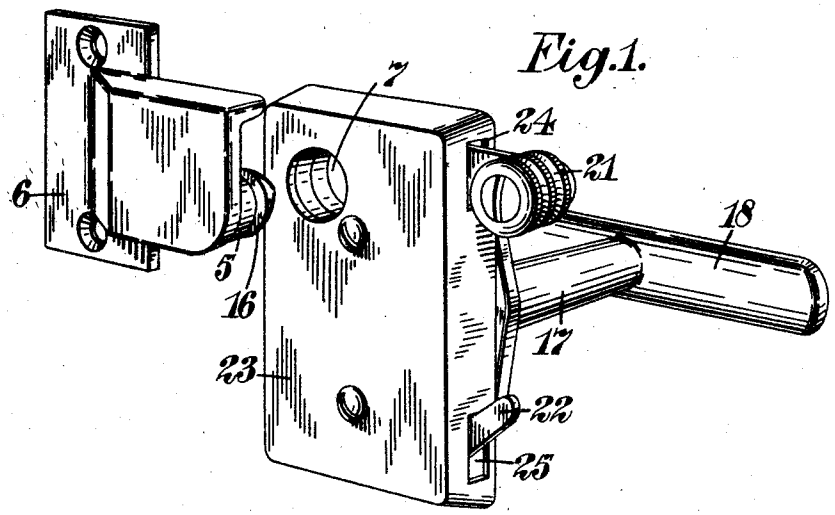
Nov. 6, 1928. 1,690,655

C. T. WEYMANN

LATCH FOR CARRIAGE DOORS AND THE LIKE

Filed Nov. 19, 1927

Fig.1.



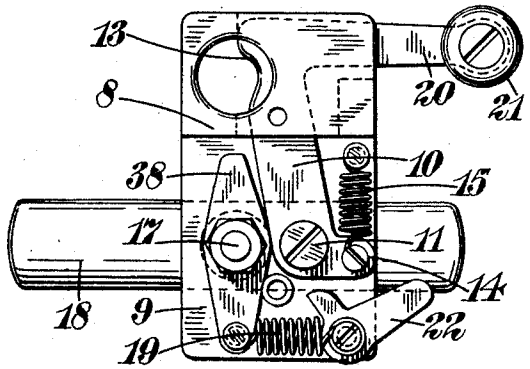




Fig.2.

Fig.3.

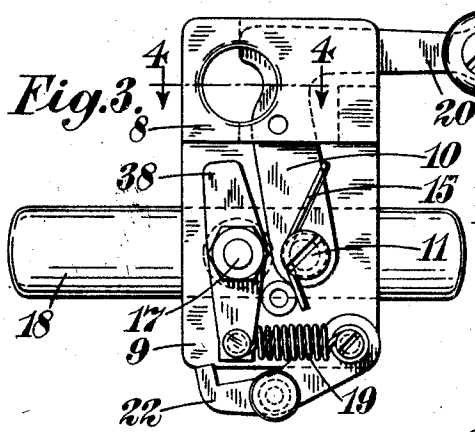
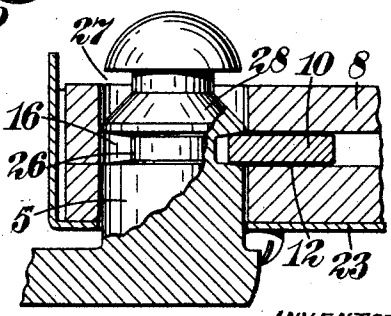



Fig.4.




INVENTOR

BY Charles T. Weymann.

Watson, Coit, Morse & Grindle.

ATTYS.

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# UNITED STATES PATENT OFFICE.

CHARLES TERRES WEYMANN, OF PARIS, FRANCE, ASSIGNOR TO WEYMANN'S MOTOR BODIES (1925) LIMITED, OF LONDON, ENGLAND, A BRITISH COMPANY.

## LATCH FOR CARRIAGE DOORS AND THE LIKE.

Application filed November 19, 1927, Serial No. 234,445, and in Great Britain October 22, 1926.

This invention comprises improvements in or relating to latches for carriage (particularly motor-car) doors and the like.

The invention relates to that type of latch in which the door is secured against the door-post by means of a keeper stud carried by one part (e. g. the door-post) and adapted to be received in an aperture provided by the other part (e. g. the door). In a latch of this type the axis of the stud and aperture engagement lies in the direction of movement of the door to and from the door-post, and the stud when located in the socket is secured against withdrawal by means of a detent entered transversely into the aperture to engage the stud. The detent aforesaid is constrained by spring means towards its engaging position and the stud is formed with a tapered end adapted (when the door is moved to the closed position) to force the detent outwardly of the aperture and so allow the stud to be pressed home, in which position the detent is forced by its spring into latching engagement with the stud.

Hitherto in door latches of the above type (see British Patent No. 233,770) the spring-pressed detent has been in the form of a sliding pin adapted to be inserted laterally into an aperture in the stud.

According to the present invention a door latch of the keeper stud and aperture type referred to is characterized in that the spring-pressed latching detent is mounted for pivotal movement transversely into and out of engagement with the stud, the stud being formed with a cooperating recess adapted to be engaged by the latch in the closed position of the door.

