F. J. LAU.

LOCK FOR BAG FRAMES.

APPLICATION FILED MAY 2, 1917.

1,324,162. Patented Dec. 9, 1919.

Fig. 1.

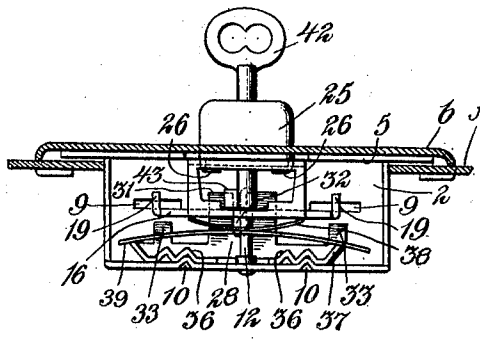


Fig. 2.

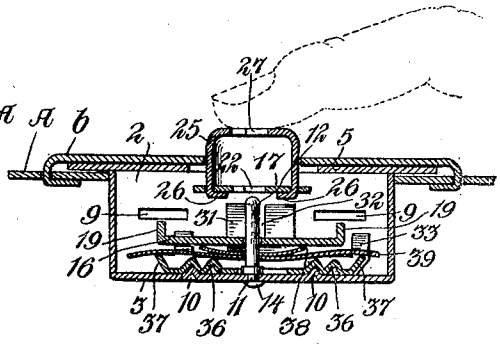


Fig. 4

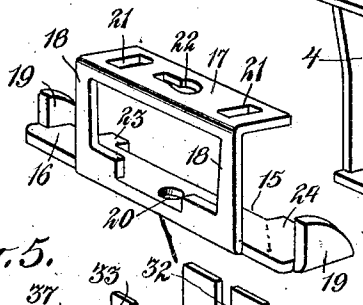


Fig. 3.

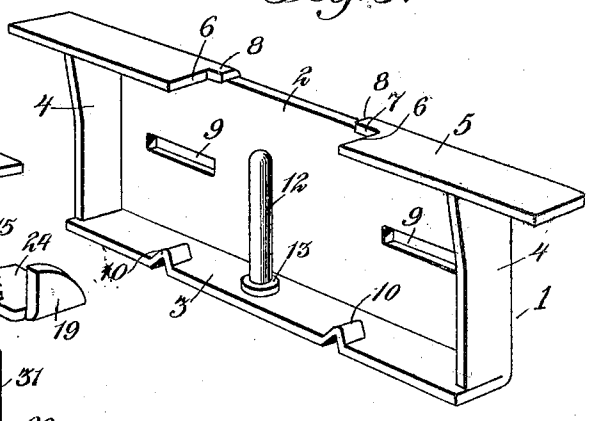
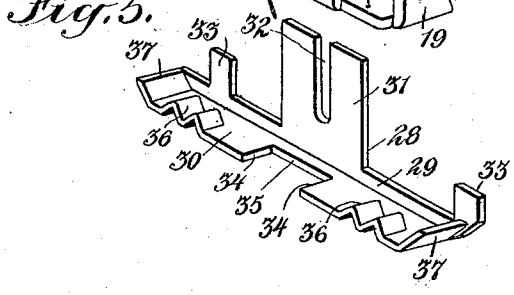


Fig. 5.



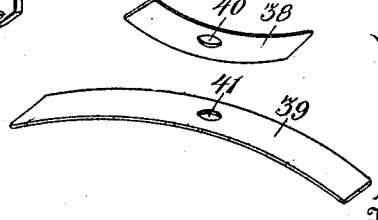


Fig. 6

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LOCK FOR BAG-FRAMES.

1,324,162. Specification of Letters Patent. Patented Dec. 9, 1919.

Application filed May 2, 1917. Serial No. 166,040.

To all whom it may concern:

Be it known that I, FREDRICK J. LAU, a citizen of the United States, residing at the city of Waterbury, in the county of New Haven and State of Connecticut, have invented a certain new and useful Improvement in Locks for Bag-Frames, of which the following is a specification.

My invention relates to locks or fasteners generally, but is more particularly applicable to the type of lock disclosed in the Letters Patent No. 1,005,850, granted to me October 17, 1911, for locks for bag frames and the like.

The principal object of my invention is to construct a lock in its entirety in which the number of moving parts is reduced to a minimum and which can be assembled by hand thereby dispensing with the employment of the usual assembling machinery. A further object is to provide detail parts and mechanism for locks or fasteners which are not only applicable to the lock disclosed herein but also to locks or fasteners generally.

I attain these and other objects of my invention in the mechanism set forth in the following description and accompanying drawings in which like reference characters refer to corresponding parts.

