May 13, 1952 F. J. KORNMAYER 2,596,416

HINGE FOR DOORS AND SWINGABLE CLOSURES

Filed Nov. 20, 1947

Fig. 1.

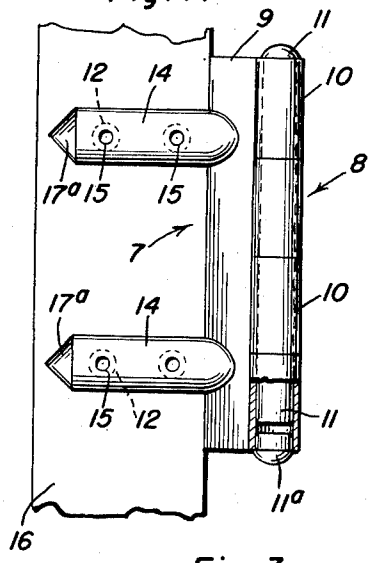


Fig. 2.

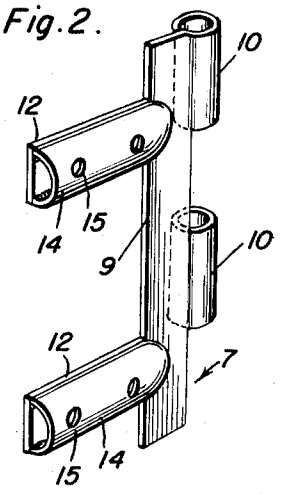


Fig. 3.

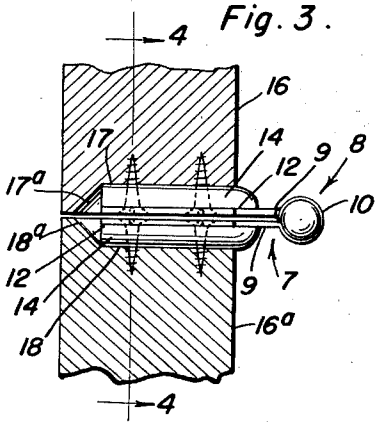
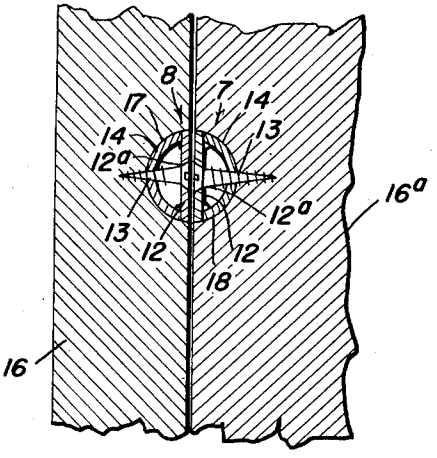


Fig. 4.



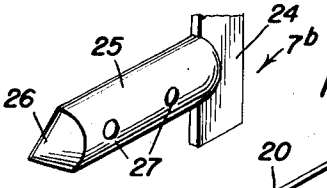
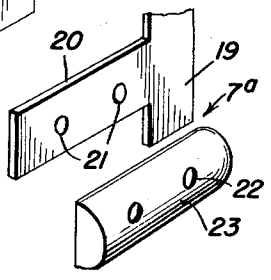


Fig. 5.

Fig. 6.



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HINGE FOR DOORS AND SWINGABLE CLOSURES

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Application November 20, 1947, Serial No. 787,192

1 Claim. (Cl. 16—128)

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The present invention relates to a novel and improved hinge for doors, swingable windows, and equivalent closures and has more particular reference to improvements on the type of hinge which embodies duplicate hingedly connected leaves which are, in use, seated and fastened in complemental mortises provided therefor in coacting portions of the door and complemental door frame.

It is well known that, ordinarily, a carpenter, in hanging a door in a home or the like, uses two or more double leaf hinges and, in practice, screws or otherwise attaches one leaf to to the door edge and the other leaf to the companion portion of the door frame, and to accomplish his ends, he chisels or otherwise gouges out a mortise or recess to permit each leaf to be screwed in flush with coacting surfaces of the door and frame parts.

