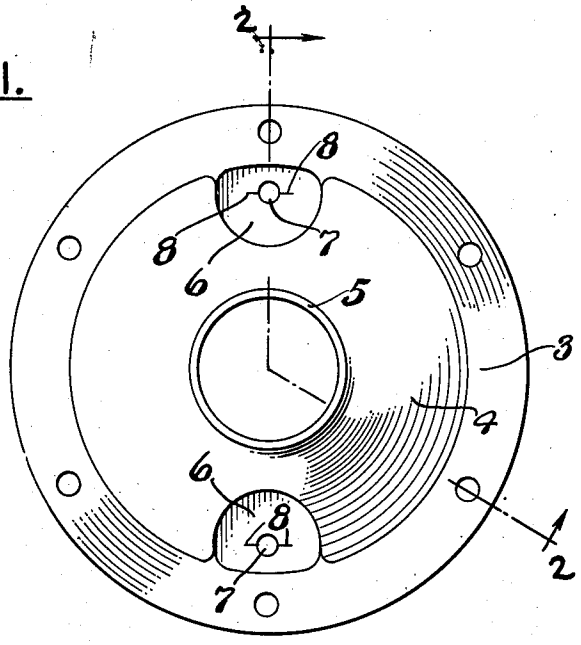
June 16, 1953 H. YOUNG 2,642,302

REINFORCED ESCUTCHEON PLATE

Filed Oct. 9, 1950

FIG. 1.



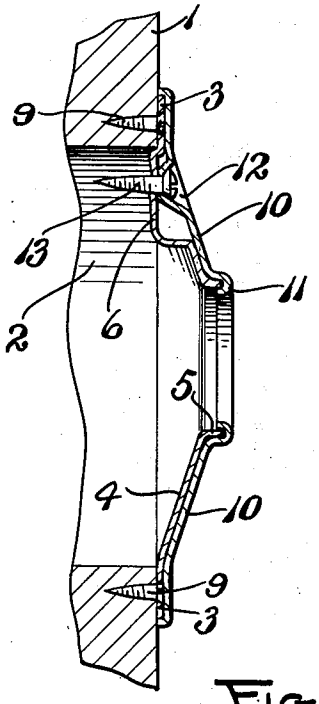


FIG. 2.

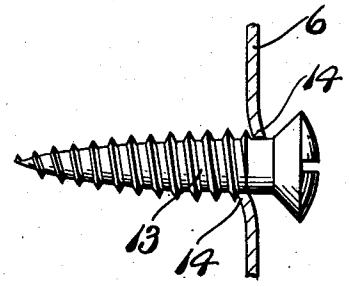


FIG. 3.

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REINFORCED ESCUTCHEON PLATE

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9 Claims. (Cl. 292—357)

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This invention relates to a novel, very useful and practical reinforced escutcheon plate or rose used in the mounting of latches, locks and the like upon doors.

In mounting locks, latches and the like on doors, a spindle at opposite ends of which knobs are attached passes through a door, and the latching or locking mechanism operated by the spindle installed between opposed sides of the door. The opening through the door for the installation of the latch or lock frequently is of a relatively large size, as large as two inches or more in diameter with some forms of such locks or latches. The rose or escutcheon assembly is subjected to severe stresses as, for example, upon grasping a knob and pulling or jerking thereon the force of which is transmitted by the spindle through the door to the opposite knob. Such opposite knob is brought against the rose at the opposite side of the door and must sustain the pull, frequently not a sustained pull, but one which is of a jerky character, with the attendant danger of deforming or otherwise injuring the rose assembly against which such opposite knob is forced. The replacement of the escutcheon or rose assembly is frequently required because of damage done and, which damage is particularly liable to occur where such relatively large openings are made through the door, it being obvious that the outer ends of said openings are to be completely covered by the rose assembly.

The invention of rose or escutcheon plate assembly which I have made provides a very strongly reinforced structure, amply capable of withstanding damaging pulls, jerks or the like to which it may be subjected under all conditions of door operation, irrespective of whether the transverse opening through the door is of the largest or of smaller cross section. Such novel structure of my invention is universally applicable for use in the replacement field. It is not limited solely thereto but is available for new installations, though of a special value in replacement as substantially universally usable with all knob and spindle assemblies associated with lock and latch mechanisms for doors.

