

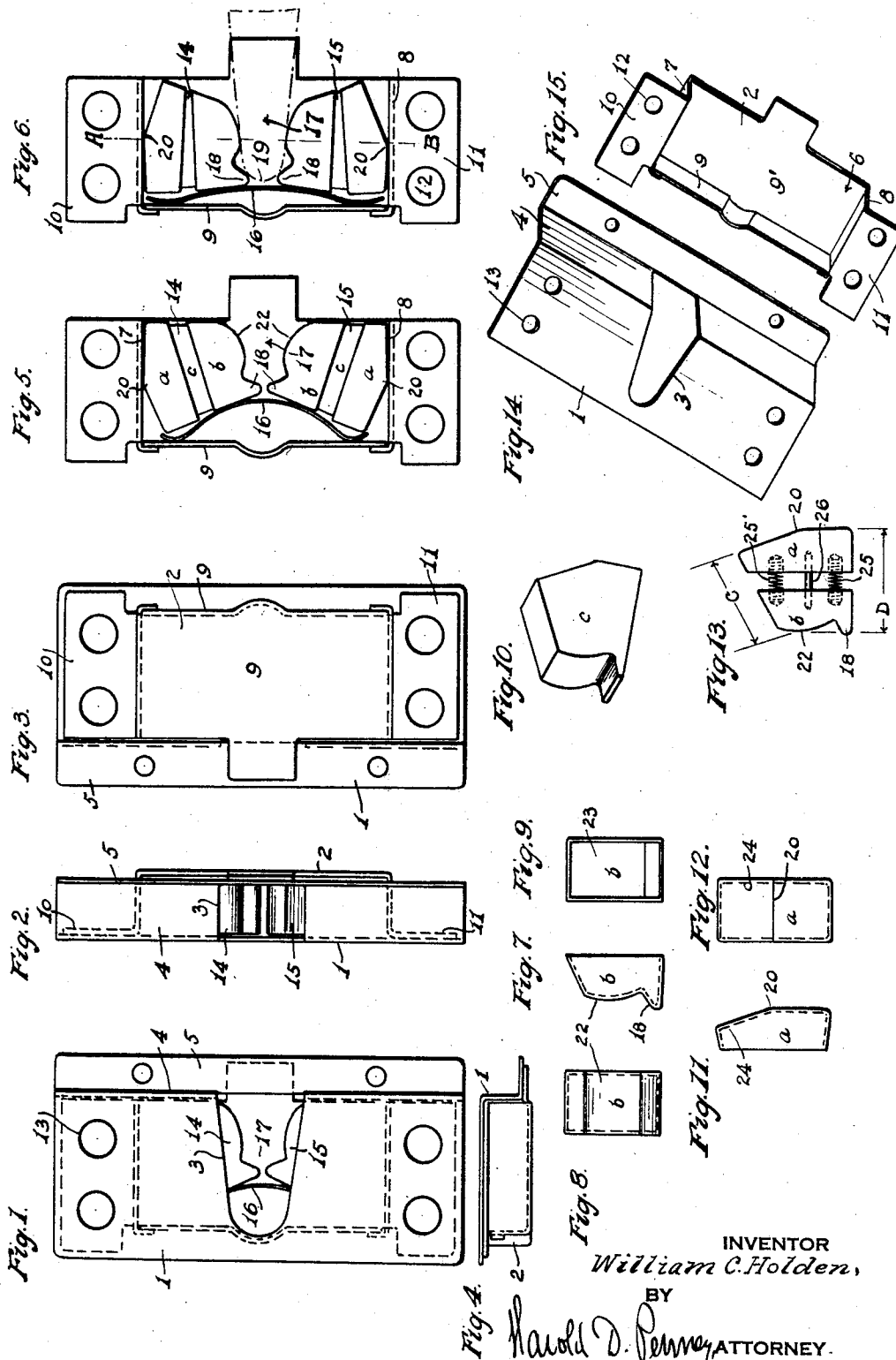
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ANTIRATTLE DEVICE FOR VEHICLE DOORS

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ANTIRATTLE DEVICE FOR VEHICLE DOORS

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My present invention relates to an improvement in anti-rattle devices for vehicular doors, more especially automobile doors and has for its principal object, the provision of an improved form of dovetail gripping members whereby greater resiliency is accomplished between these members, thereby improving their anti-rattle action, increasing the silencing action, absorbing the shock of slamming the door and when opening the door to provide an added automatic impetus to the door opening action.

