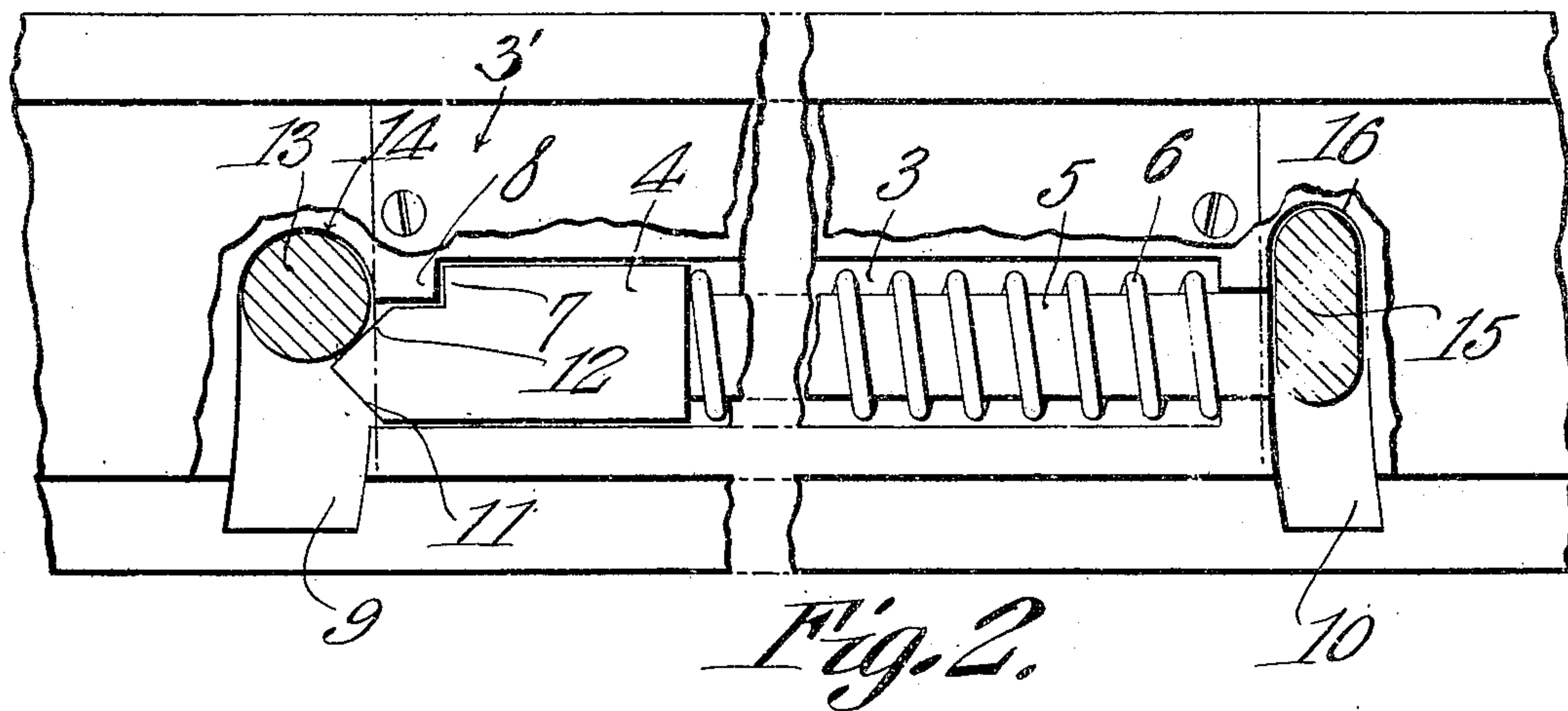