In the drawings:

Figure 1 is a back view of the lock in position on one of the swinging members of the bag frame;

Fig. 2, a similar view but showing the bolt depressed to release the hasps which are attached to the opposite swinging member of the bag frame;

Fig. 3, an enlarged perspective view of the lock casing;

Figs. 4 and 5, enlarged perspective views of the bolt and tumbler respectively, and

Fig. 6, an enlarged perspective view of the springs.

Referring now to the several figures of the drawing, the casing 1 is suitably bent up out of a single piece of sheet metal so that its body portion forms the front wall 2 and its edge portions the bottom wall 3, end walls 4, 4 and top wall 5. The casing thus formed is a box-like structure having its rear side open as shown in Fig. 3. The top wall 5 is cut away midway of its extremities to form a recess having end edges 6, 6 and an inner edge 7. The portion of the top wall 5 beyond this recess toward the front wall 2 may if desired be further cut away leaving lugs 8, 8. The front wall 2 is provided with a pair of hasp-receiving slots 9, 9, and the bottom wall 3 is suitably upset to form the V-shaped projections 10, 10, one of which is located near each extremity. Midway of the bottom wall 3 between these projections is formed the aperture 11. A guide post 12 having its base enlarged to form a shoulder 13 is suitably secured to the bottom wall 3 by passing its lower extremity 14 through the aperture 11 and upsetting it upon the under side of the wall 3 by a riveting operation. Movably mounted on the post 12 and bearing against the front wall 2 of the casing is a U-shaped bolt 15. This bolt is suitably bent up out of a single piece of sheet metal to form the top and bottom plates 16 and 17 which are spread apart and connected at their rear edges by the vertical struts 18, 18. The bottom plate 16 has its extremities bent upwardly to form the beveled hasp posts 19, 19 and its intermediate portion pierced to form an aperture 20 through which the guide post 12 extends. The top plate 17 is provided with slots 21, 21 adjacent to its extremities and a keyhole 22 midway of its extremities. The front edge of the bottom plate 16 is cut away forming recesses for the tumbler but leaving the projecting lugs 23, 24. Mounted on the top plate 17 is a ferrule 25 having downwardly projecting lugs 26, 26 which latter pass through the slots 21, 21 and are clenched on the under face of the top plate 17 to fasten the ferrule to the bolt. The top of the ferrule is provided with a keyhole 27 which registers with the keyhole 22 in the top plate 17. Movably mounted in the casing and bearing against the front and bottom walls 2 and 3 is an L-shaped tumbler 28. This tumbler is bent up out of a single piece of sheet metal to form the front plate 29 and the bottom plate 30. The front plate 29 is provided about midway of its extremities with the upwardly projecting lug 31 having a vertical key slot 32, and adjacent to or at its extremities is further provided with the upwardly projecting lugs 33, 33 which latter are considerably shorter than the lug 31. The rear edge of the bottom plate 30 is cut away at its middle portion to form a recess having end edges 34, 34 and an inner edge 35 which latter

bears against the shoulder 13 on the guide post 12. The tumbler 28 is mounted to slide on the bottom plate 3 of the casing, its sliding being limited by the edges 34, 34 of the recess in its bottom plate abutting against the shoulder 13 at the base of the guide post. The bottom plate 30 is struck up adjacent to its extremities to form the V-shaped projections 36, 36 respectively, which present V-shaped pockets on the under side of the plate arranged to interlock with the V-shaped projections 10, 10 on the bottom plate 3 when the tumbler is at rest in its various positions. The extremities of the bottom plate 30 are bent upwardly to form the spring-bearing lugs 37, 37. Movably mounted on the guide post 12 between the bottom plate 16 of the bolt and the bottom plate 30 of the tumbler are the blade springs 38 and 39 provided with apertures 40 and 41 respectively through which the guide post 12 extends. The upper spring 38 is shorter than the lower spring 39 which latter is longer than the bottom plate 30 on the tumbler so that its extremities may engage the upwardly turned lugs 37, 37. These springs may be said to be floating since their extremities slidably engage the opposite plates of the bolt and tumbler respectively and their middle portions, which are flexed toward each other, ride on the guide post 12.