A further object is to provide an active structure that may be fitted into standard metal casings of such devices as already applied, as a substitute for original installations, where desired.

These and other capabilities will be apprehended as the description proceeds and it is obvious that modifications may be made in the structure herein without departing from the spirit hereof or the scope of the claims.

In the drawing:

Fig. 1 is a plan view of a casing showing the device applied therein;

Fig. 2 is a front view of Fig. 1;

Fig. 3 is a rear view thereof;

Fig. 4 is an end view of Fig. 1;

Fig. 5 is a plan view with the top cover of the casing removed;

Fig. 6 is a similar view showing the action of the buffers;

Figs. 7, 8 and 9 are side, front and rear views of one of the elements forming the buffer members;

Fig. 10 is a perspective view of the rubber filler block;

Figs. 11 and 12 are side and front views of the opposing buffer forming member;

Fig. 13 is an assembled compressible buffer showing a modified arrangement;

Fig. 14 is a perspective view of the top cover of the casing; and

Fig. 15 is a perspective view of the bottom thereof.

Throughout the views Figs. 1 to 5, inclusive, and in Figs. 14 and 15, I have shown a standard outer metal casing for enclosing the operative buffer parts which latter are of novel construction.

Any suitable housing may be used. In the present housing construction, the structure comprises a top and lower casing, 1 and 2, respectively. The upper portion 1 has a dovetail admitting opening 3 which extends down the front face of the angular portion 4 and terminates at the flange 5, Fig. 14.

The bottom casing 2, shown in perspective view, Fig. 15, has a box-like portion 6 formed by bending up portions of the bottom plate 9' to form the ends 7—8, and bending up one side 9 from the bottom plate 9'. This forms the enclosure for the operative buffer portions, when the portion 2 is assembled to portion 1 to form a casing. Flanges 10—11 extend from the sides 7—8, and screw holes 12 in said flanges register with screw holes 13 in the opposite ends of the portion 1, when portion 1 is placed thereover, so that four screws join the two casing portions to the door jamb of the body of a vehicle, not shown, in the usual manner.

As thus briefly described, the casing is of well known make, though any suitably designed casing can be used.

The novelty lies in the buffer members generally denoted by 14—15, Figs. 5—6. As there shown the buffers are mounted in the box like part of portion 2, formed by the sides 7—8, end plate 9 and bottom 9', so that the two of said buffers lie pivotally opposed to each other, as in Fig. 5, and are supported in floating, resilient non-operative outward position by a curved flat spring 16, the ends of which rest upon the side 9 of the box. Between the buffers 14—15 is a space 17 into which the dove-tail of the door, indicated in Fig. 6 by dotted lines, enters, when the door is closed. This space between the buffers, and a portion of the buffers is exposed by the cut out 3, of the casing portion 1, as in Fig. 1.

The buffers are each provided, at their lower inside faces, at the bottom of the space 17, Figs. 5—6, with an extension 18, these, in effect creating a joint stop, against which the nose 19 of the dovetail, shown dotted in Fig. 6, contacts, thus, causing the buffers 14—15 to rock backwardly from position shown in Fig. 5, to that shown in Fig. 6. Simultaneously as the blocks rock to their

rear faces upon the cam points 20, against the walls 7—8, owing to their cam like formation, they squeeze the dovetail between them. This squeezing action, is, naturally, confined between and taken up by the side plates or walls 7—8, and thus the action upon the dovetail partakes of toggle action, in principle. Thus the dovetail is snugly held in firm resilient grip.

Upon compressing action by the dovetail combined with the opposed camming action of the buffers, and as this final double compression takes place at about the line A—B, Fig. 6 all such compression forces are kept well within the confines of the walls of the lower casing 2.

There is, therefore, no tendency of the compressive forces between the dovetail the buffer and walls 7—8, Fig. 6, to be exerted external to the housing 2, and thus wear on the strikers or strike plates of the door lock is obviated.