It is an object of the present invention to employ a hinge wherein approximately three-quarters of each leaf is omitted, and relatively small, properly positioned attaching extensions or tongues are substituted for the cut away portions, whereby to appreciably conserve on material and to, at the same time, provide a satisfactory and reliable hinge.

It is another object of the invention to provide, in certain forms of same, narrow leaves and rectangular tongues and to attach semi-cylindrical facing members to said tongues, whereby to thus provide adapters which lend themselves to proper installation in semi-circular, instead of the usual mortises.

It is another object of the invention to provide a double leaf hinge of the stated type wherein the extension tongues and their adapter attachments combine to provide half-rounds, the latter fitting into correspondingly shaped mortises. In addition, this invention is tied in, so to speak, with a special drill holder and guide device which makes it possible to use a brace and bit or simple twist drill for purposes of simultaneously boring the required semi-circular mortises in the respective parts constituting the door and door frame.

Incidentally, it is to be explained that the type of hinge herein shown is also shown, for purposes of illustration only, in co-pending application, Serial No. 781,048 entitled "Guide Block and Holder for Drilling Mortises" and dated October 21, 1947. The hinge is, however, explained in detail and claimed in the present application and the guide block, the subject of the pending application, is claimed in the latter presentation.

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

In the drawings:

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Figure 1 is a fragmentary portion of an edge of a door showing one of the hinge leaves attached to said edge.

Figure 2 is a perspective view of one of the hinge leaves or sections by itself.

Figure 3 is a fragmentary horizontal sectional view showing a door frame and door, and further showing the improved hinge and the manner in which the respective parts are assembled and fastened together.

Figure 4 is an enlarged fragmentary sectional view at right angles to Figure 3, the section being on the line 4—4 of Figure 3, looking in the direction of the arrows.

Figure 5 is a fragmentary perspective view of a modification, bringing out certain of the details of the construction.

Figure 6 is also a fragmentary perspective view of a further modification, the extension being of one-piece construction.

There are several forms of my improved hinges herein revealed; namely one style or form in Figures 1 to 4; a second form in Figure 5, and, a third in Figure 6.

Referring to the drawings, and first to Figure 2, it will be seen that one of the sections or parts which goes in to make up the complete hinge is denoted by the numeral 7 and the other part, which is a duplicate of the same, is denoted (see Figure 3) by the numeral 8. Both parts or sections are the same in construction (in Figures 1 to 4 inclusive) and a description of one will suffice for both. That is to say, each hinge unit or section comprises a relatively narrow leaf portion 9. The leaf portion is provided on one edge with hinge knuckles 10 which are spaced apart to accommodate the usual hinge pintle or pin 11 and complemental lower plug 11*a*, detailed in the assembly seen in Figure 1. Attached to and extending from the free swingable or opposite edge of the narrow leaf 9 are spaced relatively narrow extensions 12 which constitute tongues and function as elements for securing the hinge effectively to the door or frame as the case may be. The attaching tongues 12 are also sometimes referred to as "mortise portions" of the leaf and these are adapted to be secured to the door and frame by customary screws, and hence said tongues are provided with screw apertures or openings 12*a* to accommodate ordinary wood screws 13, as brought out in Figure 4. Each tongue is provided with an appropriately semi-circular build-up adapter and this is denoted by the numeral 14 and has screw holes 15 to register with the holes 12*a*. The adapters (Figures 1 to 4) are welded or otherwise secured to corresponding surfaces of the tongues and, in conjunction with the tongues, they provide mortise filler and attaching members. When the opposed mem-

bers of the respective hinge sections 7 and 8 come together and abut, they combine to define a cylinder (see Figure 4) and therefore, in practice, a cylindrical bore must be drilled into the door and door frame to accommodate said members. For example, in Figure 3, we see the door frame 16 on one side and the door 16*a* on the other and by using the drill and guide block covered in Serial No. 781,048 these parts 16 and 16*a* are bored and a cylindrical mortise is provided leaving semi-cylindrical mortises 17 and 18 in the respective parts 16 and 16*a*. These half-mortises serve to accommodate the correspondingly shaped half-round attaching members (tongues 12 and adapters 14) for the narrow hinge leaves 9. It is necessary, it is believed, to make proper cross reference and consider this application and the aforementioned co-pending application on the mortising guide block to enable one to understand the guide block, on the one hand, and the novel hinge on the other.

