

Drawer Bottoms

Six variations on a theme

by Alan Marks

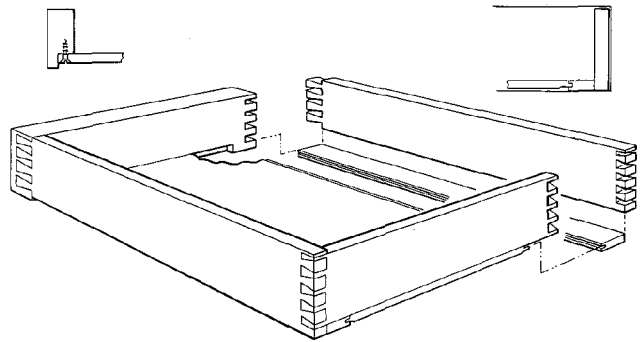
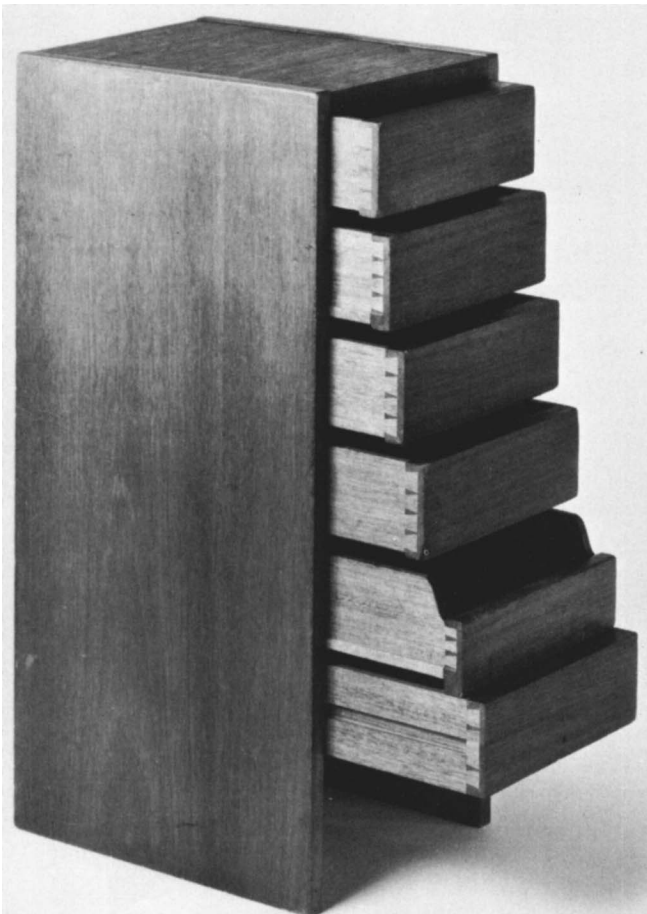
Drawers have long been considered one of the most difficult elements in cabinetry, probably with justification. Done in traditional fashion, they are time-consuming and require exacting work if they are to operate properly. This accounts on the one hand for industry's preference for stapled particle board, hot-melt glues, and ball-bearing steel suspension glides; and on the other hand for the tendency of today's craftsmen to avoid traditional drawers in favor of compartments, shelves or pigeon holes. Dovetailed construction, however, remains the strongest way of making a drawer, and also the most attractive.

The many types of construction possible using dovetails allow for innovation and flexibility, as witnessed by these six examples from Malmstens Verkstadsskola in Stockholm. Although the Swedes agree that the dovetailed drawer is the sturdiest, they often consider the decorative aspect incidental. All of the front dovetail joints shown here are half-blind. The conservative Swedes generally eschew through dovetails in drawer fronts because they interfere with the design requirements and overall style of traditional pieces. Drawer fronts on such cabinets often are delicately inlaid with veneers or carved or profiled around their edges,

all unsuitable situations for through dovetails. Also, problems of uneven swelling and shrinkage can occur with through dovetails, when the wood of the solid drawer front shrinks while the end grain of the tails does not. Through dovetails are, however, used in the backs of drawers, where the unevenness ordinarily remains unnoticed.

