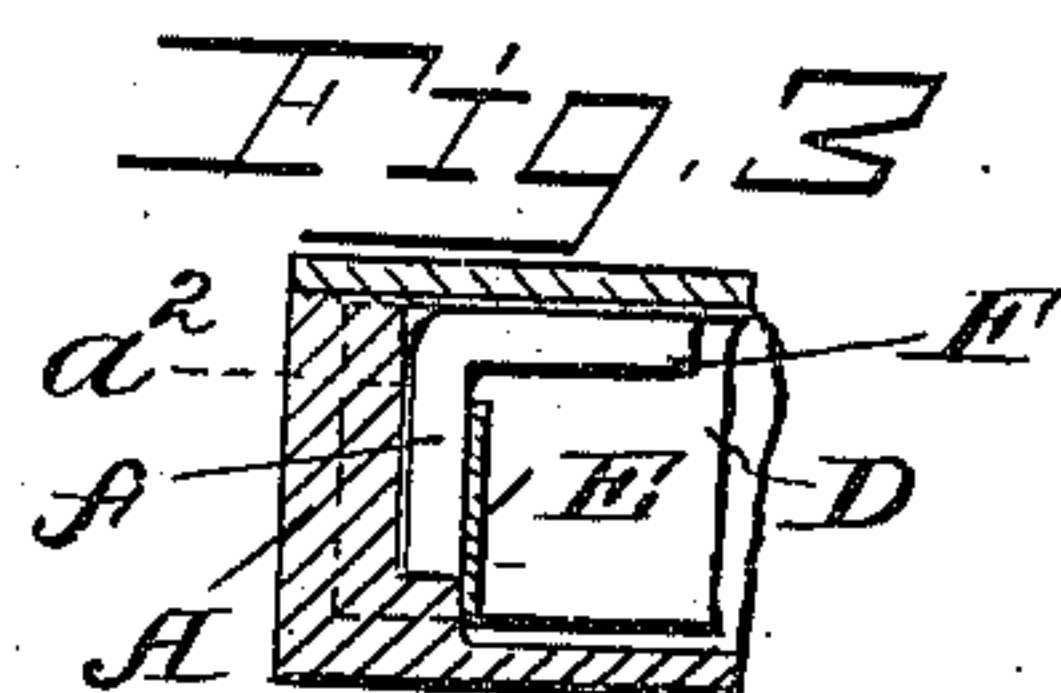
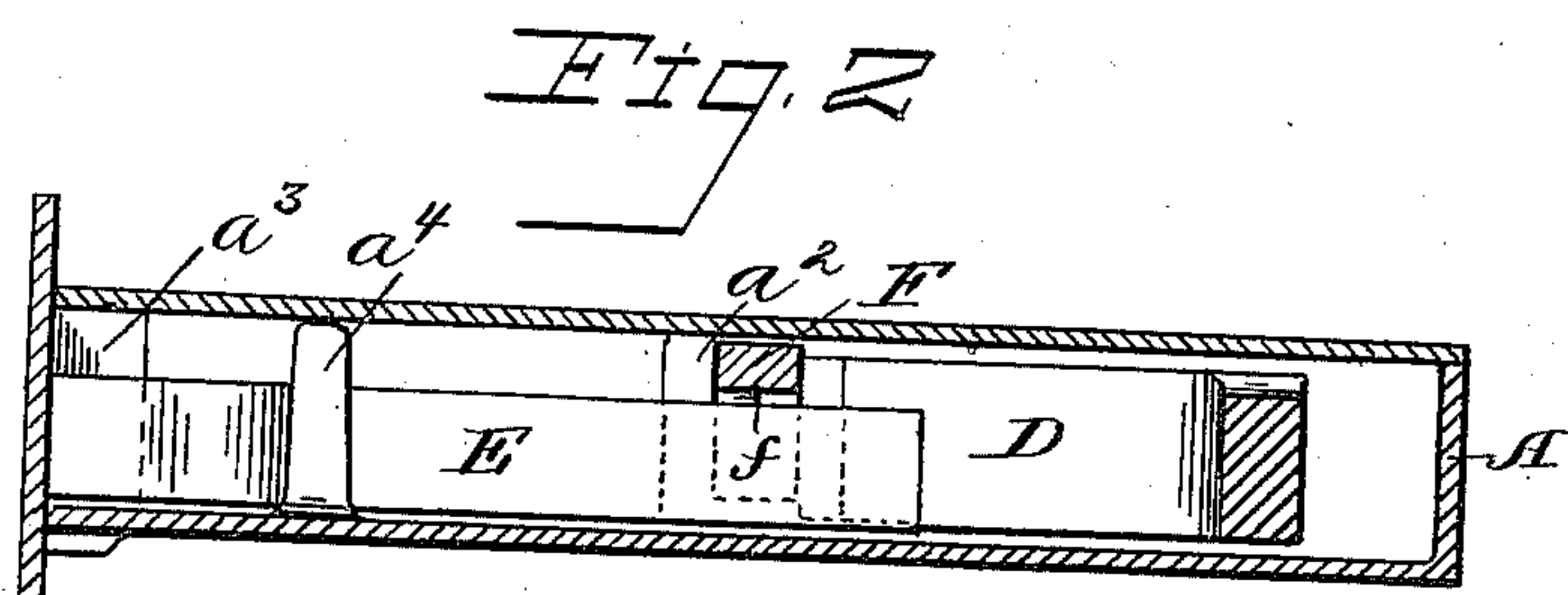
