

March 26, 1963

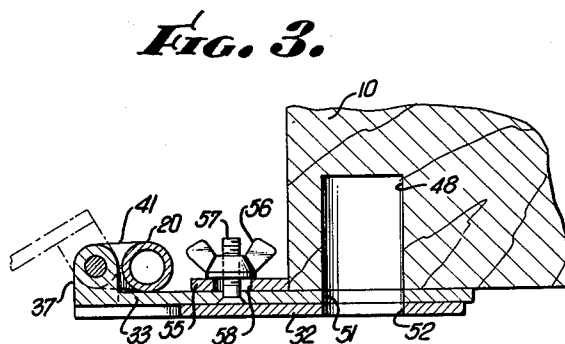
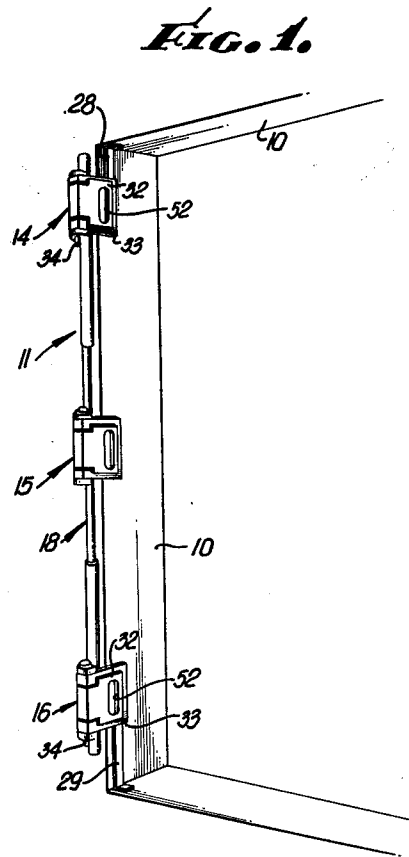
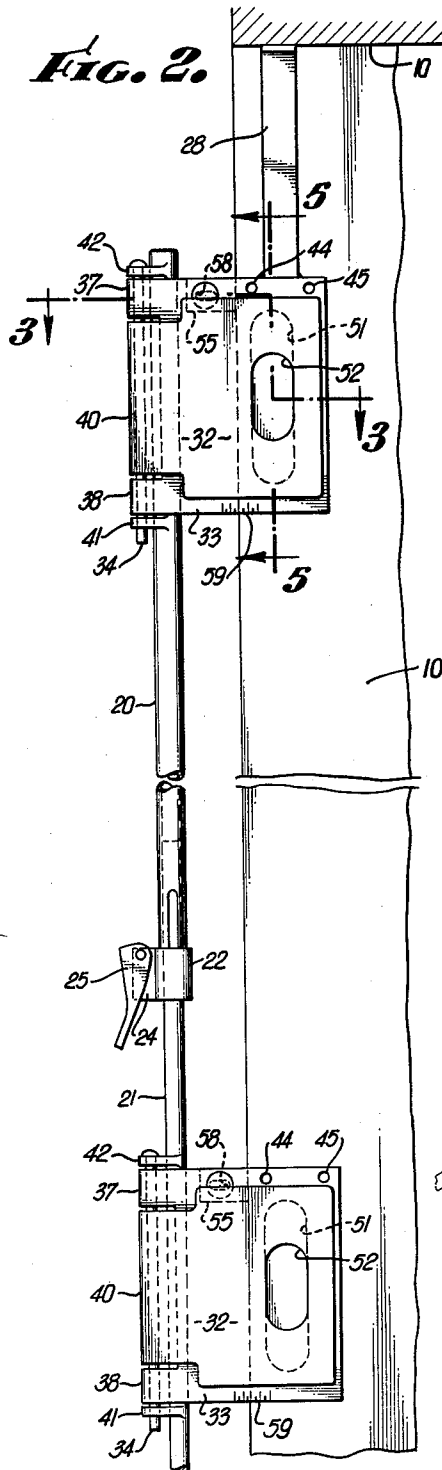
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3,082,800

