April 12, 1932. M. BRISKIN 1,853,658

DOOR

Filed Nov. 8, 1930

Fig. 1.

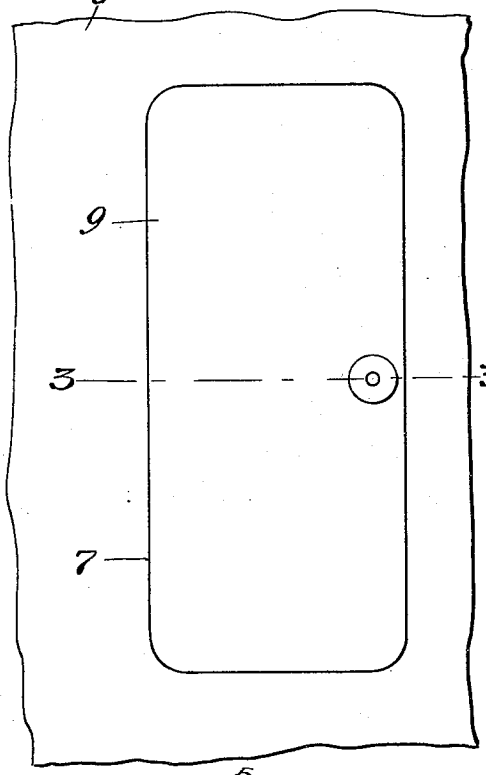


Fig. 2.

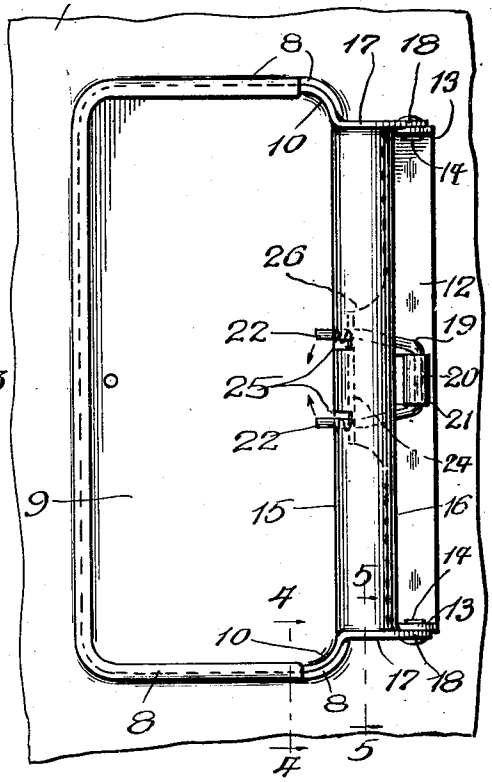
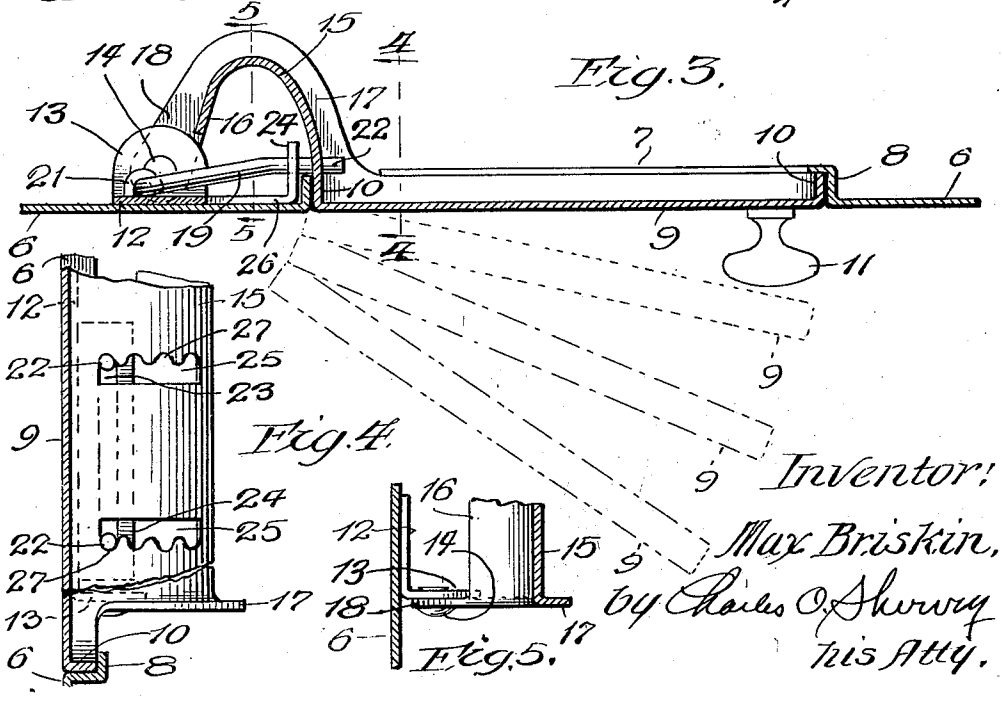


Fig. 3.