To assemble the parts the L-shaped tumbler 28 is fitted in to the casing A in front of the guide post 12 so that its front and bottom walls bear respectively against the front and bottom walls of the casing. The springs 38 and 39 are then passed over the guide post so that the extremities of the spring 39 rest upon the projections 37, 37 on the tumbler. Then the bolt 15 having the ferrule 25 attached thereto is passed downwardly in a forward direction through the recess in the top plate 5 its bottom plate 16 passing over the guide post 12 and bearing against the extremities of the spring 38. When the bolt has been passed downwardly far enough so that its top plate 17 clears the recess it is then swung forwardly under the lugs 8, 8 and against the front of the casing, the ferrule 25 passing into the cut away portion between the lugs 8, 8. In this position the bolt is forced upwardly by the springs 38 and 39 so that the plate 17 becomes seated against the under side of the lugs 8, 8. The moving parts of the lock being thus assembled in the casing the latter is passed downwardly through an aperture in the top horizontal plate A of the bag frame member which aperture fits around the casing. The open side of the casing is now closed by the vertical plate of the bag frame member. The lock is supported on the bag frame member by the edges of the top plate 5 of the casing overlapping the edges of the aperture in the top plate A. An apertured escutcheon or retaining plate *b* which is preferably flanged around its outer periphery is then passed over the ferrule 25, and attached in any suitable manner to the top plate A of the bag frame member. The aperture in the retaining plate *b* fits around the ferrule 25 and serves to guide the same in its vertical movement and to prevent the ferrule and bolt from becoming displaced.

When the lock is assembled as above described, the hasp posts 19, 19 on the bolt 15 extend across the hasp-receiving slots 9, 9 in the front wall 2 of the casing so that when the two swinging members of the bag frame are brought together the hasps, which are carried by the opposite swinging member (not shown) of the bag frame from that carrying the lock, pass through the slots 9, 9 in the lock casing and enter into locking engagement with the hasp posts 19, 19. During this operation the bolt 15 is depressed against the action of the springs 38 and 39 by the action of the hasps riding over the beveled edges of the hasp posts. In this manner the bag frame sections are fastened in their closed position. When it is desired to open the bag frame sections it is merely necessary to exert a downward pressure upon the ferrule 25 which depresses the bolt against the action of the springs 38 and 39, thereby causing the hasp posts 19, 19 to be lowered out of engagement with the hasps into the position shown in Fig. 2. When the pressure on the ferrule is relieved the springs 38 and 39 will force the bolt back again to its normal position, as shown in Fig. 1, wherein the hasp posts 19, 19 may again be engaged by the hasps in the manner above described. It should be noticed that during the above described operation, in which the device merely acts as a spring latch or fastener, the tumbler performs no function and for this reason if desired can be eliminated and an operative device constructed without it. When it is desired, however, to lock the bolt to prevent the hasp posts from becoming disengaged from the hasps the tumbler must be employed. When the frame sections are being latched and unlatched the lugs 33 on the tumbler are out of vertical alinement with the lugs 23, 24 on the bolt so that when the latter is depressed the lugs on the tumbler pass through the recesses adjacent to the lugs on the bolt, or to be more exact, the lugs on the bolt pass down beside the lugs on the tumbler. When the bag frame members are latched together the interlocking engagement between the hasp posts and hasps may be maintained by moving the tumbler laterally so that the lugs 33, 33 on the tumbler will come under the lugs 23, 24 on the bolt and lock the latter against any downward movement. To throw or move the tumbler into its locking position

the key 42 is inserted downwardly through the keyhole 27 in the ferrule and the keyhole 22 in the bolt so that its lower extremity passes down over the guide post 12 and engages the bottom plate 16 of the bolt. When the key is turned its bit 42 passes into and engages one edge of the slot 32 and slides or upsets the tumbler laterally to its locking position. During the upsetting of the tumbler the walls of the pockets formed by the V-shaped projections 36, 36 on the bottom plate 30 ride over the corresponding V-shaped projections 10, 10 on the bottom wall 3 of the casing. The interlocking relation between the corresponding projections and pockets on the casing and tumbler is maintained when the latter is at rest by the downward pressure of the spring 39 on the lugs 37, 37 on the tumbler. By turning the key in the opposite direction its bit engages the opposite edge of the slot 32 and throws the tumbler back again to its original position in which the lugs 33, 33 on the tumbler are out of alinement with the lugs 23, 24 on the bolt, which latter may again be depressed to disengage the hasp posts from their hasps.