APPARATUS FOR INSTALLING HINGES

Filed Feb. 23, 1961

2 Sheets-Sheet 1



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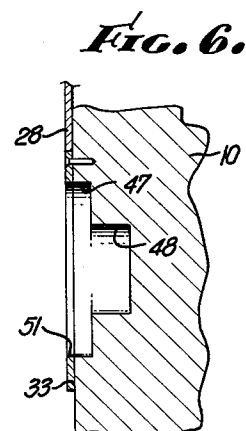
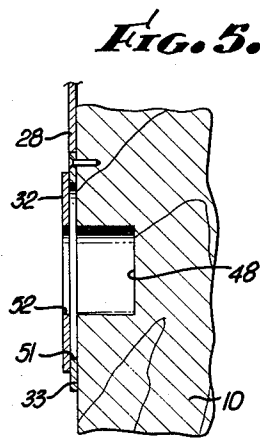
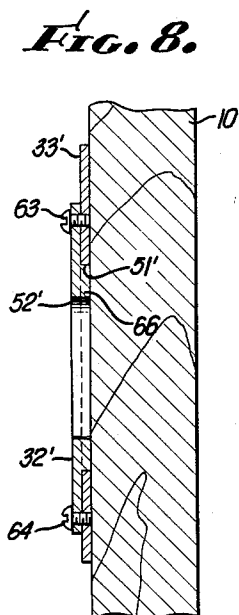
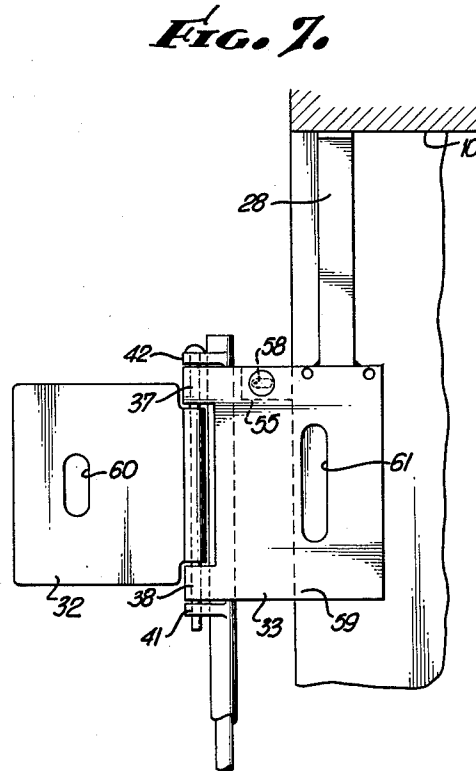
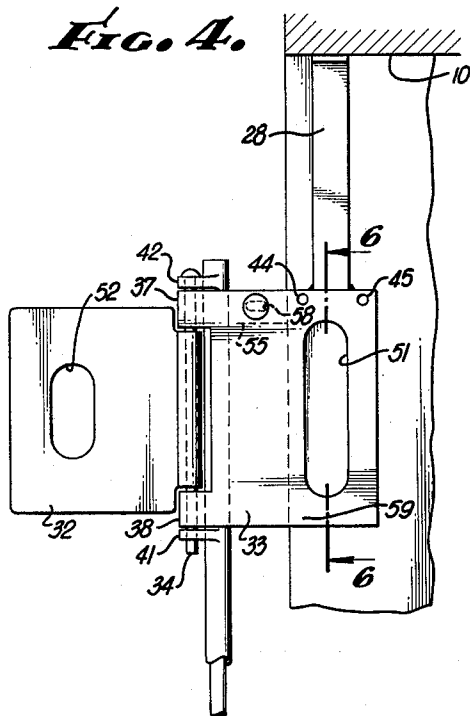
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APPARATUS FOR INSTALLING HINGES

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2 Sheets-Sheet 2



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1

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APPARATUS FOR INSTALLING HINGES

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4 Claims. (Cl. 144—27)

This invention relates to improvements in apparatus for installing hinges, particularly hinges of the concealed type as shown in Patent No. 1,030,936 of Joseph Soss.

Concealed hinges ordinarily include butt plates and integral housings or compartments which enclose the levers of the hinge. Their installation requires the forming of mortises having two depths in the door and the door jamb.

Concealed hinges have been quite widely used in the past because of their many desirable characteristics. However, their use and adaptation despite their desirable characteristics has been limited by the fact that in the past it has been somewhat more expensive to install them than it has been to install other types of hinges. This stems from the fact of the necessity of having to provide mortises of two depths for the hinges in the door and the door jamb. This has proved to be tedious, time consuming and expensive in the past, despite efforts to provide jigs and fixtures for the carpenter to facilitate doing this work. One of the common methods known to the prior art of forming the mortises has been for the carpenter to first drill three holes on spaced center lines to form the part of the mortise of greater depth. Then the carpenter would drill two more holes on spaced aligned center lines to provide the part of the mortise of shallower depth. This work, of course, required measuring to determine the proper position of the mortises and the providing of center points at which to drill the holes. This method, of course, required reaming out and smoothing the side walls of the mortises after the drilling operations. Because of the time and expense involved in this work, it militated adversely to the use of the concealed type of hinges, although, as stated, such hinges are very desirable and effective from many different standpoints.