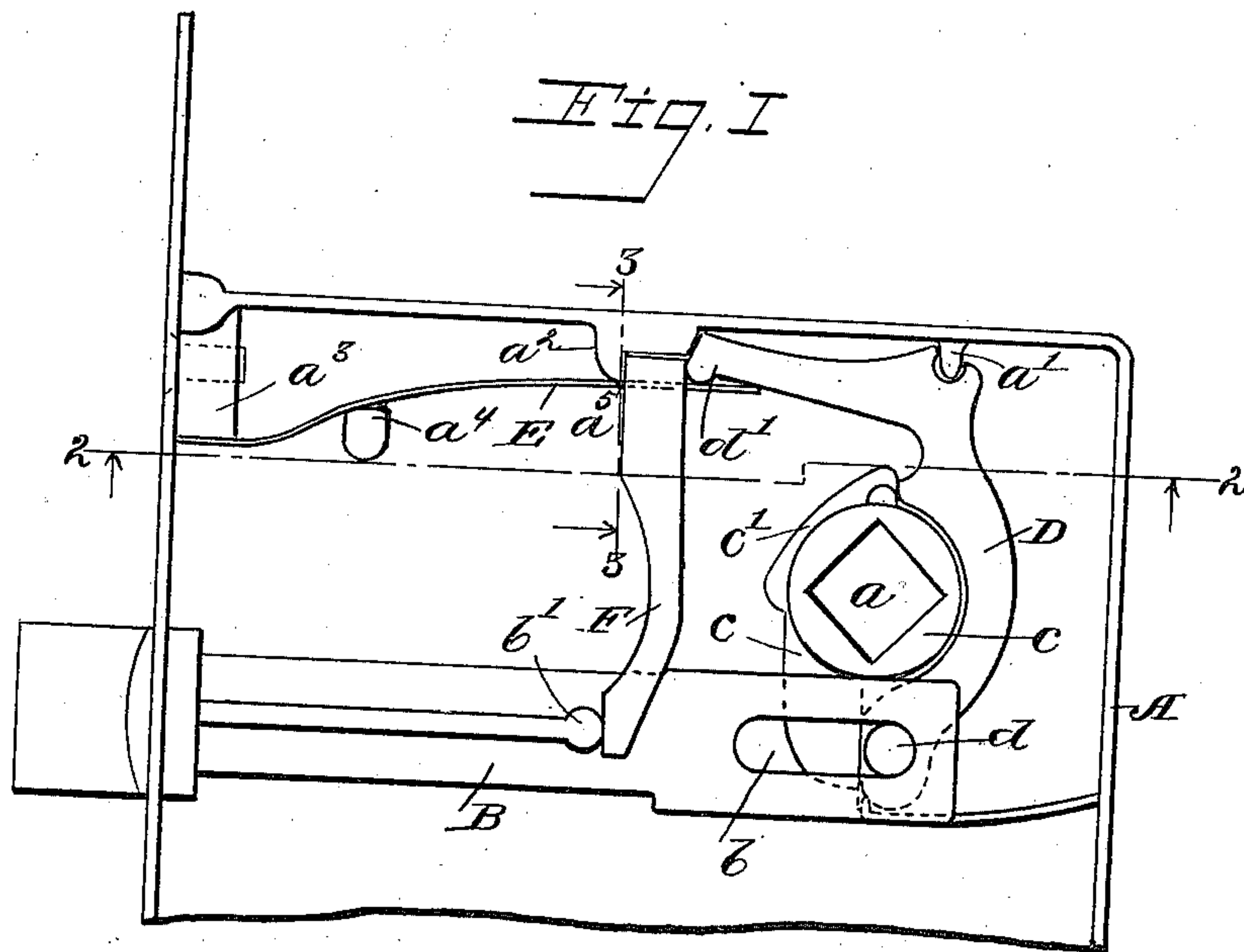


