

March 1, 1932.

R. L. FETTERS
ANTIRATTLE HINGE PIN
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1,847,937

Fig. 2.

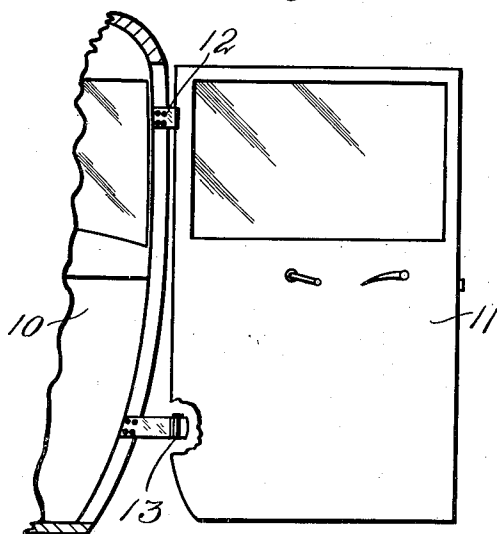


Fig. 1.

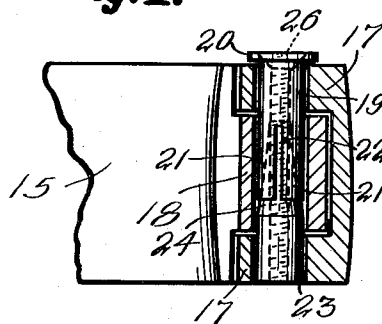


Fig. 5.

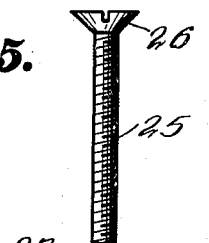


Fig. 3.

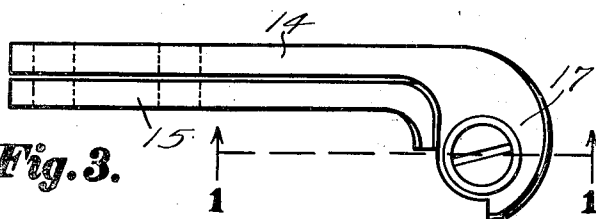


Fig. 6.

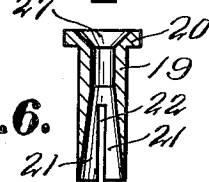


Fig. 4.

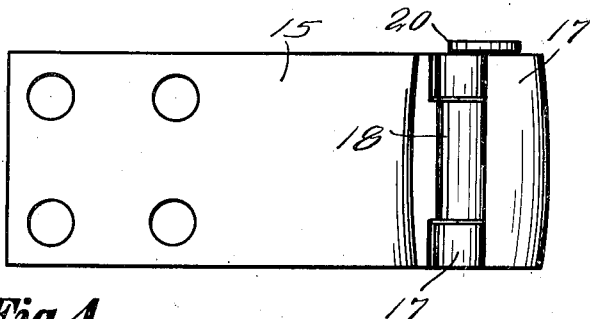
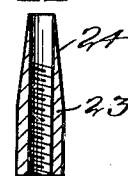


Fig. 7.



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ANTIRATTLE HINGE PIN

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The present invention relates to hinges, and has for an object to provide an improved hinge adapted for use particularly with the doors of automobile bodies and the like where the hinges and hinge pins rapidly wear and admit of the rattling or vibration of the door in a relatively short time.

Another object of the present invention is to provide a relatively strong and simple construction of hinge wherein the leaves and major parts thereof are of usual construction and wherein the improved hinges may be readily substituted for the old type of hinge without any alterations or modifications in the construction of the door or body of the vehicle.

A further object of the present invention is to provide a hinge which is noiseless in operation, which admits of quick and easy adjustment for taking up wear without removing the hinge or substituting any of the parts thereof, wherein if necessary the parts may be quickly substituted or interchanged, and wherein the hinge as a whole may be easily operated and produces no undue friction or wear upon the various relatively movable parts.

With the foregoing and other objects in view, the invention will be more fully described hereinafter, and will be more particularly pointed out in the claim appended hereto.

In the drawings, wherein like symbols refer to like or corresponding parts throughout the several views.

Figure 1 is a vertical section taken through a hinge constructed according to the present invention substantially on the line 1—1 of Figure 3.

Figure 2 is a fragmentary elevation, partly in section, of a vehicle body having a door thereon by means of hinges constructed according to the present invention, and showing the door in open position.

Figure 3 is a top edge view of a hinge constructed according to the present invention.

Figure 4 is a face view of the hinge shown in Figure 3.

Figure 5 is a detail enlarged elevation of the adjusting screw employed.

Figure 6 is a longitudinal section showing in detail the expansible bushing or member used, and

Figure 7 is a like view of the combined nut and expanding member employed.

Referring now to the drawings, 10 designates a vehicle body provided with a door 11 which is hung thereon in the usual manner by hinges 12 and 13. These hinges 12 and 13 are of the usual type and are identical with the exception that the leaves of the lower hinge 13 are of greater length than the leaves of the upper hinge 12, incident to the inward curvature of the side of the body 10 as clearly shown in Figure 2.