The primary object of this invention is to provide an improved fixture or fixture means for installing concealed hinges whereby the installation may be greatly simplified and facilitated thereby removing the obstacles to the more successful and extensive marketing of concealed hinges.

Briefly stated, the herein invention provides a fixture or fixture means including an assembly of templets whereby mortises for the concealed hinges having a plurality of depths may be very easily, conveniently and effectively produced. The fixture or fixture means of the invention further provides improved and simplified means and techniques for establishing the position of the mortises in the door and the door jamb.

The templets provided are preferably in the form of leaves having openings corresponding in shape and size to the shape and size of the various depths of the mortise. Means are provided for positioning and holding the templets relative to each other so that a part of the mortise of one depth can very conveniently be cut using a router bit operating in one of the templets and another part of the mortise of another depth can then be very conveniently cut with a router bit operating in another one of the templets, appropriately positioned and held relative to the first templet. A significant part of the invention is in the particular means for positioning and holding the templets in position relative to each other. A preferred manner of doing this as will appear hereinafter, is by having the templets in the form of leaves hinged on a common hinge pin.

The invention further provides a fixture including a

2

plurality of the assemblies as described in the foregoing of templets hinged on a common hinge pin with means for adjusting the assemblies relative to each other to adjust the spacing between them. This makes it possible quickly and conveniently to establish the position of the mortises relative to the edge of the door or door jamb as well as their position with respect to the top and bottom of the door jamb and relative to each other.

More specific objects of the invention will be apparent from the foregoing brief outline of the general nature of the invention. One of the specific objects is to provide the improved means for forming the mortises having a plurality of depths consisting of the overlying templet leaves with means for holding them in predetermined overlying relationship.

Another object is to provide a templet assembly as in the foregoing comprising overlying templet leaves having openings of different sizes hinged to a common hinge pin.

Another object is to provide means comprising overlying templets having openings, one of said templates having a rib formed around its opening providing an edge having a contour adapted to fit into the opening of the other templet whereby to hold the templets in predetermined overlying relationship.

Another object is to provide a fixture comprising elongated adjustable means carrying a plurality of templet assemblies as in the preceding objects in adjustable relationship relative to each other.

Another object is to provide a fixture as in the foregoing having means for holding certain of the templet assemblies in predetermined position relative to the top and bottom edges of a door jamb.

Another object is to provide a fixture for forming mortises adapted for the installation of concealed hinges wherein mortises having a plurality of depths are formed by means of a router bit and overlying templets having openings of size and shape corresponding to the size and shape of the parts of the mortise of different depth.

Further objects and additional advantages of the invention will become apparent from the following detailed description and annexed drawings wherein:

FIG. 1 is a perspective view of the fixture of the invention in a door jamb;

FIG. 2 is an enlarged view of a part of the improved fixture;

FIG. 3 is a detailed sectional view taken along the line 3—3 of FIG. 2;

FIG. 4 is an enlarged view of one of the templet assemblies showing the leaves in one position;

FIG. 5 is a detailed sectional view taken along the line of 5—5 of FIG. 2;

FIG. 6 is a detailed sectional view taken along the line 6—6 of FIG. 4;

FIG. 7 is a view similar to that of FIG. 4 showing templets with openings of a different size in them;

FIG. 8 is a detailed sectional view showing a modified form of the invention.

Referring to FIG. 1 of the drawings numeral 10 designates diagrammatically a door jamb having one of the fixtures mounted in it. The fixture, as a whole, is designated at 11 in slightly diagrammatic form. The fixture comprises a group of templet assemblies as designated at 14, 15 and 16 which are alike in construction. These assemblies are mounted on an elongate extensible member as designated at 18. This member preferably comprises telescoping tubular sections as designated at 20 and 21 which are adjustable relative to each other and may be held or locked in adjusted positions. The locking is by way of bracket members as designated at 22 which may be of tubular form fitted on an end of the sections such as on the end of section 20. The bracket 22 has an extending lug 24 to which is pivoted a lever 25 forming

a cam lock. When the lever 25 is rotated to a locking position, the cam on it locks one section to another and holds the section in fixed position.

The upper assembly 14 has an angular holding foot or bracket 28 which fits against the upper edge of the jamb 10 and holds the assembly 14 in a predetermined position. The assembly 16 has a similar foot or holder 29 which holds the assembly 16 in a predetermined set position. Customarily, the assembly 14 may be positioned 7½ inches below the top of the door or door jamb and the assembly 16 may be positioned 11½ inches above the bottom with the assembly 15 then set midway between the assemblies 14 and 16. These positions determine the positions of the mortises for the hinges and the positions of the hinges after they are installed.

