

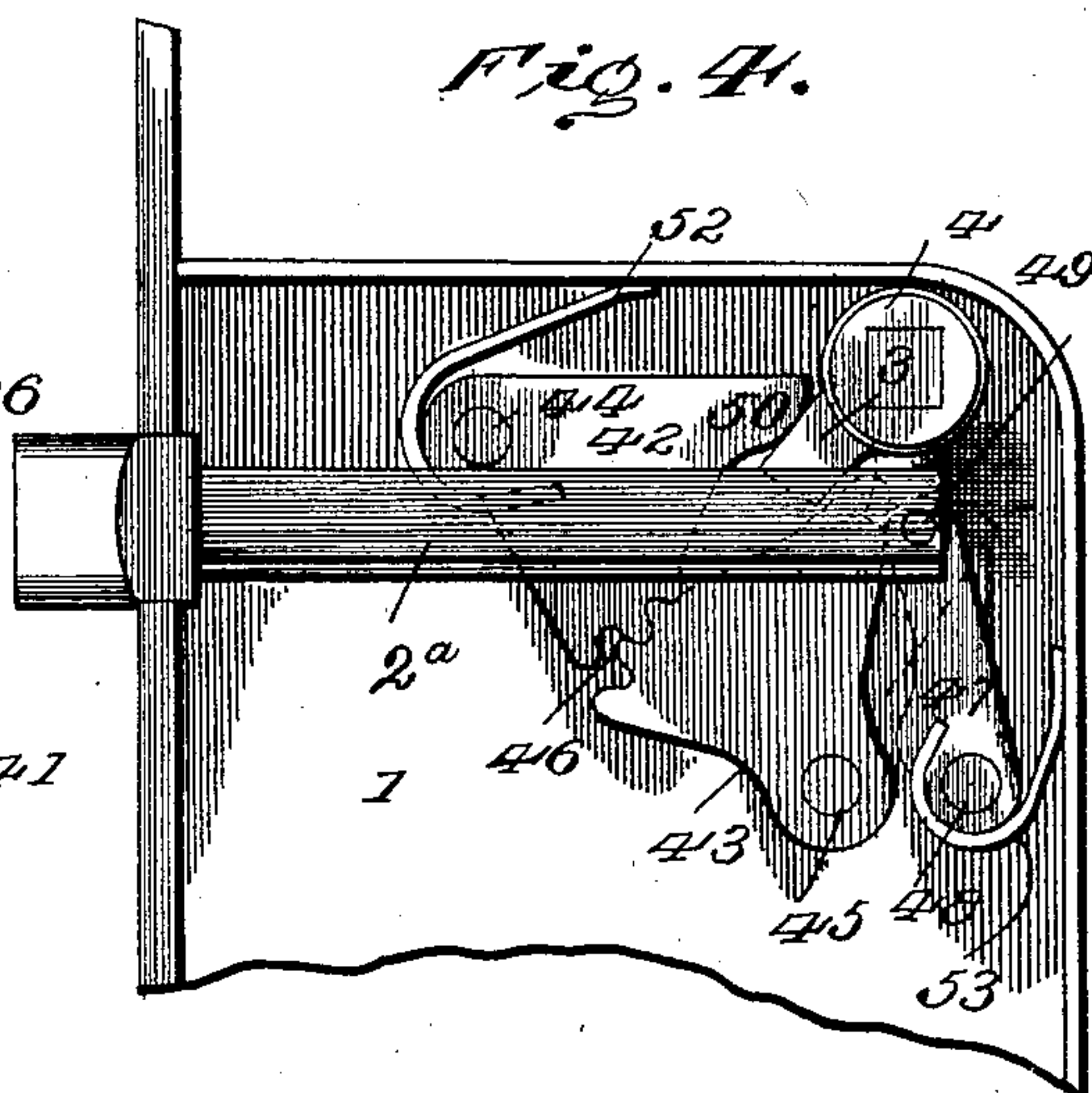
