Jan. 1, 1924 1,479,117

R. F. TRIMMER

DOOR LATCH

Filed Oct. 19. 1921

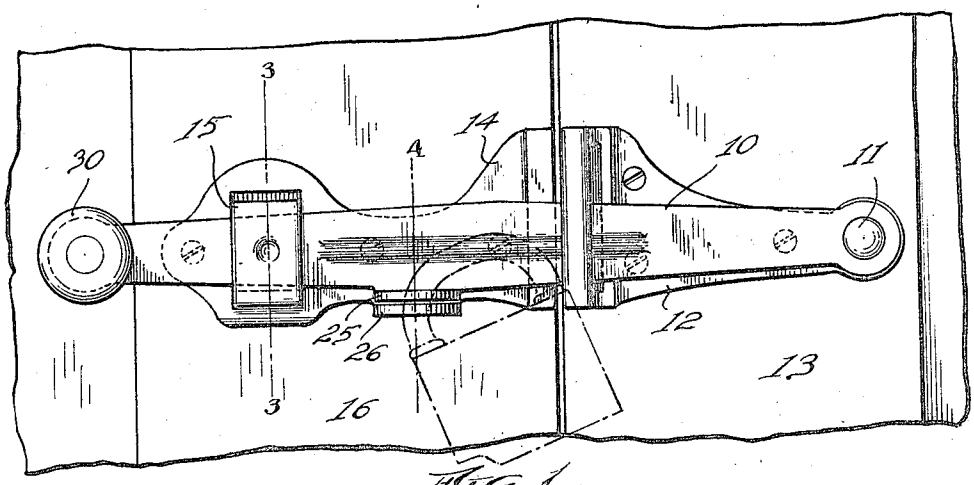


FIG. 1.

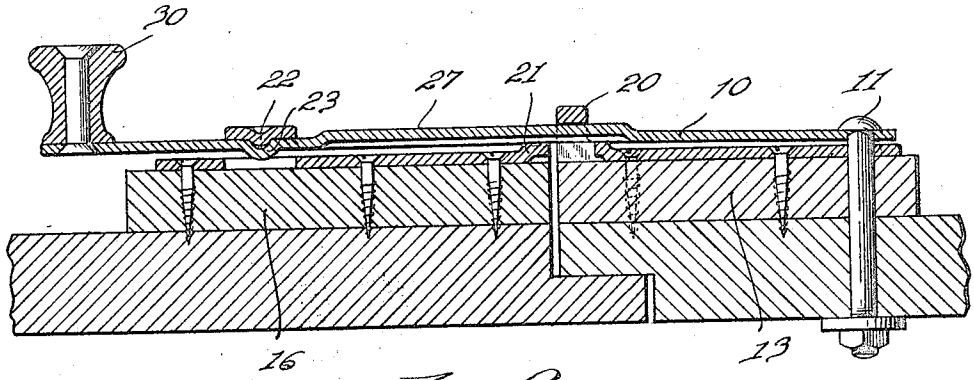


FIG. 2.

FIG. 3.

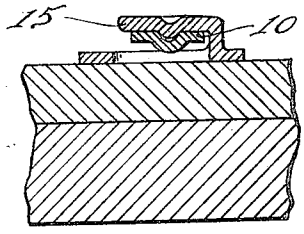
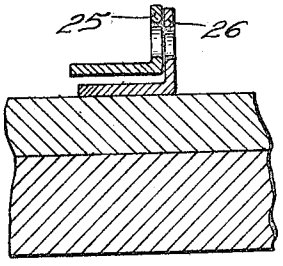


FIG. 4.



INVENTOR,
Ray F. Trimmer,
By Davis & Macklin,
Attys.

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UNITED STATES PATENT OFFICE.

RAY F. TRIMMER, OF EAST CLEVELAND, OHIO.

DOOR LATCH.

Application filed October 19, 1921. Serial No. 508,675.

To all whom it may concern:

Be it known that I, RAY F. TRIMMER, a citizen of the United States, residing at East Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in a Door Latch, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

This invention is particularly concerned with improvements in a door latch wherein a pivoted latch on one member is arranged to be held in engagement with a keeper on another member by spring tension in the latch member.

One of the objects of my invention is the provision of such a latch which may be constructed entirely of stampings, whereby the time for production is materially reduced and the ultimate cost is correspondingly diminished. In this connection, my invention contemplates the provision of a latching feature, which automatically retains the lever in position, when it is forced behind the keeper but still permits it to be readily removed by a slight pressure exerted on the handle.

Still another object is the provision of very simple locking ears for enabling the latch to be permanently locked by a padlock to the keeper when the latch is forced behind the keeper.

