June 7, 1932. A. B. BEITMAN 1,861,679

DOORCHECK

Filed Sept. 19, 1930

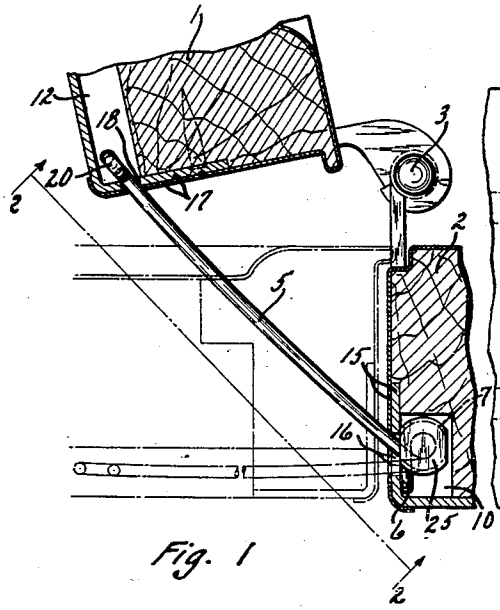


Fig. 1

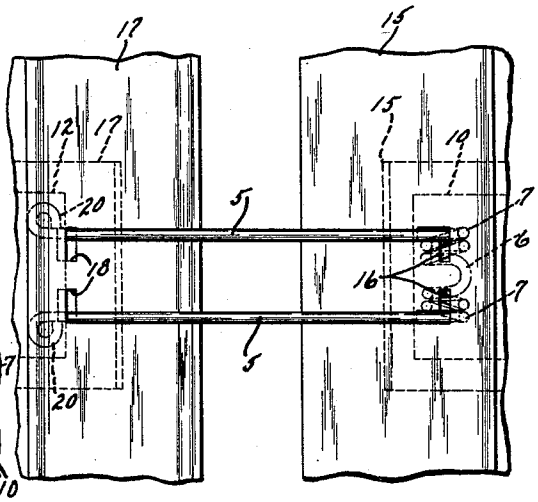


Fig. 2

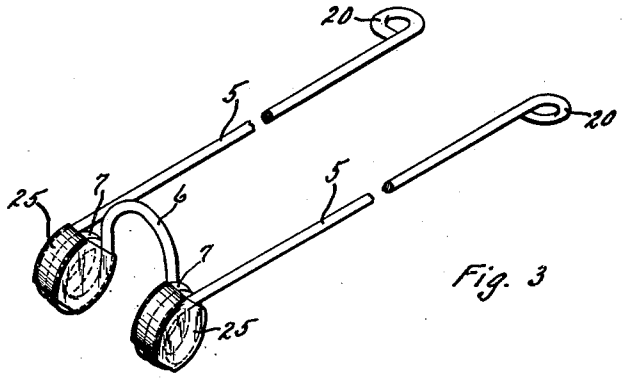


Fig. 3

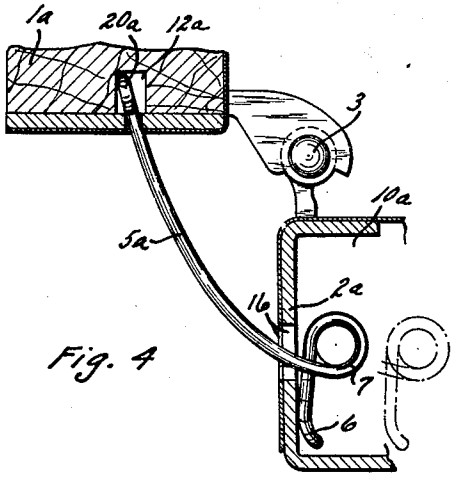


Fig. 4

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UNITED STATES PATENT OFFICE

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DOORCHECK

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This invention relates to improvements in door checks and more particularly, door checks designed especially for limiting the outward swinging movement of automobile doors.

The general objects of the present invention are the provision of an improved automobile door check which, first of all, satisfactorily performs its intended function, said check being provided with resilient means for cushioning the door swinging movement, with consequent elimination of shocks and jars; and which door check is of extremely simple and inexpensive construction and capable of being easily and conveniently installed in old cars, as well as in new ones as standard equipment.

Further and more specific objects of the invention are in part obvious and in part will appear more in detail hereinafter.

The invention will be readily understood from the following description thereof, reference being had to the accompanying drawing in which

Fig. 1 is a cross sectional view of portions of a door and door frame of an automobile, and showing the present improved door check associated therewith; Fig. 2 is a side elevation thereof, the view being on the line 2—2, Fig. 1; Fig. 3 is a perspective view of the present improved door check; and Fig. 4 is a view similar to Fig. 1, but showing a slightly modified construction.

