

# Greene & Greene Inspired Dresser

By Mike McGlynn

*This chest of drawers has an extraordinary number of pieces, and putting them together is like a Rubik's Cube® — if you don't do it in the right order, it won't work out. There are a lot of projects that you can go about in a random fashion — making whatever part strikes your fancy, in any order.*

*This is not one of those projects.*

This chest is influenced by a Greene and Greene chest of drawers first viewed at the Gamble house in California. Among many other factors, I was especially drawn to the staggered drawers and the small mirror.

## Sheet Stock Galore

The *Material List* for this piece contains a lot more sheet stock than you would normally expect with a piece this size. The amount of solid wood is surprisingly small. I started selecting my material by picking out some nice 8/4 mahogany for the legs and some 4/4 stock. For the drawer fronts, I made sure to select boards that I could get the full width of the fronts from, and that were long enough that I could have the grain run across each pair of fronts. I also selected a piece of rough 4/4 that was thick enough to get the 1" thickness of the breadboard ends out of. In addition, I made the entire top out of one board. I made the drawer pulls out of some choice 6/4 quartersawn mahogany that was lying around my shop.

I chose to make all of the interior dividers out of 3/4" (2 sheets, plus) shop-grade birch plywood; there is no reason to use anything fancy for these dividers, as they will never be seen. The back, side and interior panels are made of 1/4" MDF (two full sheets). I made the drawer bottoms out of maple veneered 1/4" MDF. Note: It's only possible to get 11 of the 12 bottoms out of one sheet of ply, so I hope you've got a little leftover lying

around your shop. The last sheetstock that I bought were two sheets (5' x 5') of Baltic birch plywood.

There are two other types of wood that I had to purchase before I could start on the cabinet. The plugs and splines on Greene and Greene pieces are almost always made of Gaboon ebony, but, unable to find any decent Gaboon, I chose instead to make these pieces out of African blackwood. I like the blackwood better than the ebony, as it has a subtle grain, yet is almost black, and polishes just like the ebony. Lastly, I bought two 4' x 8' sheets of paper-backed mahogany veneer, to cover the side panels and back. I selected sheets with seam lines to help me create a balanced looking panel.

The first thing I did after getting back from the lumberyard was to rough mill all of my solid wood pieces. I generally like to leave all pieces a couple of inches long, and at least 1/4" oversize in the other dimensions. This allows the wood to adjust to my shop conditions, and I end up with milled, straight flat pieces. I marked all of the drawer fronts with chalk so I could quickly tell which fronts went together and in what orientation.

There are four sections that make up this cabinet: The sides, the center section, the top and mirror and the drawers. I started with the sides.

## Start With the Sides

My first step with the sides was to create their veneered panels. I cut the MDF substrate oversized and their veneer pieces to match. I chose the

## ELEGANT DETAILS





“There were a surprising number of plug holes, mortises and slots that had to be cut in each of the legs. This was an excellent place to completely screw up the project, or at least the four nicely matched legs.”

best pieces of veneer for the face sides of the panels. The veneer can be applied in a number of ways; my choice was a vacuum bag, but most folks use the simple veneer press described below.

While the panels cured, I milled the legs and rails to final dimensions. Again, I took care to keep my orientations marked with chalk.

There were a surprising number of plug holes, mortises and slots that had to be cut in each of the legs. This was an excellent place to completely screw up the project, or at least the four nicely matched legs. So I laid out each and every plug hole, mortise, panel slot and back rabbet so there would be no chance of a mistake.

I use a multi-router to form my mortises and tenons, but I think you would do just fine here with a mortising machine or attachment to your drill press. Look to the *Elevation Drawings* on page 41 for construction details. The last step on the legs is to break (or round over) the appropriate edges with a 1/8" roundover bit.

Next, I milled all of the rails to size and cut their tenons. The bottom rails get the traditional Greene and Greene “cloud lift.” I laid them out, cut them on the band saw and finished them with a file and a hard sanding block. Finally, I rounded over the selected edges of the rails.

By this time, the panels were finished being veneered, so I cut them to size on the table saw. Now I could measure their edge thickness to find the size of the panel slots. In my case, the panels came out to just about 5/16".

I cut the panel slots on the router table using a 1/4" downspiral bit by plowing a 1/2" deep groove down the middle of each piece. To widen the slot, I moved the fence a tiny bit and made two passes — one on each side of the main slot. I did this until I got a nice slip fit.

Prior to staining and assembly, I went through a four-step process to prepare the parts for staining. I first sanded all pieces with 120 sandpaper. Secondly I detailed all of the edges and “cloud lifts.” Next, I went over everything with a damp rag to raise the grain and, finally, I sanded everything with 220 sandpaper on a slightly soft block.

Like most of the Greene and Greene pieces I've built, this chest has a waterbased aniline dye stain on it. I have found that it is almost impossible to end up with a good stain job if the piece is assembled. For this reason I try, as much as possible, to stain all the parts before they are assembled.

With that step completed, I buffed the surface of all the pieces with a fine Scotch-Brite® pad. After buffing, I assembled both of the ends, using epoxy and padded bar clamps. It's essential to handle all the stained parts with rubber gloves, or moisture from your hands will damage the dye.

### Getting to Your Center

The center section of this cabinet is very complicated, but I was drawn to this design because of its asymmetrical drawers. Just my luck that they added such a degree of difficulty.

