W. A. BABBITT.

LATCH FOR AUTOMOBILE DOORS.

APPLICATION FILED FEB. 26, 1917.

1,298,861.

Patented Apr. 1, 1919.

2 SHEETS—SHEET 1.

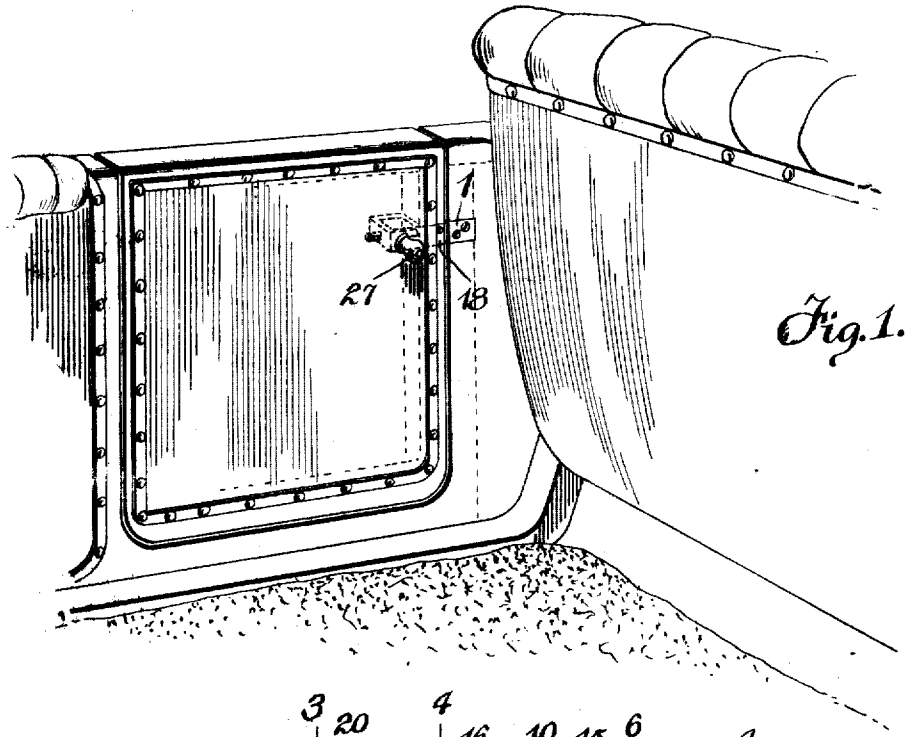



Fig. 1.

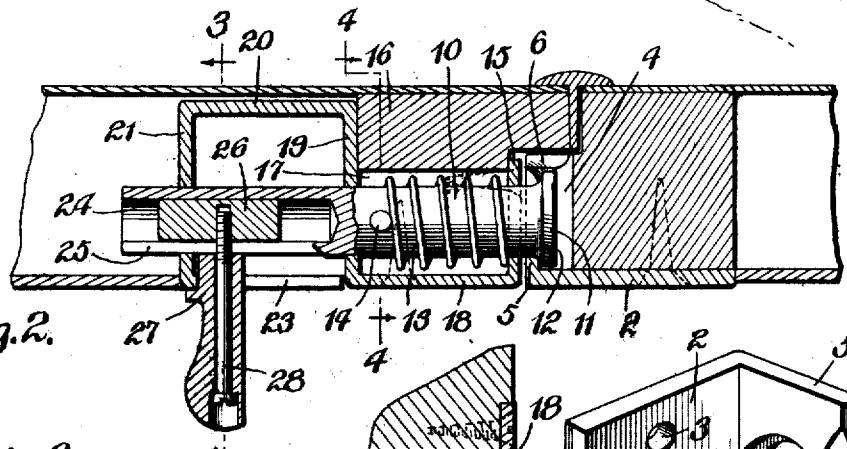
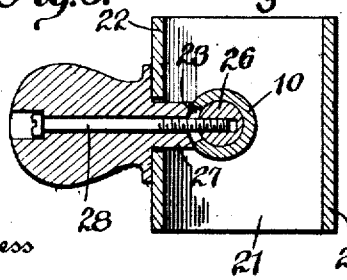



Fig. 2.

