

April 28, 1925.

1,535,113

F. K. EASTMAN

VEHICLE DOORCHECK

Filed March 28, 1924

FIG. 1

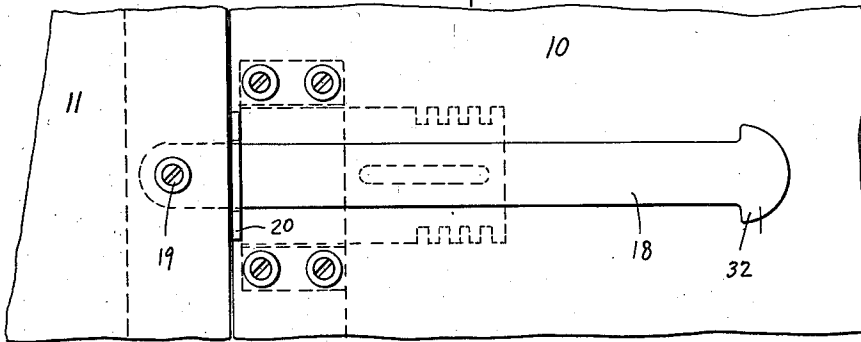


FIG. 2

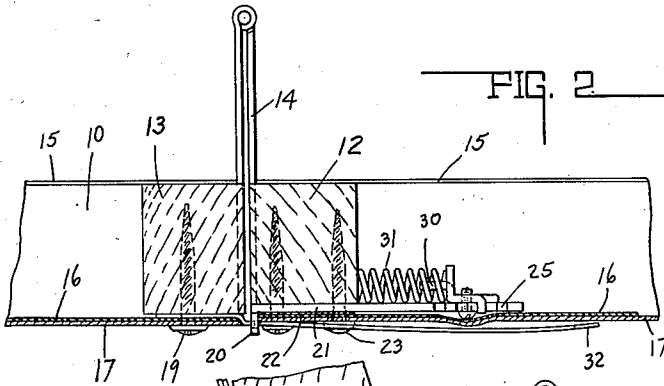


FIG. 3

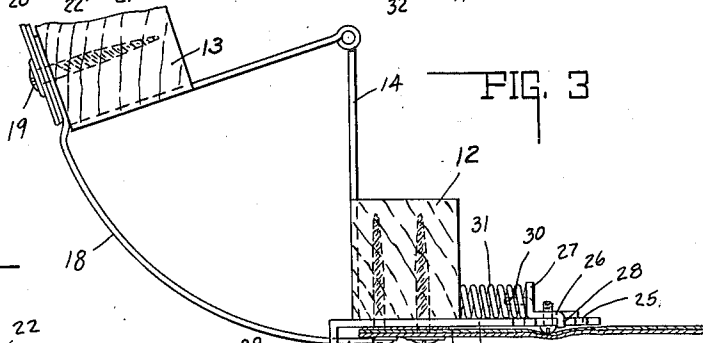


FIG. 4

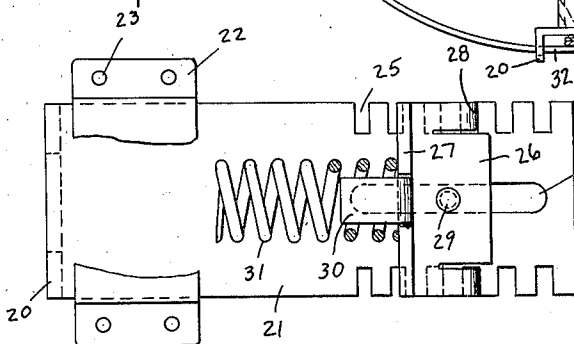
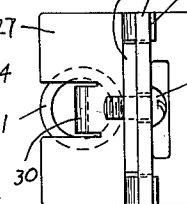


FIG. 5



INVENTOR.

FLOYD K. EASTMAN.

BY

Lester L. Lusk

ATTORNEYS.

UNITED STATES PATENT OFFICE.

FLOYD K. EASTMAN, OF KOKOMO, INDIANA, ASSIGNOR TO CONCEALED DOOR CHECK COMPANY, OF KOKOMO, INDIANA, A CORPORATION.

VEHICLE DOORCHECK.

Application filed March 28, 1924. Serial No. 702,574.

To all whom it may concern:

Be it known that I, FLOYD K. EASTMAN, a citizen of the United States, and a resident of Kokomo, county of Howard, and State of Indiana, have invented a certain new and useful Vehicle Doorcheck; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which like numerals refer to like parts.

This invention relates to a door check particularly adapted for use on automobile bodies for arresting the outward swing of the body door.