With my invention an outer cover of an ornamental character for enhancement of appearance, usually made of brass, which is a relatively soft and weak metal compared to steel, is reinforced at its inner side by a steel plate of ample strength to sustain all of the forces to which it is liable to be subjected in service. Such steel plate is of a novel and special form and shape, designed for strength. The covering plate of brass is connected therewith covering it completely and transmitting pulling or jerking forces to which subjected directly and immediately to the reinforcing steel inner plate therefor. Furthermore, with my invention, a very novel and especially useful connection of the brass cover to the steel reinforcement is provided which substantially insures that they will not be separated in use and which is very economical.

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It is therefore an object and purpose of the present invention to provide an exceptionally useful, novel, practical and efficient rose assembly for the uses stated, one which is substantially universally available to cover the largest transverse opening which may be encountered in a door, and which is economically produced so that it may be sold at low cost.

An understanding of the invention may be had from the following description, taken in connection with the accompanying drawing, in which,

Fig. 1 is an elevation of the outer side of the steel reinforcing plate of the rose assembly of my invention.

Fig. 2 is a section, substantially on the plane of line 2—2 of Fig. 1, of such reinforcing plate and its covering plate connected together and showing the assembly attached to a door, fragmentarily shown in section, through which a relatively large transverse opening is made, and

Fig. 3 is an enlarged fragmentary section through one of the two openings made in the steel reinforcing plate, illustrating the novel manner in which screws for securing the outer decorative covering plate connect and engage therewith, the plane of such section being likewise substantially on the line 2—2 of Fig. 1.

Like reference characters refer to like parts in the different figures of the drawing.

The door, fragmentarily shown in section at 1, has a relatively large transverse opening 2 therethrough for reception of a lock or latch assembly, and the passage of a spindle at the ends of which knobs are secured.

In my invention the inner reinforcing plate of steel is made from a single plate, generally having circular outline, though not restricted thereto, with an outer annular flange 3 which may lie against the face of a door beyond the edges of the transverse opening therethrough. Integral with said annular flange 3 is a centrally disposed portion 4 of a generally arch form, which is shown as the frustum of a cone inclining away from the door toward a common center. The central portion 4 terminates short of said such center, and has an outwardly extending short flange 5 sur-

rounding a central opening through which the lock spindle passes.

At two diametrically opposed portions of the conical section 4, the metal is pressed and stamped to make recesses each having a flat bottom 6. Such recesses are disposed at the juncture of the base of the conical section 4 and the annular flange 3. While two of such recesses are shown, the number does not necessarily have to be thus restricted. The bottoms of such recessed portions are shown pressed slightly inwardly of the plane of the flange 3, though this is not an essential in connection with my invention.

In each bottom 6 at such recessed portions, an opening 7 is made, and from each opening diametrically opposed short slits are cut in the metal at 8. The plate is securely connected to a face of the door by a plurality of screws 9 passing through openings in the flange 3. There are a relatively large number of the openings for the screws 9 to insure strong and sure connection of the steel reinforcing plate to the door.

The covering over the reinforcing steel plate, generally of brass though not restricted to such metal, is shaped so as to fit snugly the outer side of the reinforcing plate. It has a centrally disposed conical section 10 the inner side of which bears against the outer side of the conical section 4 of the plate. At the outer edge portions of the section 10 the metal is formed into a reversely turned bead 11 which covers and embraces the outer edges of the flange 5. The bead 11 defines a central opening axially aligned with the opening through the flange 5 for the passage of the knob spindle.

Two countersunk depressions 12 are made in the cover and aligned to enter the recesses in the reinforcing plate. The depressions 12 seat against the bottoms 6 in the reinforcing plate. Openings are provided in the bottoms of the countersunk depressions 12 for the passage of screws 13. The openings for such screw passage are slightly larger in diameter than the diameter of the openings at 7. The screws 13, which are of a regular wood screw structure, may be passed or threaded freely through the openings in the countersunk depressions 12, but the diameter of a screw 13 at the base of the thread thereof is slightly greater than the diameter of the openings 7, thus, the metal at opposed sides of the opening 7 is distorted by the screw, one portion outwardly and the other portion inwardly at the opposite sides of the slits 8. This distortion of the metal provides the distorted parts at 14 shown in Fig. 3, which parts will ride between the threads of the screw 13 until the short unthreaded shank section of the screw between the threads and the head is reached. In Fig. 3 the covering member is not shown but it will be located between the outer side of the bottom 6 of the recess and the inclined inner sides of the screw head, the head of the screw conforming to the countersunk sides of the countersunk depressions 12 made in the cover plate. In the case of doors with large openings therethrough, the screws will extend into said openings. However, the assembled rose structure is used with a door having a smaller transverse opening 2 therethrough, the screws will drive into the door.