I started by milling the divider edging. As seen in the *Drawings*, there is a subtle difference in width between the horizontal and vertical edges. The horizontal edges are 7/8" wide, and the vertical edges are 3/4" wide. With the divider sheetstock 3/4" thick, I chose to rabbet the horizontal edging 1/4" deep so it would nicely cap the edges. To prevent breaking off the 1/16" lips, I made the rabbet with

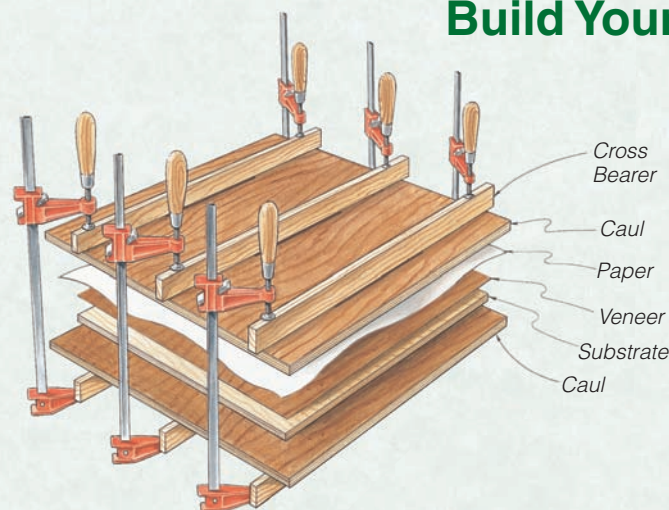
## Build Yourself A Basic Veneer Press

While our author has access to a vacuum bag veneer press, not everyone does. The good news is that the time-honored traditional method is still very practical, and with the exception of the clamps, you can fabricate everything else you need in your shop.

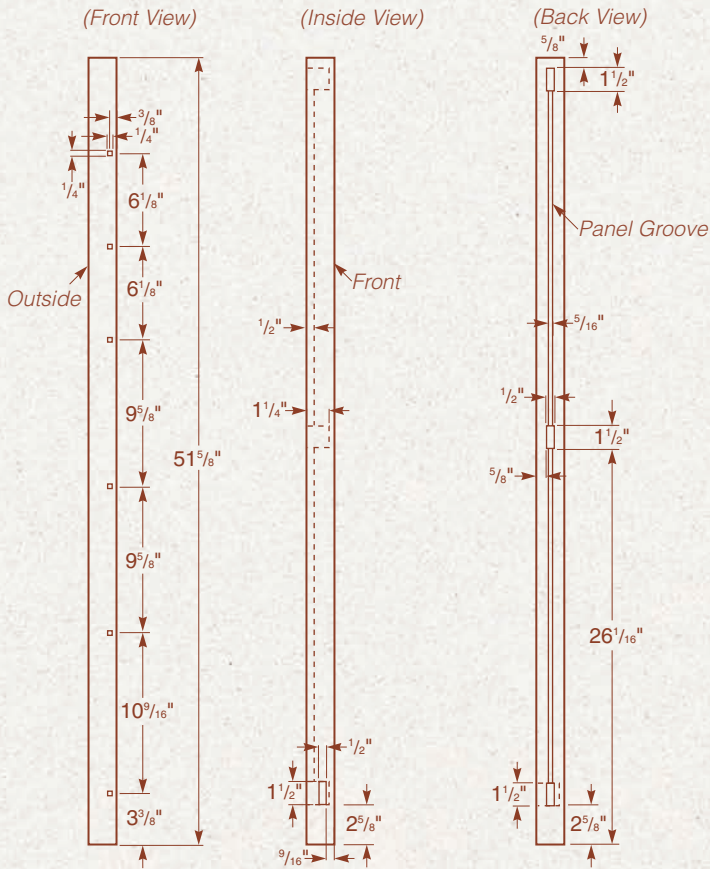
You'll need the clamping cauls (in this case 3/4" sheetstock) and cross bearers (lumber with a slight crown along their length — to apply pressure to the center of the cauls). It's a good idea to layer newspaper or the like between the veneer and cauls during clamp-up.

Apply glue (yellow or white) to the substrate in a thin smooth layer, place the veneer on top of that, then build your “clamp sandwich” as shown in the drawing at left. Wait at least 24 hours for the glue to cure.

— WJ Staff

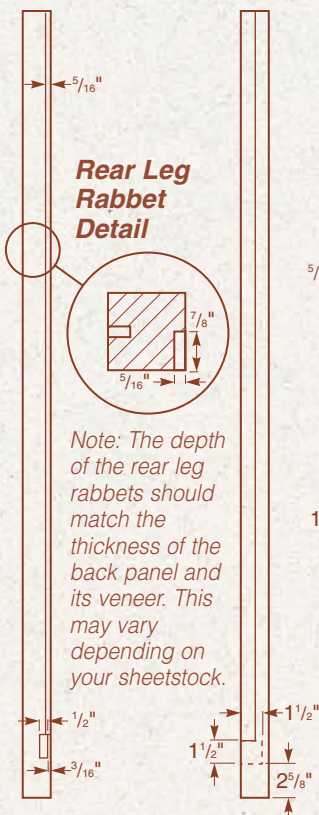


### Front Legs



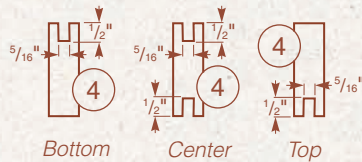
### Rear Leg

(Inside View) (Back View)



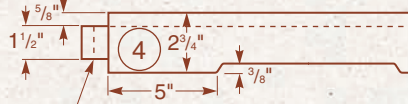
### Side Rails

(Section Views)

