

March 11, 1924.

1,486,371

N. H. FORBES

DOOR HINGE

Filed Feb. 14, 1923

3 Sheets-Sheet 1

Fig. 1.

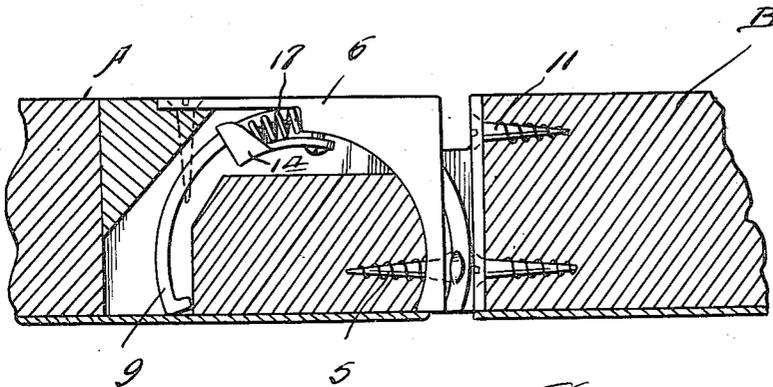
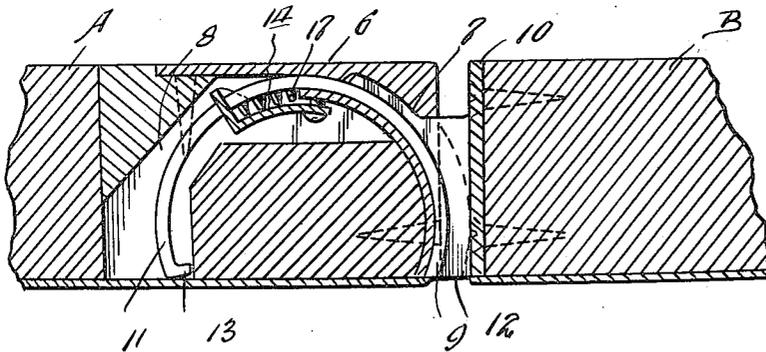


Fig. 2.



Witnesses:

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3 Sheets-Sheet 2

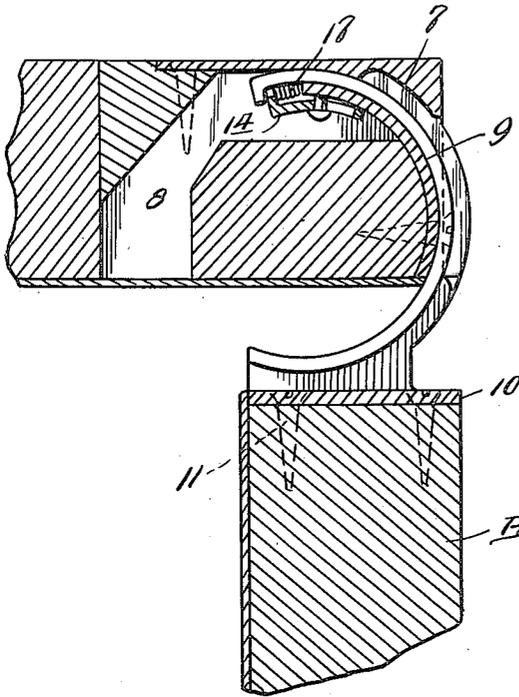


Fig. 3.

Fig. 4.

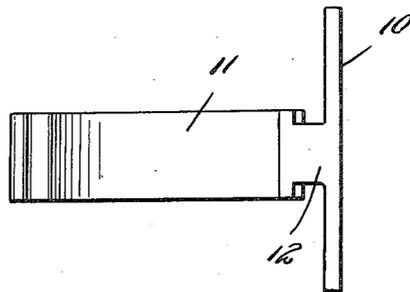
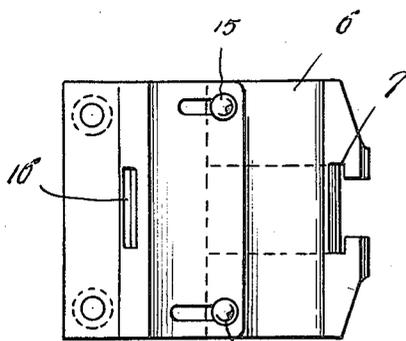


Fig. 5.



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3 Sheets-Sheet 3

Fig. 6.

