

No. 638,384.

Patented Dec. 5, 1899.

G. H. DYER.  
SELF LOCKING BOLT FOR BUILDINGS.

(Application filed May 9, 1899.)

(No Model.)

Fig. 1.

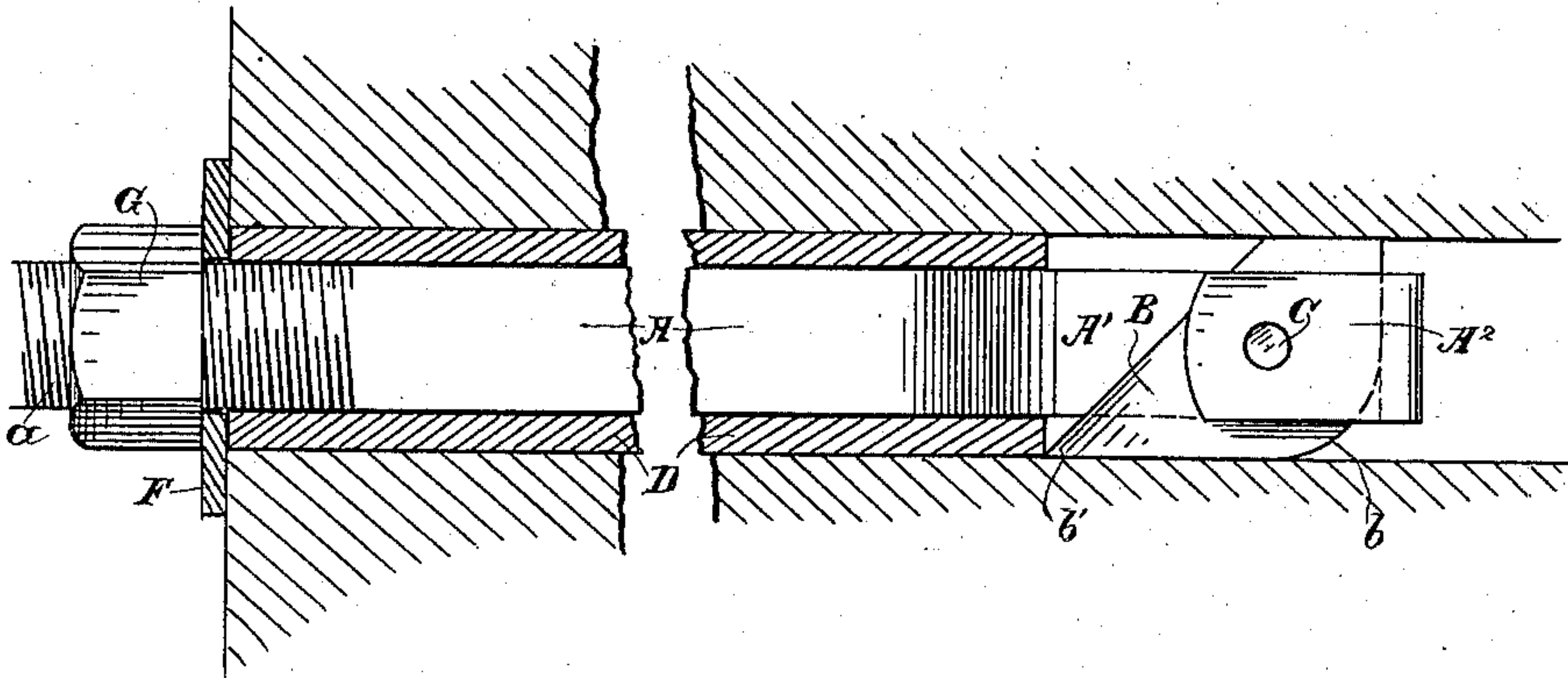


Fig. 2.

