

Dec. 28, 1926.

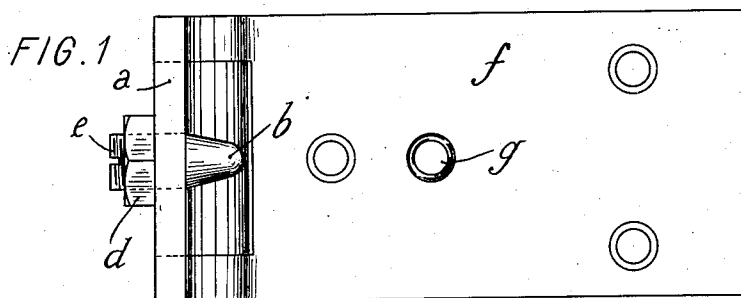
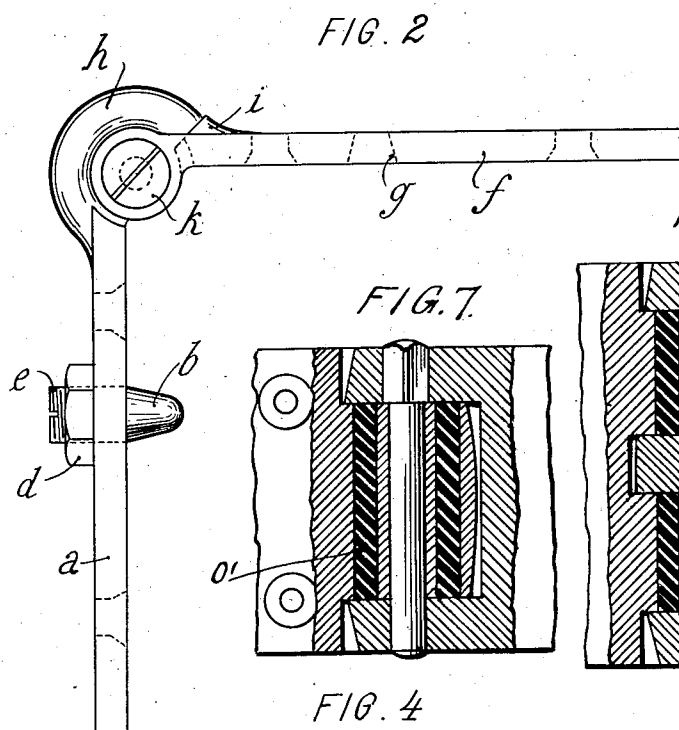
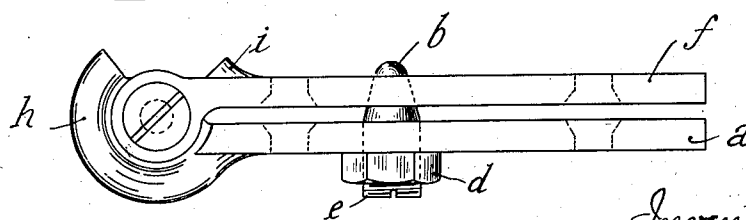
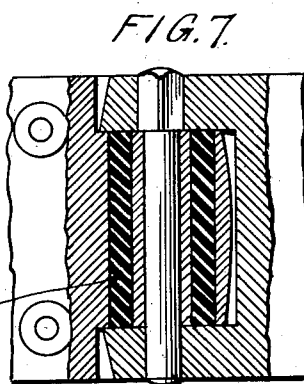
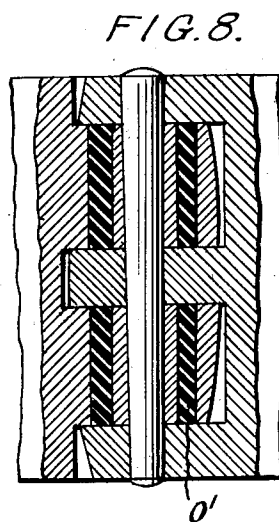
1,612,656

R. SALIN, NÉE LEVY

HINGE ATTACHMENT

Filed Nov. 19, 1924

2 Sheets-Sheet 1



Inventor
Rachel Salin, née Levy
By *Henry Orth* atty.

Dec. 28, 1926.