Each of the templet assemblies, such as the assembly 14 comprises a plurality of templets as shown in FIGS. 2, 4 and 7. As shown in these figures, there are two overlying templets in the form of leaves as designated at 32 and 33. In a preferred form of the invention, these templets are hinged on a common hinge pin as shown at 34. The templet 33 has extending wings 37 and 38 having openings forming journals to receive hinge pin 34. The templet 32 has an extending part 40 forming a barrel to receive and have journaled in it the hinge pin 34. The templet 32 overlies the templet 33 in the position of FIG. 2 and both can be swung about the hinge pin. The hinge pin is mounted in lugs or ears 40 and 41 which extend from section 20 of the adjustable member 18. The templet 33 has nail holes as shown at 44 and 45 for attaching it by nailing to the door or door jamb in the desired position determining the amount of inward spacing of the mortises from the edge of the door or jamb.

FIG. 6 shows one of the mortises having two depths as designated at 47 and 48. The part 47 of shallower depth is formed first using a router bit and the part 48 of greater depth is formed similarly after the part 47 has been formed. Or alternatively, the part of greater depth may be formed first.

The templet 33 has in it an opening 51 corresponding in shape and size to the part of the mortise of shallower depth 47. The templet 32 has in it an opening 52 of size and shape corresponding to the mortise of greater depth 48. As shown in FIG. 2, the templets are in a position overlying each other with the openings 52 and 51 overlying each other. In the position of FIG. 4 the templet 32 is swung out and away from 33.

Means are provided for facilitating the accurate positioning of the templet assemblies with respect to the edge of the door or jamb, that is, for accurately positioning the entire fixture 18 in this respect. This means is shown in the sectional view of FIG. 3. An adjustable bracket or bar member 55 having a straight side edge is adjustably attached to the templet 33 by a wing nut 56 on a threaded stem 57, the stem 57 extending through a slot 58 in the guide piece or bar 55. The edge of the member 55 fits against the edge of the jamb 10 as shown in FIG. 3. As may be seen, the adjusted position of the member 55 controls the inward spacing of the openings 51 and 52 from the edge of the jamb. This adjustment may be nicely made by the graduations 59 provided on an edge of the templet 33 as shown in FIG. 2. As can be seen, therefore, the carpenter making the installation can very quickly and easily set the members 55 on each of the templet assemblies to the proper adjustment for the desired inward spacing of the mortises from the edge of the door or jamb. Fixture 18 as a whole can be quickly and readily positioned as shown in FIG. 1 with the templets 33 then being attached by nailing to the jamb as described above. These preparations for the actual forming of the mortises can be very quickly and easily done saving a substantial amount of time and tedious effort previously required in these operations.

It is to be understood that the assembly of the templets

as shown and described is a preferred form, the invention not being limited to the precise construction shown. The templet leaves may be positioned and held in the desired overlying relationship in various ways, the objective being to provide simplified and convenient means for having templets in the proper position for forming the two depths of the mortise by means of a router bit as will be described in detail hereinafter. The method and technique of the invention eliminates entirely the need for drilling of holes with a bit and/or reaming out and smoothing the side walls of the mortise opening after forming. One of the modified ways of holding the templet plates in position is described hereinafter in connection with FIG. 8.

With the fixture 18 assembled and mounted in the jamb, for example, as described above, the operator is ready to undertake the operation of actually forming the mortises for mounting the concealed hinges. With the templet leaf 32 swung out as shown in FIG. 4, the part of the mortise 47 of shallower depth is then formed using a router bit. The router itself is a conventional tool. It is provided with a bit having a sleeve around it with a collar on the sleeve. The collar rides on the surface of the templet adjacent the opening 51 and the sleeve is guided by the peripheral edge of the opening. The part 47 of shallower depth, as shown in FIG. 5, is, therefore, very quickly, easily and conveniently made. After this is done, the operator simply withdraws the router bit and then swings the templet 32 around the hinge pin into a position overlying the templet 33 as shown in FIG. 2. The operator then simply inserts the router bit with its sleeve and collar into the opening 52 and then the part 48 of the mortise is cut in a similar manner. From the foregoing, it can be readily observed that the mounting of the fixture or jig 18 is made very easy and simple and can be done in a minimum of time. It having been mounted, the cutting of the mortises is a very quick, easy and simple operation requiring only the cutting of the parts of different depths with the router bit.

