Aug. 6, 1929. L. A. BITTORF 1,723,007

DOOR BOLT FIXTURE

Filed June 16, 1927

Fig. 3.

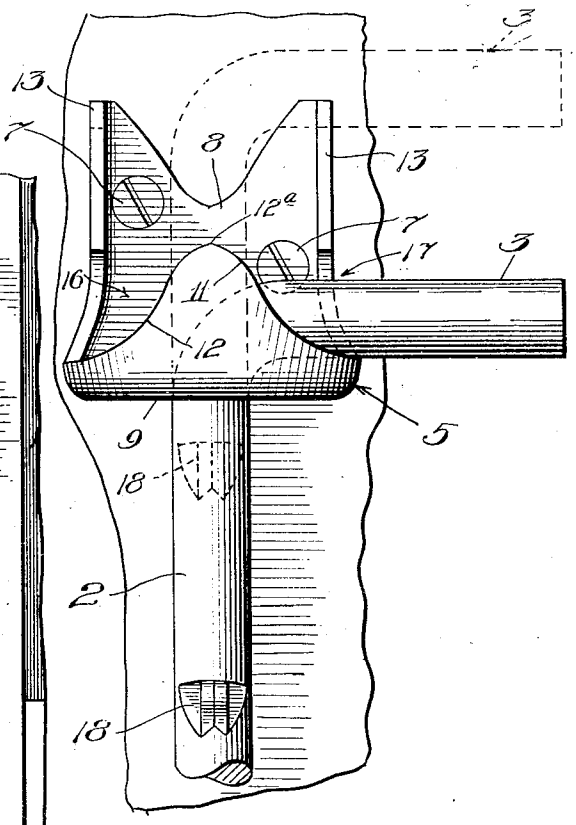


Fig. 1.

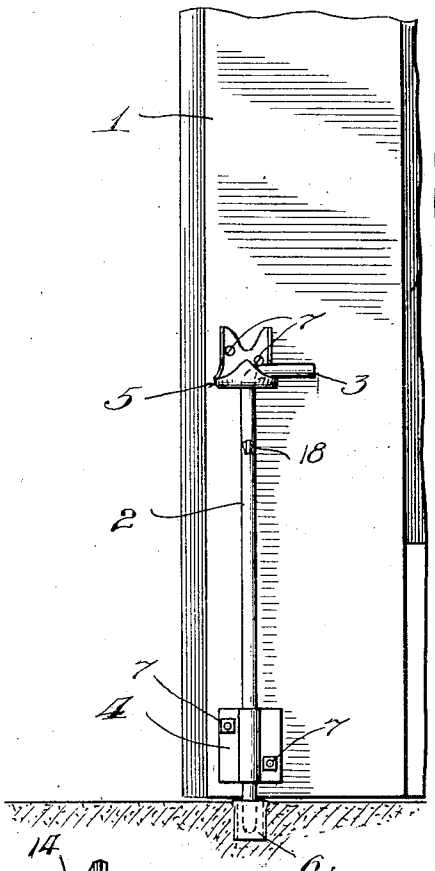


Fig. 4.

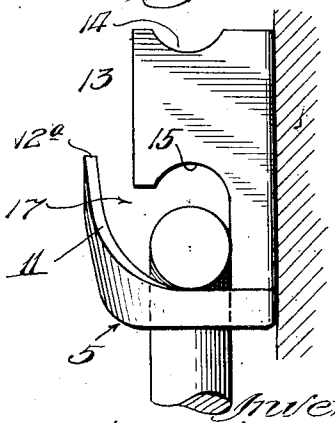
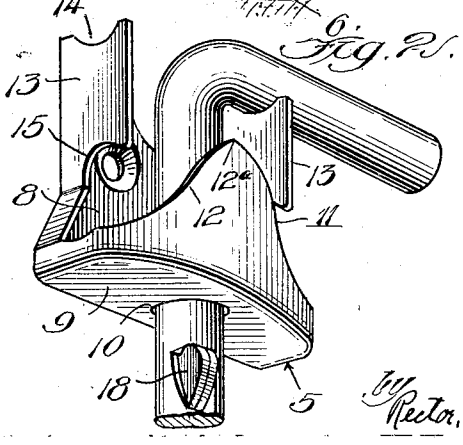


Fig. 2.



Inventor:
Louis A. Bittorf

By Rector, Hibben, Davis & Macauley Attys

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UNITED STATES PATENT OFFICE.

LOUIS A. BITTORF, OF STERLING, ILLINOIS, ASSIGNOR TO NATIONAL MANUFACTURING COMPANY, OF STERLING, ILLINOIS, A CORPORATION OF ILLINOIS.

DOOR-BOLT FIXTURE.

Application filed June 16, 1927. Serial No. 199,157.

My invention relates generally to fastening devices for swinging, folding and sliding doors such as are generally used for garages and similar buildings, and has to do particularly with a fixture for supporting, operating and latching door bolts.

One of the objects of my invention is to provide self-acting means for moving the door bolt to its extended or door-fastening position and for aiding in its movement to withdrawn position.