The means for carrying out the above objects will be fully set forth in the following description which relates to the drawings, and the essential features of my invention will be summarized in the claims.

In the drawings Fig. 1 is an elevation of a latch embodying features of my invention; Fig. 2 is a longitudinal section taken through the center of the latch; Figs. 3 and 4 are sections taken on the lines 3—3, and 4—4 respectively in Fig. 1.

In the various figures, I have shown a latch 10 pivoted at 11 above a plate 12, which in turn may be secured to the closure 13. The free end of the latch extends beyond the plate 12 and across the plate 14, where it cooperates with a keeper 15 that is secured to a door jamb 16, or to another closure, as the case may be. My invention resides primarily in the construction of the various coacting elements for permitting them to be stamped from sheet metal, but still enabling them to retain the strength and rigidity necessary for a latch of this character.

The plate 12, in addition to providing a bearing for the pivot member 11 also constitutes a means for limiting the movement of the latch as is shown by the bar 20, which is struck up from the plate 12 so as to permit the latch to slide therethrough. The end portions of this bar 20, being integral with the plate 12, therefore limit the angular movement of the latch.

The keeper 15 is similarly arranged to be stamped from the sheet metal plate 14 and comprises an L shaped member behind which the latch 10 may be locked. For enabling the spring tension in the lever 10 to maintain the latch in engagement with the keeper, I provide a raised portion 21 which serves as a fulcrum. This fulcrum extends the entire width of the plate and provides a bearing surface upon which the latch may be slid, and simultaneously sprung, out of its normal plane. In this way the spring tension in the latch urges it against the keeper.

To secure the latch against possible jarring when positioned behind the keeper I provide a lock in the form of a cooperating button 22, and recess 23, on the keeper and latch respectively. Both the button and recess may be formed in their respective members during the stamping operation, and may be so positioned that they are brought into operative relation when the latch is swung about the pivot 11.

Further means for retaining the latch in engagement with the keeper is embodied in the upstanding portions or ears 25 and 26, on the latch and keeper plates, respectively. These portions are integral with the latch and keeper plates, and are formed therefrom during the stamping operation. Each of the ears are provided with openings which are in registration when the latch is locked, whereby a padlock may be readily employed for maintaining the latch in locked position.

The spring tension in the latch 10, above referred to, may be secured without destroying the elastic properties of the metal, by stamping a longitudinal rib 27 along that portion which passes beneath the member 20 and above the bearing surface 21. In this way satisfactory results may be secured without employing spring steel which requires additional heat treatment for obtaining the desired resilient properties.

The operation of a latch constructed according to my invention is as follows: As-

suming that the closure member 13 has been brought adjacent the member 16, then the operator grasps the handle 30 and swings the latch upwardly about the pivot 11 until it clears the top of the keeper 15; whereupon the handle is pressed inwardly, and sprung over the bearing surface 21, until the plane of the latch is behind the plane of the keeper 15, and then the latch is forced downwardly until the recess 23 is snapped over the button 22. When the latch is in this position, the ears 25 and 26 are adjacent each other and the openings therein are in registration, so that a padlock may be used to lock the latch to the keeper plate.

From the foregoing description it will be seen that I have provided a latch construction which enables the various parts to be formed of stampings whereby the cost of production is materially decreased, and in addition that I have provided locking parts which may be formed integrally with the latch and keeper during the stamping operation.

Having thus described my invention, I claim:

1. In a device of the character described, the combination with a latch arm, of a keeper therefor, plates for the latch arm and keeper respectively, one of said plates having a loop struck upwardly therefrom for limiting movement of the latch arm, and the other of said plates having a bearing surface struck upwardly therefrom and extending transversely of the latch arm and comprising a fulcrum therefor, said keeper having an inwardly extending protuberance and said latch arm having a recess cooperating with said protuberance for locking the latch arm to the keeper when said latch arm is constrained over said fulcrum.

2. In a device of the character described, the combination with a latch arm having an outwardly projecting rib extending longitudinally and along the central portion thereof, a supporting plate for said arm, said plate having a loop struck upwardly from one end thereof for engaging the rib and limiting the movement of the latch arm, another plate spaced opposite the latch plate, a keeper and a bearing surface on said last mentioned plate, said keeper and bearing surface being struck upwardly from the plate, and the body portion of the latch arm being in engagement with said bearing surface to place the latch arm under strain when in engagement with the keeper, and a cooperating shoulder and recess on the keeper and latch respectively, for holding them in engagement with each other.

In testimony whereof, I hereunto affix my signature.

RAY F. TRIMMER.