According to a feature of the invention the aforesaid recess in the stud is of annular or semi-annular formation and the detent has a concave edge shaped to engage over the reduced portion of the stud within the recess.

In one construction according to the invention the latching mechanism comprises in combination an aperture latch casing and detent mounted on the inside of the door, a keeper mounted on the door-post, an operating spindle for the detent extending to the outside of the door and there provided with a handle, and an operating arm carried by (for example formed integrally with) the latch for operating the latter from the inside of the door. The above combination may also include a safety stop or dog accessible from the inside of the door and movable into engagement with a portion of the detent or with the operating member for the latter to prevent the detent being operated to free the keeper.

Some examples of the invention embodying the foregoing and other features thereof will now be described with reference to the accompanying drawings in which:

Figure 1 is a perspective view showing the relative positions occupied by the keeper and latch casing members and associated parts when the door is about to be closed.

Figure 2 is a front elevation of the latch mechanism with the cover removed.

Figure 3 is a view similar to Figure 2 and showing a modified form of dog.

Figure 4 is a section (to a scale larger than the preceding figures) at the line 4—4 in Figure 3 showing a modified form of keeper.

Like reference numerals indicate like parts throughout the figures.

The example illustrated in Figures 1 and 2 will first be described. The keeper stud 5 is taper-ended and is carried on a keeper 6 secured to the door-post. The aperture 7 to receive the stud is formed in a member 8 secured to or formed integrally with a plate 9 which in turn is secured to the inside face of the door in such a position that on the closing of the door the aperture 7 will register with the stud 5. The spring-pressed detent hereinbefore referred to is a flat arm 10 which at one end is pivotally mounted at 11 on the plate 9 for swinging movement about an axis parallel with that of the aperture. The opposite end of the swinging detent works in a slot 12 in the member 8 and has an edge-portion 13 extending into the throughway of the aperture 7. The detent 10 is formed with a crank-arm 14 to which is connected a spring 15 arranged to constrain the detent towards its latching position, that is towards a position in which the edge-portion 13 extends into the aperture. The stud 5 is formed with an annular recess 16 in which the aforesaid edge-portion 13 of the detent is forced when the door is closed. The engaging edge 13 of the detent is of concave formation so that it fits over the reduced portion of the stud within the recess 16. The nose of the stud is rounded as shown so that as the stud enters the aperture 7 it readily pushes the detent 10 in an outwardly direction. When the stud has been pressed home and the door closed the de-

tent is opposite the recess 16 and is therefore forced by the spring 15 to enter said recess thus latching the stud against withdrawal.

The unlatching mechanism for the detent comprises an operating spindle 17 which extends through the door and at its outer end is provided with a handle 18 which may be manipulated from the outside of the door. The inner end of the spindle 17 is connected to a cam 38 which on partial rotation against the action of a spring 19 is adapted to engage and move the detent 10 out of its latching position. In order that the door may also be unlatched from the inside, independently of operation of the spindle 17, the detent 10 is provided with an extended arm 20 fitted with a manipulating knob 21 accessible from the inside of the door. As a safeguard against accidental opening of the door a pivoted dog 22 is arranged for movement, from the inside of the door, into a position in which it abuts the crank-arm 14 of the detent and prevents movement of the latter in a direction to free the keeper stud. The member 8 and the latch mechanism are enclosed by a dished cover 23 (as shown in Figure 1) which is slotted at 24 and 25 to permit of operation of the arm 20 and dog 22.

In the example illustrated in Figure 3 the dog 22 is arranged to engage the cam 38 instead of the crank-arm 14 as in the previous example.

According to one feature of the invention as illustrated in Figure 4 the recess 16 in the keeper stud is tapered so that the mouth of the recess is greater in width than the thickness of the detent 10, and the base 26 of the recess is narrower than the thickness of the detent. This arrangement ensures on the one hand that the detent even though slightly out of alignment with the centre of the recess will readily enter the latter, and on the other hand that the detent when sprung home (as shown in Figure 4) will bear on each side against the tapered walls of the recess and so prevent play and rattle.

According to a further feature of the invention, also illustrated in Figure 4, the stud 5 is formed with a second recess 27 located near the nose of the stud and adapted to be engaged by the detent 10 in a partially closed position of the door. This second recess 27 constitutes a safety device to ensure that even if the door be only partially closed, it will be prevented from opening by virtue of the engagement of the detent 10 in the recess 27. That side of the safety recess 27 which is adjacent to the fastening recess 16 is formed with a gradual taper (as shown at 28) so that on the closing of the door the detent will ride up the tapered side of the safety recess and then enter the latching recess.

I claim:

In a door latch, the combination with a latch casing provided with an aperture therein, of a keeper stud having a main tapered recess formed therein and a secondary recess adjacent the main recess and arranged for movement into and out of said aperture, a swinging detent mounted in said casing and movable transversely of the stud for selective engagement with either of said recesses, an arm rigid with said detent, a spring engaging said arm to urge the detent into engagement with the stud, a dog for engaging said arm to retain the latter in stud engaging position, and a second arm rigid with the detent and extending outside of the latch casing for operating the detent.

In testimony whereof I affix my signature.

CHARLES TERRES WEYMANN.