Fig. 3.



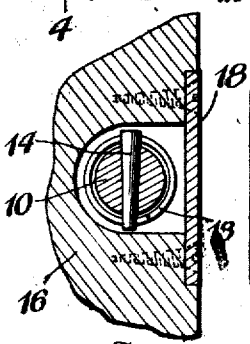




Fig. 4.

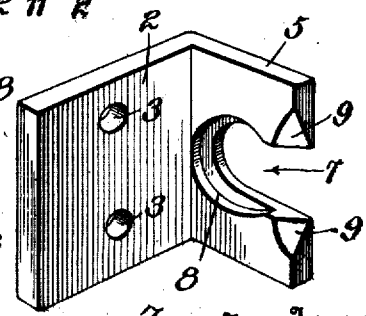



Fig. 5.

Witness

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2 SHEETS—SHEET 2.

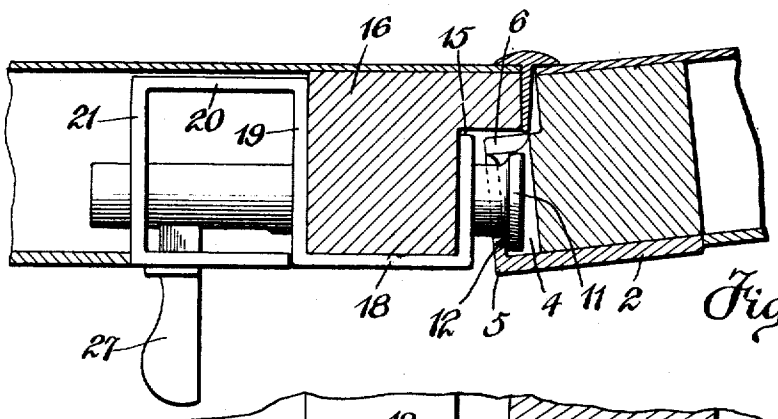



Fig. 6.

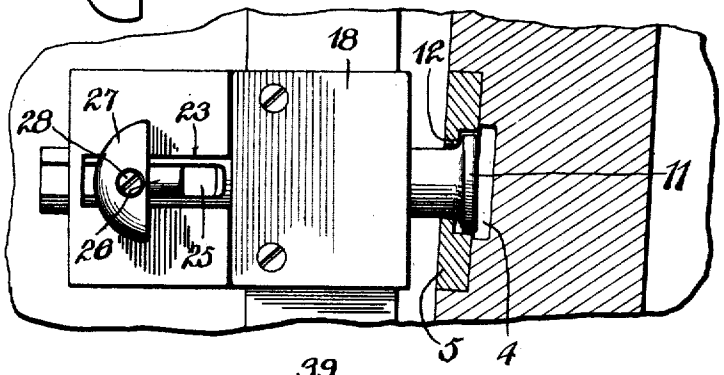



Fig. 7.

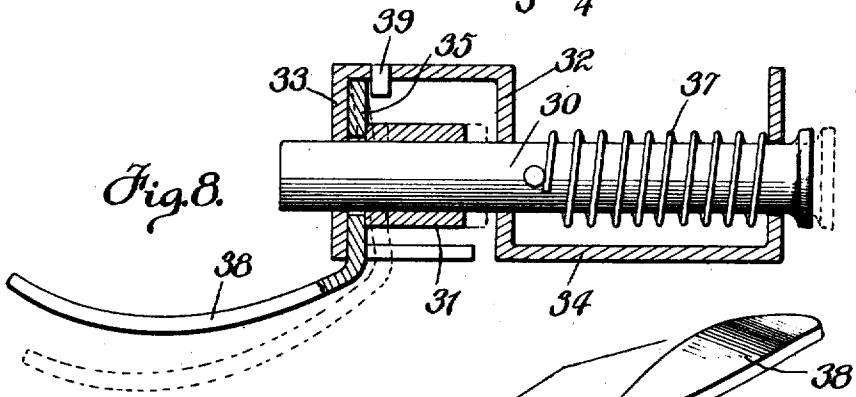



Fig. 8.