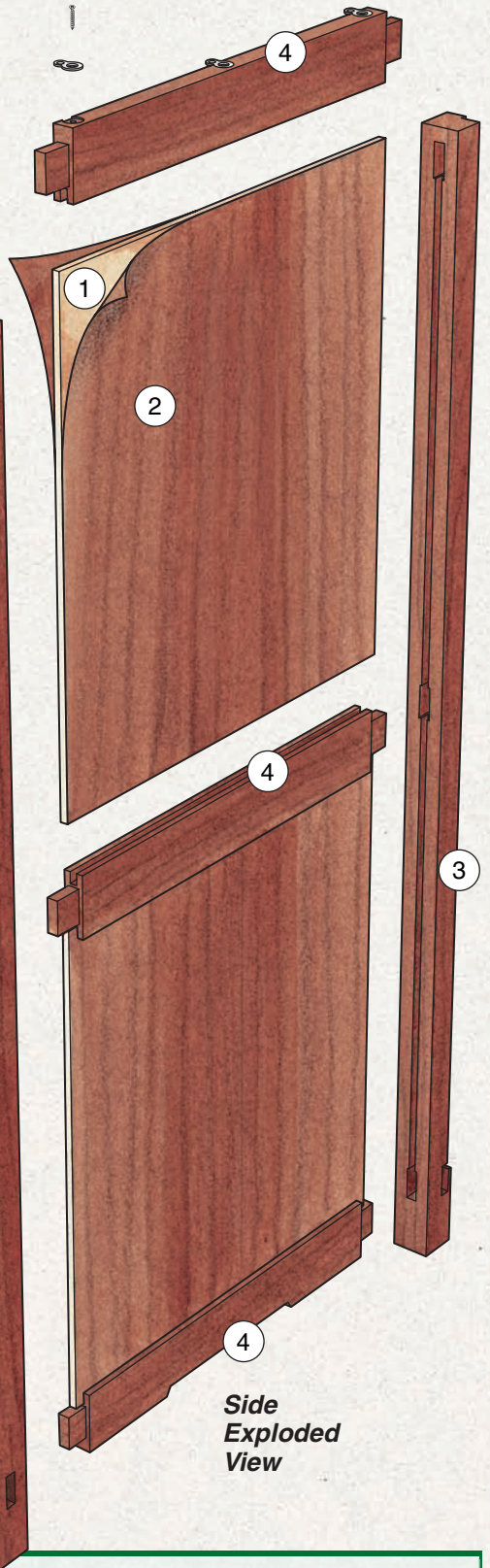


### Side Rail

(Front View)

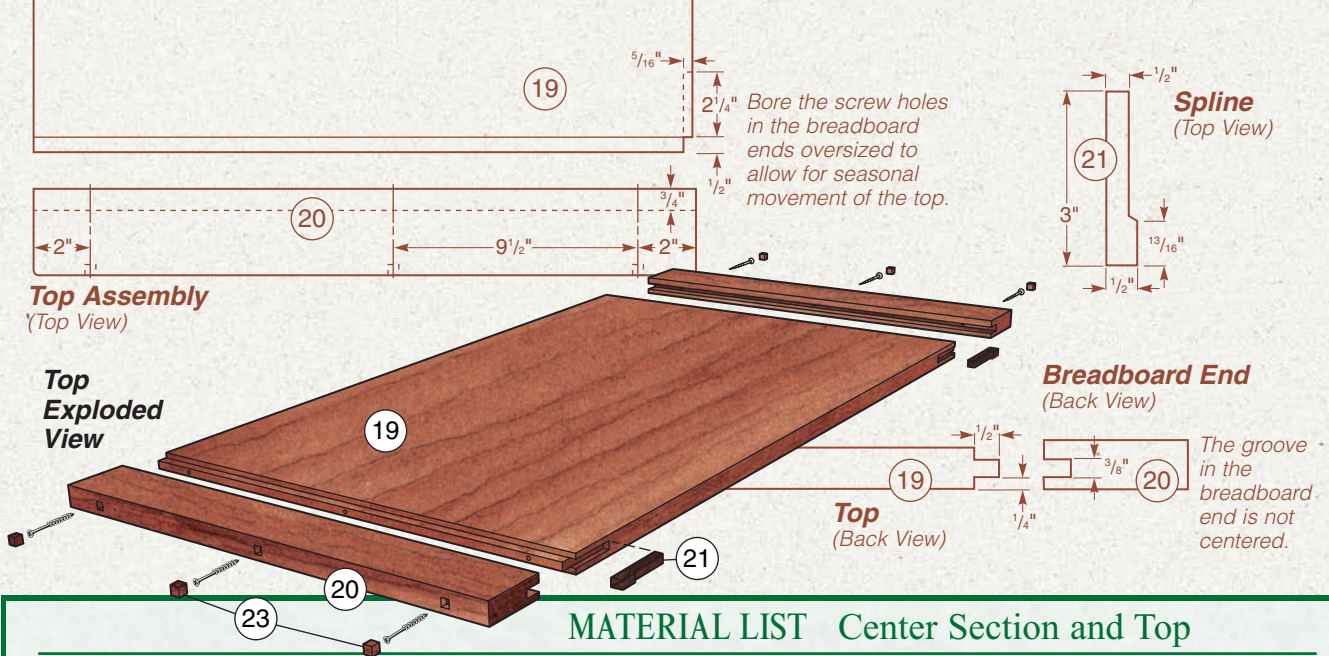


Note: The lower side rails' tenons must be trimmed to 1 1/16" before assembly. The tenons on the other side rails remain at 1 1/4".



