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2,597,152

HOLDING AND GUIDE MEANS FOR MORTISING DRILLS

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Fig. 1.

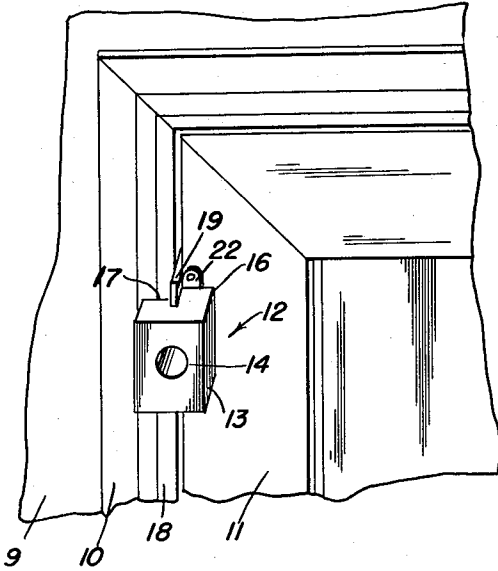


Fig. 2.

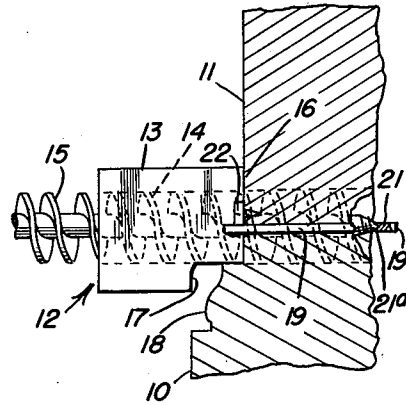


Fig. 3.

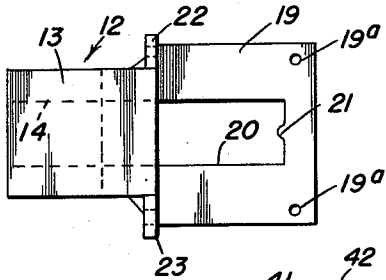


Fig. 4.

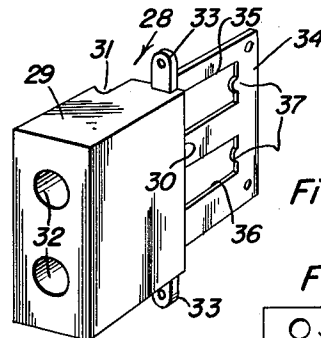


Fig. 6.

Fig. 5.

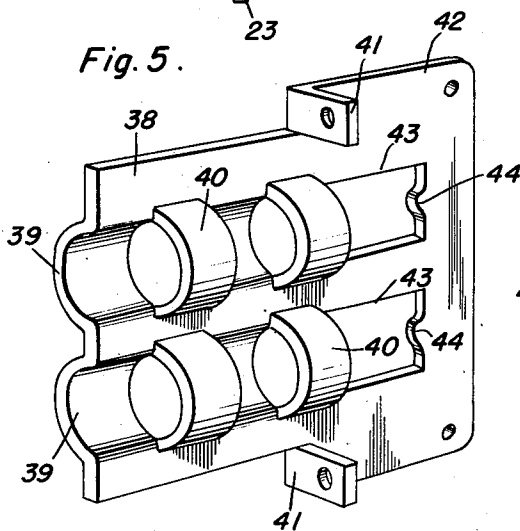
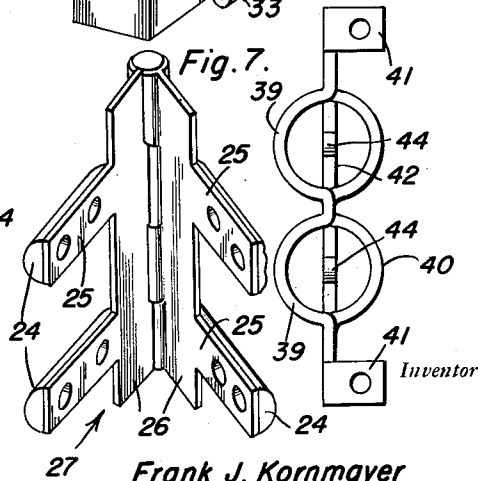


Fig. 7.



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HOLDING AND GUIDE MEANS FOR
MORTISING DRILLS

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3 Claims. (Cl. 145—129)

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The present invention relates to a special appliance or accessory for the tool box of a carpenter, the same being in the form of a drill holder and guide and serving, in practice, to permit a carpenter to use a conventional brace and bit to bore a hole in the opposed edges of a door and door frame, whereby to conveniently provide a mortise to accommodate anchoring and attaching members on a special type of hinge.

