Dec. 25, 1934. R. F. ANDERSON 1,985,223

AUTOMOBILE DOOR HANDLE CONSTRUCTION

Filed May 22, 1933

Fig. 1.

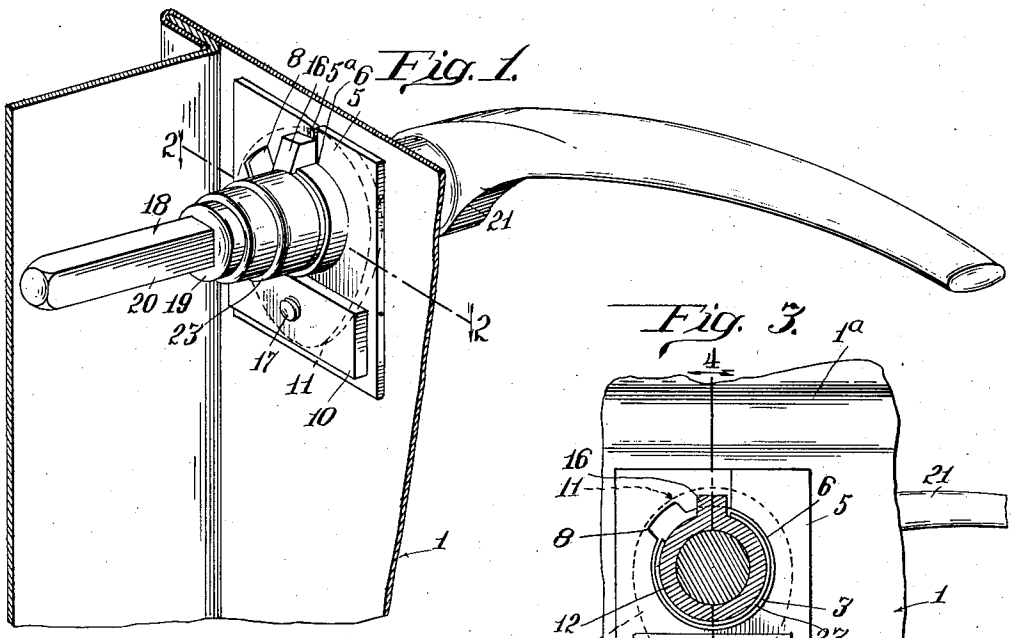


Fig. 3.

Fig. 2.

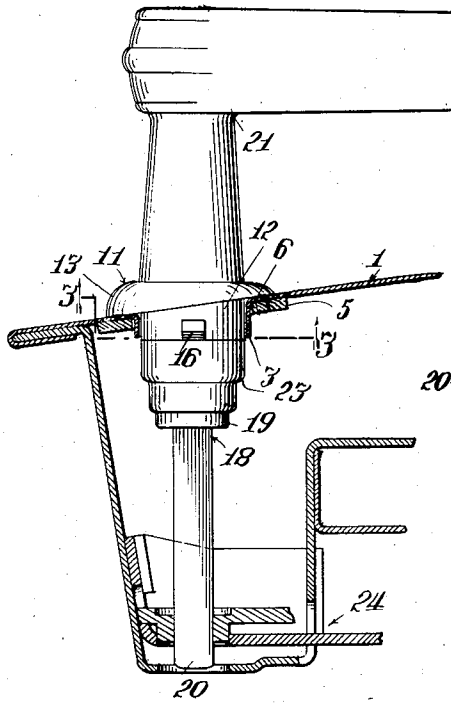
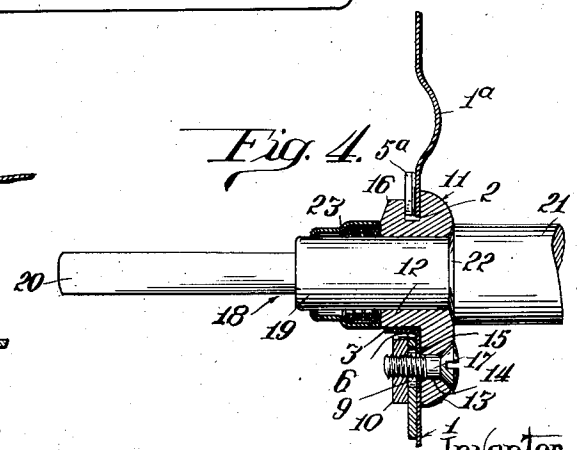


Fig. 4.