## MATERIAL LIST Sides

	T x W x L
1 Side Panels (4)	1/4" x 19 3/8" x 21 13/16"
2 Veneer (paper-backed) (8)	1/16" x 19 3/8" x 21 13/16"
3 Legs (4)	1 3/4" x 1 3/4" x 51 5/8"
4 Side Rails (6)	7/8" x 2 3/4" x 21"



## MATERIAL LIST Center Section and Top

	T x W x L		T x W x L
5 Horizontal Edging (1)	7/8" x 1/2" x 185"	15 MDF Side Panels (2)	1/4" x 18 1/2" x 45 5/8"
6 Vertical Edging (1)	1/2" x 13/16" x 54"	16 Back (1)	1/4" x 38 1/4" x 47 3/4"
7 Horizontal Dividers (5)	3/4" x 21 1/16" x 36 1/2"	17 Back Veneer (1)	1/16" x 38 1/4" x 47 3/4"
8 Bottom (1)	3/4" x 20 1/2" x 36 1/2"	18 Drawer Slides (12 pairs)	18"
9 Bottom Vertical Divider (1)	3/4" x 8 3/16" x 20 13/16"	19 Top (1)	7/8" x 22 7/8" x 37"
10 Lower Vertical Dividers (2)	3/4" x 8 7/8" x 20 13/16"	20 Breadboard Ends (2)	1" x 3" x 23"
11 Middle Vertical Dividers (2)	3/4" x 5 3/8" x 20 13/16"	21 Splines (2)	3/8" x 1/2" x 3"
12 Top Vertical Divider (1)	3/4" x 5 13/16" x 20 13/16"	22 Plugs (12)	1/4" x 1/4" x 1/4"
13 Top Rails (2)	1/2" x 2" x 36 1/2"	23 Plugs (6)	3/8" x 3/8" x 3/8"
14 Bottom Rails (2)	7/8" x 2 3/4" x 39"	24 Glue Blocks (4)	2" x 4" x 4"



several passes on the table saw. I then made the edging for the vertical dividers 13/16" wide so that I could easily flush it up after gluing it on.

When slicing up the birch plywood, I would recommend trying to

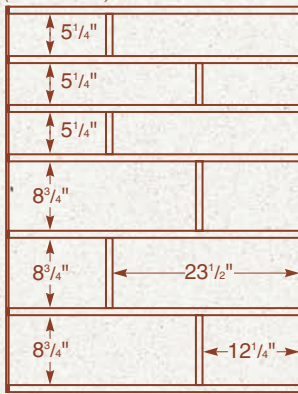
**The author forms a groove in the horizontal edging. The delicate 1/16" lips of the edging must be handled carefully.**

eliminate veneer chip-out by carefully knife-scoring the cut line, and using a very sharp plywood blade. I cut the dividers so the grain went from side to side on the horizontals, and from top to bottom on the verticals. Then, I glued all the edging on, using Titebond® glue and bar clamps.

Because I choose to leave them a little long for the glue-up, all of the ends of the edging needed to be trimmed, and the ones on the vertical dividers needed to be notched to fit over the horizontal edging's 1/16" lip. It's important to note that all of the vertical dividers don't get exactly the same size notch. The bottom divider is flush on the bottom because there isn't a 1/16" lip to clear, and the top divider gets a 1/2" x 2" notch for the top rails. All the others get the standard 1/16" notch on both edges.

Now I was ready to sort out the vertical and horizontal dividers and mark them for assembly. Using a long square, I marked a line for each side

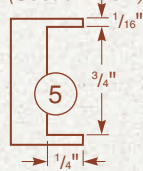
**Divider Locations**  
(Side View)



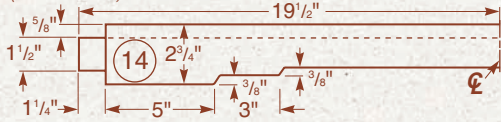
**Top Vertical Divider**  
(Side View)



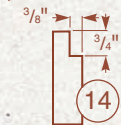
**Horizontal Edging**  
(Section View)



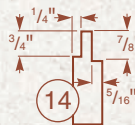
**Front Bottom Rail**  
(Front View)



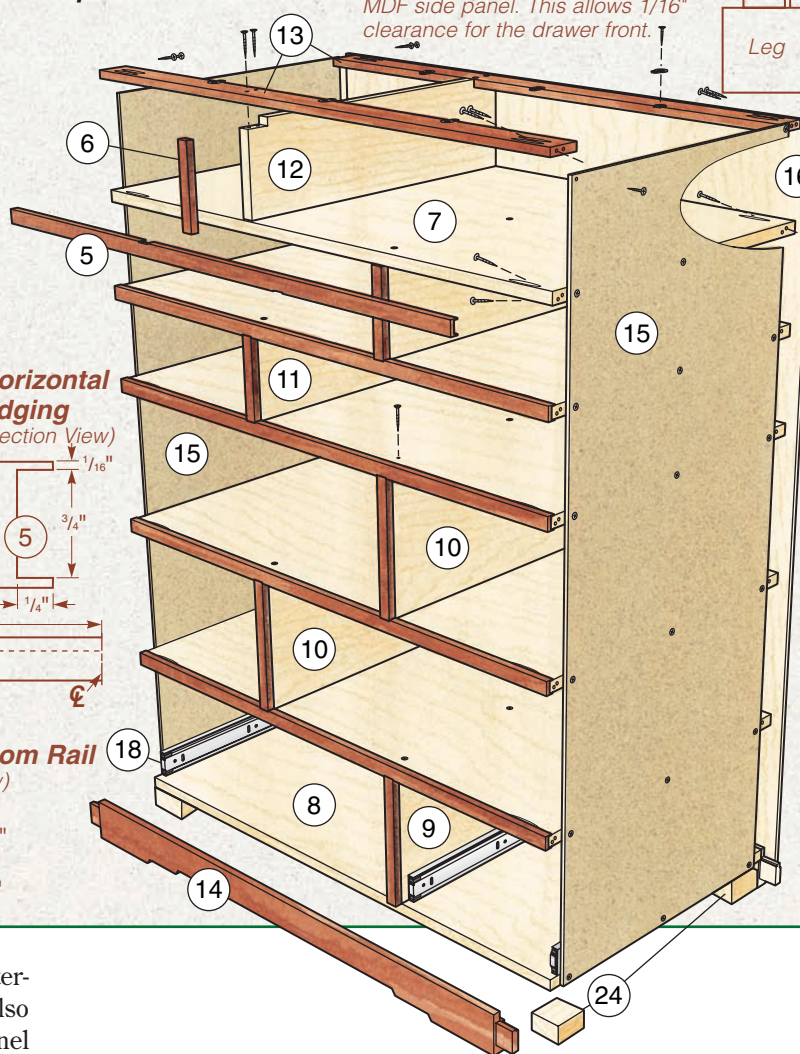
**Front Bottom Rail**  
(Section View)



