the leg in place.

3 FOLDING LEG



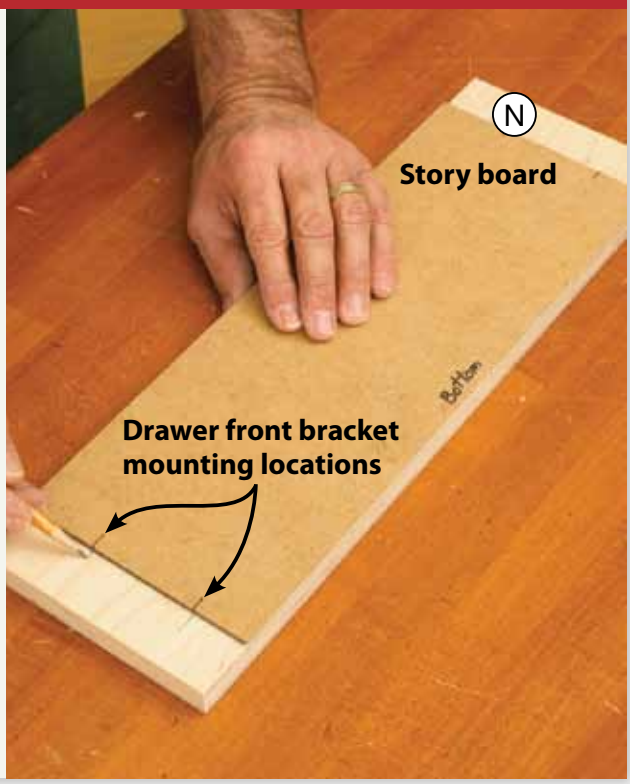

4" handle, centered
17½"
5½"
* 1¼" less than the width of opening
** See instructions.
N
2½"
1⅞"
**1⅛"
Drawer-front bracket
*14¾"
*14¾"
¾"
M
L
17⅝"
¾"
4"
Metal side slide
#8 x 1½" F.H. wood screw
#8 x ½" panhead screws

4 DRAWER

SHOP TIP

A story board ensures a happy layout ending

Save time, increase accuracy, and avoid repetitive measurements by creating a story board to lay out drawer-front bracket mounting locations. From ¼" medium-density fiberboard (MDF) or plywood, cut a story board to the drawer-back (L) length and drawer-front (N) width. Label one edge as the bottom, and mark the drawer-front bracket mounting screw locations [**Drawing 4**]. Center the story board on the *inside* of the drawer front. Mark top-to-bottom lines on the drawer front along both ends of the story board, and then transfer story-board screw locations to the drawer front, as shown at *right*.



Finish up and get rolling

1 Remove all hardware and disassemble the drawers. Then remove the fixed top from the case. Sand all parts to 180 grit, remove the dust, and apply three coats of finish. (We used Minwax Polycrylic satin finish, sanding to 220 grit between coats.)

2 After the finish dries, remount the top to the case, and reattach all hardware. Reassemble and insert the drawers, and adjust the spacing between the drawers using the drawer-front brackets [**Photo L**]. Use nickel spacers to provide a 1/16" gap between drawers. (There's a ½" gap between the top drawer and the case.) Then number the outside drawer backs 1–5 from top to bottom to preserve these spacings after removing the drawers.

3 Attach 2" hook-and-eye latches to the folding top, leg top (J), and leg bottom (K) [**Drawing 2**]. One latch holds the leg in its folded position [**Photo M**] while the folding top is stowed. The latch on the folding-top stile (F) and leg bottom keep the leg from accidentally swinging sideways when lowered. Now you're ready to fill the drawers with your tools or supplies, and go to work.