Such connection of the cover to the inner reinforcing plate is a particularly desirable one. When the screw is driven home should the workman either accidentally or purposely turn the screw too far, the distorted portions at 14 of the steel plate will serve to cut portions of the outermost thread of the screw away and will then, on a continuing turning of the screw, cut a shallow groove in the unthreaded shank portion of the screw. This prevents the screw from accidentally moving so as to loosen or disconnect under vibration cause by jars in closing the door. If the screw 13 is merely driven snugly home, reverse turning movement of the screw is resisted by reason of the bite of the distorted portions 14 of the plate 6 at the opposite sides of the opening 7 into the screws which, being of brass to conform to the brass covering member, are readily subject to such action by the steel parts at 14.

Both the reinforcing steel plate and the cover plate are readily produced, very rapidly and in large quantity production, by punch press operations. The screws 13 are guided by passing through the openings in the cover and reinforcing plates so that their axes are at right angles to the bottoms 6 of the recesses in the reinforcing plate and such guidance is helped by the heads of the screws engaging the sides of the countersunk recesses 12 receiving them. The cover plate extends over the flange 3 of the reinforcing inner plate and also covers the edges thereof.

A pull or jerk upon a knob attached to a spindle passing through the door, causes the knob at the other side of the door to be pulled or impacted against its rose or escutcheon assembly made in accordance with my invention. The resulting impact load is resisted and the force sustained primarily by the steel reinforcing plate. Such plate, shown as having a central strengthening portion shaped as a frustum of a cone, is of course not necessarily essentially limited to such form of reinforcement as other equivalent forms which provide a reinforcing arch are equivalently available for use, with the outer covering plate correspondingly formed and shaped to snugly bear against the arched reinforcing part of the steel inner plate.

The invention is defined in the appended claims and is to be considered comprehensive of all forms of structure coming within their scope.

I claim:

1. In a structure as described, an inner plate adapted to bear against the side edge of a door, said plate having a centrally located outwardly extending reinforcing section with a central opening therethrough, a covering member located over said plate, said covering member defining a central opening axially aligned with said central opening in said plate, said plate snugly nesting within said covering member, said plate having slots therein, each enlarged between the ends of the slots to provide an opening for screw passage, the plate at one side of each of the slots being offset with relation to the other side of the slot whereby engagement with threads of a tapered shank screw may be had, and screws passing through said covering member and through said slots.

2. In a structure as described, an inner member of relatively strong thin metal having a surrounding flange at its outer portion and an outwardly extending arched central section with a central opening therethrough and a covering member of thin metal of less strength and of softer metal than the inner member, said covering member defining a central opening axially aligned with said central opening in a member, said inner member snugly nesting within the covering member, said inner member at a plurality of points outwardly from its center having openings therethrough, said openings having slits extending outwardly therefrom whereby the metal at one side of each of said openings may

be offset from the metal at the other side of the opening to engage the thread of a tapered shank screw, and screws passing through said outer and inner members and through said openings.

3. In a reinforced escutcheon plate adapted to be mounted upon a door, the combination comprising: a reinforcing plate; said reinforcing plate having an inner portion and an outer portion, said inner portion defining a central opening and being arched toward said opening and away from said door, said outer portion being adapted to seat against said door; a cover plate adapted to nest against said reinforcing plate; said cover plate having a central opening of substantially the same size as said opening in said reinforcing plate and axially aligned therewith; said cover plate having a flange extending into said opening in said reinforcing plate toward said door and engaging said reinforcing plate at said opening.