Further, due to the proportions of the buffer member, as in Fig. 6, the dimension C, when the buffers are in non-operative position ready to receive the dovetail, as in Fig. 5, is shorter than the dimension D, Fig. 13. Therefore, when the dovetail engages and forces the buffer blocks to rock backwardly, the greater dimensions of the lower portions of the blocks squeeze the dovetail between the curved faces 22 of the blocks, as previously described with a toggle like action, the forces of which are confined entirely within the confines of the walls of the surrounding casing.

In Figs. 7 to 13 inclusive are illustrated preferred forms of detailed construction for the rockable buffer blocks.

In order to enhance the resiliency of this grip, the buffers 14—15, which are alike in construction, are so made up that the rear cam piece *a*, made of metal, and the front piece *b* also made of metal, are separated by a compressible spacer *c*.

To this end, the buffer blocks, in assembly, are comprised of a metallic cam piece *b* having a front curved dovetail gripping face 22 for engaging the side of the dovetail, and at the bottom thereof below said gripping curve are provided with the previously described dovetail stop extensions 18. As illustrated in Figs. 7, 8 and 9, these members are in the form of a shell, open at one side 23. The other metal buffer forming member *a* having the cam like contour 20 at the rear thereof is also in shell form, having one open side 24. These may be stamped up out of sheet metal.

A rubber block *c*, Fig. 10, is moulded so as to fit substantially the combined interior contours of the spaced buffer shells *a* and *b*, so that they are separated from each other as illustrated in Figs. 5—6. The shells *a* and *b* are easily assembled to the contoured rubber block *c*, and when so assembled are ready for duty.

When desired new rubber blocks may be replaced easily when required.

An alternative form of compressible buffer structure is shown in Fig. 13, wherein the spaced blocks *a* and *b* are made of solid metal, with blind holes drilled therein, and coiled springs 25 and 25' assembled in the blind holes. A guide pin 26 slidably mounted between the blocks keeps them in registry. This structure is simple and operates in a practical manner.

The curved support spring 16 has only a light duty to perform, as it is utilized to merely keep the buffer blocks in the outer normal receptive position for the dovetail, when the door is open, thus to insure that the blocks will be ready at all times, when the door is open, to compressively absorb door closing shocks and thereafter to grip the dovetail toggle-wise, to hold it, with its appurtenant door in firmly resilient anti-rattle position.

After the dovetail has been seated, as in Fig. 6, the door having been closed, the act of opening the door is accentuated by the herein described buffer structure. After the door has been slightly opened to break the toggle grip, the constrained buffers, being released from their toggle like door-locking repose, then thrust the dovetail outwardly with a positive door opening action.

Having thus described my invention what I claim is:

1. An anti-rattle device for the purpose described, comprising, in combination with a movable dovetail, a casing having an opening therein to receive said dovetail, and oppositely spaced compressive buffers pivotally mounted in said casing and adjacent said opening to normally resiliently hold said dovetail on both sides thereof upon movement thereof into and between said compressive buffers and means on said buffers for gripping said dovetail in a toggle like grip.

2. An anti-rattle device for the purpose described comprising a casing having an opening therein, a pair of opposed, pivotally mounted compressive cam shaped buffers spaced apart adjacent said opening, said buffers having non-resilient shells thereon, a dovetail movable into and out of said shells and means carried by said buffers to be operated by said dovetail to pivotally move said buffers to a resilient, toggle like gripping position upon both sides of said dovetail.

3. A buffer for an anti-rattle door device as described comprising a pair of spaced non-resilient buffer forming members and a resilient member connecting said spaced members together.

4. A buffer for an anti-rattle door device as described comprising a pair of non-resilient buffer forming members and a resilient

member connecting and spacing said buffer forming members.

5 5. A buffer for an anti-rattle door device as described comprising a pair of metallic shells and a rubber spacing member connect-
ing said shells together in spaced operative relation.

10 6. A buffer for an anti-rattle door device comprising a non-resilient cam portion and a non-resilient gripping portion and resilient means for holding said portions in opposed operative relation and spaced apart.

15 7. A buffer for an anti-rattle device for doors having a dovetail including a casing having side walls and an opening, compris-
ing a pair of opposedly pivoted spaced buffer members each of said last members having a cam portion and a dovetail engaging and gripping portion with resilient means be-
20 tween said cam and gripping portions both buffer members being resiliently held in op-
erative relation to each other.

25 Signed at New York in the county of New York and State of New York this 13th day of July A. D. 1931.

WILLIAM C. HOLDEN.

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