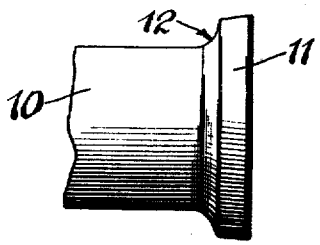



Fig. 10.

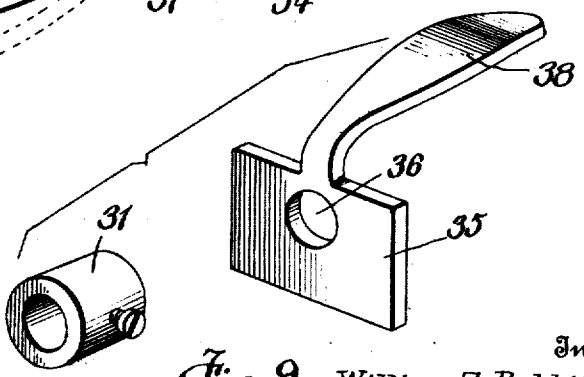



Fig. 9.

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# UNITED STATES PATENT OFFICE.

WILLIAM A. BABBITT, OF LOCKPORT, NEW YORK, ASSIGNOR OF ONE-HALF TO MARGARET C. BABBITT AND ONE-HALF TO MARY C. PASSAGE, BOTH OF LOCKPORT, NEW YORK.

## LATCH FOR AUTOMOBILE-DOORS.

1,298,861. Specification of Letters Patent. Patented Apr. 1, 1919.

Application filed February 26, 1917. Serial No. 151,093.

*To all whom it may concern:*

Be it known that I, WILLIAM A. BABBITT, a citizen of the United States, residing at Lockport, in the county of Niagara and State of New York, have invented certain new and useful Improvements in Latches for Automobile-Doors, of which the following is a specification.

My invention relates to latches or fastenings for holding relatively movable members normally close together. One object of the invention is to provide a latch which will permit the members connected by it to accommodate or yield to racking or twisting strain upon the structure in which they are incorporated without flying apart. Other objects are to provide a latch which will accommodate shrinkage in the members, and to provide a latch which will automatically engage the keeper and will be firmly locked thereto; to provide a mounting for the latch which will guard against bending of the latch and will reinforce the frame to which it is applied so as to compensate for weakening of the frame due to the provision of a recess or opening to accommodate the bolt; to provide a stop to limit the movement of the bolt, and also to so arrange and construct the parts that the latch may be readily assembled and may be manufactured and installed at a slight cost.

The invention is illustrated in the accompanying drawings, in which,

Figure 1 is a perspective view of a portion of an automobile showing my improved latch applied to the door thereof;

Fig. 2 is a longitudinal section through the latch and the parts coöperating therewith;

Fig. 3 is a detail section on the line 3—3 of Fig. 2;

Fig. 4 is a detail section on the line 4—4 of Fig. 2;

Fig. 5 is a detail perspective view of the keeper.

Fig. 6 is a view similar to Fig. 2 showing the door as having rocked slightly relative to the frame;

Fig. 7 is an elevation showing the rocking capacity.

Fig. 8 is a sectional view showing a modification;

Fig. 9 is a detail group perspective of the stop collar and handle member of the modification;

Fig. 10 is an enlarged elevation of the headed end of the latch.