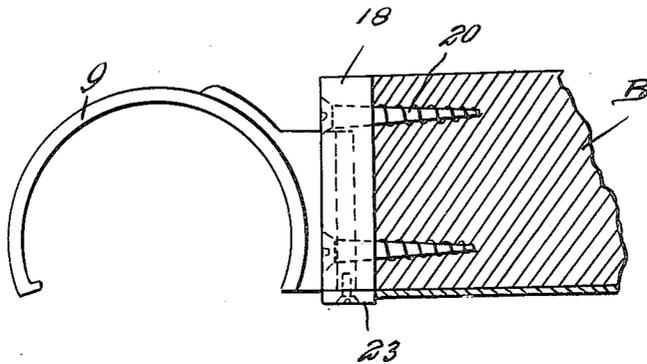


Fig. 8.

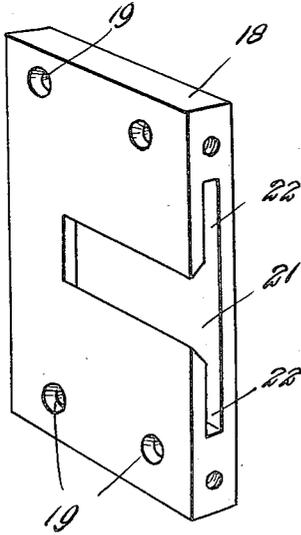


Fig. 7.

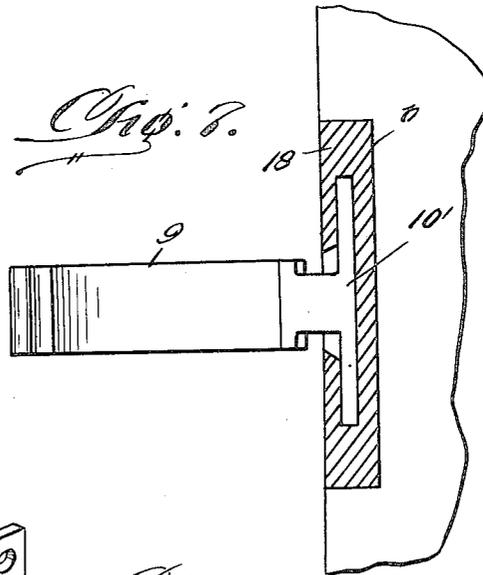
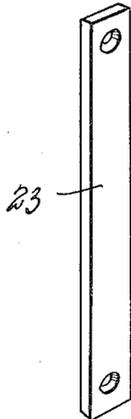


Fig. 9.



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Witnesses:
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Attorney

Patented Mar. 11, 1924.

UNITED STATES PATENT OFFICE.

NELSON HARRY FORBES, OF DETROIT, MICHIGAN.

DOOR HINGE.

Application filed February 14, 1923. Serial No. 616,894.

To all whom it may concern:

Be it known that I, NELSON H. FORBES, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Door Hinges, of which the following is a specification.

My invention relates to hinges, particularly to that type designed for use for mounting the doors of automobile bodies, and has for its object, the provision of a novel hinge construction of a concealed type, which embodies means for limiting the swinging movement of the door with respect to its frame for preventing wringing off of the hinge from excessive opening of the door.

A further object of my invention resides in the provision of a hinge of this character, in which the elements are assembled and related in such a manner as to insure maximum strength, and for permitting the same to effectually withstand the strains which naturally fall upon a hinge used in mounting automobile doors.

The nature and advantages of the invention will be better understood when the following detailed description is read in connection with the accompanying drawings, the invention residing in the construction, combination, and arrangement of parts as claimed.

In the drawings forming part of this application, like numerals of reference indicate similar parts in the several views, and wherein:

Figure 1 is a fragmentary sectional view through a swinging door and its frame, showing in top plan, my improved hinge.

Figure 2 is a view similar to Figure 1, but also showing my hinge in cross section.

Figure 3 is a view similar to Figure 2, the said door being in an open position.

Figure 4 is an elevational view of one section of my hinge.

Figure 5 is a view similar to Figure 4 of the other hinged section.

Figure 6 is a cross sectional view of a door member showing in top plan one of my hinged sections, together with a slightly modified form of mounting means therefor.

Figure 7 is a vertical cross sectional view of Figure 6.

Figure 8 is a perspective of the mounting plate for the hinged section carried by the door.

Figure 9 is a similar view of a strip member employed in conjunction with the said mounting plate for preventing disengagement of the said hinged section therefrom.