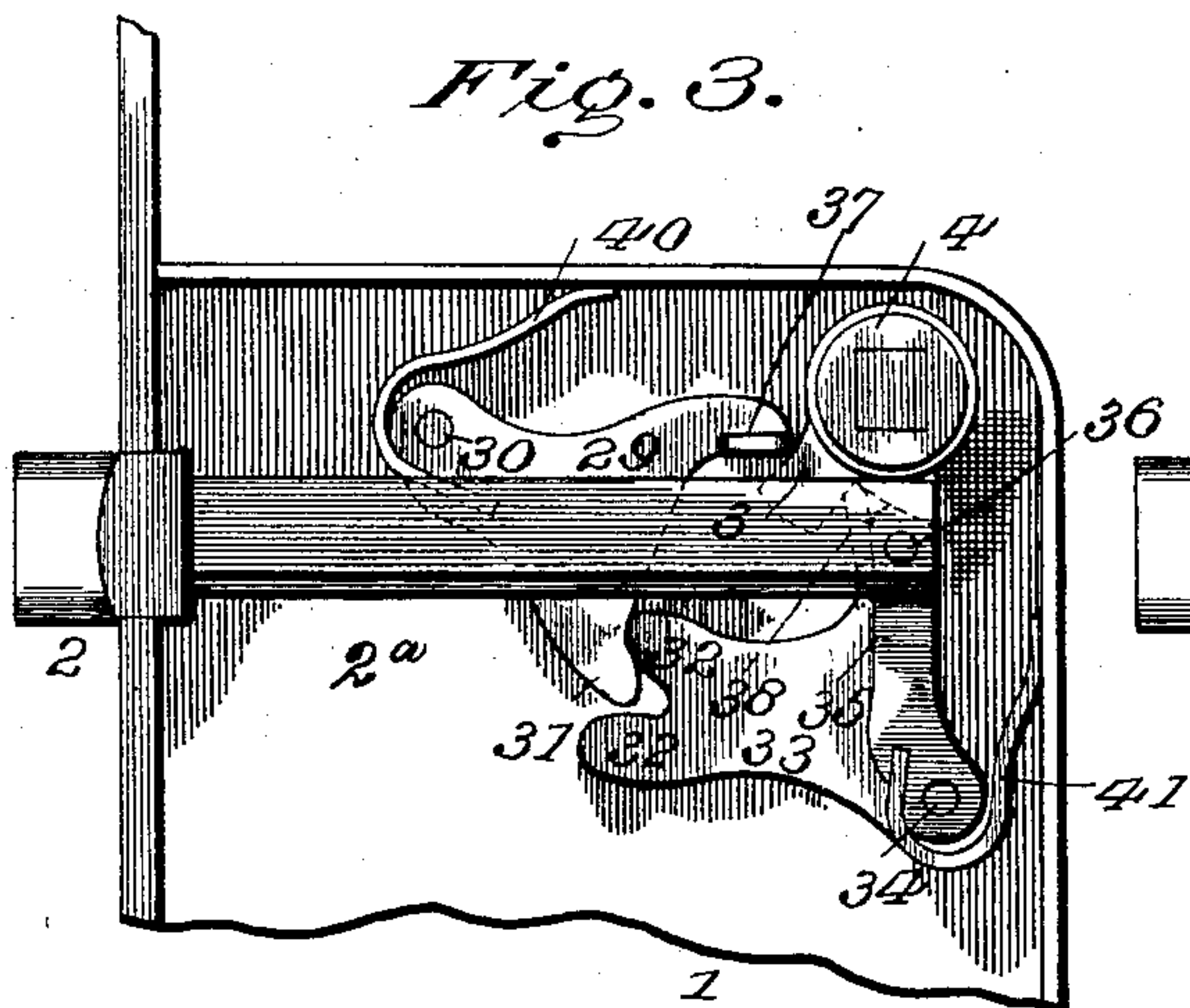
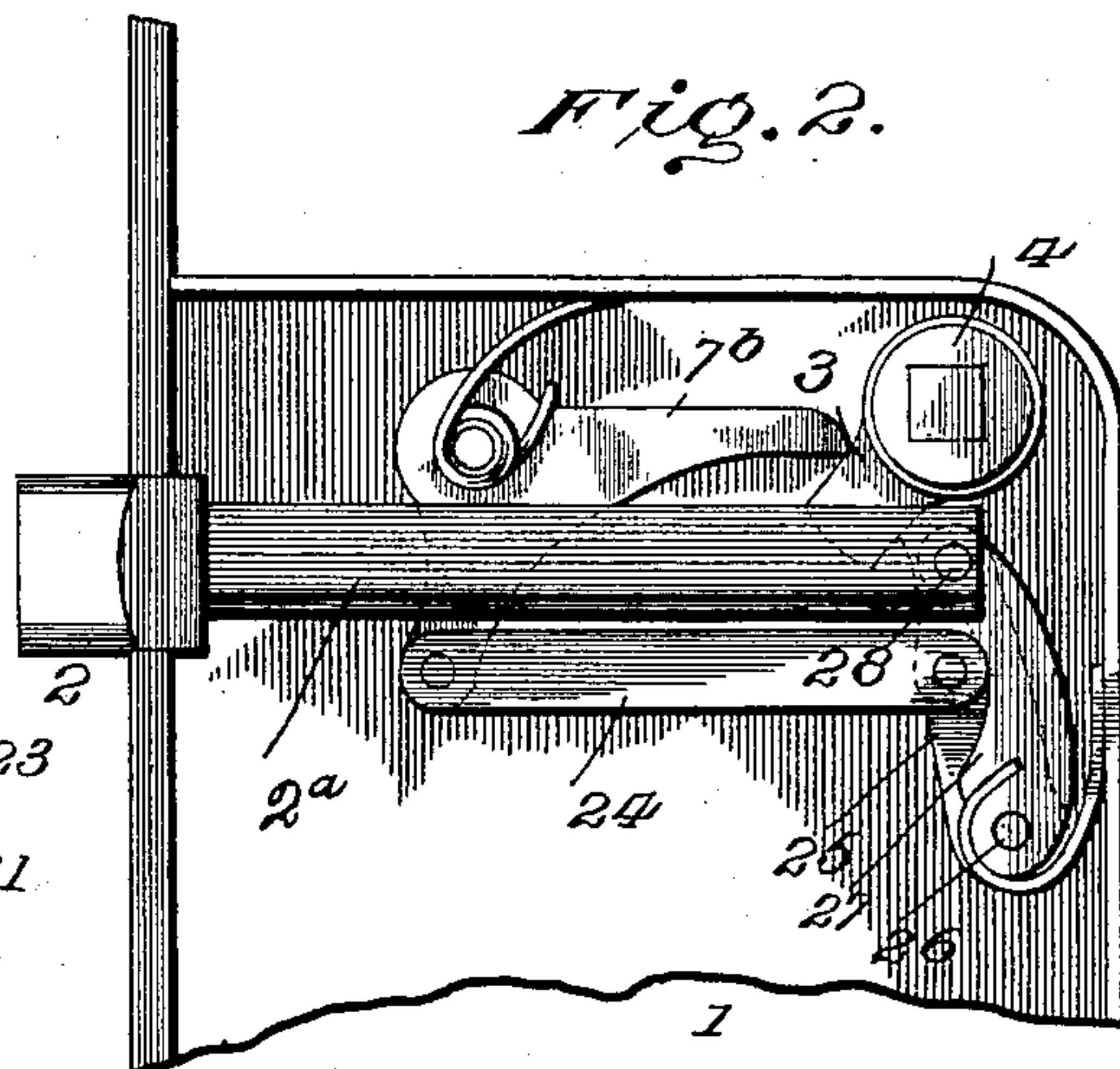