Inventor:
Max Briskin,
by Charles O. Shurtz
his Atty.

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UNITED STATES PATENT OFFICE

MAX BRISKIN, OF CHICAGO, ILLINOIS

DOOR

Application filed November 8, 1930. Serial No. 494,323.

This invention relates to doors, and its principal object is to provide novel means for holding the door closed and in a plurality of selected open positions. The invention has particular reference to doors formed of struck up sheet metal and hinged to a sheet metal wall. Doors of this character are particularly useful for controlling ventilating openings in the hood, cowl and body portions of automobiles, although it is to be understood that the invention is not limited to such use.

Another object is to provide spring urged means in a hinged door for holding the same closed and in a plurality of selected open positions, and composed of a minimum number of parts. Another object is to provide means for preventing the door from rattling.

Other objects and advantages will appear in the course of this specification, and with all of said objects and advantages in view, this invention consists in the several novel features of construction, arrangement and combination of parts hereinafter fully set forth and claimed.

The invention is clearly illustrated in the drawings accompanying this specification in which—

Figure 1 is a side elevation of a fragment of a wall equipped with a door embodying a simple form of the present invention;

Fig. 2 is a side elevation of the parts seen in Fig. 1, looking at the reverse side thereof;

Fig. 3 is a detail horizontal section taken on the line 3—3 of Fig. 1;

Fig. 4 is a detail vertical fragmental cross section taken on the line 4—4 of Figs. 2 and 3; and

Fig. 5 is a detail vertical fragmental cross section taken on the line 5—5 of Figs. 2 and 3.

Referring to said drawings, which illustrate a simple embodiment of the invention, the reference character 6 designates a fragment of a wall having a door opening 7 therein of rectangular or other suitable configuration. When the wall is composed of sheet metal, as shown, it is preferred to form it with an inset marginal flange 8 surrounding the door opening. The door is seen at 9, and when formed of sheet metal, as shown, is also formed with an inset marginal flange 10. A knob or other handle 11 is usually provided to facilitate opening of the door.

Secured to the inner face of the wall 6, as by spot welding or riveting it thereto, is an upright flat bar 12, the ends of which are bent at right angles to the main portion of the bar to provide ears 13 for receiving hinge pins 14. The portion of the flange 10 of the door adjacent the hinge connection with the wall is extended inwardly, as at 15, along an arc of a circle concentric with the hinge pins 14, and then curved back towards the hinge pins as at 16, thereby forming a substantially U-shaped connection between the door proper and the hinge.

The top and bottom edge portions of the U-shaped part of the door are bent out therefrom to provide flanges 17 for the purpose of stiffening and strengthening the same, and said flanges are continued beyond the U-shaped part to provide ears 18 that overlap the ears 13 of the bar 12 and receive the hinge pins 14. It will be noted that whenever the door is swung open, the arcuate flanged part 15 closes the gap between the hinged end of the door 9 and the wall 6.

For the purpose of holding the door closed, or in any of several selected open positions, a U-shaped spring 19 is employed between the bar 12 and the door 9. The bent part 20 of the spring 19 is held under a tongue 21 which is bent up from the bar 12 and the two branches 22 of the spring diverge slightly and extend through an elongated vertical slot 23 formed in a flange 24 and also extend through horizontal slots 25 formed in the arcuate flanged portion 15 of the door.

The bar 12 is formed with a lateral extension 26 which extends into the hollow of the U-shaped part 15, 16, of the door and is bent up to form the slotted flange 24. The upper edge of the upper slot 25 and the lower edge of the lower slot 25 are serrated or notched to provide two series of notches 27 which are adapted to receive the two branches 22 of the spring 19. The tension of the spring is exerted in a direction to force the branches 22 thereof into oppositely disposed notches, and the edges of the notches are preferably

rounded off, so that when the door is moved to open or closed position, the spring branches may pass from one notch to another and thereby hold the door closed, or in any selected open position of adjustment.