It is to be understood that for different types of similar adaptations, the assembly may comprise a plurality of overlying templets rather than only two. Furthermore, the templets might also have specifically different shapes and different shapes of openings in them. FIG. 7 illustrates a slight modification wherein the parts are similar except that the templets 32 and 33 have openings of different shape and size in them as designated at 60 and 61 respectively. Also, these openings have different spacings from the edges of the leaves. From the foregoing, it is apparent that the invention contemplates that there be provided assemblies of templet leaves in the form of sets adapted for use with the different sizes of hinges available to be installed. The different assemblies of templets may be mounted on the same adjustable member 11, or, if desired, entirely separate fixtures may be provided. While normally, the spacings of the upper and lower templet assemblies 14 and 16 from the top and bottom of the jamb are standardized, if desired, for a specific application the brackets 28 and 29 may be made adjustable.

FIG. 8 shows a slightly modified way of positioning and holding the templet leaves with respect to each other. The lower leaf in this figure is designated at 33' and the upper one is designated at 32'. As shown in this figure, both of the leaves are attached to the jamb in overlying position and this attachment may be by way of screws as shown at 63 and 64 extending through registering openings in the templets. The templets may, of course, also be attached by nailing. The opening 52' in the leaf 32' has a peripheral rib or flange 66 on one side having a thickness equal to the thickness of the templet 33'. The outer edge of this rib or flange is contoured to fit neatly into the opening 51' in the templet 33'. In using the assembly of this figure, the templet 33' is first attached to the jamb or door by being nailed

thereto or attached by screws. The part of the mortise of shallower depth is first made using the templet opening 51'. The templet 32' is then attached as shown in FIG. 8. With the rim or flange 66 in the opening 51' holding the two templets in a predetermined relative position, the part of the mortise of greater depth, is then made using the templet opening 52' in the templet 32'. One of the principles of the invention is therefore, that of having super-imposed templets with templet openings of different sizes and shapes and having means for holding the templets of templet leaves in predetermined relative positions.

From the foregoing, those skilled in the art will observe that the invention achieves and realizes the objects stated in the foregoing, and has all of the advantages outlined. Particularly, the invention provides apparatus and methods which overcome the obstacles to the more widespread marketing and utilization of concealed hinges which have many superior characteristics and desirable advantages. The invention eliminates the very considerable time and expense previously involved in the preparation for an installation of hinges of this type. The invention is adaptable of cutting of mortises of plural depths not only for use with hinges, but also for other comparable adaptations wherever it may be desired to cut predetermined openings particularly where the openings are to have parts of different sizes, shapes and/or depths. This invention makes it possible for the carpenter to be provided with a kit including a fixture or fixture as described with assemblies of templets so that he has the necessary tools and equipment to quickly and efficiently install concealed hinges of any size and shape.

The foregoing disclosure is representative of preformed forms of the invention and is to be interpreted in an illustrative rather than a limiting sense. The invention is to be accorded the full scope of the claims appended hereto.

What is claimed is:

1. In a fixture for use in installing hinges in combination, means comprising an elongated standard having telescoping parts, means comprising an assembly mounted on each of a plurality of said parts comprising a hinge pin supported in a position parallel to the elongated member, a plurality of flat leaves forming templets pivotally mounted on each of said hinge pins and adapted to have overlying relationship, one of said templets having an opening in it of a size and shape adapted for forming a part of one depth of a mortise adapted for the installation of a hinge, another of said templets having in it an opening of a shape and size adapted for forming a part of said mortise of another depth, said latter templet being adapted to overlie the first templet with the openings in registering relationship, and means for adjusting said elongated standard to adjust the spacing between adjacent templet assemblies.

2. A fixture as in claim 1 including means for holding certain of the templet assemblies in predetermined positions relative to the top and bottom of a door jamb.

3. A fixture as in claim 1 including means for positioning templets in an adjusted predetermined position relative to the edge of a member in which mortises are to be made and holding them in that position.

4. A fixture as in claim 3 wherein said last means comprises a member having a straight edge adjustably mounted with respect to one of said templets whereby said member may be held in an adjusted position for positioning and holding a templet with respect to the said edge.

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UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,082,800

March 26, 1963

Charles J. Soss

It is hereby certified that error appears in the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

In the heading to the printed specification, line 3, for "Charles J. Soss, 805 N. Alta Drive, Los Angeles, Calif." read -- Charles J. Soss, Los Angeles, Calif. (805 N. Alta Drive, Beverly Hills, Calif.) --.

Signed and sealed this 19th day of November 1963.

(SEAL)

Attest:

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Attesting Officer

EDWIN L. REYNOLDS

Acting Commissioner of Patents