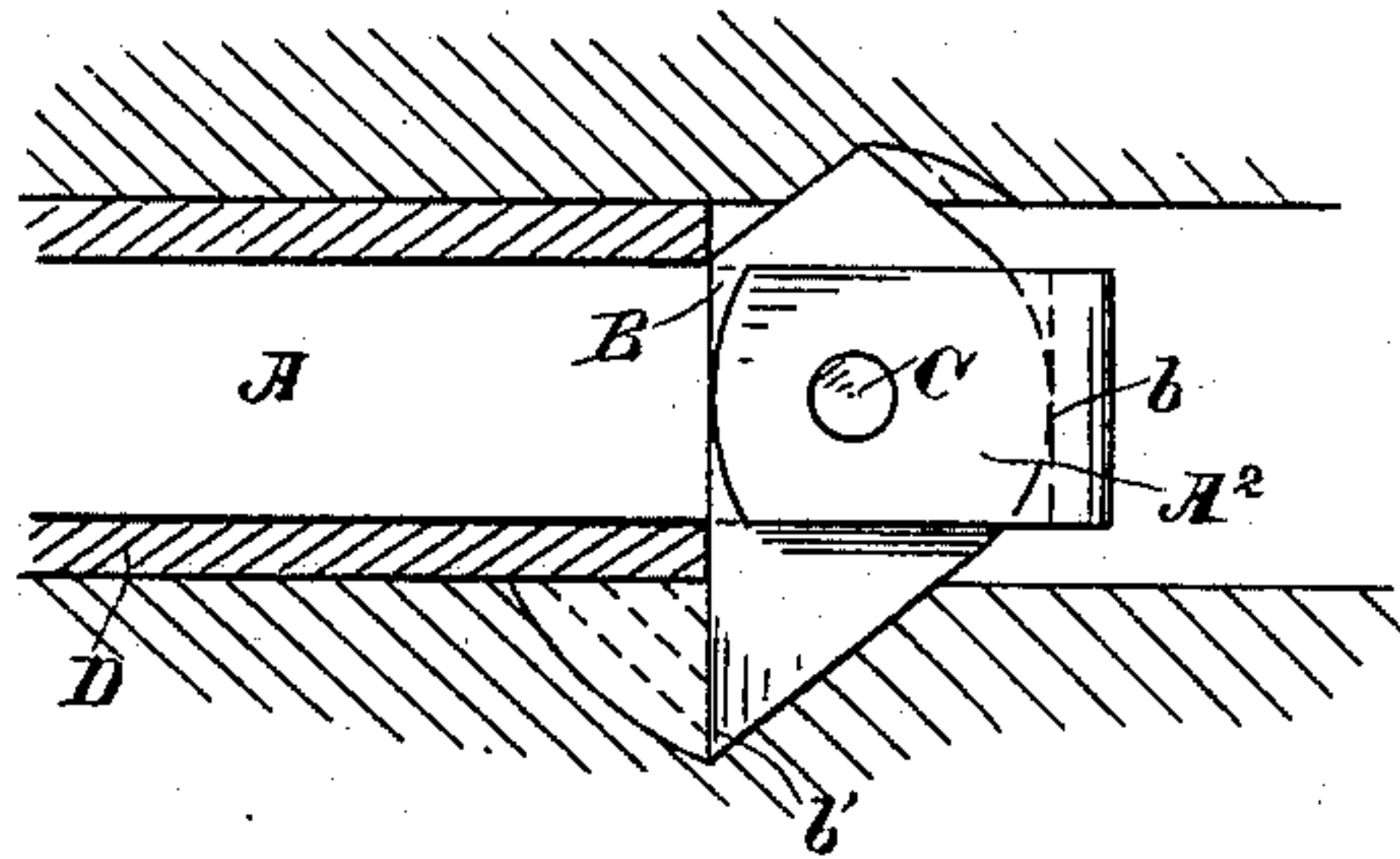
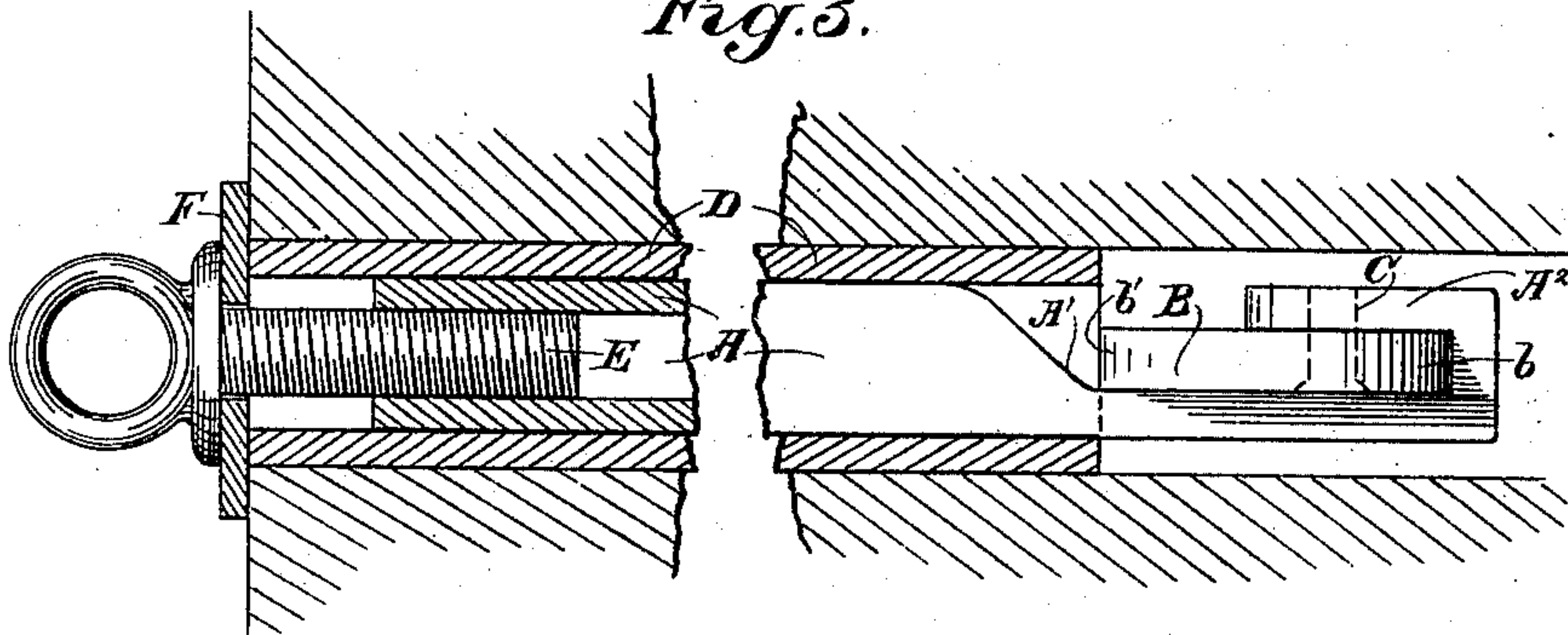