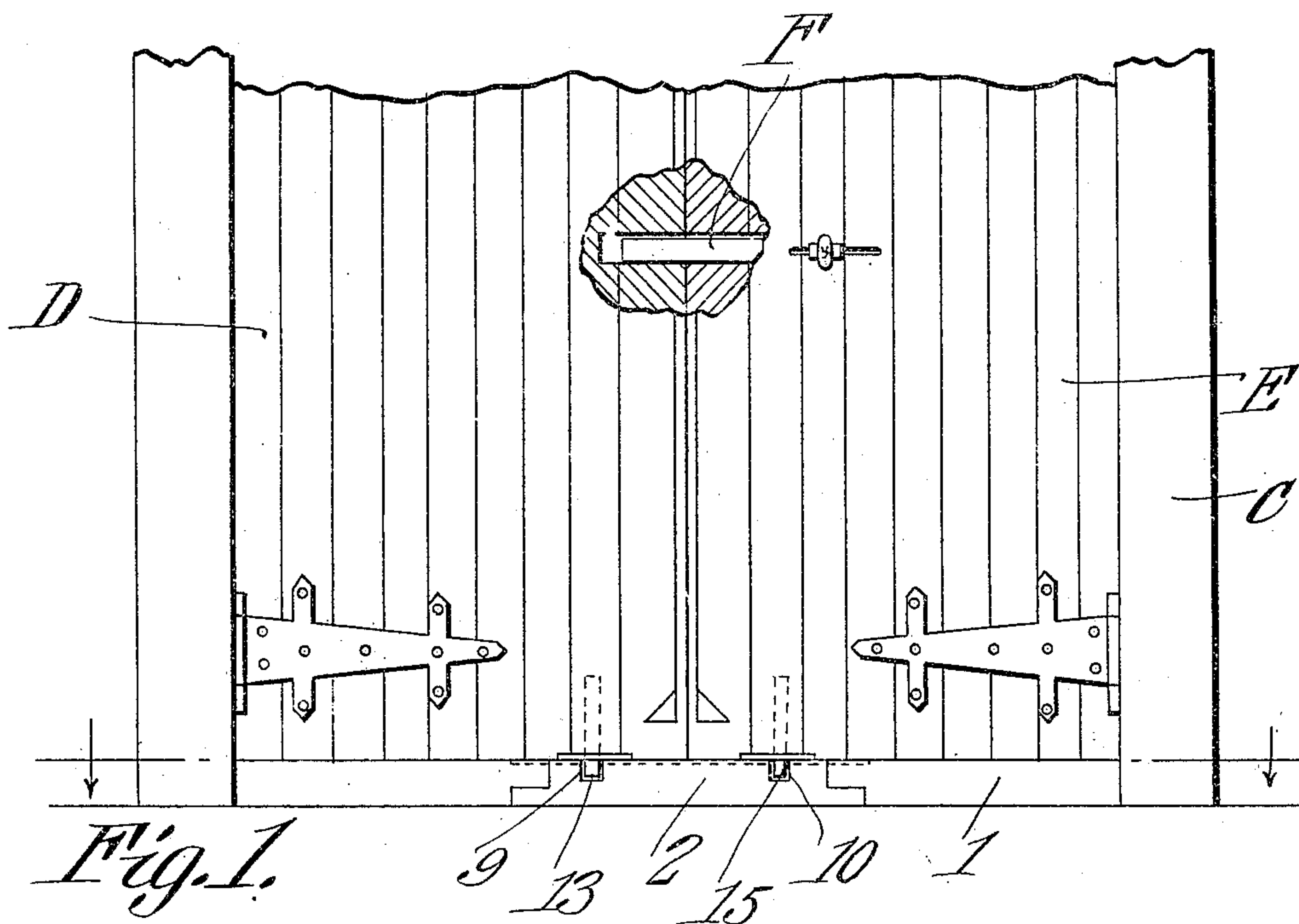