**Back Bottom Rail**  
(Section View)

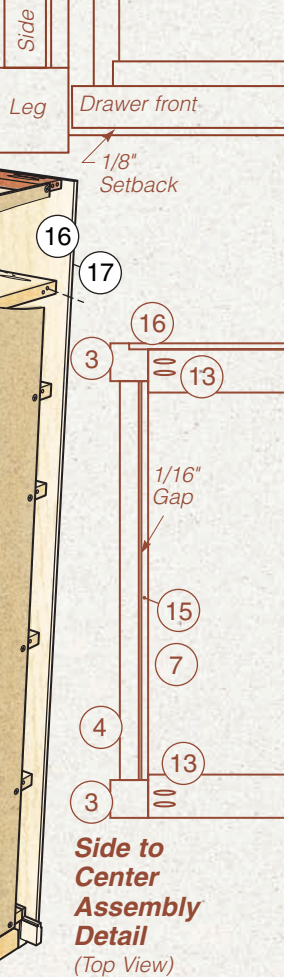


**Center Section Exploded View**



**Drawer Clearance Detail**

The drawer slide is mounted to the MDF side panel. This allows 1/16" clearance for the drawer front.



**Side to Center Assembly Detail**  
(Top View)

of the vertical panels, and the centerline onto the horizontal dividers. I also carried the centerline of each panel around to the opposite side. I then drilled three attachment holes for each vertical edge.

Before going any further, you must make and install two bottom rails into the bottom divider panel before the center section can be assembled. Each of these rails has its own details to take care of: rabbets, "cloud lifts," etc. Once the rails were detailed, I glued them to the bottom divider.

Rounding over the vertical edges was my last step prior to assembling the center section. I don't round over the horizontal edges until after the dividers have been joined.

I assembled the center section on a large, flat bench. This was very helpful, as it kept the back edges all lined up. It was also very useful — almost imperative — to have a right angle cordless drill/driver. I started at the top and worked my

way down, clamping each vertical in place, drilling pilot holes, and then attaching each vertical with glue and screws.

I had assembled the center section using an 1/8" roundover bit to break the horizontal edges.

The two top rails are the last parts of the center section. They are simply glued and screwed to the vertical divider.

With the dividers joined together in a single unit, I attached the MDF side panels that hold everything in

alignment and make a surface for the outside drawer slides to attach to. I used spacer blocks at the outboard ends of the horizontal dividers to hold them exactly the right distance apart. Once again, I attached the panels with glue and screws.

The center section was now complete and ready to be stained. My first step

**Details such as the African blackwood splines and the ultra-detailed drawer pulls create a sense of elegance.**



was to detail the intersections of the vertical and horizontal edges with 120 sandpaper. Then, I raised the grain and lightly sanded with 220-grit.

Staining this section was an exercise in being methodical and careful. It was simply not possible to stain the whole thing at the same time without a disaster taking place. So I stained one drawer bay at a time, wiped off the excess, and then moved on to the next section to avoid drying and blending problems. Once it was stained, I buffed it all as before.

With caution being the better part of valor, I assembled one side at a time to the center section. This was a pretty straightforward matter of gluing, clamping and pocket screwing. As I mentioned before, wear rubber gloves when handling the stained, but not finished, wood. I assembled the unit by attaching the horizontal dividers

to the ends with pocket holes — two per corner: one top and one bottom. After I had both sides attached, I made and attached large corner blocks to join the rails and legs on the bottom of the cabinet.

To prevent the stain from being marred at this point, I sprayed the assembled cabinet with a sealer.

### A Classic Breadboard Top

The top is a classic Greene and Greene top: breadboard ends and exposed splines at the joints. I began by milling my board to thickness, then used my table saw to cut the top to size. Staying at the table saw, I formed the tenons with a vertical and horizontal cut.

I milled the breadboard ends to size and cut the groove in them on the table saw. This groove is not down the middle of these pieces, but is

instead offset due to the 1/8" thickness difference between it and the top. These pieces are flush with the underside of the top and proud on the top. Cutting the spline slot was best done by chopping it by hand with a sharp chisel.

Like the plug hole in the legs, I used a square mortising chisel in the drill press to cut the plug hole in the breadboard ends. After cutting the plug holes, I used the drill press to drill the attachment holes. I then slipped the ends into place, marked the screw holes, and drilled the pilot holes in the tenon.