976,197.

P. MATHES.
LATCH.
APPLICATION FILED AUG. 25, 1909.

Patented Nov. 22, 1910.



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LATCH.

976,197.

Specification of Letters Patent.

Patented Nov. 22, 1910.

Application filed August 25, 1909. Serial No. 514,483.

To all whom it may concern:

Be it known that I, PHILIP MATHES, a citizen of the United States, and a resident of Cleveland, county of Cuyahoga, and State of Ohio, have invented a new and useful Improvement in Latches, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

My invention relates to door latches. In a latch of this character, it is desirable that the latch proper shall be subject to the control of two independent spring-pressed members. One of these two members is actuated by the door knob, and the tension against which it acts must be sufficient, not only to return the latch to its outer position, but also to return the knob to its normal position. The tension against which the other member acts, however, need only be sufficient to return the latch to its outer position after it has been inwardly actuated by contact with the door frame. These two means for actuating the latch operate independently of each other, and my invention relates particularly to a convenient and simple method of performing these two distinct operations.

The annexed drawing and the following description set forth in detail certain mechanism embodying the invention, such disclosed means constituting, however, but one of various mechanical forms in which the principle of the invention may be used.

In said annexed drawing:—Figure 1 is a plan view of a latch mechanism embodying my invention, one side plate of the inclosing casing being removed and the casing as a whole partly broken off; Fig. 2 is a cross section on the line 2—2 of Fig. 1; Fig. 3 is a vertical section, partly broken, on the line 3—3 in Fig. 1.

The latch and its actuating mechanism are inclosed within the usual casing A, the front plate of the casing having an opening therein through which the latch may extend, and the side plates having openings *a* through which the shanks of the door knob may extend. The latch proper is a horizontally slidable member B, provided near its inner end with an elongated slot *b* and provided on one side with a lug *b'*. Adjacent to the openings *a*, and having a central opening

registering therewith, is a hub C designed to be turned by the door knobs. The hub C bears two levers *c* and *c'*. A bell-crank lever D is fulcrumed on a lug *a'* provided on the top plate of the casing. This lever bears at one end a lug *d* which registers in the slot *b*, the lever arm lying in contact with the two levers *c* and *c'*, so that the bell-crank lever may be actuated by turning of the door knob. Provided on the casing plates are lugs *a*², *a*³ and *a*⁴, between which is sprung a bar spring E. The outer end of this spring bears against one end of the bell-crank lever D, so that actuation of the lever must be against the tension of this spring. The lug *a*² is formed with a recess *a*⁵. A horizontally extending lever F is formed with an angle at one end; the angled part *f* of the lever fits in the recess *a*⁵ behind the spring E, and the outer end of the lever rests against the lug *b'* on the side of the latch. Obviously any actuation of the lever F must be against the tension of the spring E. It will be noted that the lever D acts against the spring with a much greater leverage than does the lever F.