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DOOR FASTENER.
APPLICATION FILED SEPT. 13, 1909.

954,806.

Patented Apr. 12, 1910.

2 SHEETS—SHEET 1.



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Witnesses

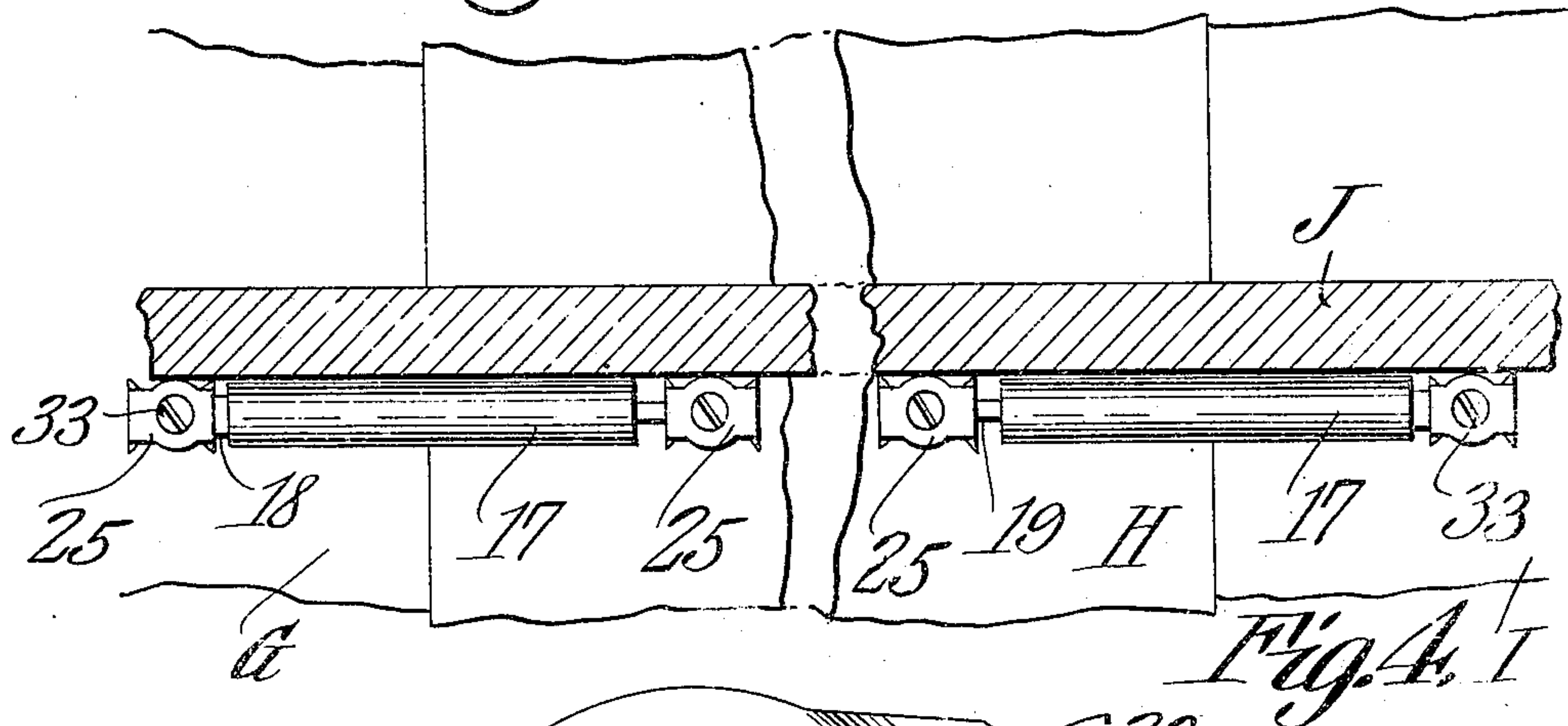
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

ALBERTES M. HOES, OF ST. PAUL, NEBRASKA.

DOOR-FASTENER.

954,806.

Specification of Letters Patent.

Patented Apr. 12, 1910.

Application filed September 13, 1909. Serial No. 517,388.

To all whom it may concern:

Be it known that I, ALBERTES M. HOES, a citizen of the United States, residing at St. Paul, in the county of Howard and State of Nebraska, have invented a new and useful Door-Fastener, of which the following is a specification.

This invention relates to fasteners for use upon doors, the same constituting more especially a substitute for the ordinary bolt used in connection with double doors and the like.

The principal object of the invention is to provide an invisible locking means for holding all but one of the doors in closed position, said means being under the control of the last mentioned door, making it possible, when all of the doors are closed, to open only the controlling door.

Another object is to provide a locking device of such character which automatically engages one of the doors when it is closed and automatically disengages therefrom when more than a predetermined pull is exerted upon said door to open it.

A further object is to provide a fastener of this type which is particularly designed for use upon the doors of auditoriums, schools, and other public buildings, and which can be utilized equally as well upon the multiple doors of book cases, cabinets, and other articles of furniture.

With these and other objects in view the invention consists in certain novel details of construction and the combinations of parts hereinafter more fully described and pointed out in the claims.

In the accompanying drawings the preferred forms of the invention have been shown.

In said drawings:—Figure 1 is a front elevation of a portion of a pair of doors such as used in public buildings and the like, and said doors having the present improvements applied thereto and portions thereof being broken away to show an ordinary locking bolt used in connection therewith. Fig. 2 is a horizontal section through the middle portion of the sill of the door and showing the present improvement therein. Fig. 3 is a horizontal section through the doors of a book case or the like and showing the bottom of a shelf provided with a modified form of locking device. Fig. 4 is a section on the line A—B of Fig. 3. Fig. 5 is a perspective

view of one of the keepers of the present form of lock.

