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2,805,880

SCREW SOCKET ASSEMBLY FOR DOOR ESCUTCHEON

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Fig. 1.

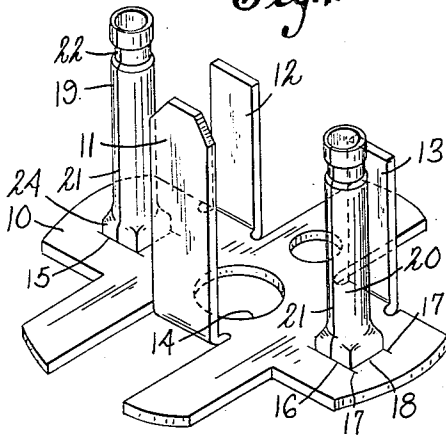


Fig. 2.

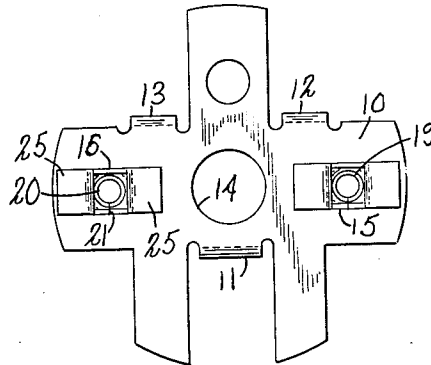


Fig. 3.

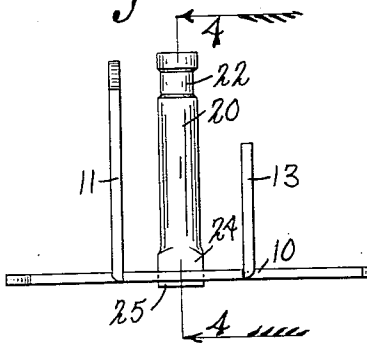


Fig. 4.

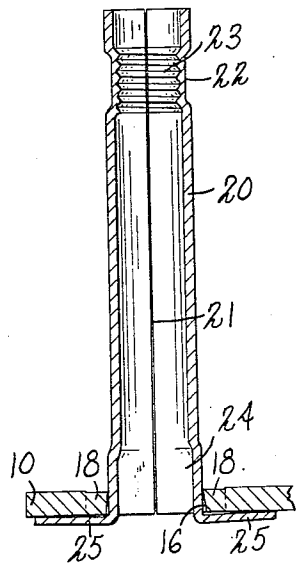


Fig. 5.

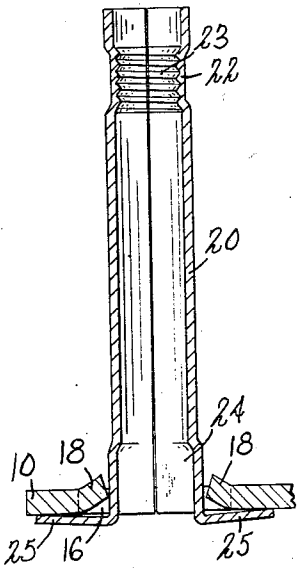
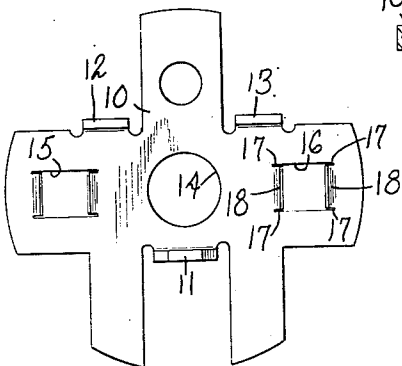


Fig. 6.



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SCREW SOCKET ASSEMBLY FOR DOOR ESCUTCHEON

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5 Claims. (Cl. 292—357)

This invention relates to a door lock or latch, and more particularly to a screw socket assembly for the rose or escutcheon of a door knob, the socket being adapted to receive a screw through the rose of the knob on the opposite side of the door to hold the parts in assembled condition.

In many door locks in use at the present time, and particularly those locks wherein the lock case is inserted in an opening in the edge of the door and knobs are provided on opposite sides of the door for operating the latch, means are provided upon one of the knob structures for aligning the knob and consequently the knob spindle with the lock case through which the spindle passes. This aligning means commonly consists of a plate secured to the rose or escutcheon surrounding the knob at the outer side of the door, and the knob at the inner side of the door is secured upon that upon the outer side by screws received in threaded sockets secured to this plate. By this method the two knobs are held in proper position upon the door and, as the screws are inserted from the inside of the door, the knobs, of course, cannot be removed from the outside.