Rounding over and detailing the top and ends is a bit tricky if you don't watch it. It was important to remember that the ends stand proud on the top and the front. I was very careful to keep the back and bottom edges square. Once again, I went through the prep steps and then stained the top and ends.

Once the stain was dry and buffed, I attached the ends to the top with 3" screws.

### The Drawers and Pulls

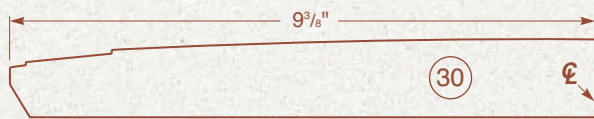
As I mentioned earlier, I selected the wood for the drawer fronts carefully so that the grain ran continuously across all of the pairs. I milled the boards to thickness and width, and then cut them up. I used my block plane to fine-tune the fit of each front so that I had an even, and parallel, gap all the way around. After fitting, I marked each front as to which opening it fit in. In a routine you're probably sick of by now, I rounded over the corners of the fronts, and went through the sanding and staining process.

I made the drawer boxes out of 1/2" Baltic birch plywood. I think this material makes a great drawer box. I cut the parts to size and machined their joints. When I had finished routing the rabbets, I sanded all the sides, fronts and backs to 120.



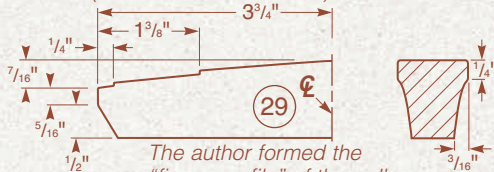
**Forming the quartersawn mahogany drawer pulls is a time-consuming task. The author spent a significant number of hours detailing these pulls.**

### Large Drawer Pull (Side View)



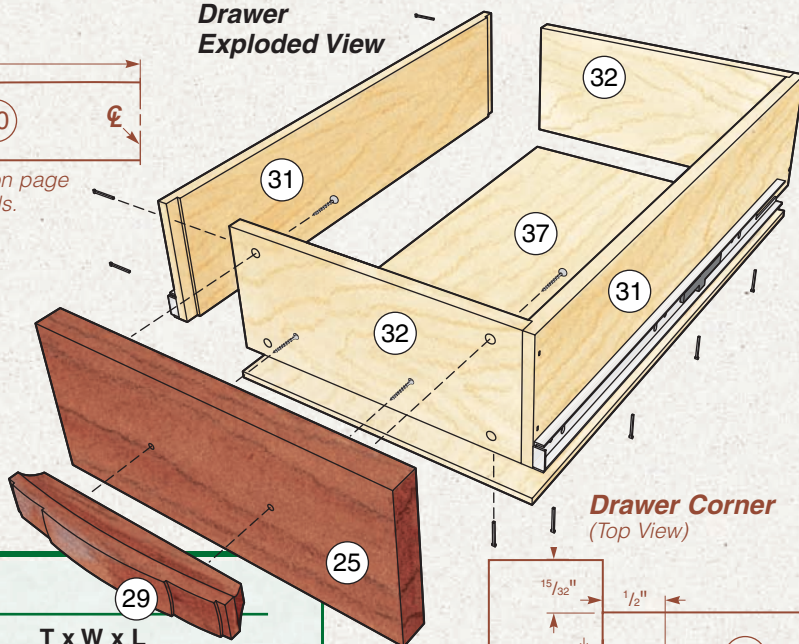
See inset photo on page 44 for more details.

### Small Drawer Pull (Side and Section Views)

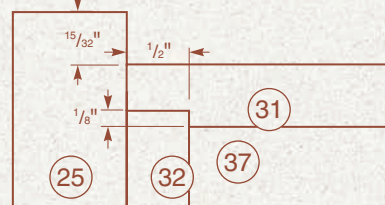


The author formed the "finger profile" of the pulls with a combination of a router and sharp gouges.

### Drawer Exploded View



### Drawer Corner (Top View)



## MATERIAL LIST Drawers

	T x W x L
25 Upper Small Drawer Fronts (3)	7/8" x 5 1/8" x 12 3/16"
26 Upper Large Drawer Fronts (3)	7/8" x 5 1/8" x 23 3/8"
27 Lower Small Drawer Fronts (3)	7/8" x 8 5/8" x 12 3/16"
28 Lower Large Drawer Fronts (3)	7/8" x 8 5/8" x 23 3/8"
29 Small Drawer Pulls (6)	1 1/8" x 1 1/4" x 7 1/2"
30 Large Drawer Pulls (6)	1 1/8" x 1 1/4" x 18 3/4"
31 Upper Drawer Sides (12)	1/2" x 4 5/8" x 19 1/2"
32 Upper Sm. Dwr Fronts, Backs (6)	1/2" x 4 5/8" x 10 1/2"
33 Upper Lg. Dwr Fronts, Backs (6)	1/2" x 4 5/8" x 21 3/4"
34 Lower Drawer Sides (12)	1/2" x 8 1/16" x 19 1/2"
35 Lower Sm. Dwr Fronts, Backs (6)	1/2" x 8 1/16" x 10 1/2"
36 Lower Lg. Dwr Fronts, Backs (6)	1/2" x 8 1/16" x 21 3/4"
37 Small Drawer Bottoms (6)	1/4" x 11 1/4" x 19 1/2"
38 Large Drawer Bottoms (6)	1/4" x 22 1/2" x 19 1/2"

Using a brad nailer and Titebond, I assembled the drawer boxes. Before the glue had set, I laid each drawer box on my bench, measured it from corner to corner for squareness, and tweaked them if necessary.