1,612,656

R. SALIN, NÉE LEVY

HINGE ATTACHMENT.

Filed Nov. 19, 1924

2 Sheets-Sheet 2

FIG 3

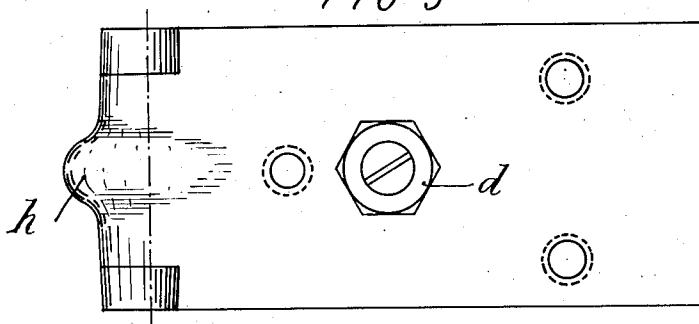


FIG.5

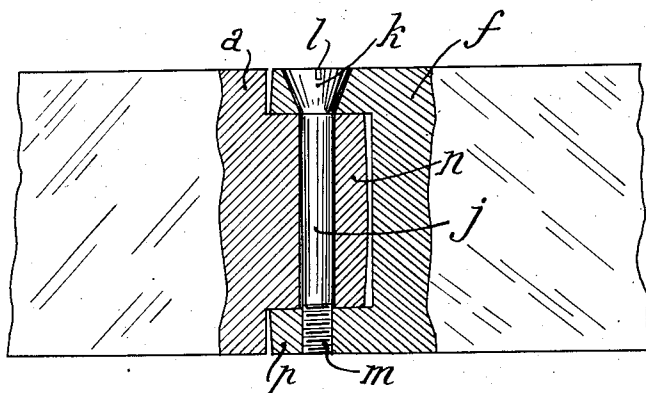
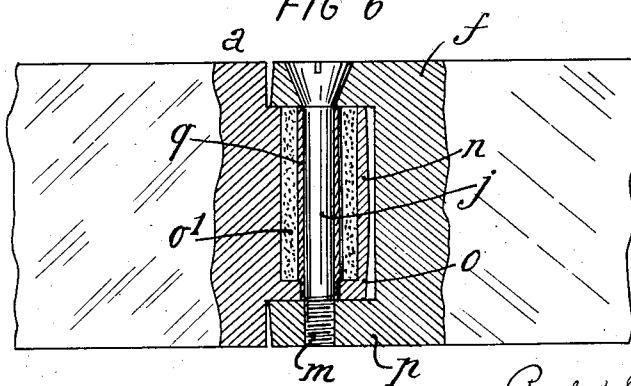


FIG 6



Inventor
Rachel Salin, née Levy.
By *Henry O. Smith* atty

UNITED STATES PATENT OFFICE.

RACHEL SALIN, NÉE LÉVY, OF PARIS, FRANCE.

HINGE ATTACHMENT.

Application filed November 19, 1924, Serial No. 750,824, and in France November 30, 1923.

The hinges employed to secure the door leaf to its upright or doorpost, and chiefly in motor vehicles, have a drawback consisting in the fact that after a relatively short space of time, for instance after a run of 500-1000 miles, the hinges offer a certain play, so that the doors are subject to a jarring or rattling which occasions a disagreeable noise.

In order to obviate the said drawback, the applicant prevents the play between the two parts or plates of the hinge and the common axis or pin, by disposing a suitable elastic bushing or buffer upon the said axis. This method may be replaced or completed by a fastening or locking element, so that when the door is closed the said element will afford a rigid connection between the two hinge plates, thus preventing all play between these two parts, whereby the rattling of the door will be entirely obviated.

The said locking element comprises a nib or stud having a conical or pyramidal form, truncated or not; said stud is secured to one of the hinge plates and engages a recess of corresponding shape which is formed in the second hinge plate. It is evident that in virtue of this additional element, the two hinge plates will be firmly held together, so that all lateral play of the door leaf will be obviated, as well as all longitudinal jarring in the direction of travel of the vehicle upon which the said hinges are mounted, and the jarring in the vertical will also be eliminated.