The operation of the mechanism may be briefly described. The latch is normally held in its outermost position by the lever F. If the latch be inwardly actuated by closing of the door and consequent contact of the latch with the door frame, the comparatively short leverage of lever F is sufficient to return the latch to its outer position when the door is completely closed. During this operation the bell-crank lever has no function whatever and no movement, the latch being allowed to slide with relation to the bell-crank lever by means of the slot and lug. By means of the door knob, however, the bell-crank lever may be actuated thus retracting the latch. The long leverage of this bell-crank lever is sufficient to return the door knob to its normal position while the lever F, which has been actuated inwardly by the retraction of the latch, will return the latch to its outer position. These two movements, as described, have heretofore been performed by levers working against distinct and separate springs. By my arrangement of both levers acting against a single spring, I am able to obtain an extremely efficient actuation of the levers, and at the same time to obtain it much more simply than has hitherto been possible.

Other modes of applying the principle of my invention may be employed instead of the one explained, change being made as regards the mechanism herein disclosed, provided the means stated by any of the following claims or the equivalent of such stated means be employed.

I therefore particularly point out and distinctly claim as my invention:—

10 1. In a mechanism of the class described, the combination of a slidable latch; a lever adapted, on actuation, to retract said latch; a second lever unconnected with the first lever and adapted to retain said latch in its
15 outermost position; and a single spring adapted to restrain actuation of each of said levers.

20 2. In a mechanism of the class described, the combination of a slidable latch; a lever adapted, on actuation, to retract said latch, said latch being slidable relatively to said lever; a second lever unconnected with said first lever and adapted to retain said latch in its outermost position; and a single spring
25 adapted to restrain actuation of each of said levers.

30 3. In a mechanism of the class described, the combination of a slidable latch; a two-armed lever adapted, on actuation, to retract said latch, said latch being slidable relatively to said lever; a bar spring engaging one arm of said lever and tending to restrain its actuation; and a second lever normally retaining said latch in its outer-
35 most position, said second lever being adapted to have its actuation restrained by said spring.

40 4. In a mechanism of the class described, the combination of a slidable latch, said latch being provided with a slot; a two-armed lever provided with a lug adapted to register in said slot, said lever being

adapted, on actuation, to retract said latch; a bar spring engaging one arm of said lever and tending to restrain its actuation; and a
45 second lever normally retaining said latch in its outermost position, said second lever being adapted to have its actuation restrained by said spring.

5. In a mechanism of the class described, 50 the combination of a slidable latch, said latch being provided with a slot and with a lug; a two-armed lever provided with a lug adapted to register in said slot, said lever being adapted, on actuation, to re- 55 tract said latch; a bar spring engaging one arm of said lever and tending to restrain its actuation; and a second lever engaging the lug on said latch and normally retaining said latch in its outermost position, said
60 second lever being adapted to have its actuation restrained by said spring.

6. In a mechanism of the class described, the combination of a slidable latch, said latch being provided with a slot and with
65 a lug; a two-armed lever provided with a lug adapted to register in said slot, said lever being adapted, on actuation, to retract said latch; a bar spring engaging one arm of said lever and adapted to restrain 70 its actuation; a second lever engaging the lug on said latch and normally retaining said latch in its outermost position, said second lever being right angled at its end and having the right angled portion ful- 75 crumed adjacent to said spring so that its actuation is restrained thereby.

Signed by me this 20th day of August, 1909.

PHILIP MATHES.

Attested by:

JNO. F. OBERLIN,
F. W. TREADWAY.