Suggestions for the Workshop

Ingenious Expedients of Resourceful Mechanics

A Secret Lock for a Cabinet Door

By William J. Horner

THE method of locking shown in the illustrations is suitable for secret doors or panels which are not supposed to open, or it may be used on hinged cupboard or cabinet doors in addition to or in the absence of an ordinary lock. The principle is that of an inside latch or bolt operated by a knife blade, or similar thin instrument, put through a crack between the door and its framework. If a crack for this purpose is undesirable it would be easy with a little ingenuity to work the bolts by a string or wire carried to a convenient point away from the door. Although the method of operating the lock may give the idea that it is an insecure and weak fastening, it actually may be very strong indeed, for the strength of a lock

Fig. 1.—Panel with swivel cross bar.

does not depend on the size or character of the key which opens it.

Fig. 1 shows a panel or cover and the opening into which it fits. A swiveling cross bar is pivoted to the inside face of the panel. When in the horizontal position the ends of the bar project and fit either behind adjoining panels or into slots, and the panel is locked in place. When the bar is swung into the position shown by the dotted lines its ends are flush with the edges of the panel. Stops are inserted as shown to permit only just the amount of swing required. The lower end of the panel has fixed pins or dowels to secure it, or the wood may be tongued or rebated. Screws with their heads filed off make good pins. Shoulders are necessary in the opening to prevent the panel from being forced inwards, and when it is locked it should be tight. If desirable nail heads

Fig. 2.—Modified form of cross bar.

may be driven in at each end to give it the appearance of being nailed in place.

The cross bar shown in Fig. 2 is a neater shape than the simpler form in Fig. 1. Its ends are cut so that the points are central instead of being at opposite edges of the bar. Besides this it will be seen in the dotted position that the portion cut from the highest part gives a horizontal edge which can be set to just clear the shoulder against which the panel beds and so the center of the bar can be slightly nearer the end of the panel. The way the bar is marked out is apparent at D. It may be of wood or metal.

So far the examples show bars running across the panel and securing it on both sides. Fig. 3 shows a hinged door with short fastenings at the side which opens. They are pivoted midway of their length so that they will balance. The dotted vertical pieces which cross them are guides which act both as stops and relieve the central screw from strain if an attempt is made to pry the door open.

Unless the panel is very narrow these would be necessary in Figs. 1 and 2. The stops shown in Fig. 1 are suitable where little strength is required but if the panel is forced outward the bar, secured only at

Fig. 4.—Wooden guides and wire fastening.

the center, may break or bend and the screw be loosened. Combined guides and stops, as shown in Fig. 4, screwed to the door close to the edge, prevent this and greatly strengthen the fastening. The double-ended guide in Fig. 4 stops the bar in each direction and keeps it close to the door surface. The single one is intended for use where there is not room for the longer one. It would be suitable for stopping against the lower edges of the bars in Figs. 1 and 2, at the right-hand sides, where, in the dotted position, there is no room above the bar for attaching a double stop and guide.

Fig. 4 also shows a fastening on the same principle made of wire instead of wood. The wire is bent to a curve so that its ends project nearly at right angles in all positions of its travel. If it was straight and consequently at right angles in one position and sloping in the other a knife would not work it so easily. Moreover when bent its extension can be adjusted exactly as required by further bending.

Turning Duplicate Forms

By Albert F. Bishop

A WOODWORKING firm received an order for several hundred brackets which naturally would be sawed on the jig saw. The party ordering the brackets stated that they must be perfectly smooth on the sawed edges. The sawyer knew at once that if each piece was sand-papered by hand on the edges, the extra time required would greatly delay the work. His fellow workman, a wood turner, said he could make the pieces in a lathe. This is how he did it: He took a log of wood for a hub, and with a wobble saw cut longitudinal grooves in it to receive the

Making duplicate brackets on a lathe.

bracket pieces. These were previously cut a trifle long, leaving a little tip on each end to be clamped by the iron bands that were put on each end of the hub. The whole thing was placed in the wood lathe and turned by hand like the pattern marked A. The sand-papering and polishing came next, which made the forms absolutely smooth and gave them a nice finish. In doing work by this method care was taken to fit the pieces nicely so as to prevent chattering and slivering on the sides.

Bending a Brass Tube

By A. F. Clark

IN the issue of May 6th is described a process for bending brass tubing. The following is a much simpler method where a coil spring long enough and of the proper size is not available. Plug one end of the tube with a piece of wood and then stand it on end and fill it with dry sand. Tamp the sand firmly by

striking the plugged end on a block of wood. When the tube is full plug the other end also with wood, then take a piece of hard wood as thick as the outside diameter of tube and saw it to the shape you wish to bend the tube; then nail two other pieces of wood,

Method of bending a brass tube.

one on either side of the form. Clamp the whole firmly in a vise as shown in the sketch. Then drive a nail through the two outer pieces near one end of the form under which insert the end of the tube, after placing a small piece of flat iron or a chisel between the nail and the tube. The two outside pieces are necessary as all tubing has a tendency to flatten while being bent. After the tube is bent the wooden plugs can be easily removed by inserting a wood screw into them and, after warming the end of the tube, using the screw as a handle to pull out.

Guide for Winding Coil Springs

THE accompanying illustration shows a small tool which will be found useful for winding coil springs in a lathe. It is made of a piece of three-sixteenth-inch sheet steel, one end of which is turned over to fit the arbor on which the spring is to be wound. A slot is cut in the tool near the arbor bearing, to serve as a

Guide for winding coil springs.

guide while winding the spring. The tool is placed on the arbor and the latter is centered in the lathe. One end of the wire is fastened in a hole drilled in the arbor and then, by passing the wire through the slot, it will be guided as the arbor is turned, to make a uniform spring.

Grinding Copper.—When it is desired to grind copper on a carborundum wheel the copper invariably clogs. By rubbing on tallow this is prevented and apparently the tallow does not interfere with the cutting of the wheel.—B. F.

Knife Made from a Hacksaw Blade

By H. M. Nichols

THE steel used in hacksaw blades is well adapted for making knives, as it can be ground to a good keen edge that stands up well under usage.

The knife shown in the illustration was made from a hack saw blade $\frac{3}{4}$ inch wide and about $\frac{1}{16}$ inch thick. The blade part was ground off on an angle, as shown, and the handle was formed by bending a piece of sheet zinc in the form of a U over the back of the blade. Of course a more pretentious handle

Hacksaw knife.

could be made from wood, held in place with rivets, but the handle described answers the purpose very well and has the merit of being made quickly. The blade is ground like an ordinary knife blade, or it can be ground on one side only like a chisel. If used for a scratch knife the latter method of grinding it preferred by the writer.