Written by **Bob Wilson** with **Chuck Hedlund**
Project design: **Conrad Kuharic** and **Kevin Boyle**
Illustrations: **Roxanne LeMoine; Lorna Johnson**
Graphic design: **Lorna Johnson**

Materials List

Case		FINISHED SIZE T	W	L	Matl.	Qty.
A	sides	¾"	22¼"	28⅜"	BP	2
B	top/bottom	¾"	23"	17½"	BP	2
C	back	3/16"	16¾"*	28⅜"	PH	1
Tops						
D	folding top	¾"	21"	32"	BP	1
E	fixed top	¾"	21"	26½"	BP	1
F	stiles	¾"	1½"	21"	BP	4
G	folding top rails	¾"	1½"	29"	BP	2
H	fixed top rails	¾"	1½"	23½"	BP	2
I	leg rail	¾"	3"	18"	BP	1
J	leg top	¾"	16"	23"	BP	1
K	leg bottom	¾"	16"	23"	BP	1
Drawers						
L	drawer backs	¾"	4"	14¾"	BP	5
M	drawer bottoms	¾"	14¾"	17⅝"	BP	5
N	drawer fronts	¾"	5½"	17½"	BP	5

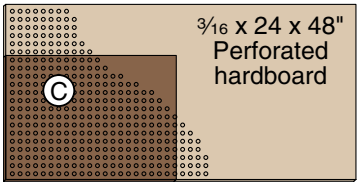
*May vary due to plywood thickness. See the instructions.

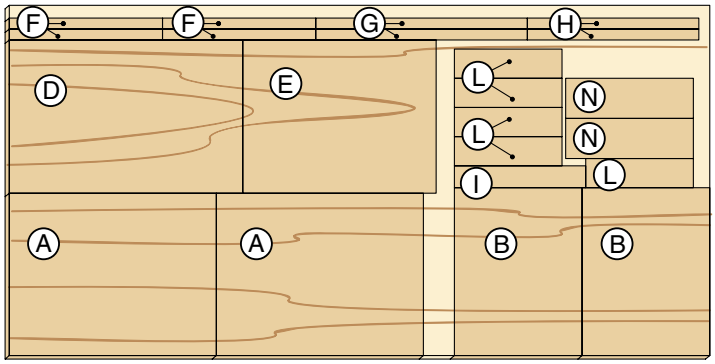
Materials key: BP–Baltic birch plywood, PH–perforated hardboard.
Supplies: ¼" -20×1½" hexhead bolts (2); #8×½" and #14×¾" panhead screws; ¼" flat washers; #6×⅝", #8×1¼", #8×1½", and #8×2" flathead wood screws; 12" continuous hinges (2); 2" hook-and-eye latches (2); five-minute epoxy.
Bits: 3/16" straight bit, ⅛" round-over bit, ¾" Forstner bit, 17/64" brad-point bit.

Source

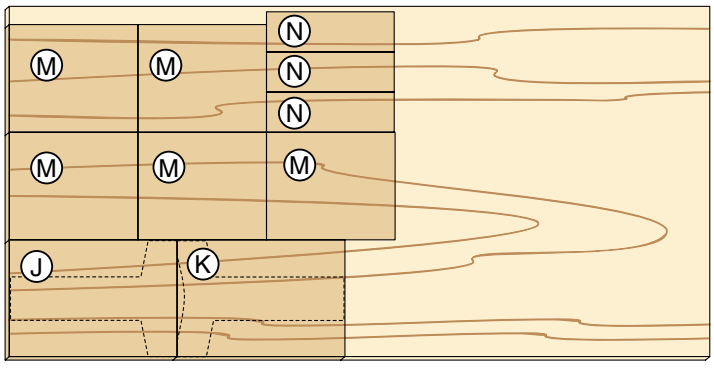
Hardware: Metal side slides no. 12K38.45, pair (5); 4" metal handles in oil-rubbed bronze finish, no. 02W26.26, (5); ¼"-20 four-arm knobs no. 00M55.40, (2); 4" caster set no. 00K20.10 includes two locking-swivel and two fixed casters; from Lee Valley, 800-871-8158 or leevalley.com.

Cutting Diagram





¾ x 48 x 96" Birch plywood



¾ x 48 x 96" Birch plywood

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