Generally speaking, it is customary in the trade and in building construction work to gouge out mortises in door frames and doors to accommodate the ordinary double leaf hinge, the mortises being approximately of a depth and shape to correspond to the relatively thin rectangular hinge leaves. I have conceived of the adoption and use of a new type of hinge wherein the leaves are relatively narrow but are provided with apertured extensions, the extensions carrying semi-circular parts or so-called half-rounds whereby when the extensions and half-rounds of the respective leaves come together, they provide parts which may be described as substantially cylindrical in cross sectional shape. However, in preparing the door and door frames for hinges of the type stated, difficulties have been encountered. For example, it is necessary to form semi-circular mortises in the mating surfaces of the door and door frame and I have found it possible to accomplish this through the use of an ordinary type brace and bit, or, any other suitable drill or boring tool.

Coming now to the invention with which we are hereinafter concerned and which is interrelated to the special hinges referred to and the use of a brace and bit or the like, said invention has to do with a drill holding, locating and guide device which makes it possible to adequately and satisfactorily use a bit for simultaneously boring a hole in both the door and door frame, leaving opposed semi-circular recesses in both parts which recesses combine and form the mortises for said special hinges.

More particularly, in carrying out the inventive aims herein under advisement I have evolved and produced a simple and practical device which embodies a holder and position centering guide for the drill-bit and which further includes means for temporarily nailing said device at place wanted on a door or frame and, in addition, includes a pilot-like guide centering and door spacing flange which is situated between the edge of the door and coacting edge of the surrounding frame in a manner to centralize and so situate the guide means that the mortises which are

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drilled are accurate and serve to properly accommodate the attaching members of the new-type hinge referred to.

Other objects, features and advantages will become more readily apparent from the following description and the accompanying illustrative drawing.

In the drawing, wherein like numerals are employed to designate like parts throughout the views:

Figure 1 is a fragmentary elevational view showing a portion of a door, door frame and wall structure and further showing, in perspective, a single type drill holder and guide device constructed in accordance with this invention;

Figure 2 is a top plan view with frame and door parts in sections;

Figure 3 is a side elevational view on a scale about even with that seen in Figure 2;

Figure 4 is a perspective view of a dual type drill bit holder and guide, this being a modified version of the principal form of the invention;

Figure 5 is a perspective view showing a further modification;

Figure 6 is an end elevation of Figure 5 observing same in a direction from left to right;

Figure 7 is a perspective view of a special hinge (not herein claimed) but illustrated here to enable one to better appreciate the relationship between the improved drill guide and said special hinge.

Referring now to the drawing by distinguishing reference numerals and to Figure 1, the numeral 9 designates a wall, 10 a door frame and 11, a well known type of a door. The invention, which is broadly referred to by the numeral 12, is in the nature of a drill or boring tool holder and guide, and is intended to serve as a special accessory for a carpenter's tool box. In its preferred embodiment, the simplest form of the invention comprises a block, or an equivalent body, 13 of appropriate dimensions and material. The block is preferably metal and generally rectangular in form and has a bore or passage therethrough, as at 14, this to snugly receive and accommodate the helical fins of the auger or equivalent drill bit 15. This is an ordinary bit such as is used in connection with a brace bit combination and said bit is provided on its inner end with the usual tapered screw threaded pilot element or point. One face of the block is flat to provide an abutment 16 to contact the door or door and frame collectively, as shown in Figure 2. An adapter or clearance notch 17 is provided to accommodate the usual ogee-shaped molding or edging 18 of

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the door frame. In order to position the guide block and retain same while the bit is being employed as in Figure 2, a centering and a door clearance or spacing flange 19 (see Figure 3) is provided. This flange fits between coacting edges of the door and door frame as shown in Figures 1 and 2. It is of general U-shaped form and therefore includes a slot 20 with just enough clearance for the drill bit. Also a detent or stop 21 is provided which constitutes a check for the pilot on the drill and this keeps the drill from being damaged, in an obvious manner. The block is usually secured by upper and lower apertured attaching ears 22 and 23 which may be employed to assist in maintaining the block in place by nails or equivalent fasteners. In addition, the inner corners of said flange are provided with nailing holes 19a.

In practice, said clearance flange 19 is inserted between the door and door frame with the doors closed as illustrated in the drawing. This partially holds the bore 14 of the guide block in place. However to make sure that there shall be no displacement when the boring tool is in use, the flange 19 and ears 22 and 23 are nailed in place. Consequently, the block projects beyond the door and door frame where the drill is operatively inserted in the bore and a hole is thereafter bored in the frame and door, said hole leaving semi-circular notches, one in the door proper and the other in the frame. The hole thus bored provides a socket to accommodate the half-rounds 24 on the extension members 25 of the wings or leaves 26 of the hinge 27. It is to be explained at this point that when adopting for use the hinge seen in Figure 7 I thereafter found it possible to use only a brace and bit for purposes of boring the mortise notches in the respective door and door frame. It was difficult to do the work without some sort of a guiding support and therefore I devised the guide block with a bore to receive and guide the drill and said guide block being provided with a suitable flange to facilitate fastening the parts in the needed place.