It is not always necessary to build-up the attaching members for the narrow leaves so that they will be of two part or composite form as shown in Figures 2, 3 and 4, especially wherein the adapter or filler member 14 is hollow. That is to say, it is within the sphere of this invention to employ a modified construction shown, for instance, in Figure 5. In the latter figure, I have shown a fragmentary portion of one hinge leaf or section which is denoted by the reference character 7*a*. The narrow leaf portion is denoted by the numeral 19 and the extension tongue, which is integral therewith and rectangular and also narrow, is denoted by the numeral 20 and this has the screw holes 21 to match with similar screw holes 22 in a filler block, of wood, plastic or other material, the same being solid and denoted by the numeral 23. This is simply lined up with the tongue to overlap the latter in an obvious fashion and then when the screws (not shown) are brought into play, the respective parts 23 are thus completely assembled. The only difference seen between the structure seen in Figure 2 and that seen in Figure 5 is that in Figure 2 the adapters 14 are of hollow formation whereas in Figure 5 the adapter (only one appearing) is solid.

It is also within the purview of this invention to employ attaching members which are of one-piece construction as shown in the modification seen in Figure 6. Here the hinge section is fragmentarily shown and is denoted, as a unit by the reference character 7*b*. In Figure 6 we see the narrow leaf denoted by the numeral 24 and this carries an integral extension for attaching member which is differentiated by reference character 25. In addition to being cast as an integral part of the leaf, the narrow end is semi-conical as at 26 said pointed end being adapted to pilot itself into the correspondingly shaped cavities denoted by the reference characters 17*a* and 18*a* respectively. Actually these portions 17*a* and 18*a* are merely the extreme tapering ends of the mortises. In certain drills and mortising tools when the complete circular mortise is bored, the inner end of the tool will leave diminished recesses as indicated at 17*a* and 18*a* and by providing the semi-conical extremity 26 on the attaching member this part for said attaching member will project into the cavity to provide a stronger construction. I desire the attaching members to be construed as being provided with as well as being without the pointed extremity 26. The numerals 27 merely designate screw holes in the attaching member 25.

It is understood that any number of screw holes may be provided and that, also, any number of attaching members may be provided. That is to say on certain hinges a single attaching member will do. On others two attaching members will serve, that is two on each leaf, and in other circumstances it may be necessary to use three or more attaching members.

I also desire to utilize the expression "attaching member" to identify the tongue and adapter 12 and 14, the arrangement seen in Figure 2, and too, the tongue 20 and adapter 23 as shown in Figure 5 and also to cover the one piece construction denoted by the numerals 25 and 26.

It will be seen that the essence of the instant invention relates to a double leaf hinge with common knuckles and a hinge pintle connecting the knuckles and leaves, the leaves being relatively narrow and provided with half-round extensions or attaching members which make it possible to conveniently screw and fasten said leaves in semi-cylindrical mortises in a door and door frame assembly. Under the combined provisions of the hinges herein covered and the mortising means, lining up of the above referred to door hinges, proper spacing and clearance of door and door frame, and other advantages favoring carpenters are virtually assured.

In view of the foregoing description taken in conjunction with the accompanying drawings, it is believed that a clear understanding of the device will be quite apparent to those skilled in this art. A more detailed description is accordingly deemed unnecessary.

It is to be understood, however, that even though there is herein shown and described a preferred embodiment of the invention, the same is susceptible to certain changes fully comprehended by the spirit of the invention as herein described and within the scope of the appended claim.

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

As a new article of manufacture, a relatively narrow rectangular leaf having pintle accommodation knuckles provided along one longitudinal edge, and having flat right angularly disposed attaching tongues formed along the opposite longitudinal edge, said attaching tongues being in the form of flat extensions provided with screw holes to accommodate wood screws, and a hollow substantially semi-cylindrical adapter for each extension, said adapter being of a length commensurate with the length of the complemental extension and having the screw holes lined up with the first-named screw holes in order that the screws which serve to secure the tongues and adapters to a door also serve to hold the adapters superimposed on the tongues.

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