The present invention relates particularly to the construction of the screw sockets referred to and the method of securing them to the aligning plate which, as stated above, is in turn secured to the rose or escutcheon of the outer knob. Heretofore such sockets have usually been made of solid tubular members which are internally threaded and secured by some means to the aligning plate such as being passed through openings in the plate and their ends riveted over or upset on the rear side of the plate.

It is contemplated by the present invention to construct these tubes from sheet metal by rolling a flat sheet metal blank into tubular form, and then shaping the tube so formed to the shape desired for the tube. Thereafter this tubular member is threaded and rigidly secured to the aligning plate in a novel manner.

As illustrated, the sheet metal blank from which the tubular socket is formed is provided with a pair of projecting lugs or wings, which wings are folded over upon one surface of the aligning plate to prevent the tube being pulled out when the parts are assembled.

One object of the present invention is to provide a novel threaded socket member to be secured to the aligning plates used with door lock assemblies.

A further object of the invention is to provide a screw socket member of novel construction and to secure this member to a base which in this case is the aligning plate of the lock structure in a novel and effective manner.

A still further object of the invention is to provide a screw socket member for door locks which may be formed economically and inexpensively from sheet metal, this member being secured in a novel way to a plate attached to the rose of one of the knob locks.

To these and other ends the invention consists in the novel features and combinations of parts to be herein after described and claimed.

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In the accompanying drawings:

Fig. 1 is a perspective view of an aligning plate of a door lock structure having secured thereto a pair of screw sockets, the whole assembly embodying the present invention;

Fig. 2 is a bottom plan view of the assembly;

Fig. 3 is a side elevational view of the structure shown in Fig. 2;

Fig. 4 is a sectional view on line 4—4 of Fig. 3;

Fig. 5 is a view similar to Fig. 4 showing a step in the assembly of one of the screw sockets to the aligning plate; and

Fig. 6 is a top plan view of the aligning plate and the openings formed therein to receive the screw sockets.

To illustrate an embodiment of the invention, there is shown in Fig. 1 of the drawings an aligning plate designated by the numeral 10, the plate being provided on one side with a prong-like element 11 and on the other side with parallel projecting elements 12 and 13 which stand at right angles to the plane of the plate 10. It is understood that the plate 10 will be secured in the rose of one of the knobs of the lock as shown, for example, in the application of Charles A. Ellis, Serial No. 426,231, filed April 28, 1954, now Pat. No. 2,779,184 dated January 29, 1957. The prong-like member 11 is adapted to enter an opening in the lock case to properly align the parts while the members 12 and 13 are designed to stand upon opposite sides of the lock case (which is usually of tubular form) and thus hold the entire assembly of lock case and knobs together. The plate 10 may also be provided with a centrally disposed opening 14 through which the knob spindle may extend.

As shown in Fig. 6 of the drawings, the plate 10 is provided with openings 15 and 16 of noncircular form, which openings will receive the screw socket members to be described hereinafter. As shown, these are four-sided openings substantially square in shape so that they may receive a portion of the screw socket of corresponding shape and thus secure the latter against rotation.

At each corner of the openings 15 and 16 the metal is lanced or cut back in opposite directions as shown at 17 in Fig. 6 so as to provide tongues 18 (see Fig. 5) which may be struck upwardly to a slight extent so as to be in an inclined position shown in the latter figure.

As shown in Fig. 1, screw socket members designated generally by the numerals 19 and 20 are secured to the plate 10. These members are formed from sheet metal. A suitable blank is stamped out, which blank is provided with projecting lugs, and the blank is then rolled into tubular form, the two edges of the blank meeting at the seam 21.

The tube thus made is then formed by well-known operations into the desired shape. Adjacent its upper end the metal of the tube is displaced inwardly, as shown at 22, and at this point internal threads 23 are cut upon its inner surface. At its lower end the tube is provided with a substantially square cross-sectional form, as shown at 24, the outer dimensions of the socket member at this point being substantially those of the openings 15 and 16 so that this portion of the socket will be snugly received in these openings. The projections upon the blank previously referred to are then bent over or turned outwardly to extend transversely from the tube to form the wings 25.