In the illustrated application of my invention, I secure to the frame of the body of the vehicle, a keeper 1 consisting of an angle plate or L-shaped bracket having one wing 2 provided with openings 3 through which screws or other fastening devices may be inserted into the vehicle body to secure the keeper in position. The body is recessed, as shown at 4, to provide, in conjunction with the wing 5 of the keeper, a chamber in which the head of the bolt or latch may be received. The end walls of this chamber are beveled, as indicated at 6, so that when the door is being closed the head of the bolt will be guided by said beveled portion into the chamber and possible sagging of the door will be thereby counteracted. The wing 5 of the keeper is provided with a notch or open-ended slot 7 in which the stem or shank of the bolt is received and its inner face is reduced or cut away, as shown at 8, to provide a seat for the head of the bolt. The wing 5 is, furthermore, provided with beveled surfaces 9 at the corners of the slot 7 so that the head of the bolt will be effectually guided into engagement with its seat 8, as will be readily understood. The bolt 10 is constructed with a head 11, the inner surface of which is tapered, as indicated at 12, to merge into the surface of the stem or shank and tend to wedge upon the inner wall of the keeper and thereby firmly hold the bolt in engagement with the keeper against the tension of a spring 13 which is coiled around the stem between a pin or other stop 14 thereon and the forward flange 15 of the housing for the bolt. The bolt is mounted in a housing which is secured to the stile 16 of the door and in plan view has an outline resembling the figure 6. The spring 13 is disposed within a recess or chamber 17 formed in the stile 16 and covered by the outer portion 18 of the housing, said portion 18 extending from the flange 15 to a central transverse web 19 which fits closely against the inner edge of the stile 16, as shown in Fig. 2. From the web 19, the bar or metal strap from which the housing is formed extends parallel with the outer wall of the door, as shown at 20, and is then carried inwardly, as shown at 21. From the inner edge of the web 21, the bar or strap is carried toward the interior

diate web 19 and terminates thereat, the said inner portion 22 having a central longitudinal slot 23. By referring to Fig. 2, it will be readily noted that the bolt has a bearing in the flange 15 and in each of the webs 19 and 21 and the inner end of the latch, by which term is meant the end remote from the head, is hollow, as shown at 24, and is constructed with a longitudinal slot 25. A block 26 is fitted within the hollow end portion 24 of the latch and a stop 27 is fitted against the outer side of the latch over the said slot 25 and is secured to the block 26 by a screw 28, as shown. This stop 27 may be conveniently utilized as a handle for the manipulation of the latch, as shown, but need not be of the shape illustrated. By impinging against the inner portion of the web 21 the stop 27 limits the movement of the latch under the influence of the spring 13 and thereby prevents the head and keeper being so tightly drawn together that damage to either one is apt to result while, at the same time, the effectual engagement of these parts will be accomplished.

To release the latch, the handle or stop member is pushed toward the edge of the door, thereby overcoming the tension of the spring 13 and moving the head of the bolt away from its seat within the keeper so that opening movement of the door may then be easily effected. In closing the door, the head of the latch will engage the beveled surfaces of the body or frame and of the keeper and will be thereby guided into its proper engagement with the internal seat of the keeper and will be held firmly in such engagement by the spring coöperating with the beveled construction of the engaging parts which causes them to wedge together.