The enlarged shoulder at the base of the guide post serves to transmit the strains to the face portion of the bottom of the casing and also reinforces the post against any tilting action. Since the post is of considerable length and performs both the function of a guide and key post it is necessarily subjected to more than the usual strain upon either an ordinary guide or key post of shorter length. For this reason the reinforcing shoulder at the base of the post is a very important feature of my invention. It should be observed that in forming the V-shaped projections upon the bottom of the casing I am thereby enabled to eliminate the usual separate plate for carrying these projections and by mounting the bolt upon a central key post I am thereby not only enabled to dispense with the usual guiding means at the lateral extremities of the bolt but also to make the maximum width of the bolt equal to the distance between the hasp lugs. This not only saves metal but also makes a stronger bolt. It should be noticed also that the shoulder formed on the guide post bears against the inner edge of the recess in the base of the tumbler thereby holding the tumbler against the front wall of the casing. The lock may be quickly assembled since the guide post is the sole means for holding the moving parts in position within the casing. I desire it to be understood, however, that while the guide post set forth herein is one of the important features of my invention yet the other features may be utilized without the employment of this guide post, and the device is susceptible to such further modification as may fairly come within the scope of the appended claims.

I claim—

1. A lock comprising a casing, a bolt slidable in the casing and having means for engaging a hasp, a tumbler slidable in the casing, the said tumbler and casing each having co-acting means formed thereon for holding the tumbler in its relative positions and the said bolt and tumbler having co-acting means for holding the bolt against sliding movement or permitting it to slide according to the position in which the tumbler is held, and a spring device bearing on the bolt to hold it in its normal position and bearing on the tumbler to force the latter against the casing.

2. A lock comprising a casing having a keyhole in its top wall and a key post erected on its bottom wall in alinement with said keyhole, a bolt slidably mounted on said post provided with means for engaging a hasp, a tumbler slidably mounted within said casing and provided with an elongated recess through which said bolt extends, the said tumbler and casing having co-acting means for holding said tumbler in its relative positions and the said bolt and tumbler having co-acting means for locking and unlocking the bolt, and a spring device bearing on the bolt to hold it in its locked position and bearing on the tumbler to force the latter against the casing.

3. A lock comprising a casing, a bolt slidably mounted within said casing, a tumbler slidably mounted in said casing, the said tumbler and casing having co-acting means for holding the tumbler in its relative positions and the said bolt and tumbler having co-acting means for locking and unlocking the bolt, a blade spring having its extremities bearing on the bolt and a blade spring having its extremities bearing on the tumbler, the said springs being vertically movable and having their central portions bearing on each other.

4. A lock comprising a casing having a keyhole in its top wall and a key post erected on its bottom wall in alinement therewith, a bolt slidably mounted on said post, a tumbler slidably mounted in the casing, the said bolt and tumbler having co-acting means for locking and unlocking the bolt and the said tumbler and casing having co-acting means for holding the tumbler in its relative positions, and a pair of centrally apertured blade springs movably mounted on said key post, the said springs being bent in opposite directions so that their extremities bear upon said bolt and tumbler respectively and their central portions bear upon each other.

5. A lock comprising a casing, a bolt slidably mounted in said casing, a tumbler slidably mounted in said casing, the said tumbler and casing having co-acting means for locking and unlocking said bolt, V-shaped pockets formed on said tumbler, V-shaped pro-

jections formed on the bottom wall of said casing and arranged to enter into engagement with said pockets, and a spring device bearing on said tumbler to force said pockets into engagement with the V-shaped projections on the casing when the tumbler is upset.

6. In a fastening device a casing, a post and a support for said post, the said post having its base portion enlarged to form a shoulder which bears against the front of said support inside of said casing and the said shoulder being provided with a rivet which passes through said support and is upset on the under side thereof, in combination with an apertured hasp plate movably mounted on said post which latter extends through said aperture in the hasp plate.

7. In a fastening device a casing having a guide post erected on one of its inside walls, a hasp plate provided with hasp lugs spaced apart, the said hasp plate being apertured between said lugs and movably mounted on said guide post which latter extends through said aperture in said hasp plate.

8. In a fastening device a casing having a guide post erected on one of its inside walls, an apertured bolt movably mounted on said post and a centrally apertured blade spring also movably mounted on said post, so that the latter extends through said aperture, the said spring being arranged to bear against said bolt.

9. In a fastening device a casing having a guide post erected on one of its inside walls, a pair of centrally apertured blade springs movably mounted on said post, the said springs being bent in opposite directions so that their central portions bear upon each other, and a bolt mounted on said post, the said bolt being arranged to move against the action of said springs.

10. In a fastening device an open-sided casing having a post erected on its bottom wall, a spring within said casing and a bolt slidably mounted on said post and arranged to be depressed against the action of said spring, the said casing having the edge of its top wall recessed leaving a portion of the wall along one side of said recess, the said recess being of sufficient length to receive the bolt whereby the latter may be inserted laterally into the recess and downwardly over the post against the action of said spring and seated against that portion of the top wall along the side of said recess.

In testimony whereof I have hereunto set my hand this 24th day of April, 1917.

FREDRICK J. LAU.