While the boxes were drying, I cut the bottoms from the maple veneered 1/4" MDF. To prep for finishing, I sanded them to 120. I attached the bottoms with glue and brad nails.

One of the defining characteristics of Charles and Henry Greene's casework pieces is their drawer and door pulls. There are as many different variations of pulls as pieces they designed. The sculptural quality of these pulls is what ties them together. For this cabinet I designed pulls that were based upon an

amalgam of several different designs, the primary one being the chest of drawers from the Gamble house that I referred to earlier. I'll tell you from the start that these pulls take an inordinate amount of time. For a simpler pull that would look fine, check out my Greene and Greene desk in the Sept./Oct. 2000 issue of *Woodworkers Journal*.

In search of pleasing aesthetics, I tried to choose straight grain wood for these pulls. I milled all of the pieces to their rectangular dimensions and cut them to length.

To lay out the curved steps, I made a very accurate tagboard template and used it to mark out the steps. I marked the steps on the side of each pull with a black fine-line ballpoint pen (it's

easier to see). Using a 6 TPI x 1/4" blade, I very carefully band sawed the steps. I was careful to cut just on the fat side of the line so I could clean up the saw marks without going past the layout line. Once the steps were sawed, I smoothed them to the line with a combination of a hard sanding block, files and my block plane.

I found a pleasing curve for the edge of the steps and, after experimenting a bit, I found that a pillar file, with its one smooth edge, was the best way to cut and smooth these curves.

Making the finger relief could probably all be done with a single, somewhat elaborate, router jig. I found it just as easy to do it with a combination of a pass on the router table and some hand work. I started by making a pass on the router table with a coving bit. This left me with a straight relief that needed to be modified into a curved one to match the curve of the pull face. I marked a line about 3/8" back from and parallel to the pull face. A few good swipes with a sharp gouge and a little cleaning up with sandpaper finished the job.

The final shaping to be done on the pulls is the undercutting of the ends.



“Staining this (center) section was an exercise in being methodical and careful. It was simply not possible to stain the whole thing at the same time without a disaster taking place.”

I did this freehand by judiciously grinding the ends on the end roller of my stationary belt sander.

There was a surprising amount of very painstaking sanding and detailing to be done before the pulls were ready for stain. I made quite an effort to get all of the pulls to look exactly the same. When all the detailing was done, I went through the staining process.

If this cabinet was always going to be up against a wall, I probably could have gotten away with making the back out of a piece of 1/4" MDF. Alas, that was not the case, so I opted for a piece of mahogany veneered 1/4" MDF. I veneered the back in a vacuum bag the same as I did the side panels. I only veneered one side of the back, but since it is screwed down with

about 20 screws, warpage won't be a problem. After cutting it to size, I sanded and stained the back in the usual method.

### Mirror, Mirror

The mirror and its supports were the last things I needed to build before the cabinet could be finished and assembled. I started by milling all of the pieces to their rough, non-shaped

size. While still in this rectilinear shape, I cut the miter joints on the top and side pieces. After cutting the miters, I used a thin wood batten to lay out the curves and steps on both the top and sides. I cut the pieces to shape on the band saw and then smoothed them up with sandpaper and files.

The corners of the mirror are joined with face frame size biscuit joints, but you

can substitute dowels. Prior to gluing up the frame, I made sure to sand the inside edges, as this is much harder to do when the frame is assembled. I glued up the frame using Titebond, a bar clamp on the bottom and 3M packing tape on the miter joints. When the glue had set, I used a rabbeting bit in a router to cut most of the mirror rabbet. I used a sharp paring chisel to finish off the rabbet.

Before moving on to staining the mirror frame, you'll have to follow the detailing steps I've used on other subassemblies, starting with rounding over all of the appropriate edges.

Moving to the mirror posts, I started by cutting the posts to length and then laying out their curves, using a band saw to shape them.

