H. BLYE.

DOOR BOLT.

APPLICATION FILED NOV. 13, 1918.

1,305,338. Patented June 3, 1919.

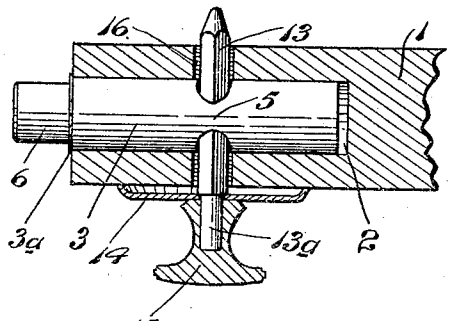


Fig. 1.

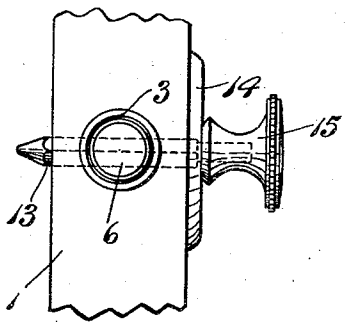


Fig. 2.

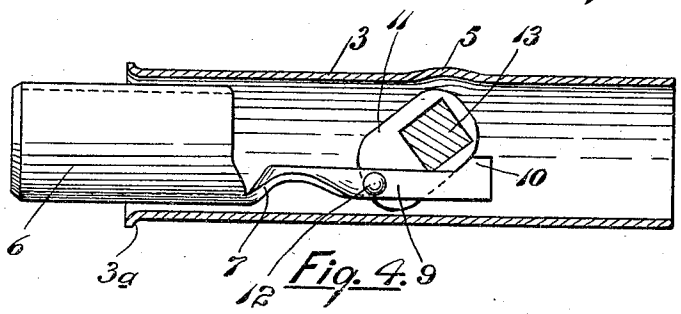


Fig. 4.

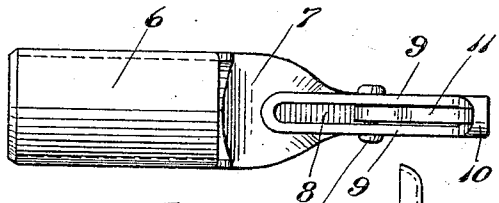


Fig. 5.

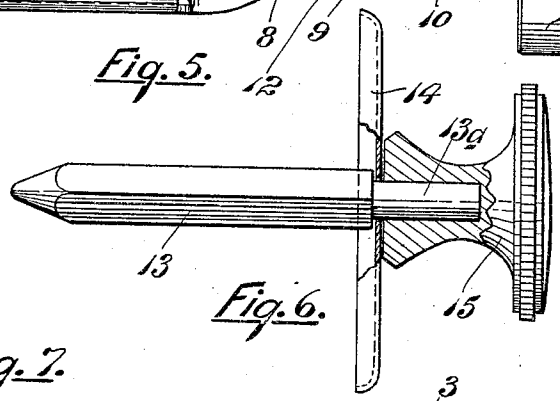


Fig. 6.

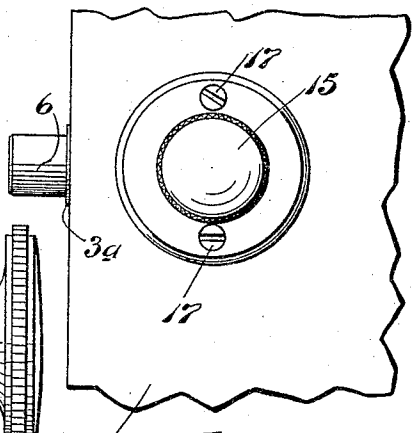
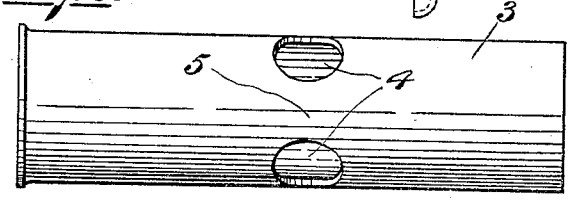


Fig. 3.

Fig. 7.



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DOOR-BOLT.

1,305,338, Specification of Letters Patent. Patented June 3, 1919.

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To all whom it may concern:

Be it known that I, HAROLD BLYE, a citizen of the United States of America, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented certain new and useful Improvements in Door-Bolts; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to door bolts and has for its object and purpose, primarily, the production of a very simply constructed door bolt, which is capable of application to doors swinging in either direction without change in structure, and also to doors of varying thickness, no change in construction being necessary for this result. The bolt is of universal application and in addition is made entirely of sheet metal parts, with the exception of the hand knob for controlling the operation of the bolt and the operating member to which the knob is attached, which, however, is made from straight stock procurable at relatively low cost, the bolt as a whole being one very economical to manufacture and especially easy to assemble and attach to a door. These various features of novelty and utility as well as many others will fully appear as the description progresses, reference being had to the accompanying drawing showing a practical and working embodiment of the invention, in which drawings,

Figure 1 is a horizontal section through a door equipped with my door bolt, a fragment of the door only being shown, and the bolt construction being shown partially in plan and partially in horizontal section.

Fig. 2 is an edge view of a fragment of a door equipped with my invention.

Fig. 3 is a front view of a fragment of a door with my invention attached thereto.

Fig. 4 is a vertical section through the bolt housing of the latch, the bolt being shown in side elevation.

Fig. 5 is a plan of the bolt.