The said hinge may be completed by a stop device for limiting the amount of opening of the door leaf, this consisting of a suitable projection or heading which is cast in one with the male lug or lugs of one hinge plate and whereof the end is adapted to enter into contact with a boss provided upon the second hinge plate.

The following description with reference to the appended drawings shows the manner in which the said hinge device may be constructed.

Figs. 1, 2, 3 and 4 of the drawings show by way for example the arrangement of the hinge device according to the invention, these being respectively an elevational view, a plan view in the open position, and an elevational and a plan view in the closed position.

Fig. 5 is a longitudinal section showing the hinge connected by means of a pin or axis.

Fig. 6 is a modification in which the said axis is provided with a damping buffer or sleeve which is shown in section.

Figs. 7 and 8 are modifications of the device shown in Fig. 6.

As shown in Figs. 1, 2, 3 and 4 the hinge plate *a*, which is secured for instance to the door leaf, is provided at the middle part with a tapered projection *b* or stud of metal (steel for instance) or of any other hard or flexible substance such as hard rubber; the said projection is screwed by means of a screwthreaded and slotted extension *e* into a tapped hole in the said hinge plate, and is held in the suitable adjusted position by means of the nut *d*.

The hinge plate *f* which is screwed to the doorpost has formed therein a tapered hole *g* in which the stud *b* can be engaged without play, as shown in Fig. 3.

Obviously, the positions of the said stud and hole may be inverted, and the former may be mounted on the doorpost and the latter on the door.

The said hinge may be provided with a stop device which is constructed as follows. Upon its male portion *n* engaging the two lugs *p* of the female portion *f* the hinge plate *a* is provided midway in its height with an enlarged part or projection *h*, Figs. 2, 3 and 4, extending for instance for 225° and ending in a flat portion which upon opening the two hinge plates in the right angled position will enter into contact with a boss *i* forming a stop piece which is situated at the corresponding height upon the female plate *f*. This arrangement forms a stop device which limits the amount of opening of the door.

The two hinge plates, i. e., the plate *a* secured to the door leaf and the plate *f* secured to the doorpost, are connected together by an axis *j*, Fig. 5, consisting of a pin with a countersunk head *k* which is slotted at *l*; the lower screwthreaded end *m* of said axis is screwed into a tapped hole in the lower lug *p* of the female plate *f*. The hole in the lug *n* of the male plate *a* is given a somewhat larger diameter than that of the axis *j* in order to allow a play of a half-a-millimeter, for example, so that

the stud *b* will be enabled to enter the recess *g* without play, whereby the parts will be tightly secured together.

In the modification shown in Fig. 6, the central lug *n* of the plate *a* has formed therein a cylindrical recess which does not traverse the said lug, so that a bottom portion *o* is provided which forms a bearing surface cooperating with the upper surface of the lower lug *p* of the female hinge plate *f*. Should the recess be made to traverse the lug, the said bottom portion will be separately secured. In the said recess is disposed a rubber sleeve *o*¹ which serves as a buffer.

Within the said sleeve is mounted a bushing or tube *q* in which is engaged without play the axis *j* connecting the two lugs of the hinge.

Due to the arrangement of the buffer upon the axis *j*, it is obvious that it will not be necessary to provide any play for the said axis in the sleeve *q*, since the shock-absorbing buffer of suitable elastic material will afford for the said axis, which traverses the hole in the bottom part *o* with approximately 1 mm. play, all desired lateral motion, so that the said tapered stud can be engaged in its recess without play.

The said buffer arrangement is particularly necessary in the case in which the hinge is provided with the above-mentioned stop device, for even in the absence of the said stud, it will prevent the doorpost from being torn off.

Figs. 7 and 8 are modifications of Fig. 6 in which the rubber sleeve *o*¹ extends through the entire space comprised between the two outer lugs. This arrangement of hinge provided with a buffer may be employed with or without the securing device *b*.

In order to facilitate the penetration of the said stud and to provide for a still better securing of the parts, the tapered stud may be provided with a sheathing of an elastic or a moderately hard substance, such as a more or less hard rubber.

Obviously, the improved hinge device as hereinbefore described is susceptible of all suitable modifications in detail without departing from the principle of the invention, and in particular, the hinge may be provided or not with the said stop device.