The tubular sockets thus formed are inserted through the openings 15 and 16 with the wings 25 lying against the lower surface of the plate 10, as shown in Fig. 5. The parts will then be in the position shown in Fig. 5 with the tongues 18 projecting upwardly to some extent from the plane of the aligning plate. These tongues are now struck downwardly so as to grip the squared portion 24 of the tubular socket members at each of two

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opposite sides thereof, as shown in Fig. 4. This serves to clench the socket members in place and secure them rigidly to the aligning plate.

It will be understood that these socket members will be adapted to receive screws passing through the rose at the opposite side of the door from that of the rose to which the plate 10 is secured. When these screws are received by the threads 23 of the socket member, a considerable force will be exerted upon the latter. However, these members will be prevented from pulling out of the openings 15 and 16 in the plate by the close frictional contact of the edges of the tongues 18 with the outer walls of the socket members and by the engagement of the wings 25 with the rear surface of the plate. Thus the socket members are secured to the plate 10 in an effective and economical manner which will not only prevent their being pulled out of the openings in the plate, but which will also retain them against rotation so that the screws may be effectively secured thereto.

Moreover, the socket members 19 and 20 may be economically and precisely made from sheet metal by the method described, the gauge of the metal being chosen so that they will be sufficiently strong and durable and so that they will hold their shape in use.

While we have shown and described one embodiment of our invention, it will be understood that it is not to be limited to all of the details shown, but is capable of modification and variation within the spirit of the invention and within the scope of the claims.

What we claim is:

1. A screw socket and plate assembly comprising a plate having polygonal openings therein and a sheet metal tubular screw socket member, of circular cross section for the greater part of its length, received in each of said openings and secured at its base end to the plate to project from one face thereof, said openings and the base portion of the socket member being of polygonal form, and the metal of the plate on opposite sides of said openings being lanced outwardly from said openings to provide tongues having free ends extending toward the socket member, and said tongues being swaged against the walls of the socket member at the polygonal base portion thereof.

2. A screw socket and plate assembly comprising a plate having a polygonal opening therein, a sheet metal tubular socket member having an internally threaded portion of circular shape and a portion of polygonal cross-sectional shape adjacent its base end to be received snugly in said plate opening with the body portion of the socket member projecting from one surface of the plate, said plate having tongues adjacent said opening on each of two sides of the latter, and the ends of said

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tongues being tightly placed against the wall of said socket member at the polygonal portion thereof.

3. A screw socket and plate assembly comprising a plate having a polygonal opening therein, a sheet metal tubular socket member having an internally threaded portion of circular shape and a portion of polygonal cross-sectional shape adjacent its base end to be received snugly in said plate opening with the body portion of the socket member projecting from one surface of the plate, said plate having tongues adjacent said opening on each of two sides of the latter, the ends of said tongues being tightly placed against the wall of said socket member at the polygonal portion thereof, and said socket member having wings projecting laterally from its base and into engagement with the rear face of the plate member at opposite sides of said opening.

4. A screw socket and plate assembly comprising a plate having a polygonal opening therein and upwardly bent tongues on each of two opposite sides of said opening, a sheet metal hollow internally threaded socket member, said member being of generally cylindrical shape but having a polygonal cross-sectional form adjacent its base end and integrally formed wings projecting laterally from opposite walls of said polygonal portion, said socket member being received in said plate opening with said wings contacting the plate on the lower side thereof, and the tongues being displaced downwardly to tightly engage the polygonal wall of the socket member and secure it in place.

5. A screw socket and plate assembly comprising a plate having a polygonal opening therein and upwardly bent tongues on each of two opposite sides of said opening, a sheet metal internally threaded hollow socket member, said member being generally of cylindrical shape but having a polygonal cross-sectional form adjacent its base end and integrally formed wings projecting laterally from opposite walls of said polygonal portion, said socket member being received in said plate opening with said wings contacting the plate on the lower side thereof, the tongues being displaced downwardly to tightly engage the polygonal wall of the socket member and secure it in place, and the wall of the socket member being displaced inwardly at its internally threaded portion to constrict the bore of the socket member.

References Cited in the file of this patent

UNITED STATES PATENTS

6,473	Laird	May 22, 1849
782,091	Whitcomb et al.	Feb. 7, 1905
2,764,445	Cerf	Sept. 25, 1956