The slotted flange 24 prevents movement of the U-shaped spring in a direction transverse of the wall 6, although it permits the branches thereof to swing toward and away from each other. It will be seen, therefore, that by reason of the engagement of the branches 22 of the U-shaped spring 19 with the oppositely disposed notches, the spring serves to hold the door in any position determined by the notches, and in Fig. 3, the door is illustrated in dotted lines in the several open positions in which it is held by the spring and other co-operating elements.

When the door is opened, the inclined side edges of the notches force the two branches of the U-shaped spring out of the opposing notches, and as the next opposite notches come into register with the two branches of the spring, said branches enter these notches and hold the door in the position determined by those notches. It will be understood from the above, that the door is positively held in any of the selected positions, and that there is no likelihood of any rattling sound caused by vibration, and yet the door may be opened and closed with very little exertion. The invention is particularly adaptable for use in automobiles, as, for instance, for controlling openings in the hood or cowl, in the body portion, or in other parts of an automobile.

More or less variation of the exact details of construction is possible without departing from the spirit of this invention. I desire, therefore, not to limit myself to the exact form of the construction shown and described, but intend, in the following claims, to point out all of the invention disclosed herein.

I claim as new, and desire to secure by Letters Patent:

1. A hinged door having an arcuate portion concentric with the hinge line of the door and connecting the door with the hinge portion, said arcuate portion being provided with a transversely extending serrated edge portion, and a spring anchored at one end and guided for movement in a direction at right angles to said serrated edge and urged into engagement with the serrations.

2. A hinged door having an arcuate portion concentric with respect to the hinge line and formed with a notched slot which extends transversely to the plane of the door, and a spring anchored at one end and engaging in said notched slot, said spring being guided to move in a line at right angles to said slot and urged into engagement with the notches thereof.

3. A hinged door having an arcuate portion disposed concentric with its hinge line and formed with spaced slots extending transversely to the plane of the door, there being a series of notches formed in an edge of each slot and disposed opposite each other, a U-shaped spring anchored at its bent end and having its two branches urged into engagement in opposite notches of said slots, and a guide member for guiding the two branches of said spring to move in lines between oppositely disposed notches.

4. A door formed with an arcuate flanged part terminating in hinge ears, a supporting bar for the door having outstanding ears hingedly connected with the ears of the door, a U-shaped spring secured on said bar and having two branches engaging in notched slots formed in said arcuate portion of the door, and a guide member for guiding the two branches of said spring to move in lines extending between opposing notches.

5. The combination with a sheet metal wall having a door opening therein, of a sheet metal door for closing said door opening and formed with an arcuate portion terminating in hinge ears, a bar secured to said wall and formed with hinge ears pivotally secured to the hinge ears of the door, a U-shaped spring secured to said bar and having two branches guided to move in a direction parallel with the wall and engaging in notched transversely extending slots formed in said arcuate portion of the door.

6. The combination with a sheet metal wall having a door opening therein, and a bar formed with ears on its ends and secured to the inner face of said wall, of a hinged sheet metal door having a marginal flange entering said door opening, the flange adjacent the hinge being extended to form an arcuate portion terminating in hinge ears pivotally connected to the hinge ears of the bar, a U-shaped spring secured to said bar and having its two branches guided to move in a plane parallel to said wall and extending through notched slots formed in said arcuate flanged portion, said branches being urged into opposing notches of the notched slots.

7. In a door, the combination of a supporting bar formed with a lateral projection terminating in a slotted flange, a door having an arcuate portion terminating in hinge ears pivotally connected to said bar, said arcuate portion being formed with a pair of notched slots extending transversely to the plane of the door, a U-shaped spring secured to said bar and having its two branches extending through the notched slots of said flange and engaging in opposite notches therein, and guiding means for guiding said two branches of the spring to move at right angles to said slots.

8. A hinge comprising two hinged together members, one having an arcuate part concentric with the hinge line thereof and formed with a pair of edge notched slots, and spring means having two arms engaging in the

notches of said slots and secured to the other hinged member against movement in a direction concentric with the arcuate slotted part of the first mentioned member.

9. A hinge comprising two members, one having an arcuate part concentric with the hinge line of the hinge and terminating at its ends in hinge ears and the other member of the hinge having hinge ears co-operating with the hinge ears of the first mentioned member, said arcuate part being formed with an edge notched slot therein, and spring means on the other member of the hinge having an arm engaging in said notched slot and secured against movement in a direction concentric with said arcuate part.

MAX BRISKIN.