The type of door check commonly used is that of a leather or fabric strap having one end secured to the body pillar on which the door is hinged and the other end to the door for eliminating the outward swing and movement thereof. Such checks have been unsatisfactory since there is no give to them and a violent opening of the door will cause them to snap or pull away. Furthermore, they gradually wear until a constant opening of the door causes them to become loosened; and they present an inwardly extending bulgy fold when the door is closed, which is often in the way. However, there have been various types of door checks provided to overcome the difficulties of the common type above described, which are built in and concealed in the door or body and provided with a resilient bumper, such checks being made of metal in the form of either a rod or chain. While these checks are quite satisfactory, they must be built in the body and are not satisfactory for purposes of installation to replace the usual strap.

It is the object of this invention to provide a door check having a metallic strap adapted to lie flush with the body surface rather than to fold inwardly therefrom, and which is also provided with a spring bumper for taking up the shock upon the violent opening of the door, which may be readily installed on the body without the necessity of its being built in. The advantages of this type of check are that it may be used to easily replace the usual strap, while at the same time giving substantially the same service and result as the built-in metal check and bumper.

The full nature of the invention will be

understood from the accompanying drawings and the following description and claims:

In the drawings, Figure 1 is a front elevation of the check mounted on a door. Fig. 2 is a horizontal cross section taken through the door and adjacent body portion, showing the check mounted thereon. Fig. 3 is the same as Fig. 2, showing the position of the check with the door open. Fig. 4 is a front elevation of the stationary plate with the bumper spring and adjustable anchor lug mounted thereon. Fig. 5 is the same as Fig. 4, showing an end elevation thereof.

In the drawings there is shown a portion of the door 10 hingedly mounted on a portion of the body 11 of an automobile, said door being formed with an upright frame member 12 and the body portion with an upright frame member or pillar 13. The frame member 12 of the door is adapted to abut and lie adjacent the pillar 13 when in closed position, and be hingedly supported thereon by a hinge 14. On the exterior of the door frame and the body there is the usual sheet metal covering 15 and on the interior thereof there is provided a lining 16 and upholstering fabric 17.

The door check comprises an elongated flexible metal strap 18 having a slight curvature which by reason of its flexibility may be flexed to the greater curvature shown in Fig. 3 when the door is open, and when the door is closed, as shown in Fig. 2, may be straightened out so as to lie flat against the inner surface of the door. The strap is anchored at one end to the body by a screw 19 and is slidably mounted at the other end through a suitable slot in the flange 20 of the plate 21. The plate 21 is slidably secured to the pillar 12 by means of a strap 22, said strap being secured thereto by the screws 23, in such manner that the plate 21 is slidable laterally with respect to the pillar 12 and strap 22, as shown in Fig. 4. Said plate extends rearwardly beneath the upholstery, as shown in Figs. 2 and 3, an appreciable distance beyond the inner surface of the pillar 12 away from the body. In the inwardly extending end of said plate there is provided a central longitudinal slot 24 and on the upper and lower edges thereof there is provided a plurality of notches 25.

Inasmuch as the door pillars 12 vary slightly in width or thickness, there must be

an adjustment provided to compensate for such variation in taking care of the spring bumper. For this purpose an adjustable lug 26 is provided which has an upwardly extending projection 27 and oppositely extending teeth 28 adapted to engage in the notches 25. A central lock screw 29 extends through the slot 24 in the plate and is adapted to screw into a threaded central opening in the lug 26 for locking it firmly in adjusted position with respect to the notches 25. Said lug is provided with a forwardly extending tongue 30 stamped from the flange 27 so as to extend at right angles thereto into the spiral spring 31 for supporting and holding in place the end of said spring which abuts the flange 27. The opposite end of said spring is adapted to abut the adjacent surface of the pillar 12 and the adjustment of the plate is such that it will be under a slight tension between said pillar and the flange 27, so that it will be maintained in place therebetween. As it is more convenient to provide such springs of the same size, in event the attachment is applied to a body having a relatively thin pillar, the lug is moved forwardly to compensate therefor, or, on the other hand, if the pillar is of greater thickness, it is moved rearwardly. It is desired for the proper operation of the device that the flange 20 be positioned normally in line with the hinge 14 and with springs of the same length, and the lug 27 should be adjusted to a fixed distance from the inner surface of the pillar. On the free end of the strap 18 there is provided a head 32 which will engage the flange 20 and prevent further sliding movement of the strap when the door is open, as shown in Fig. 3. Further movement of the door will cause the plate 21 to slide in the strap 22 compressing the spring 31 against the pillar, whereby said spring will act as a resilient bumper after the door has reached the normal limit of movement.

It will be observed that the check may be readily installed by loosening the upholstery on the body a distance of an inch or two and sliding the end of the spring thereunder and thereafter screwing the same in place. For mounting the plate 21, the door portion of the upholstery may be loosened until the plate with the spring in place can be slid thereunder and positioned, after which the upholstery and straps 22 may be secured by the screws 23.

The invention claimed is:

1. The combination with a body frame member, and a door frame member hinged thereto, of a door check comprising a plate secured to one of said members, a relatively thin flat resilient metal strap adapted to maintain itself adjacent the surface of the other member, said strap having one end secured to the other member and slidably

connected with said plate, and means on said strap for engaging said plate and limiting the sliding movement with respect thereto upon the door being opened.