In Figures 1 to 3 I show a single drill guide or block. In Figure 4 I show a modification. The entire device is denoted by the numeral 28 and comprises a block 29 with an abutment surface 30, clearance notch 31, upper and lower parallel bores 32 to accommodate the drill where it is necessary to drill two holes to provide a suitable mortise. The block is also provided with attaching ears 33 and with a clearance flange 34 with drill clearance slots 35 and 36 and with pilot stop elements 37.

Fundamentally the structure illustrated in Figure 4 is a modification which is quite similar to the single bored block of Figure 1.

Referring now to a still further modification this is seen in Figures 5 and 6 and has basically the same features as already described and is on the duplex principle of construction, the form seen in Figure 4. In this modification now under advisement instead of a block there is a suitable body portion 38 which is stamped out from metal and which has arcuate or semi-circular staggered straps 39 and 40 arranged in upper and lower sets. The body is also provided with attaching ears 41 for nailing purposes and in addition includes a clearance and separator flange extending beyond said ears, said flange being denoted by the numeral 42. It includes two or more slots 43 for bit clearance and drilling purposes and these, at their terminal ends, are provided with pilot stops 44. Basically, the only difference be-

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tween the form of the invention seen in Figures 5 and 6 and the others is that the last named form is stamped out from sheet metal whereas the other block form is cast or otherwise formed to provide the essential holding, guiding, attaching and drill stopping features.

Although there are three species or embodiments of the invention illustrated, it is believed that fundamentally and generically speaking, the broad theme of the invention is common to all. My claims have been formulated accordingly.

In practice it is obvious that the plate or flange portion is merely shoved between the coacting surfaces of the door and door frame and, wherever necessary, is nailed in place. With the device thus positioned, the pilot end of the drill bit is piloted into the guide means and the bit is used to bore an opening into the coacting surfaces of the door and door frame in an obvious manner. Semi-circular notches are thus left when the drill is withdrawn and said notches constitute mortises to accommodate parts 24 and 25 of the special hinge shown in Figure 7.

A careful consideration of the foregoing description in conjunction with the invention as illustrated in the drawing will enable the reader to obtain a clear understanding and impression of the alleged features of merit and novelty sufficient to clarify the construction of the invention as hereinafter claimed.

Minor changes in shape, size, materials and rearrangement of parts may be resorted to in actual practice so long as no departure is made from the invention as claimed.

Having described the invention, what is claimed as new is:

1. Holding and guiding means for a door and frame mortising drill comprising body means having cylindrical drill bit receiving supporting and guiding means adapted to be lined up with a crack existing between a door and door supporting frame and having, in addition, lateral apertured means whereby said body means may be temporarily nailed in a predetermined boring and mortising position in relation to said door crack, and door frame, and a single position establishing flange formed integral with said body means with the axis of said guiding means lying in the plane of said flange and adapted to occupy a set position between the door and frame surfaces which are to be drilled, said flange having at least one drill clearance slot axially aligned with said guiding means, said slot being of a width corresponding to the diameter of said guiding means, closed at the end remote from said body means and provided at said closed end with a centered boss constituting a drill stop.

2. A drill guide designed to support and guide a conventional type drill bit so that the drill bit will simultaneously bore coacting semi-circular notches in both a door and door frame comprising a solid block-like body having at least one a flat abutment surface adapted to abut surface portions of said door and door frame, and having marginal apertured outstanding attaching ears disposed in a plane with said abutment surface permitting said body to be temporarily tacked on the door, and further having a cylindrical bore to support and guide the drill bit when latter is in action, and a body-locating, bore-centering flange, said flange being integral with said body and projecting laterally beyond said abutment surface with the axis of the cylindrical bore lying in the plane of the flange, said flange being adapted to occupy a position between coacting surfaces

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of the door and door frame to stabilize and maintain said body in a relatively fixed position, said flange having an adapter and clearance slot for the drill bit and said slot being axially aligned with said bore.

3. A drill guide adapted to be carried in one's tool box and serving to enable the user to hold and guide a drill while mortising abutting edge portions of a door and frame comprising a rigid sheet metal stamping having a body portion, said body portion being provided with upper and lower sets of semi-circular outstanding straps, said straps arranged in staggered positions and defining between themselves guide means for receiving, holding and guiding drill bits, said body portion being provided with laterally projecting apertured ears permitting said body portion to be nailed or otherwise fastened on a door or door frame, and a flange formed integral with said body portion, said flange lying in a plane with the

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axis of said guide means and having at least one slot in axial alignment with said guide means, said slot being closed at its outer end to check the drilling position of the drill bit.

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