The device is very simple in the construction and arrangement of its parts and may be manufactured and applied at a low cost. The housing in which the bolt is mounted provides a clamp around the stile of the door so as to fully compensate for the natural weakening of the door and the frame. The flange 15 of the said housing serves as a stop or guard to prevent the keeper impinging against and wearing away the stile of the door, while the intermediate web 19 forms an additional stop for the spring 13 in the event that the pin or stop 14 should be carried into or through the opening in the web. The web 21 furnishes a stop or abutment for the handle and acts as a gage in adjusting the movement of the latch. The slot in the casing should be just wide enough to admit the stem or shank of the bolt while the inner face of the slotted wing of the keeper is recessed or grooved so as to accommodate the head of the bolt and fit the same closely so that the tension of the spring will hold the latch in locking position under all conditions. The recess or groove is preferably in the form of a beveled or curved surface conforming to the beveled inner face of the head of the bolt so that said parts may have relative rocking movement. The keeper and the web 5 of the bolt housing occupy the standard space between the stile of the door and the jamb or frame of the vehicle body so that the door will remain latched notwithstanding the occurrence of some accident which buckles the car body. The beveled or inclined formation of the adjacent surface of the keeper and the door frame serves to engage the bolt when a sagging door is lifted over the threshold so that the bolt will slip up the incline and aid in raising the door until the door is in the proper position for the bolt to lock. The construction also serves to start the door opening whenever it is not fully latched and this feature is decidedly advantageous inasmuch as it gives the operator or passenger warning against an unlatched door and thereby prevents the ripping off of a door that jumps open unexpectedly. With my device the door is either fully latched or not latched at all.

It will be noted, particularly upon reference to Fig. 3, that the screw 28 serves as a means for clamping the block 26 and the stop 27 to the bolt so that movement imparted to the stop or handle member will be transmitted to the bolt. The construction and arrangement of these parts permit me to adjust the latch to any vehicle. The block is placed in the latch and the latch assembled with the door after which the door is closed so that the head of the bolt engages the keeper. The stop 27 is then inserted through the slot 23 and against the inner face of the web 21 after which the fastening screw 28 is inserted through the slot into the block 26 and turned home so as to secure the parts together. The latch will then be permitted to have the movement necessary to effectually engage the keeper, notwithstanding the distance or spacing which may exist between the door and the jamb. This spacing, as is well known, varies between new bodies of different makes or of the same make and tends to increase as the car ages and the wooden parts shrink. As a very slight motion is needed to release the latch, a small button or similar device may be utilized as the manipulating medium so that the presence of unsightly projections on the inner face of the car door may be avoided. While I have, for convenience, shown and described the latch as applied to a door, it is applicable wherever two parts are to be normally held closed but are at times to be separated. It is especially adapted for use on various parts of automobiles, such as the hood and the top, inasmuch as the capacity of the keeper and the bolt to rela-

tively rock will permit the parts to move relative to each other without becoming disconnected notwithstanding the severe strains to which they are subjected in actual use. This rocking movement is clearly shown in Figs. 6 and 7.

Figs. 8 and 10 show a modification of the device which is essentially the same in operation as the form previously described but differs therefrom in some details of construction and arrangement. In this form of the invention, the bolt 30 is solid throughout and a stop collar 31 is adjustably secured upon the bolt between the webs 32 and 33 of the housing 34. The handle member, in this form, is not secured to the stop collar but is in the form of a plate 35 having an aperture 36 of sufficient diameter to loosely receive the bolt and permit the plate to rock thereon. The plate is disposed between the stop collar and the web 33 and under the influence of the spring 37 tends to lie flat against the web. A handle 38 is extended from one edge of the plate through the slotted front side of the housing and is preferably bent so as to lie close to the inner surface of the door or other member to which the latch is applied. A lug or projection 39 is provided on the housing adjacent the edge of the plate 35 so as to hold said plate against the web 33.

As indicated by the dotted lines, to release the latch the handle 38 must be swung away from the door or other member to which the latch is applied. This movement of the handle causes the plate 35 to rock upon its outer edge between the web 33 and the lug 39 and push upon the stop collar 31 so as to project the bolt against the tension of the spring 37. It will be readily noted that accidental opening of the door or release of the latch with this arrangement is not apt to occur for the reason that a push forward upon the handle will not operate it. Chance blows upon the handle which tend to swing it toward the door will not operate it as rocking of the plate upon the outer edge of the web 33 is prevented by the lug 39. The door or other part may, of course, be so constructed as to stand up around the handle and thereby protect it against possible blows. The loose fitting of the rocking plate to the bolt permits the bolt to rotate or roll upon the beveled surface of the keeper and thereby avoids uneven wear.