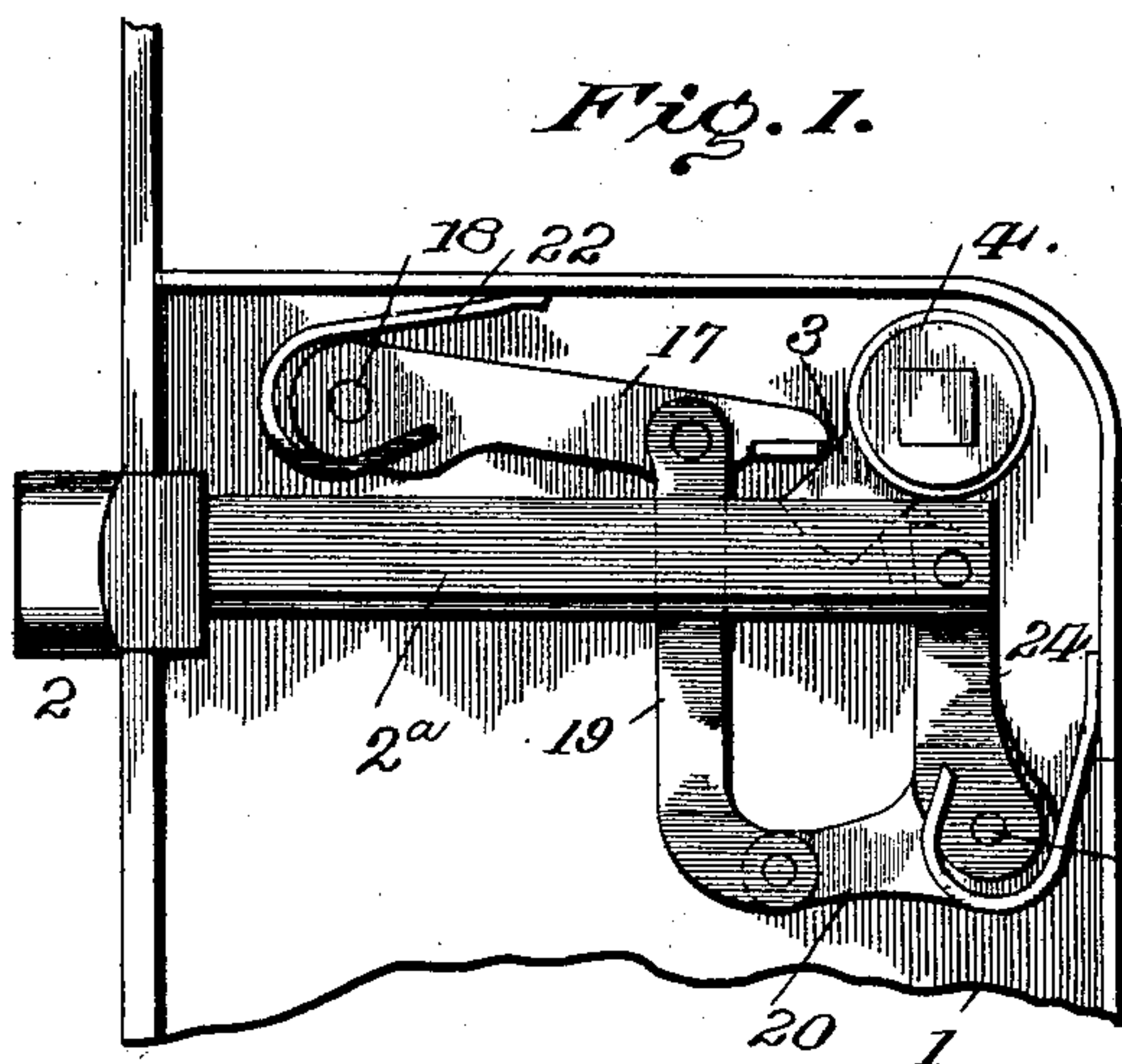
No. 608,489.