French bottom

The traditional drawer bottom is made of solid wood, as opposed to Masonite or plywood. Thought to have originated in France, the so-called "French" drawer bottom floats with its grain running parallel to the drawer



Exploded view from rear, with side and glide removed, shows how French-bottom drawer is put together. Section at left shows bottom screwed to front rabbet; right, section shows side, glide and bottom.

The little chest shown here is used to teach drawer construction at Malmstens Verkstadsskola (workshop and school) in Stockholm, Sweden. It was made in 1960 by master cabinetmaker Artur Joneröt, from drawings by guitarmaker Georg Bolin, then rector of the school. Ofmahogany, it stands 65 cm (25 in.) high, 25 cm (10 in.) wide and 31 cm (12 in.) deep. From the top, the drawers are kitchen, NK, false French, French, NK with ply bottom, and side-hung. The work of Carl Malmsten, who died in 1972 at age 83, was an inspirational source for the commercial furniture style now known as Scandinavian or Danish modern. Many of his designs are still in production; his school, which he founded in 1930, is now state-owned. In preparing drawings for manufacturers, he usually offered alternative constructions and indicated the one he thought superior. The second would be accompanied by a comment such as, 'This construction probably won't even last a hundred years.'

Full-size sections through drawer sides and bottoms (medium grey): Carcase sides and rails are light grey; glides are darkest grey.

French bottom

False French bottom

Kitchen drawer

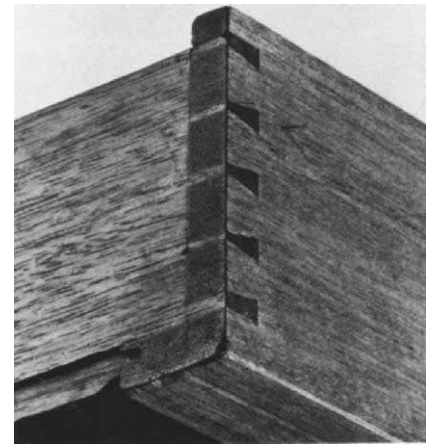
front, grooved into a two-piece frame formed by the glides. The drawer front is rabbeted to receive the bottom, which is slid home after glides have been glued to the drawer sides. Then the bottom is secured at the front with screws or a few brads, thus allowing later removal for cleaning, refinishing or repair, or else it is simply glued at the front edge. Either way, the wood bottom is free to expand and contract in its grooves. On a drawer this small, the bottom need be only 8 mm (5/16 in.) thick; it is raised 1-1/2 or 2 mm (1/16 in.) above the bottom of the glides to get around problems of sagging and scraping. The tongues should be made about 2 mm (3/32 in.) thick and 3 mm (1/8 in.) long.

The back of this drawer—and all the drawers discussed here—is made 5 mm (5/16 in.) lower than the sides; this keeps the back from scraping as the drawer is pulled out.

The bottom edge of the drawer front protrudes about 4 mm (5/32 in.) below the drawer side to act as a stop. This overhang slides into a corresponding rabbet in the carcase rail; the drawer may be made to close flush or to recess by varying the depth of the rabbet.

False French bottom

Because the French bottom is somewhat complicated to make and not compatible with large series production, the obvious shortcut is to take advantage of such dimensionally stable materials as plywood and Masonite. The resulting false French bottom simplifies construction and saves time. It looks the same at the front, but from the back the scalloped profile of the genuine French bottom is missing and three plies, two of veneer and one of Masonite or plywood, show up. This procedure creates a problem: The bottom might warp upward or become uneven if it is not restrained in some way; a tongue cut in Masonite or plywood would be much too weak. The solution is a glide with a groove wide enough to accommodate the whole thickness of the bottom, glued to the sides and butted against the front, as before. This creates a ledge inside the drawer, like the edge of the frame in conventional panel construction, which can be rounded. The final fitting of the glides is left until sides, front and back have been assembled. Then the glides are held in place at the front, marked at



French bottom, back view.