Having thus described the invention, what is claimed as new is:

1. In a latch, the combination of a keeper having a notch in one side and having the corners at the outer ends of the walls of said notch beveled, a slidably mounted bolt having an annular head adapted to engage said notch and provided with a tapered surface extending from the edge of the head to the surface of the stem around the entire periphery thereof and adapted to ride on the beveled surface of the keeper and engage beyond the notched wall of the same, and yieldable means holding the head of the bolt in such engagement.

2. The combination of a frame having a recess in one edge and having the walls of said recess beveled at their ends, a keeper secured to the said frame and having a member extending over said recess, said member having a notch and having the side walls of said notch beveled at their ends, a member movable relative to the frame, a bolt slidably mounted on said member and adapted to engage and ride on the beveled walls of the recess and the beveled surfaces of the keeper and provided with a head adapted to pass within the recess in the frame and rockingly engage behind the keeper, and yieldable means for holding the bolt in such engagement.

3. The combination of a keeper having a member provided with a notch and having an annular seat on its inner face around the inner end of said notch, a slidably mounted bolt having its stem adapted to pass into said notch and provided with an annular head adapted to rest in the seat of the keeper, the surfaces of the bolt between the stem and the edge of the head being beveled to permit relative rocking movement between the bolt and keeper, and yieldable means for holding the head in said seat.

4. In a latching mechanism, the combination of a housing constructed with three transverse webs, two of said webs being adapted to engage the structure to which it is applied and prevent twisting of the housing, a bolt slidably mounted in said webs, a head on one end of the bolt beyond the housing, a stop on the bolt between the web nearest the head of the bolt and the intermediate web, a spring coiled around the bolt between the said stop and the web nearest the head of the bolt, and a stop on the bolt adapted to impinge against the web remote from the head of the bolt.

5. In a latching mechanism the combination of a housing consisting of a bar bent upon itself to form three transverse webs a longitudinal web connecting the intermediate transverse web and one end web, a second longitudinal web at the opposite side of the housing connecting the intermediate web with the opposite end web, and a web alined with the last-mentioned longitudinal web and provided with a longitudinal slot, a bolt slidably mounted in the several transverse webs, means tending to hold the bolt toward one end web, and a stop on the bolt between the other end web and the intermediate web and playing in the longitudinal slot.

6. In a latch device, the combination of a housing, a bolt slidably mounted therein and

having a hollow inner end provided with a longitudinal slot, the housing being provided with a longitudinal slot alined transversely with the slot in the bolt, a block fitted within the hollow end of the bolt, a stop fitted against the hollow end of the bolt over the slot therein and playing in the slot in the housing, and a securing device inserted through said stop into the block in the bolt.

7. A latch for holding relatively movable members against movement comprising a keeper for attachment to one of the members, a housing for attachment to the other member comprising three transverse webs and longitudinal webs at opposite sides of the housing each connecting one end transverse web with the intermediate transverse web whereby the housing may set within and fit around portions of the member and reinforce the same, a bolt slidably mounted in the housing and adapted to engage the keeper, means within the housing to retract the bolt and move it into engagement with the inner side of the keeper, and a stop disposed between the intermediate transverse web and the inner end transverse web of the housing adapted by engagement with the said end web to limit the inward movement of the bolt and movable between the transverse webs to project the bolt.

8. A latch mechanism comprising a keeper having a seat formed on its inner surface, a housing comprising a single integral structure presenting three transverse webs, a bolt slidably mounted in the said webs and provided with an annular head adapted to engage the seat in the keeper, the surfaces of the bolt between the stem of the same and the edge of the head being beveled whereby rocking of the head on the keeper is permissible, means between two of the transverse webs of the housing for retracting the bolt and holding the head of the same to the seat in the keeper, and a stop at the inner end of the bolt to limit the retracting movement thereof and movable to project the bolt and release it from the keeper.

In testimony whereof I affix my signature.

WILLIAM A. BABBITT. [L. S.]