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AUTOMOBILE DOOR HANDLE CONSTRUCTION

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3 Claims. (Cl. 292—356)

This invention relates to improvements in automobile door handle construction and it consists of the matters hereinafter described and more particularly pointed out in the appended claims.

In automobile doors as now made, difficulty arises in providing a substantial journal mounting for the handle spindle, in the wall of the door body below the usual window opening and this difficulty is increased when said wall constitutes but a thin metallic sheet. In such a construction, it is desired to avoid, as much as possible, the use of screws and bolts which are not only objectionable because of added cost but also because of the appearance presented.

When the door body wall constitutes a metallic sheet, it is apparent that said sheet presents a considerable area. Therefore, when a pull is exerted upon a handle to open the door, the pull is localized upon a substantially small area which cannot offer much resistance to bulging the sheet at this point.

One of the objects of the invention is to provide an improved journal mounting for the door handle spindle in the door sheet, which is of simpler construction, whereby it may be made and assembled at small cost, and which provides a rigid construction that offers more resistance to handle pull against bulging the door sheet at this point.

A further object of the invention is to provide a construction of this kind, which requires the use of but a single screw in its assembly from the outside of the door body and furthermore is not only more difficult to remove by unauthorized persons but presents a more sightly appearance.

Again, it is an object of the invention to provide a construction which can be assembled in a space of a size that would be insufficient to accommodate the conventional two screw design.

The above mentioned objects of the invention, as well as others, together with the many advantages thereof, will more fully appear as I proceed with my specification.

In the drawing:

Fig. 1 is a perspective view of my improved automobile door handle construction and the more directly associated parts of the door, as viewed from the inside of the door body wall or sheet;

Fig. 2 is a horizontal detail sectional view as taken on the line 2—2 of Fig. 1;

Fig. 3 is a vertical sectonal view through the improved construction as taken on the line 3—3 of Fig. 2; and

Fig. 4 is another detail vertical sectional view through a part of the improved construction as taken on the line 4—4 of Fig. 3.

Referring now in detail to that embodiment of the invention, illustrated in the drawing:

1 indicates as a whole a door body wall in the form of a metallic sheet or panel in which is located a bushing receiving opening 2 defined in part by an inwardly extending arcuate flange 3. Spot welded on the inside of the door body wall or sheet in the vicinity of said opening, is a reinforcing plate 5. This plate is provided with a bushing receiving opening 6 through which the flange 3 extends. The reinforcing plate is provided with a recess 8 disposed to one side of the vertical plane of the axis of the opening 6 and which recess communicates with said opening, there being a similar recess associated with the opening 2 in the door body wall or sheet. When the reinforcing plate is positioned on the inside of the wall or sheet 1, then the openings and recesses in said wall or sheet and reinforcing plate respectively, register with each other. On the rear side of the reinforcing plate in line with an opening 9, and below the opening 6, is fixed a transversely extending screw receiving plate or nut 10. Preferably the screw receiving plate is spot welded to the reinforcing plate.

11 indicates, as a whole, a journal bushing that includes a tubular body 12 adapted to extend through the openings 2 and 6 in the door body wall or sheet and reinforcing plate respectively. On the outer end of said bushing is provided an escutcheon or finishing flange 13 of such a diameter and shape as to cover the opening 2 in the wall or sheet 1. The bottom end of said flange has a greater radial dimension than the top end part and in said bottom end portion is an opening to register with the opening 9 in the reinforcing plate 5 and with an associated hole 15 in the wall or sheet 1.