4. In a reinforced escutcheon plate adapted to be mounted upon a door, the combination comprising: a reinforcing plate; said reinforcing plate having an inner portion and an outer portion, said inner portion having a central opening and being arched toward said opening and away from said door, said outer portion being adapted to seat against said door; flange integral with said plate, surrounding said central opening and extending away from said door; a cover plate adapted to nest against said reinforcing plate; said cover plate having a central opening of substantially the same size as said opening in said reinforcing plate and axially aligned therewith; a lip on said cover plate seating over and engaging said flange.

5. In an escutcheon plate assembly adapted to be mounted upon a door, the combination comprising; a pair of plates including an inner plate and an outer plate, said inner plate adapted to nest snugly within said outer plate; each of said plates arched toward its center and away from said door; an opening through each of said plates, said openings being axially aligned; the edge of said outer plate about said opening being flanged inwardly into the opening in said inner plate and engaging the radially inwardly facing walls of said opening in said inner plate.

6. In a reinforced escutcheon plate adapted to be mounted upon a door, the combination comprising: a reinforcing plate; said reinforcing plate having an inner portion and an outer portion, said inner portion defining a central opening and being arched toward said opening and away from said door, said outer portion being adapted to seat against said door; a cover plate adapted to nest against said reinforcing plate; said cover plate having a central opening of substantially the same size as said opening in said reinforcing plate and axially aligned therewith; said cover plate having a flange extending into said opening in said reinforcing plate toward said door and engaging the radially inwardly facing walls of said opening; first threaded means passing through said outer portion of said reinforcing plate for securing said reinforcing plate to said door; second threaded means passing through both said cover plate and said reinforcing plate for securing said cover plate to said reinforcing plate.

7. In a reinforced escutcheon plate adapted to be mounted upon a door, the combination comprising: a reinforcing plate; said reinforcing plate having an inner and outer portion, said inner portion defining an opening remote from the edges of said plate and being arched toward said opening and away from said door, said outer portion being adapted to seat against said door; means for securing said outer portion of said reinforcing plate to said door; a cover plate adapted to seat over said reinforcing plate and having an opening therethrough axially aligned with said opening in said reinforcing plate; said reinforcing plate having spaced holes therethrough; frusto-conically shaped depressions in said cover plate, the walls of said depressions converging toward said door; the bottom of said depression resting upon said reinforcing plate; each of said depressions aligned with one of said holes in said reinforcing plate; a screw seated in each of said depressions and threadedly engaging a hole in said reinforcing plate.

8. In a reinforced escutcheon plate adapted to be mounted upon a door, the combination comprising: a reinforcing plate; said reinforcing plate having an inner and outer portion, said inner portion defining an opening remote from the edges of said plate and being arched toward said opening and away from said door, said outer portion being adapted to seat against said door; means for securing said outer portion of said reinforcing plate to said door; a cover plate adapted to seat over said reinforcing plate and having an opening therethrough axially aligned with said opening in said reinforcing plate; said reinforcing plate having spaced holes therethrough; diametrically opposed slits extending radially outwardly from each of said holes; frusto-conically shaped depressions in said cover plate, the walls of said depressions converging toward said door; the bottom of said depressions resting upon said reinforcing plate; each of said depressions aligned with one of said holes in said reinforcing plate; a wood screw seated in each of said depressions and threadedly engaging a hole in said reinforcing plate.

9. In a reinforced escutcheon plate adapted to be mounted upon a door, the combination comprising: a reinforcing plate; said reinforcing plate having an inner and outer portion, said inner portion defining an opening remote from the edges of said plate and being arched toward said opening and away from said door, said outer portion being adapted to seat against said door; means for securing said outer portion of said reinforcing plate to said door; a cover plate adapted to seat over said reinforcing plate and having an opening therethrough axially aligned with said opening in said reinforcing plate; said reinforcing plate having spaced holes therethrough; diametrically opposed slits extending radially outwardly from each of said holes; a recess in said reinforcing plate surrounding each of said holes; frusto-conically shaped depressions in said cover plate, the walls of said depressions converging toward said door; the bottom of each of said depressions resting upon the bottom of one of said recesses; each of said depressions aligned with one of said holes in said reinforcing plate; a screw seated in each of said depressions and threadedly engaging a hole in said reinforcing plate.

HERBERT YOUNG.

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