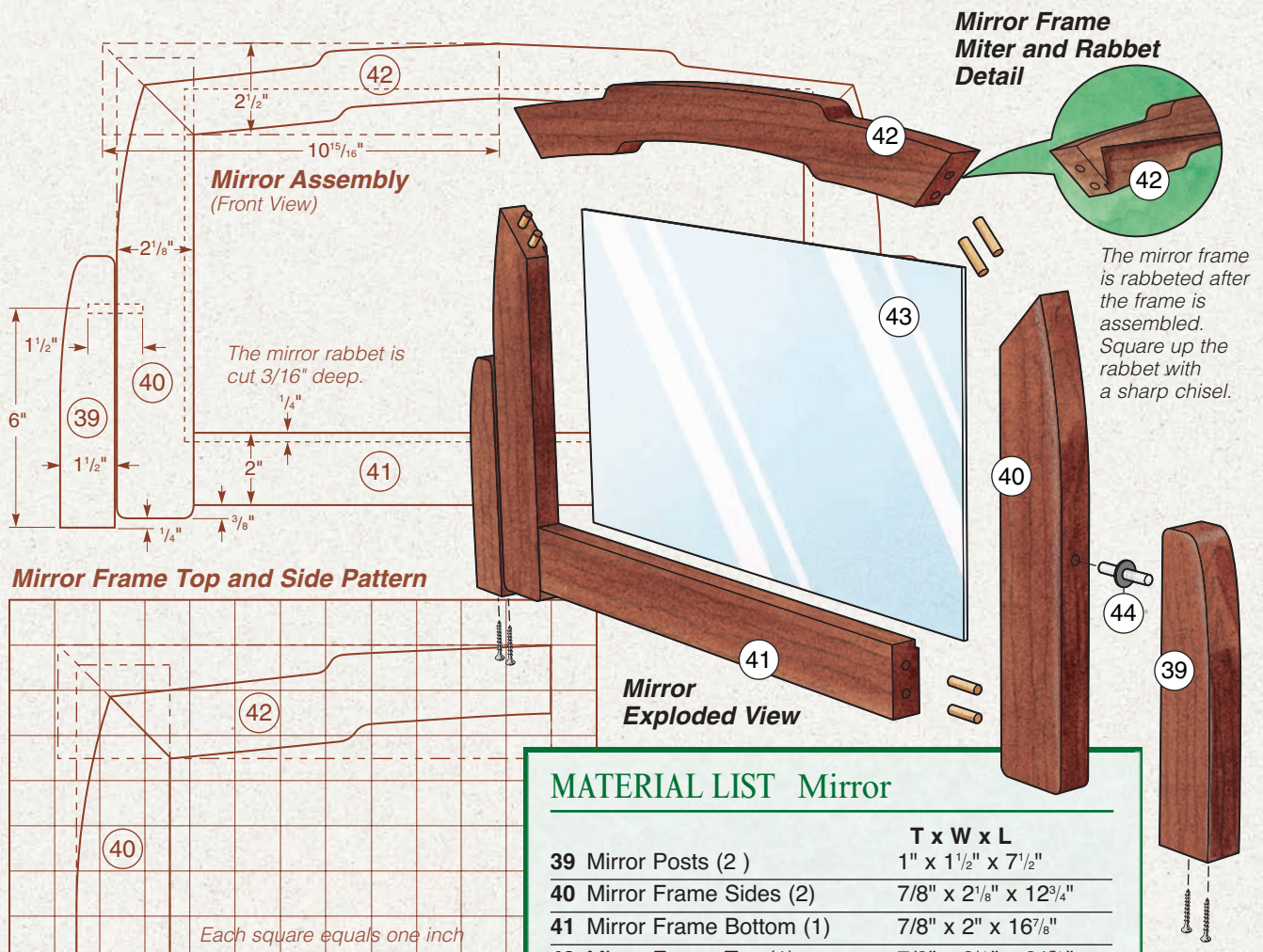
After looking at most of the available mirror pivot hardware — and finding it lacking — I decided to make my own, which, it turned out, was a lot simpler and a cleaner design. I ended up using 1" x 1/4" steel dowels and a 1/16" black nylon washer. This added up to a grand total of about \$2.00. The spacers serve to make the 1/8" gap so the assembled mirror has room to swing. With that done, I sanded and detailed all the parts and stained them.

The finishing process was quite straightforward. The first step was to go over everything with a good quality tack rag to remove any residual dust. For a finish, I sprayed three coats of catalyzed synthetic lacquer. (You can use the finish of your choice.) I usually buff with a fine Scotch-Brite or sand with 220 between coats, depending on how the surface feels.

Assembling a cabinet with this many drawers is rather time-consuming and needs to be done carefully. I started the assembly by attaching the mirror assembly to the top. The first thing I did was use clear silicone adhesive to glue a piece of 1/8" mirror into the



**The posts of the mirror assembly are joined to the dresser top by screws driven up from the inside of the top. The top is attached to the carcass with tabletop fasteners.**



### MATERIAL LIST Mirror

	T x W x L
39 Mirror Posts (2)	1" x 1 1/2" x 7 1/2"
40 Mirror Frame Sides (2)	7/8" x 2 1/8" x 12 3/4"
41 Mirror Frame Bottom (1)	7/8" x 2" x 16 7/8"
42 Mirror Frame Top (1)	7/8" x 2 1/8" x 21 7/8"
43 Mirror Glass (1)	Fabricate to fit
44 Pivot Hardware (2)	Steel Dowel/washer

mirror rabbet. While the silicone was drying, I marked and drilled attachment holes in the bottoms of the support posts. With the mirror assembly together, I carefully marked and drilled mounting holes in the top. I then mounted the mirror to the top. The top is attached to the carcass with tabletop fasteners and screws.

Installing the drawer slides was straightforward, although it required the use of a right angle drill/driver to install them, especially in those smaller compartments.

I attached the drawer pulls to the drawer fronts prior to installing the fronts on the drawer boxes. After the pulls were attached, I attached the fronts to the drawer boxes. My usual method for this is to drill four 3/8" holes in the front of the drawer boxes and then attach the fronts with drawer front attachment screws that have an oversize head. This allows for some minute adjusting to get the fronts perfectly aligned.

Once all the drawers were in place and the fronts attached and adjusted, I installed the back, using 1" screws and finishing washers.

### Ebony-like Accents

The very last items to complete on the cabinet are the African blackwood splines and plugs. I made all of the plugs in my usual way: make a stick of the right dimension, dome the end with sandpaper, polish it on a buffer, cut it off on the band saw and repeat. I also cut the splines on the band saw and then sanded them to shape and polished them. I installed the plugs and splines using a small drop of clear silicone, tapping them in place. The silicone allows for a little movement and reduces the possibility of them falling out if the humidity changes. The cabinet was now complete.

I found this to be a very satisfying

project, but in a different way than many other projects I have done. There isn't any part of this cabinet that was particularly hard to construct, but it had engineering questions galore. I really love the process of thinking through how something is going to go together, and in what order. It was really satisfying to work through the challenges presented by this cabinet and have it come together so well. I would like to think that the Greene brothers, especially Henry (the engineering half) would have found this an interesting project. I hope you do and that it provides many years of service and pleasure.

*Mike McGlynn is a professional furniture maker and contributing editor to the Woodworker's Journal. When not in his shop, you can find Mike on his mountain bike.*