On the top side of the inner end of the bushing body and spaced axially from the flange 13 a distance substantially equal to the combined thickness of both the door body wall or sheet and reinforcing plate respectively, is an integral lug 16. When inserting the bushing in place in the door from the outside thereof, the body is turned so that the lug registers with the recesses in the sheet and reinforcing plate. This permits moving the bushing body axially through the openings 2 and 6 after which the bushing is turned about its axis until the hole 14 in the bottom of the flange 13 registers with the holes 15 and 9. In this turning movement of the bushing, the lug moves out of register with the re-

cess so that the flange and lug provide spaced portions to receive the wall or sheet between them. Thereafter a screw 17 is inserted through said holes and into the screw receiving plate 10 and this secures the parts rigidly in place.

18 indicates as a whole the spindle of a door handle. This spindle has an intermediate part 19 of a diameter fitting the interior of the bushing, an inner latch operating end 20 and an outer handle end 21 of a diameter larger than the part 19. This provides an annular shoulder 22 for snug engagement with the bushing about the bore or opening therein. It is to be noted that the handle 21 is disposed upon that side of the vertical plane of the axis of the spindle, opposite the recess 8 before mentioned.

The intermediate part of the spindle is of an axial length greater than that of the bushing and mounted on the inner end thereof is a ferrule 23. This ferrule abuts the inner end of the bushing and prevents the withdrawal of the spindle from the bushing.

A part 5*a* at the top of the reinforcing plate is split and sprung outwardly to be engaged by the lug 16 when the bushing has been turned into its final portion as best shown in Fig. 1 and this assists in holding the parts in place.

When the handle is turned to actuate the latch mechanism 24 as shown in Fig. 2 and a pull is exerted on said handle to open the door, the force of the pull is transmitted to the door through the plate 5 which reinforces the door body wall or sheet in that area about the handle which would tend to bulge. The same reinforcing action is present when a push is imposed upon the handle as when closing the door.

Again, the parts are secured in place by a single screw at the bottom of the bushing flange and being located beneath the spindle, it is substantially concealed. The parts are few in number and may be made and assembled at an extremely low cost.

By making the bottom part of the flange 13 of a greater radial dimension than the top part, it is possible to apply the bushing to the door nearer the body belt beading 1*a* as shown in Fig. 4, than would be possible in a construction requiring more than one screw for attachment to the door.

While in describing the invention, I have referred in detail to the form and arrangement of the various parts, the same is to be considered only in an illustrative sense and therefore, I do not wish to be limited thereto, except as may be specifically set forth in the appended claims.

I claim as my invention:

1. In combination with a relatively thin sheet metal door body wall, a reinforcing plate secured to the inner face of said wall, said wall and plate having registering openings and lateral recesses therein, a rearward projection on said plate adjacent the opening therein, a spindle receiving bushing having a flange at one end engaged against the outer face of said wall and also having a projection on the other end for insertion through the registering recesses and operating when the bushing is turned to move out of register with said recesses into a position having an end face engagement with said first mentioned projection, and means passing through said flange, said wall and said reinforcing plate for securing the bushing in the last mentioned position.

2. In combination with a relatively thin sheet metal door body wall having an opening and a lateral recess therein, the opening being partially defined by an inwardly extending flange, a reinforcing plate secured to the inner face of the wall and having an opening and a lateral recess therein registering with those in said wall, a rearward projection on said plate adjacent said opening, a spindle receiving bushing having a flange at one end for engagement against the outer face of said wall and also having a projection on the other end for insertion through the registering recesses and operating when the bushing is turned to move out of register with said recesses into a position having an end face engagement with said first mentioned projection and having a side face engagement with a part of said flange, and means passing through said flange, said wall and said reinforcing plate for securing the bushing in the last mentioned position.

3. In combination with a relatively thin sheet metal door body wall, a relatively heavy reinforcing plate welded to the inner face of said wall, said wall and plate having registering openings and lateral recesses therein and said plate having a rearwardly punched-out part near said opening, a spindle receiving bushing having a flange at one end engaged against the outer face of said wall and also having a projection on the other end for insertion through the registering recesses and operating when the bushing is turned to move out of register with said recesses into a position having an end face engagement with said rearwardly punched out part on said plate, a nut secured to the inner face of the reinforcing plate, and a screw passing through said flange, said wall, said reinforcing plate and into said nut for securing the bushing in the last mentioned position.

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