Another object is to provide means for holding the bolt in either extended or withdrawn position, such means being adapted to safeguard against theft by preventing unauthorized operation of the bolt.

Other objects are to provide a reversible and invertible bolt supporting and operating structure which is simple in construction, cheap to manufacture and easy to operate; and the provision of means for holding the handle of the bolt in a definite position away from the door to permit the same to be readily grasped for operation.

Other objects and advantages will become apparent as this description progresses and by reference to the drawings wherein:—

Figure 1 is a portion of a door shown in elevation and having my invention applied thereto.

Fig. 2 is an enlarged perspective view of my bolt fixture for supporting, operating and latching the door bolt.

Fig. 3 is a front elevation of the structure shown in Fig. 2.

Fig. 4 is a side elevation of the structure of Fig. 2.

In the drawings, the door 1, which may be of a swinging type, is adapted to be fastened in its closed position by the bolt 2 having the right-angled handle 3. This bolt is slidably supported by the bracket 4 and the fixture 5, and its lower end, which may be slightly tapered, is adapted to cooperate with the socket 6 in the floor or sill in the well-known manner. The bracket and fixture may be secured to the door in any desired manner as by the bolts or screws 7.

One of the important features of my invention is that, when the handle 3 is released, the bolt 2 moves of its own accord by gravity to its door latching position as shown in Fig. 1. To accomplish this, the fixture 5 is provided with a back 8 which is secured to the door, as stated by the screws 7, and a base 9 which is provided with an opening 10 to slidably receive and support the bolt 2. The base 9 is extended integrally, or otherwise, to provide an upturned and outwardly curved and triangularly-shaped double-cam piece which presents the oppositely directed and spiral-like cam surfaces 11 and 12. The back 8, at its opposite sides, is provided with similar outwardly extending side plates or wings 13, each of which is provided with a circular notch or depression 14 in its top to receive and position the handle 3 when the bolt is in its withdrawn position. The lower part of each of these side plates is undercut and notched as at 15 to form in a sense spiral-like camways 16 and 17 through which the handle 3 is rotatably guided, and also to provide a pocket in which the handle is received and latched in the extended position of the bolt 2. When the bolt is in its latched position as shown in Figs. 1 and 4, the side plate 13 prevents vertical movement of the same, and the notches 15 prevent rotation of the bolt when the handle is moved vertically against the side plate.

In use, assuming that the bolt 2 is in the unlatched or dotted line position of Fig. 1, to move the same to its door-fastening position, the handle 3 is lifted slightly to release it from the notch 14 and rotated away from the door to a position between the side plates 13 and then dropped. The bolt, due to its weight, falls and the handle 3 strikes the rounded peak 12^a of the double-cam piece 12 and enters one or the other of the camways 16 or 17. As the handle 3 enters the camway and continues to move downwardly, the spiral-like cam track rotates it into the latching pocket beneath the wing 13 as shown in Fig. 4. In this position, the handle is latched against vertical movement, due to the fact that the lifting of the bolt will cause the handle to engage the notch 15 and prevent removal of the bolt from the socket 6 in the manner above described. From the foregoing, it will be readily seen that I have provided a fool-proof bolt structure which insures that each time the handle is released to extend the door bolt and fasten the door, the bolt will be moved directly to a latching position. Furthermore, this construction is such that the bolt cannot be pried upwardly from the outside thereby safeguarding against unauthorized operation and theft.

When the bolt 2 is to be legitimately re-

leased or withdrawn to permit opening of the door, the handle 3 is turned forwardly away from the door and moved upwardly. During this movement, the cam action between the handle of the bolt and the cam surface 12 (or cam surface 11 as the case may be) assists in the lifting action in an obvious manner. When the bolt is moved to its fully withdrawn position, it is rotated to the dotted line position of Fig. 3 and engaged in notch 14 in the top of the side plate.

It will be noted that the notches 14 are so located as to position the handle 3 away from the door to insure that it may always be readily grasped for operation without striking the hand against the door, which is very objectionable in many instances because of splinters and rough surfaces. Furthermore, it may be desirable to turn the handle 3 one way or the other in its withdrawn position to avoid interference in the movement of the door or to render the handle more accessible, and the two notched side plates 13 readily provide for this. Also this construction enables the door bolt to be mounted upon either the right or left hand door with the conveniences in operation above stated.

While I have shown and described my invention as applied to a bolt structure which is mounted at the bottom of the door and adapted to engage a socket in the floor or sill, it is to be understood that I do not desire to be limited to such mounting and that it may also be mounted at the top of the door and adapted to engage a socket in an overhead beam or sill. In that event, the operation of my invention is obvious, the notch 15 serving to latch the handle in the door fastening position of the bolt while the cam assists in movement from this position when the handle is rotated outwardly away from the door. More particularly, the bolt will be withdrawn from its overhead socket and the door unlatched at that point by slightly lifting and rotating the handle 3, along the spiral-like cam track. In such inverted mounting, the stop 18 on the bolt will serve to limit the downward movement of the same when the handle is rotated and released as described.