Fig. 3.



Witnesses,  
J. H. Starnes  
J. F. Aschbeck

Inventor,  
George H. Dyer  
By Dewey Strong & Co.  
attys



# UNITED STATES PATENT OFFICE.

GEORGE H. DYER, OF SAN FRANCISCO, CALIFORNIA.

## SELF-LOCKING BOLT FOR BUILDINGS.

SPECIFICATION forming part of Letters Patent No. 638,384, dated December 5, 1899.

Application filed May 9, 1899. Serial No. 716,163. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE H. DYER, a citizen of the United States, residing in the city and county of San Francisco, State of California, have invented an Improvement in Self-Locking Bolts for Buildings; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to a device which is especially designed to be used in buildings where it is necessary or desirable to insert bolts or bars into brick, stone, or other masonry walls and to secure the same therein to form permanent supports for structures such as balconies, fire-escapes, and the like.

It consists, essentially, of a bolt having a turnable key upon its inner end, a contact-surface against which the key is supported, and means for turning it and causing it to lock when it has been inserted into place.

It also comprises details of construction, to be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is a view showing the bolt inserted into the drill-hole. Fig. 2 shows the bolt locked. Fig. 3 is a view at right angles to Fig. 1, showing a modification in the matter of locking it to the outside of the wall.

A is the bolt, made of any suitable or desired length, having at the inner end a portion which is flattened, as shown at A', turned over at the end, so as to form a yoke, as shown.