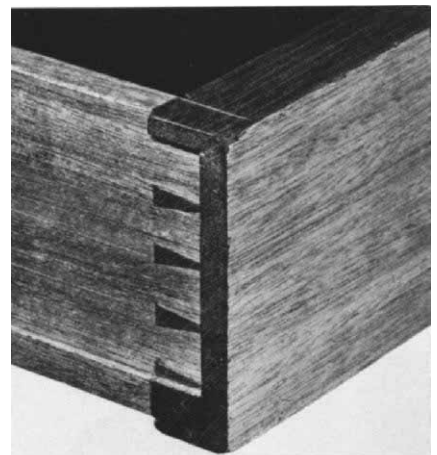
the back, and rabbeted with a chisel the small amount needed to make the bottom of the glide flush with the bottom of the side, enabling the bottom to be slid home. The drawer bottom projects into a rabbet in the drawer front and is fastened there with brads or screws and a bit of glue.

Kitchen drawer

The kitchen drawer bottom carries the cheapening of quality construction to its extreme. It is nothing more than a veneered plywood or Masonite bottom held by grooves in the sides and front and glued in place. There are disadvantages: rubbing on sides, little torsional strength, a small gluing surface, sides weakened by the groove, and a tiny gliding surface that eventually wears grooves in the rails.

NK drawer

The traditional French bottom and its counterfeit version share a weakness with most drawers made ever since



NK glide; pins are pared flush with side.

chests of drawers replaced lidded chests: the sides present a large scraping surface. This is noisy and can make the drawer difficult to extract. A solution is found in the so-called NK (pronounced enco) drawer.

NK is the abbreviation for a large store with several branches, Nordiska Kompaniet. Founded in Stockholm in 1902, a time of revolution against cluttered overdecoration in Swedish interiors, NK set up its own furniture factory. It was able to design, build and market tasteful contemporary pieces more in keeping with the timeless advice of William Morris: "If you want a golden rule that will fit everybody, here it is: Have nothing in your homes that you do not know to be useful, or believe to be beautiful."

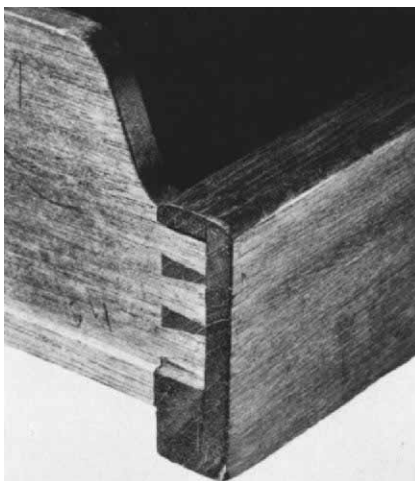
The glides, usually 10 to 12 mm (1/2 in.) thick, are glued to the bottom of the sides and protrude about 3 mm (1/8 in.) beyond them. This is done by cutting the pins on the drawer front about 3 mm deeper than the thickness of the sides. Thus the drawer is steered by the narrow side surfaces of the glides alone. After assembly, the protruding full pins are pared flush with the sides, while the half-pins at the top and bottom of the front are trimmed to horizontal. A solid bottom is screwed or glued into a groove in the drawer front.

This construction gives ultimate ease in sliding, especially when used for high drawers, and is quite strong because of the bracing the glides provide by being glued across the corner.

NK ply bottom

The one drawer that provides all possible strengths is the NK style with a veneered Masonite or plywood bottom, although it may offend those who insist upon solid wood. The version shown here has a half-open front, intended for use inside large cabinets with doors or within secretaries with drop leaves. Since it needs no pull, the cabinet door can close quite close to the drawer front, an optimal use of space. The bottom of the front entirely overlaps its supporting rail.