Patented Aug. 2, 1898.

W. H. TAYLOR.
LATCH OPERATING MECHANISM.

(Application filed July 24, 1897.)

(No Model.)



Witnesses

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UNITED STATES PATENT OFFICE.

WARREN H. TAYLOR, OF STAMFORD, CONNECTICUT, ASSIGNOR TO THE
YALE & TOWNE MANUFACTURING COMPANY, OF SAME PLACE.

LATCH-OPERATING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 608,489, dated August 2, 1898.

Application filed July 24, 1897. Serial No. 645,854. (No model.)

To all whom it may concern:

Be it known that I, WARREN H. TAYLOR, a citizen of the United States, residing at Stamford, in the county of Fairfield and State
5 of Connecticut, have invented certain new and useful Improvements in Latch-Operating Mechanism, of which the following is a specification.

It is desirable in constructing locks to get
10 the lock-hub as near as practicable to the edge of the case in order to leave as much space as possible between the lock-hub and the keyhole to avoid inconvenience or interference between the hand and the key when
15 operating the knob, or vice versa. In order to obtain this object, the latch-operating mechanism has necessarily been complicated somewhat and has not always been satisfactory.

My present invention seeks to simplify construction of the latch-operating mechanism and increase its efficiency, while leaving the latch free to recede independently of the locking mechanism, and, if desired, providing it with a projecting spring independent of that
25 which controls the operating mechanism.

My invention consists in certain novel features of construction, which are hereinafter fully described, and particularly pointed out in the claims.

30 In order that my invention may be fully understood, I will proceed to describe the same with reference to the accompanying drawings, in which—

Figures 1 to 4 show a portion of a lock-case
35 containing various forms of devices, similar in operation, for retracting the latch-bolt, all of which will be hereinafter fully described.

In each of the several embodiments of my invention herein illustrated, 1 represents the
40 lock-case; 2, the latch-bolt, having a tail 2^a; 3, the latch-operating radial arm, and 4 the lock-hub which carries said arm. It will be understood that the arm 3 engages in opposite directions with the reversely-acting lever connections, of which several forms will
45 now be described.