2. The combination with a body frame member, and a door frame member hinged thereto, of a door check comprising a plate secured to one of said members, a relatively thin flat resilient metal strap adapted to maintain itself adjacent the surface of the other member, said strap having one end secured to the other member and slidably connected with said plate, means on said strap for engaging said plate and limiting the sliding movement with respect thereto upon the door being opened, and a cushioning member associated therewith for absorbing the shock caused by the movement of said door being brought to a stop and by said strap engaging said plate.

3. The combination with a body frame member, and a door frame member hinged thereto, of a door check comprising a plate secured to one of said members, a resilient metal strap having one end secured to the other member and slidably connected with said plate, means on said strap for engaging said plate and limiting the sliding movement with respect thereto upon the door being opened, a head formed on the free end of said strap for engaging said plate and limiting the further sliding movement of the strap with respect thereto upon the door being opened, and a cushioning member associated therewith for absorbing the shock caused by the head of said strap engaging said plate.

4. The combination with a body frame member, and a door frame member hinged thereto, of a door check comprising a plate removably secured to the exterior of one of said members, a resilient metal strap having one end removably secured to the exterior of the other member and slidably connected with said plate, and means on said strap for engaging said plate and limiting the sliding movement with respect thereto upon the door being opened.

5. The combination with a body frame member, and a door frame member hinged thereto, of a door check comprising a plate removably secured to the exterior of one of said members, a resilient metal strap having one end removably secured to the exterior of the other member and slidably connected with said plate, means on said strap for engaging said plate and limiting the sliding movement with respect thereto upon the door being opened, and a cushioning member associated therewith for picking up the shock caused by the movement of said door being brought to a stop and caused by said strap engaging said plate.

6. The combination with a body frame member, and a door frame member hinged

thereto, of a door check comprising a plate slidably mounted on one of said members, a cushioning member associated with said plate for yieldingly limiting its sliding movement, a resilient metal strap having one end fixedly secured to the other member, and slidable with respect to said plate, and means on said strap for limiting its sliding movement with respect to said plate upon said door member moving away from the plate member a given distance.

7. The combination with a body frame member, and a door frame member hinged thereto, of a door check comprising a plate means secured to one of said members for slidably supporting said plate on the exterior thereof, a cushioning member associated with said plate for yieldingly limiting the sliding movement thereof with respect to the exterior surface of said frame member, a flexible metal strap having one end fixedly secured to the other frame member, and means on said strap adapted to engage said plate for limiting the movement of said frame members away from each other.

8. The combination with a body frame member, and a door frame member hinged thereto, of a door check comprising a plate with a head thereon, a strap removably secured to the surface of one of said frame members for slidably supporting said plate thereon, a cushion supported on said plate and bearing against said frame member for yieldingly limiting the sliding movement thereof, a flexible metal strap having one end removably secured to the surface of the other frame member, the other end of said strap being slidably connected with the head of said plate, and a head on said strap adapted to engage with the head on said plate for limiting the movement of said frame members away from each other.

9. The combination with a body frame member, and a door frame member hinged thereto, of a door check comprising a plate with a head thereon, a strap removably secured to the surface of one of said frame members for slidably supporting said plate thereon, a spiral bumper cushioning spring associated with said plate and bearing against said frame member for yieldingly limiting the sliding movement thereof, a

flexible metal strap having one end removably secured to the surface of the other frame member, the other end of said strap being slidably connected with the head of said plate, and a head on said strap adapted to engage with the head on said plate for limiting the movement of said frame members away from each other.

10. The combination with a body frame member, and a door frame member hinged thereto, of a door check comprising a plate with a head thereon, a strap removably secured to the surface of one of said frame members for slidably supporting said plate thereon, a cushion supported on said plate and bearing against said frame member for yieldingly limiting the sliding movement thereof, a flexible metal strap having one end removably secured to the surface of the other frame member, the other end of said strap being slidably connected with the head of said plate, a head on said strap adapted to engage with the head on said plate for limiting the movement of said frame members away from each other, and means on said plate for varying the position of said cushion member with respect thereto.

11. The combination with a body frame member, and a door frame member hinged thereto, of a door check comprising a plate with a head thereon, a strap removably secured to the surface of one of said frame members for slidably supporting said plate thereon, a spiral cushioning spring associated with said plate and bearing against said frame member for yieldingly limiting the sliding movement thereof, a flexible metal strap having one end removably secured to the surface of the other frame member, the other end of said strap being slidably connected with the head of said plate, a head on said strap adapted to engage with the head on said plate for limiting the movement of said frame members away from each other, a lug for engaging one end of said spring, and means for adjusting the position of said lug on said plate for varying the position of said spring with respect thereto.

In witness whereof, I have hereunto affixed my signature.

FLOYD K. EASTMAN.