Referring to the figures by characters of reference, C designates a door frame having doors D and E hingedly mounted therein and designed to be locked together by means of a lock F of the usual or any preferred construction. The sill strip 1 of the door has a metal portion 2 secured in the center thereof, or, if preferred, the entire sill strip may be formed in one piece of metal. The metal portion 2 is provided with a longitudinal recess 3 normally covered by a top plate 3' secured in place by means of screws or in any other suitable manner. In this recess a bolt head 4 is mounted to reciprocate, this head being provided with a stem 5 on which is arranged a coiled spring 6. Said spring bears at one end against one wall of the recess 3 and at its other end against the head 4, there being a shoulder 7 upon the head and which is thus held normally in contact with a corresponding shoulder 8 formed at one end of the recess 3. The two ends of the recess 3 open into curved grooves 9 and 10 which extend into the upper face of the metal portion 2 from one side thereof, the said grooves being curved along arcs concentric with the hinges of the doors D and E. One end of the head 4 normally projects into the groove 9, said projecting portion being provided with opposed beveled faces 11 and 12 respectively. The free end of the stem 5 normally lies flush with the adjoining wall of the groove 10 but is designed, when the head 4 is pushed out of the groove 9, to project into said groove stem. The door D has a cylindrical stud 13 extending downward from its lower edge and so located as to travel within the groove 9, the diameter of said stud being slightly less than the width of the groove 9 and about one-third the thickness of the door D. As shown in Fig. 2, the inner end of the groove 9 is rounded as at 14 so as to constitute a seat for the stud 13 after the same has passed the apex or point of the head 4. The door E has an elliptical stud 15 extending downward from its lower edge and designed to travel within the groove 10, the width of this stud being slightly less than the width of said groove. The inner end of the groove 10 is rounded as shown at 16 so as to constitute a seat for the stud and to hold it in position across the end of the stem 5.

It will be obvious of course that the stem 5 is normally removed from the groove 10 and the beveled faces 11 and 12 of the head 4 normally project into the groove 9. When the door D is closed, the stud 13 moves into the groove 9 and against the beveled face 11, thus forcing the head 4 out of the path of the stud and placing the spring 6 under stress. As soon as the stud 13 reaches the recess 14, the head 4 is projected into the groove 9 by the spring 6 so as to lap the stud and thus prevent it from moving out of the groove 9 unless more than a predetermined pull is exerted upon the door D. When the controlling door E is closed the stud 15 carried thereby moves into the groove 10 and against the seat 16, said stud thus assuming a position across the end of the stem 5 and thus preventing the projecting end of head 4 from moving out of the path of the stud 13. It will be seen therefore that as long as door E is closed, it becomes impossible to open the door D and, by locking the door E to the door D by means of a lock F of any preferred construction, the two doors will be secured in closed position without the necessity of utilizing a manually operated bolt such as is usually employed.

Although the locking mechanism has been shown and described in the sill strip of the doors, it is to be understood that, if preferred, it may be duplicated in the top strip of the door frame.

While the locking means herein described is especially useful in connection with the doors of public buildings and the like, the same can, with certain modifications, be used equally as well in connection with sets of more than two doors, such for example, as used in connection with book cases, cabinets and the like. In Figs. 3, 4, and 5, a modified form of lock particularly designed for use in this connection, has been illustrated. In these drawings three doors have been indicated by the letters G, H and I respectively, the controlling door being indicated by the letter H while the secondary doors have been indicated by the letters G and I. A shelf, sill strip, or any other structure fixed relative to the doors and which has been indicated at J has a casing 17 secured thereon. A bolt head 18 is slidably mounted within the casing and has a stem 19 extending therefrom and projecting beyond one end of the casing 17, there being a spring 20 upon the stem and which bears at its ends against the head 18 and one wall of the casing respectively. A shoulder 21 is formed upon the head and is held by the spring 20 normally in contact with a stop shoulder 22 formed within the casing 17. One end of the head 18 projects normally beyond one wall of the casing 17, said projecting portion having opposed beveled faces 23 and 24.