What I claim is:

1. A hinge comprising two hinge plates, lugs or projections at the ends of the said plates, an axis secured to one of the said plates and traversing the lugs of the second plate, and an elastic sleeve interposed between the said axis and the lug of the hinge plate which is traversed by the said axis.

2. A hinge comprising two hinge plates, lugs or projections at the ends of the said plates, an axis secured to one of the said plates and traversing the lugs of the second

plate, a metal sleeve disposed upon the said axis, and a rubber bushing surrounding the said sleeve.

3. A hinge comprising two hinge plates, lugs or projections at the ends of the said plates, an axis traversing the said lugs, elastic means interposed between the said axis and one of the said lugs, and a stud secured to one of the said plates and adapted to engage a corresponding aperture provided in the second plate.

4. A hinge comprising two hinge plates, lugs or projections at the ends of said plates, an axis traversing the said lugs, elastic means interposed between the said axis and one of the said lugs, and a tapered stud secured to one of the hinge plates and adapted to engage a tapered aperture provided in the second hinge plate.

5. A hinge comprising two hinge plates, lugs or projections at the ends of said plates, an axis secured to one of the said plates and traversing the lugs of the second plate, an elastic bushing interposed between the said axis and the lug of the hinge plate which is traversed by the said axis, and a conical stud secured to one of the said hinge plates and adapted to engage a tapered aperture provided in the second hinge plate.

6. A hinge comprising two hinge plates, lugs or projections at the ends of the said plates, an axis secured to one of the said plates and traversing the lugs of the second plate, a metal sleeve disposed upon the said axis, a rubber bushing surrounding the said sleeve and means for fastening the two hinge plates together when the hinge is closed.

7. A hinge comprising two hinge plates, lugs or projections at the ends of the said plates, an axis secured to one of the said plates and traversing the lugs of the second plate, a metal sleeve disposed upon the said axis, a rubber bushing surrounding the said sleeve, and a tapered stud secured to one of the said hinge plates and adapted to engage a tapered aperture provided in the second hinge plate.

8. A hinge comprising two hinge plates, lugs or projections at the end of the said plates, an axis traversing the said lugs, elastic means interposed between the said axis and one of the said lugs, and means limiting the amount of opening of the hinge plates.

9. A hinge comprising two hinge plates, lugs or projections at the ends of the said plates, an axis traversing the said lugs, elastic means interposed between the said axis and one of the lugs, fastening means provided between the two hinge plates whereby the same will be connected together when the hinge is closed, and means limiting the amount of opening of the hinge plates.

10. A hinge comprising two hinge plates,

lugs or projections at the ends of said plates, an axis traversing the said lugs, elastic means interposed between the said axis and the lugs, a beading or projection forming a stop-piece provided upon the lug of one of the hinge plates and adjacent the axis, and a boss provided upon the second hinge plate and adapted to enter into contact with the said beading when the hinge is opened.

10 11. A hinge comprising two hinge plates, lugs or projections at the ends of said plates, an axis traversing the said lugs, an elastic sleeve interposed between the said axis and a portion of the length of the lug of the hinge plate which is traversed by the said axis, whereby the lug of the male hinge plate is enabled to bear upon the lower lug of the female hinge plate.

12. A hinge comprising two hinge plates, lugs or projections at the ends of said plates, an axis traversing the said lugs, an elastic sleeve interposed between the said axis and a portion of the length of the lug of the

hinge plate which is loosely traversed by the said axis, means for fastening the hinge plates together when the hinge is closed, and means limiting the amount of opening of the hinge plates.

13. A hinge comprising two hinge plates, lugs or projections at the ends of said plates, an axis traversing the said lugs, an elastic sleeve interposed between the said axis and a portion of the length of the lug of the hinge plate which is traversed by the said axis, a tapered stud secured to one of the said plates and adapted to freely enter a tapered aperture formed in the second plate, a stop portion provided upon the lug of one of the hinge plates, and a boss provided upon the lug of the second hinge plate and adapted to enter into contact with the said stop portion when the hinge is opened.

In testimony that I claim the foregoing as my invention, I have signed my name hereto.

RACHEL SALIN, NÉE LÉVY.