In the form shown in Fig. 1 I employ a lever 17, pivoted at 18 to the casing and having its free end bearing against the arm 3;
50 and this lever is connected by a link 19 to one

arm of a bell-crank lever 20, pivoted at 21 to the casing. Also pivoted at 21 is an easy-spring lever 24, which at its other end is pivoted to the tail of the bolt 2. A lip is turned up from the end of the bell-crank lever 20,
55 which engages with the end of the easy-spring lever 24, so that when said bell-crank lever 20 is actuated by the motion of the hub it will bear against the easy-spring lever and thus actuate the latch; but when the latch is
60 pushed back by the closing of the door it will merely have to overcome the easy-spring and not the spring of the bell-crank lever. In this form I provide two springs 22 and 23, which are arranged on the levers 17 and 24,
65 as shown, and when either of the levers is moved by the arm 3 to retract the bolt the springs are compressed, and when the arm is released they project the bolt. When the latch is pushed back by the closing of the
70 door, only the easy-spring 23 is compressed.

In the form shown in Fig. 2 the pivoted bell-crank lever 7^b has secured to it at one end a link 24, the other end of which is secured to a lever 25, pivoted on the pin 26.
75 The end of this link bears against a lever 27, also pivoted to the pin 26, and this lever is connected to the bolt at 28. The levers 7^b and 27 are each provided with the usual spring. As will be seen from the drawings,
80 the arm 3 bears against the free end of the lever 7^b and against the lever 25, and when the arm is turned in either direction the link 24 will be moved, and its end will move the lever 27, which will retract the bolt, compressing at the same time both of the springs. As soon as the arm is released the springs will return the parts to normal position. When the latch is pushed back by the closing of the door, the easy-spring lever 27 is alone
85 moved.

In the form shown in Fig. 3 I employ the lever 29, having a bell-crank action on its pivot 30. It is provided with a tooth or projection 31, which fits between the teeth 32 on
95 a lever 33, pivoted at 34. 35 represents a third lever, also pivoted at 34 and connected with the bolt 3 and the levers 33 by the pin 36. The arm 3 in this form bears against a projection 37 on the lever 29 and a projection
100

38 on the lever 33. The operation of this form will be clearly understood, for it will be seen that in whichever direction the arm 3 is moved the lever 35 will be moved and the bolt thus retracted. This form is also provided with the springs 40 and easy-spring 41, arranged as shown and adapted to return the parts to normal position.

In the form shown in Fig. 4 I employ two bell-crank levers 42 and 43, pivoted at 44 and 45 and in engagement with each other through the medium of the intermeshing teeth 46. 47 represents a third lever, pivoted at 48 and connected with the bolt 2 by the pin 49. The levers 42 and 43 are also provided with the projections 50 and 51, with which the arm 3 engages, and the projection 51 is also in engagement with the pin 49, so that when the lever 43 is moved either by the arm or by the teeth on the lever 42 it will force the pin backward and thus retract the bolt. The lever 42 is provided with the spring 52 and the lever 47 with the easy-spring 53, which are adapted to return the parts to normal positions. The dotted lines show the position of a portion of the levers 43 and 47 when the bolt is in retracted position.

I prefer to have the levers in substantially the form of a bell-crank lever and to have them formed with intermeshing teeth at one end, while each has its other end free to be impinged by one side of the lock-hub projection. This permits the levers to be fulcrumed, respectively, below and to one side of the lock-hub, while the latter may be mounted in one corner of the lock-casing and have its projection extend in a substantially diagonal direction. I may accomplish substantially the same purpose, however, by having one of the levers in the form of a bell-crank lever and having its lower end positively connected to some point in the other lever

by a link, which will cause either of said levers to move the other positively in both directions.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

1. In a latch-operating mechanism, the combination of a latch, a lock-hub having a latch-operating arm, a single pivoted latch-lever having its free end projecting on one side of and in engagement with said latch-operating arm and in engagement with the latch, a second lever projecting on the other side of and in engagement with said latch-operating arm, and a connection between the second lever and the latch-lever which transmits from the second lever to the latch-lever, the same movement which is imparted to said latch-lever, by the latch-operating arm, substantially as explained.

2. In a latch-operating mechanism, the combination with a latch, a lock-hub having a latch-operating arm, a pivoted latch-lever having its free end impinged by one side of said latch-operating arm and in engagement with the latch, and a second lever impinged by the opposite side of said latch-operating arm; said latch-operating lever and second lever being in the form of bell-crank levers separately pivoted and provided with engaging teeth on their ends distant from their ends impinged by the latch-operating arm, and said levers being proportioned to transmit to the latch, the same movement through the second lever and latch-lever when said second lever is engaged by said latch-operating arm as is imparted directly to said latch by impingement of the latch-operating arm on the latch-lever, substantially as herein set forth.

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Witnesses:

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