Although I have described but one embodiment of my invention, it will be understood that I do not desire to be limited to such construction because it is obvious that various changes and modifications may be made therein without departing from the spirit and scope of my invention as defined by the claims which follow.

I claim:

1. In combination, a door bolt having a right-angled handle, and a bracket for supporting, operating and latching said bolt, said bracket having a base slidably receiving said bolt, spaced side members projecting outwardly from the door above said base and having notches in their upper and lower edges, and a cam piece extending outwardly and upwardly from said base and having oppositely directed spiral-like cam ways leading beneath said lower notches.

2. In a supporting and latching fixture for a door bolt having a handle, a base with an opening to rotatably and reciprocably receive the bolt, a side plate extending outwardly from the door and having a notch in its top to receive and hold the bolt handle and bolt normally against rotary movement in their withdrawn position, said plate being spaced from said base and having another notch in its underside to receive and prevent rotary movement of said bolt and handle in their extended and door fastening positions, and a cam for rotating said handle beneath said side plate and into operative relation with the notch on the under side of said plate when said bolt is released and dropped from its withdrawn position.

3. In combination, a door bolt having an angled handle, and a bracket having a part adapted to rotatably and slidably receive said bolt, a member adapted to support said handle in a predetermined position when the bolt is withdrawn, said member being spaced from said part to form a pocket therebetween, and a spiral-like cam track leading to said pocket for rotating said handle and bolt to throw said handle into said pocket when it is released and dropped from its withdrawn position.

4. In an invertible door bolt structure, a bolt having a lateral projection, a bracket for rotatably and reciprocably carrying said bolt, said bracket having a member projecting outwardly from the door and having notches in its top and bottom edges, an outwardly extending and curved cam spaced from said member and providing a cam-way leading to one of said notches for rotating said bolt and for moving said projection to and from engagement with that notch.

5. A door bolt fixture for controlling the movement of the door bolt comprising a part connected to the door, a horizontal base part having an opening to slidably and rotatably receive the bolt, said members projecting outwardly from said first part and above and spaced from said base part, notches in the tops of said side members to receive a part of the bolt in its extended position, notches in the lower parts of said side members, connected cam tracks for guiding said handle part between either of said side members and said base part, said side members and notches and base part forming retaining pockets which receive and prevent movement of said bolt vertically upward and to its withdrawn position.

6. A door bolt fixture for supporting and controlling movement of the bolt comprising a part connected to the door, a base for slidably and rotatably receiving the bolt, side

members projecting outwardly from said part above said base, and an upturned and outwardly projecting double cam piece extending upwardly from said base to a point between said side members to form joined spiral-like cam ways between said piece and side members, the arrangement being such that the door bolt is automatically positioned beneath one of said side members merely by releasing it and dropping it from its withdrawn position.

7. In combination, a door bolt having a projecting part, a member adapted to receive said part in the withdrawn position of said bolt, a pocket for receiving said part in the extended position of the bolt, and self-acting means including a cam-way for moving said part entirely into said pocket when said part is released from said member, said pocket being at the end of said cam-way and so shaped that said part is prevented from movement backward through said cam-way when it is moved vertically.

8. In combination, a door bolt having a handle, a member having a notch in its upper part to receive and position said handle in the withdrawn position of the bolt, a pocket in the lower part of said member for receiving said handle when the bolt is extended, and means including a spiral cam for automatically moving said handle into said pocket when it is removed from said notch away from said member and dropped, said pocket being so shaped that the handle cannot be moved therefrom by vertical movement of such handle.

9. In combination, a door bolt having a handle, a member carried by the door and having notches in its top and bottom for receiving said bolt handle, said top notch being located to position the handle parallel with but spaced from the door in the withdrawn position of the bolt and said bottom notch being located directly beneath the top notch to latch said handle in its extended position against upward and rotary movements.

10. In combination, a door bolt having a handle, a flat member carried by and extending outwardly from the door and having notches in its top and bottom for receiving and latching said bolt handle parallel to the door, said top notch being located to space the handle away from the door in the withdrawn position of the bolt and said bottom notch being located beneath the top notch to latch said handle in its extended position against upward and rotary movements, and means for automatically moving said handle beneath said member and into cooperative relation with the bottom notch when the handle is moved out of engagement with said top notch and dropped.

11. In combination, a door bolt having a handle, and a bracket for supporting the same having a pocket, and means for moving the handle into said pocket when it is released and the bolt is dropped from its withdrawn position, the walls of said pocket being adapted to so embrace said handle upon upward vertical movement of the same that rotary and unlatching movement of the same is prevented.

12. A door bolt fixture including means for securing it to the door, means for slidably and rotatably supporting the bolt, and a triangularly-shaped cam piece having opposed and meeting spiral-like cam surfaces which are adapted to receive and support and guide the bolt in its movement toward and from its door fastening position.

In testimony whereof, I have subscribed my name.

LOUIS A. BITTORF.