Fig. 6 is a side elevation, parts being broken away and shown in section, of the operating member for the door bolt, and

Fig. 7 is a plan of the bolt housing.

Like reference characters refer to like parts in the different views of the drawing.

The bolt is applied at the free vertical edge of a door mounted on hinges or the like at its other edge to swing in the usual manner. The door 1 is bored at such free vertical edge to make a cylindrical opening 2 in which the bolt housing 3 is inserted, the same being formed from sheet metal and provided with an annular lip 3^a at its outer end to stop insertion of the housing at a predetermined point. Two oppositely disposed openings 4 are made in the housing between the ends thereof and located somewhat above a horizontal plane containing the axis of the cylindrical housing, the metal 5 of the housing between the upper edges of the openings 4 being slightly raised, though this is not in any way essential to the invention.

The door bolt proper is slidably mounted within the housing and comprises a cylindrical body 6 from which, at its inner end, the metal is extended as shown at 7, being bent somewhat upwardly and then having its edges turned downwardly, with a slot 8 cut therein between the downturned parts 9 as shown. At its inner end a raised portion 10 is provided at the inner end of the slot 8. A flat metal member 11 is pivotally mounted on a pivot pin 12 which passes through the parts 9 at a point substantially midway between the ends of the slot 8, this member having a square opening through the upper end thereof adapted to aline with the openings 4 in the housing 3, and being of such length that as the bolt is moved back and forth in the housing, the upper part of the member 11 remaining relatively stationary, its upper and lower ends engage against the inner sides of the housing, making a resistance to movement of the bolt, which is overcome by sufficient application of force, the metal of the housing, particularly between the upper edges of the openings 4 yielding to permit this. This resistance, however, is an important function of the bolt operation as it holds the bolt in either its operative or inoperative position against accidental movement and precludes the projection of the bolt from the door when the door is open with the consequent liability to damage on shutting the door, and also the possibility of the bolt returning to inoperative position when the door is closed and bolted.

The operating member for the bolt comprises a bar 13 square in cross section and having a pointed end, which bar is inserted through the openings 4 in the housing and

the square opening in the member 11. It is to be understood, in this connection that while the preferred design of the door bolt construction as described is to a cylindrical housing and bolt, with a square opening through the member 11 and a square rod 14 to pass therethrough, such geometrical forms are not particularly essential to the invention, other forms being available as is obvious. The bar 13 has a rounded extension of reduced size as indicated at 13ª which passes through a door plate 14 of sheet metal and is then fixed to a hand knob 15 of any desired form, the whole making a bolt operating member in which the plate 14 is secured against removal from the member but has free movement around the same.

In practice, in applying the bolt to a door, the opening 2 is bored and then a second opening 16 made transversely therethrough at the proper point to pass the bar 13 through the housing and the member 11. The housing is inserted in the opening 2, the bolt then inserted into the housing and the bar 13 passed through openings 16 and 4 and through the member 11 until the plate 14 comes against the outer face of the door, being then attached securely thereto by suitable fastenings such as the screws 17 shown.

A door bolt of the character described is of simple construction, and the parts are readily formed from stock materials without the necessity of using special forms of raw material. The pivotal attachment of member 11 to the bolt is practically the only machine assembly operation necessary. The bar 13 of the operating member may be inserted from either side of the housing, this making the bolt one of universal application to both right and left hand doors. The insertion of the bar 13 may be a greater or less distance through the housing and the member 11, permitting the attachment of the bolt to different thicknesses of doors without the necessity of making many different sizes of bolts. The bolt is normally held against movement by the engagement of the member 11 against the inner sides of the housing, thus avoiding accidental movements of the bolt, this being of especial value in that the bolt does not accidentally move to outer position beyond the edge of the door when the door is open. All of these features of merit are present in the invention making it one of especial value.

I claim:

1. A door bolt comprising an elongated housing open at one end and provided with opposed openings therethrough at a point between the ends of the housing, a bolt located in the housing comprising an outer end adapted to be moved to project beyond the end of the housing and with an extension extending into the housing, said extension having a longitudinal slot therein, a member pivotally connected at its lower end to the extension and located at its lower portion in the slot, the pivotal point of connection being substantially midway in the length of the slot, said member having an opening therethrough adapted to be placed in alinement with the openings in the housing, and an operating member inserted through the openings in the housing and in said member and adapted to be turned in opposite directions to move the bolt in opposite directions, substantially as described.

2. A door bolt comprising a housing, a bolt mounted to move back and forth in the housing and project at one end beyond the housing in one position thereof, an operating member passing transversely through the housing, a connecting member through which the operating member freely passes pivotally connected to the bolt whereby said bolt is moved in opposite directions on turning the operating member in opposite directions and means on the bolt engaged by the connecting member to limit its movements.

3. In combination, a door having an opening formed in the same at one edge thereof and a second transverse opening passing through the door and across the first opening, a hollow open-ended housing inserted in the first opening, said housing being formed with two oppositely disposed openings adapted to aline with the transverse opening through the door, a bolt mounted for slidable movements in the housing and adapted to be projected beyond the open end of the housing or retracted entirely within the housing, an operating member passing loosely through the transverse opening in the door and the openings in the housing, means connected with the operating member and attached to the door for holding said operating member against disengagement from the door and bolt mounted therein, and means interposed between the bolt and operating member and with which said operating member is loosely connected for moving the bolt on operation of the operating member.

In testimony whereof I affix my signature.

HAROLD BLYE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."