In construction, the veneered bottom is cut to width such that its edges on either side lap the drawer sides by half their thickness. It is then glued into a rabbet in the glides. The glides butt against the front, where the bottom enters a rabbet. This assembly, if squared properly, automatically ensures

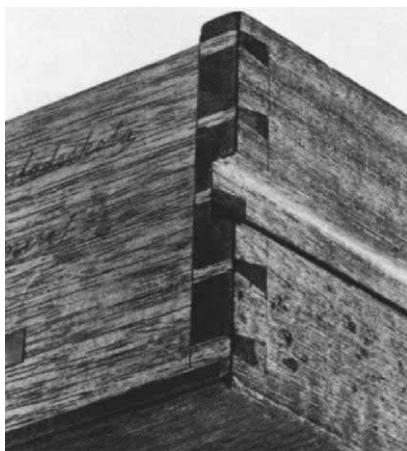


NK glide with low front, recessed side.

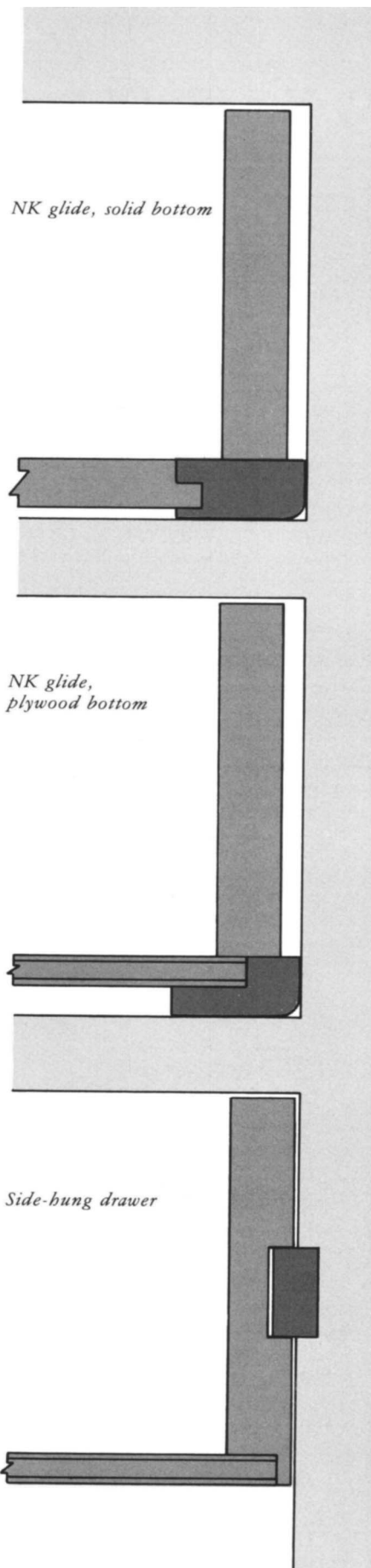
that the drawer front closes parallel to the cabinet. Excellent fits are easily made possible if the bottom and glide assembly is first fitted to the drawer opening before it is glued to the front, sides and back.

Side-hung

The side-hung drawer slides on runners inset into the cabinet sides and screwed in place. These runners also butt the end of the groove in which they ride and act as stops for the drawer. Thus the drawer front need have no overhang. The grooves may be made with a router, shaper or dado head, and squared up with a chisel. The veneered Masonite or plywood bottom acts as a cross brace for the front, back and sides. The sides are rabbeted, leaving a lip of about 3 mm (1/8 in.), and the bottom is glued, or glued and screwed, to them. At the same time it is glued to the back and let into a rabbet in the drawer front.



Side-hung drawer, back view.



NK glide, solid bottom

NK glide, plywood bottom

Side-hung drawer