B is a locking-key which is pivoted to the upper part A<sup>2</sup> of the yoke by means of a pin C passing through a hole in this portion of the yoke and extending down to the part A', but not entering it. The key is constructed with a rounded surface b, the curvature of which is about the radius from the center of the pin C, and this curved surface contacts against the upturned rear end of the yoke, so that any pressure brought upon the key will be supported by the yoke and not by the pivot-pin C, thus relieving the latter of any strain which may be brought upon it.

The key B is made of an irregular shape, having a projecting point, as shown at b', which may be turned so as to project transversely across the line of the bolt when in one position and when in another position it stands in line with the bolt and within its

diameter. It is placed in this latter position when the bolt is to be introduced and is forced into the other position after the bolt has been introduced and when it is desired to lock it in place.

The bolt A fits within a tube D of sufficient size and of less length than the depth of the hole into which the bolt is to be introduced. The outer end of the bolt may either project and be screw-threaded, as shown at a, or it may have its end counterbored and screw-threaded and adapted to receive a screw-bolt E.

The operation of securing the bolt will then be as follows: A hole is first bored or drilled in the masonry wall of sufficient size to receive the tube D and of sufficient depth to allow the bolt A to extend through the tube and beyond its inner end until the beveled inner edge of the turnable key B stands interior to the end of the tube D. In this condition the point b' stands just in line with the outer edge of the tube D, and the whole diameter of the key is not greater than the diameter of the hole and the tube D. The tube D being inserted until its outer end is essentially flush with the face of the wall a washer F is placed over the projecting end of the bolt and a nut G is then screwed upon the bolt, forcing the washer against the face of the wall, and when the nut is turned still farther it begins to draw the bolt outward. The beveled side of the key B being then pressed against the inner end of the tube D will cause the key to turn, forcing the point outward, and the point being hardened enters the masonry surrounding the hole, forcing its way into it like a chisel as the bolt is drawn outward until it stands sufficiently across the opening to form a permanent lock and prevent the bolt from being withdrawn.

In cases where it is desirable to keep the whole length of the bolt within the wall and not allow it to project outside the end of the bolt is counterbored, as before described, and the screw E is fitted to turn into the screw-threaded interior of this counterbore.

The screw may have a head of any description by which it can be turned, and the washer F being first put over the screw E the latter is inserted into the end of the bolt and turned, so that when pressure of the head or shoulder



is brought against the washer F it will act in the manner previously described to draw the bolt A outward and turn the key transversely, so as to lock the latter and prevent the bolt  
5 being withdrawn.

By this construction I am enabled to very securely lock bolts or rods of any description in masonry walls where they do not extend entirely through, so as to receive the nut upon  
10 the inner end, and there is no necessity of using melted sulfur or other cement for the purpose.

Having thus described my invention, what I claim as new, and desire to secure by Letters  
15 Patent, is—

1. A bolt-locking device consisting of an irregularly-shaped key pivoted to the inner end of the bolt, said key having a hardened cutting-point adapted to be turned trans-  
20 versely when the bolt is drawn outwardly.

2. A bolt having a yoke formed at the inner end, an irregularly-shaped locking-key pivoted thereto having a hardened point adapted to be projected when the key is  
25 turned transversely, said key having a curved back which contacts with and is supported by the yoke.

3. A device for securing bolts in a masonry structure consisting of a bolt having a flat-  
30 tened inner end turned to form a yoke, an

irregularly-shaped key having a hardened point and turnable within the yoke, said key having the back curved and contacting with the yoke to be supported thereby, a means  
35 for drawing the bolt outwardly through the tube whereby the key is turned transversely and locked by its movement against the inner end of the tube.

4. A bolt having the inner end formed into an open yoke, a key pivoted within the yoke, 40 said key having the back curved to contact with the inner face of the yoke, a hardened point at the opposite end and an inclined face forming one of the sides which terminates in the point, a tubular socket fitting the hole 45 made in the wall to which the bolt is to be secured and through which tube the bolt is inserted with the key standing within the line of the bolt, a nut and screw by which the bolt is drawn outward within the tube whereby 50 the key is turned transversely and caused to cut into and engage the masonry within which it is inserted.

In witness whereof I have hereunto set my hand.

GEORGE H. DYER.

Witnesses:

S. H. NOURSE,  
JESSIE C. BRODIE.