Referring to the drawings in detail, A designates a stationary frame with which is associated a door B. In carrying out my invention, there is secured to the frame A in any manner desirable, but preferably through the instrumentality of screws 5, the stationary member 6 of my hinged structure. This stationary member 6 is substantially L-shaped, and is formed with an arcuate channel or guide-way 7, the said door frame A being also formed with a peculiarly shaped channel 8 in arcuate alinement with the said guide-way or channel 7 of the stationary hinge member 6. In the preferred embodiment of my invention, the edge of the door B toward the frame A has secured thereto, the movable member 9 of my hinge. This movable member 9 constitutes a substantially rectangular-shaped plate 10, having openings therein for the reception of screws 11, for permitting this member to be secured to said edge of the door B.

Integrally formed upon the front face of the plate 10 is an arm 11 of semi-circular form, and being spaced from the said plate by a connecting web 12. This arm is adapted for free sliding movement within the said channel or guide-way 7 of the stationary hinge section 6, the front end of this arm being lugged as at 13 for preventing total disengagement thereof from the said slot or channel-way of the hinge section 6.

For absorbing the shock between the stationary members 6 and the movable member 9 when the door B is open, the said stationary member carries a spring casing 14 adjacent the inner end of the slot or channel-way 7 within the section 6, this casing being so connected as at 15 to the member 6 as to have a sliding movement thereon. The front wall of this casing 14 is formed with a slot 16, and between this front wall, and the said end of the slot or channel-way 7 are springs 17, which normally force the said casing outwardly as more clearly shown in Figures 1 and 2, it being at once apparent that when the door B is open, the said lugged end 13 of the arcuate arm 11 will contact the front wall of the casing 14 for consequently compressing the springs 17 for thereby absorbing the shock occasioned in the opening of the door B.

In Figures 6 to 9 inclusive, I have shown a means for mounting the movable member 9 of my hinge to the edge of the door B, in such a manner as to permit the ready removal of this member from the door. In this instance, I employ a substantially rectangular plate 18 provided with openings 19 in the four corners thereof through which are passed screws 20' for the purpose of securing this plate to the said door, it of course being understood that the edge of the door is provided with a recess *b* for the reception of this plate. This plate 18 is formed with a slot 21 having side wings 22, the said slot together with the side wings terminating at one end adjacent one side of the plate, whilst the opposite ends thereof terminate at the opposite side of the plate. In this instance, the plate 10' of the arcuate arm 9 is of a width equivalent to the width of the slot within the plate 18, the same adapted for disposition within the slot and maintained therein by a strip 23 secured to the edge of the plate 18 as more clearly shown in Figure 6.

From the foregoing description, and a study of the drawings, it will be apparent that I have thus provided a simple constructed, and consequently an inexpensive hinge for vehicle doors and also doors of other types and for different purposes, which will not only be highly efficient in its supporting relation to the door, but which will also be practically incapable of derangement under ordinary usage.

Having thus described my invention, what I claim as new, and desire to secure by Letters-Patent is:

1. A door hinge including a stationary member and a movable member, said stationary member being of substantially angular form having a side portion and edge portion to fit flush with the corresponding portions of the door jamb, and having an arcuate slot formed therein, the movable member being formed of a plate having an arcuate arm secured therethrough in spaced relation, said plates being mounted on the door and the arcuate arm slidably fitting in the slot of a stationary member for hinging

the movable member and the door, and means for securing the stationary member to the door jamb at the side portion and the edge portion.

2. A door hinge including a stationary member and a movable member, said stationary member being of substantially angular form having a side portion and edge portion to fit flush with the corresponding portions of the door jamb, and having an arcuate slot therein, the movable member being formed of a plate having an arcuate arm secured thereto in spaced relation, said plate being mounted on the door and the arcuate arm slidably fitting in the slot of the stationary member for hinging the movable member and the door, said arcuate arm being formed with a lateral projection and cushioning means mounted on the stationary member interposed in the line of movement of said projection for cushioning the limiting movement of the door in an outward direction.

3. A door hinge including a stationary member and a movable member, said stationary member being secured to the door jamb, and formed with an arcuate slot slidably receiving an arcuate projection on the movable member, a plate mounted on the door, and formed for co-operation with the movable member for providing a disengageable connection therewith whereby the door may be readily detached from connection with the jamb.

4. A door hinge including a stationary member and a movable member, said stationary member being secured to the door jamb and formed with an arcuate slot therein adapted to receive an arcuate projection on the movable member, a plate mounted on the door, and having a slot extending transversely therein relative to the door for the reception of an inter-fitting portion on the movable member adapted to provide a detachable connection between the plate and movable member, whereby the door may be removed from connection with the jamb.

In testimony whereof I affix my signature.

NELSON HARRY FORBES.