The present invention relates more particularly to the hinge pin which may be used in both of the hinges 12 and 13, and as showing one of the hinges in detail reference is now made to Figures 1, 3 and 4. 14 and 15 designate the opposed leaves of the hinge. The inner end of the leaf 14 is provided with a barrel portion 17 which is recessed and interrupted at its inner side adapted to receive the interfitting barrel portion 18 of the opposite leaf 15 as clearly shown in Figures 1 and 4.

For the purpose of pivotally connecting the barrel portions 17 and 18 of the leaves a pin is employed, and according to the present invention the pin comprises three separate relatively adjustable parts as shown in detail in Figures 5, 6 and 7.

In Figure 6 the body portion of the pin is shown and comprises a cylindrical bushing 19 provided on its upper end with an enlarged head 20 adapted to seat against the upper end of the barrel portion 17 when the pin is in place to support the pin against vertical displacement. The lower end of the bushing 19 is provided with a flared inner wall for the purpose of reducing the thickness of the lower portion of the bushing 19 and tapering the same. The lower tapered portion of the bushing 19 is divided into expansible sections 21 by a desired number of slots 22 which extend longitudinally in the sides of the bushing and at the lower end portion thereof.

The lower end of the pin is in the form of

a wedge or nut 23 which at its lower end corresponds in exterior diameter to that of the bushing 19 at the intermediate portion thereof, and which at its upper end is provided with an exterior tapering wall corresponding in taper to the inner wall of the sections 21 of the bushing so as to interfit thereagainst and expand the sections 21 as the nut 23 is advanced upwardly into the lower end of the bushing. The upper end of the nut 23 therefore provides a wedge 24, and the nut 23 is internally threaded for the reception of the lower end portion of a machine screw 25 or the like as shown in Figure 5.

The machine screw 25 is of a length equal substantially to the length of the barrel portion 17 and is provided with an inwardly tapering head 26 on its upper end suitably curved to receive the bit of a screw driver or the like, and which is adapted to seat in a correspondingly formed tapering socket 27 formed in the upper face of the head 20 of the bushing 19.

Figure 1 shows the hinge pin assembled. This pin is dropped into place in the ordinary manner of a hinge pin and after it is positioned the screw 26 is turned. The screw 25 turns freely in the bushing 19 but is advanced longitudinally in the nut 23 when turned with the result that the nut 23 is drawn upwardly on the screw 25 and into the lower end of the bushing 19. The head 26 of the screw acts as a shoulder which engages the head 20 of the bushing 19 to maintain the same against longitudinal displacement on the screw 25 so that the wedge 24 of the nut 23 is forced upwardly into the lower sectional end of the bushing with the result that the sections 21 of the bushing are expanded and engage against the intermediate barrel portion of the leaf 15. As the inner leaf 15 is the leaf which is attached to the door or movable part, the barrel portion 18 thereof is the part of the hinge which turns about the intermediate portion of the hinge pin with the result that the barrel portion 18 is subject to wear, and also the intermediate portion of the pin which engages the barrel portion is subjected to a large extent to the same wear.

Thus, by expanding the intermediate portion of the hinge pin which is made up of the expansible sections 21, all wear and loose play between the intermediate portion of the hinge pin and the barrel portion 18 may be taken up, and the adjustment may be made from time to time so as to hold the door 11 from rattling or vibration with respect to the body portion 10 of the vehicle.

It is readily apparent that this hinge pin may be quickly and easily substituted for the ordinary type of hinge pin now in use, and that the same comprises but three parts which are relatively simple in construction, may be economically produced, and which may be quickly and easily assembled before they are

inserted in the barrel portions 17 and 18 of the hinge.

As the curved head 26 of the machine screw 25 is exposed at the upper side of the hinge pin, as shown clearly in Figure 3, it is apparent that the hinge may be adjusted to take up looseness in play between the barrel portions 17 and 18 and the hinge pin by merely applying a screw driver or the like tool to the top of the hinge without removing the same from either the door or the body part, or without removing the pin, and thus an accurate adjustment or take-up may be made and determined while the parts are in their working positions.

It is obvious that various changes and modifications may be made in the details of construction and design of the above specifically described embodiment of this invention without departing from the spirit thereof, such changes and modifications being restricted only by the scope of the following claim:

What is claimed is:—

A hinge pin comprising a bearing portion having a bushing section and a nut section, said bushing section having an enlarged head on its outer end with a tapering countersink in its outer face and having a longitudinally slotted inner end with an inner wall flaring toward the adjacent extremity of the bushing, said nut section having a threaded bore and having a tapering inner end for wedging engagement into the inner slotted end of the bushing section and also having an outer end portion of the same exterior diameter as that of the bushing section, and a screw section slidable through the bushing and having an inwardly tapering head for seating in the countersink of the head of the bushing section and engaging the threads of the nut section to draw the latter and the bushing section into telescoping relation and expand the slotted end of the bushing section.

In testimony whereof I have affixed my signature.

ROBERT L. FETTERS.