In the embodiment of the invention illustrated in Figs. 1 to 3 inclusive, 1 represents the door and 2 the frame of an automobile, said door being hinged at 3 to said frame, as is usual.

The present door check is for the purpose of limiting outward swinging movement of said door, and said check comprises a single piece of wire of proper length and of sufficient size to give it the necessary strength and rigidity. Said wire is bent to form two generally parallel arm portions 5 and a portion 6 connecting said arm portions at one end thereof, said connecting portion extending at substantially right angles to said arm portions. For cushioning purposes, said connecting portion 6 is preferably provided with one or more coils 7, the resiliency provided thereby enabling shocks and jars to be effectively taken up and thus disposed of. In the door check here illustrated, the two ends of the connecting portion 6 are in the form of coils, as best indicated in Fig. 3.

Said connecting portion 6, including the coils 7 thereof, are anchored in either the door or the door frame, while the free or unconnected ends of the arm portions 5 are anchored in the other. In the embodiment of the invention illustrated in Figs. 1 to 3 inclusive, the connecting portion 6 is anchored in a cavity 10 in the door frame 2, while the free ends of the arm portions 5 are anchored in a cavity 12 in the door.

Cavity 10 of the door frame 2 is closed by metal plates 15 each provided with a pair of openings 16 through which the arm portions 5 of the check extend, while the cavity 12 in the door 1 is closed by metal plates 17 each provided with a pair of openings 18 through which extend the arm portions 5. To maintain the free or unconnected ends of the arm portions 5 in cavity 12, said free ends are provided with or terminate in outward extensions 20, of substantially semicircular shape in the present door check.

For convenience in installing the present check, the openings 16 and 18 in plates 15 and 17 respectively are of a size and shape to permit the free end extensions 20 of arm portions 5 to be passed therethrough. In the present embodiment of the invention, openings 18 of plates 17 are simple, vertically disposed slots, while the openings 16 of plates 15 are of generally L-shape, each such opening having a horizontally disposed portion and a vertically disposed portion, the vertically disposed portions of the openings or slots extending toward each other.

Either one or both of the cavities 10, 12 of the door frame 2 and the door 1 respectively must be of sufficient length to enable the door check to be housed when the door is in closed position, such position of the door being indicated in dotted lines, Fig. 1. In the embodiment of the invention illustrated in Figs. 1 to 3, inclusive, the cavity 12 of the door 1 is of elongated form, while the

cavity 10 of the door frame 2 is a small cavity, just large enough to receive the connecting portion 6 with its coils 7. Therefore, when the door of the automobile is closed, the major part of the door check lies within the cavity 12 of the door.

In the embodiment of the invention illustrated in Fig. 4, the cavity 12*a* in the door 1*a* is just large enough to receive the free end extensions 20*a* of the arm portions 5*a*. The cavity 10*a* of the door frame 2*a*, however, is of elongated form and is therefore adapted to receive and house the major part of the door check when the door 1*a* is in closed position, as will be readily understood.

If desired, and as shown in Figs. 1 to 3, inclusive, the two coils 7 of the connecting portion 6 may be surrounded by bands 25 of rubber or other yielding material. These bands provide yielding covers for the coils and effectively prevent them from rattling.

Other advantages of the invention will be apparent to those skilled in the art to which it relates.

What I claim is:

1. A door check for limiting the swinging movement of a door relative to the door frame to which it is hinged, comprising a wire member having one of its ends adapted for connection to said door and the other of its ends adapted for connection to the door frame, one of said ends being coiled to provide resiliency for cushioning purposes, and a cover of yielding material for said cushioning coil.

2. A door check for limiting the swinging movement of a door structure relative to the door frame structure to which it is hinged, comprising a single piece of wire bent to form two spaced and generally parallel end portions and one connecting middle portion extending at substantially right angles to said end portions, the free ends of said end portions being adapted for connection with one of said structures and said connecting middle portion being adapted for connection with the other of said structures, said connecting middle portion having two end parts coiled in one direction and a middle part of generally U-form extending in the other direction out of the plane of said end portions, said coiled end parts providing resiliency for cushioning purposes.

3. A door check for limiting the swinging movement of a door structure relative to the door frame structure to which it is hinged, comprising a single piece of wire bent to form two spaced and generally parallel end portions and one connecting middle portion extending at substantially right angles to said end portions, said connecting middle portion being adapted for securement in a cavity in one of said structures and the free ends of said end portions being extended outwardly in opposite directions and being adapted for securement in a cavity in the other of said structures by a plate member having vertically disposed slots through which said end portions extend, said middle portion being provided with a coiled part to provide resiliency for cushioning purposes.

In testimony whereof I hereby affix my signature.

ALBERT B. BEITMAN.