One of these casings 17 and the parts connected thereto, is provided for each of the joints between two doors, each casing being so located that when the doors are closed, each of the two adjoining ones will lap the casing. Moreover the adjoining casings are oppositely disposed and each of the secondary doors has a keeper 25 secured to its inner face. Each keeper is preferably formed as shown in Fig. 5, the same consisting of a middle or eye portion 26 from which extends oppositely projecting ears 27 and 28. The ear 28 is widened at its base as shown at 29 and preferably provided with a spur 30 designed to engage the door on which the keeper is mounted. The other ear 27 has a V shaped recess 31 formed in its end and the outer or top face of said ear 27 is preferably beveled as shown at 32. Each keeper is secured to the door by means of a screw 33 or the like inserted through the eye portion 26 and into engagement with the door, this fastening device serving to hold the spur 30 in engagement with the door. The keepers are designed to be so arranged that when the secondary doors G and I are closed, the beveled faces 32 of the ears 27 will move against the beveled faces 23 of the adjoining bolt heads 18 and force said heads back into their casings 17 until the recesses 31 assume positions in the paths of the heads. The springs 20 will then operate to automatically project the beveled ends of the heads into the recesses 31 as shown in Fig. 3. The controlling door H has two keepers 25 thereon, these keepers being so located as to bring the ears 28 into position across and in contact with the exposed ends of the stems 19 when all of the doors are closed, it being obvious, of course, that when the keepers on the controlling doors are thus located, it becomes impossible for the heads 18 to move out of engagement with the recesses 31 in the keepers on the secondary doors. By locking the controlling door to one of the secondary doors, all of the doors will be held in closed position and none of them can be opened unless the controlling door is first unlocked and opened. Any desired form of lock may be used for holding the controlling door in closed position, one form of lock having been indicated at K in Fig. 3.

It is of course to be understood that any desired number of doors may be used in connection with the locking mechanism described and importance is attached to the fact that when such a locking means is employed it becomes unnecessary to utilize a separate bolt upon each of the doors, each of the bolts being necessarily separately operated by hand.

Various changes can of course be made in the construction and arrangement of parts

without departing from the spirit or sacrificing any of the advantages of the invention.

What is claimed is:—

- 5 1. The combination with a relatively fixed structure, of a longitudinally movable bolt mounted thereon, and having a head at one end, a door, means upon the door for moving against the head to retract the bolt, means
10 for automatically projecting the bolt into the path of said means to yieldingly hold the door in a predetermined position, all portions of the bolt being located at all times out of contact with the door.
- 15 2. The combination with a relatively fixed structure, of a longitudinally movable bolt mounted thereon and having a head at one end, a door, means upon the door for moving against the head to retract the bolt,
20 means for automatically projecting the bolt into the path of said means to hold the door in a predetermined position, a second door, and means thereon for engaging the other end of the bolt to hold the bolt against re-
25 traction.
3. The combination with a supporting structure and a spring controlled longitudinally movable locking member carried thereby, of a secondary door, means thereon mov-
30 able into engagement with one end of the locking member, a controlling door, and means thereon for engaging the other end of the locking member and holding the locking member in engagement with the means
35 on the secondary door.
4. The combination with a fixed supporting structure, of a bolt mounted for longitudinal sliding movement thereon, a door,
40 means upon the door for engaging one end of the bolt to hold the door in a predeter-

mined position, a second door, and means thereon for engaging the other end of the bolt for holding the bolt in engagement with the first mentioned means when the doors are in a predetermined relation. 45

5. The combination with a supporting structure, of a longitudinally movable bolt mounted thereon, said bolt having a head at one end provided with opposed beveled faces, a door, a projecting device movable
50 with the door and against the head to retract the bolt, means for returning the bolt to its initial position and into the path of the projecting device to hold the door in a predetermined position, a second door, and a pro-
55 jecting device movable therewith and against and into the path of the other end of the bolt to hold said bolt against movement.

6. The combination with a structure hav-
60 ing spaced grooves, of a slidable bolt interposed between and adapted to project into the grooves, a door, a projecting device thereon movable into one of the grooves, a spring for holding the bolt normally pro-
65 jected into said groove and in the path of said device, said device operating to force the bolt out of the groove during a portion of the movement of said device within the groove, a second door, and a projecting de-
70 vice thereon movable into the other groove and into the path of the bolt to hold said bolt against movement.

In testimony that I claim the foregoing as my own, I have hereto affixed my signa-
75 ture in the presence of two witnesses.

ALBERTES M. HOES.

Witnesses:

F. E. POPE,
T. T. BELL.