

No. 867,916.

PATENTED OCT. 8, 1907.

F. DUESTERWALD.  
LOCK PROTECTING DEVICE.

APPLICATION FILED JULY 18, 1906. RENEWED JULY 25, 1907.

2 SHEETS—SHEET 1.

Fig. 1,

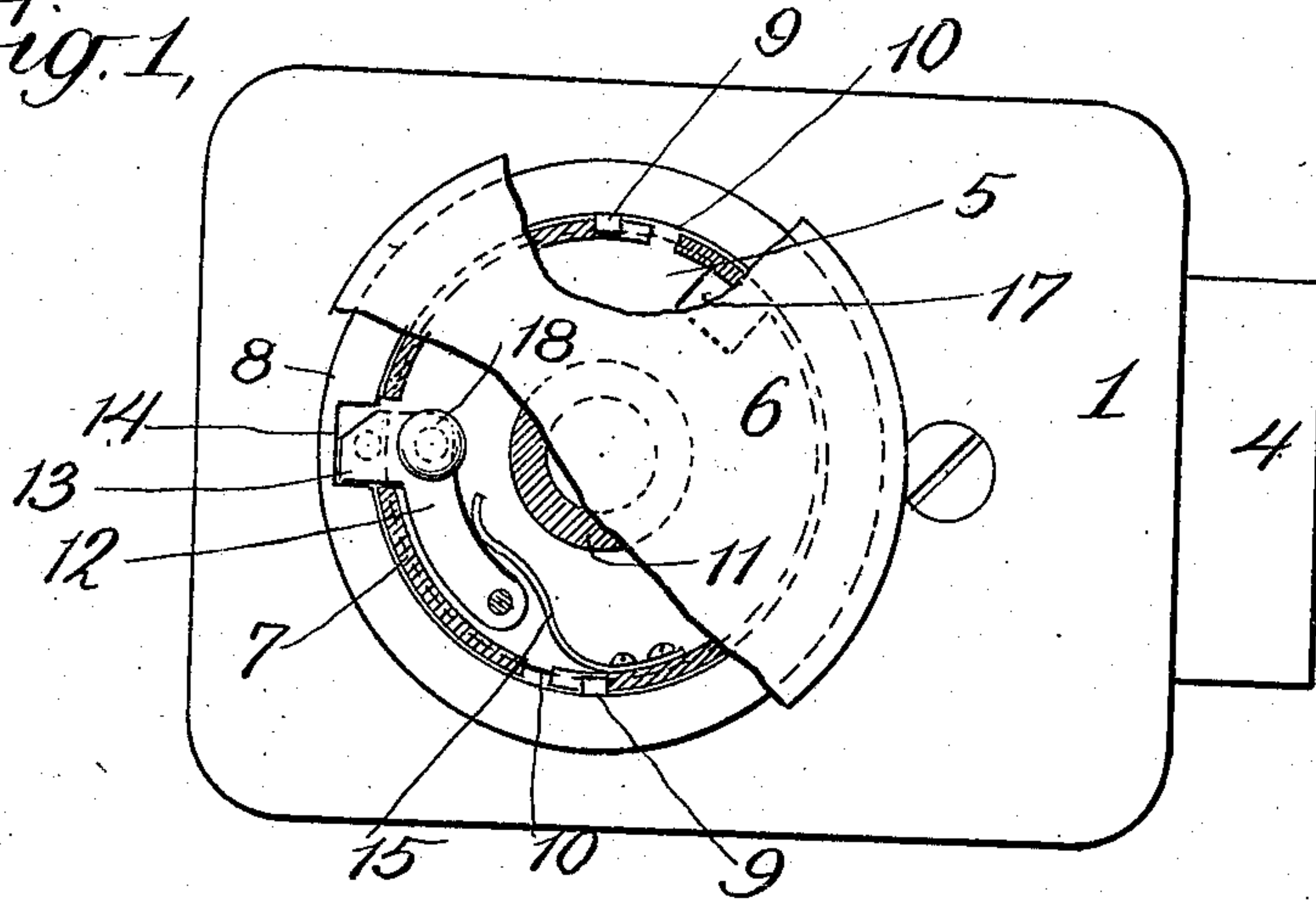


Fig. 2,

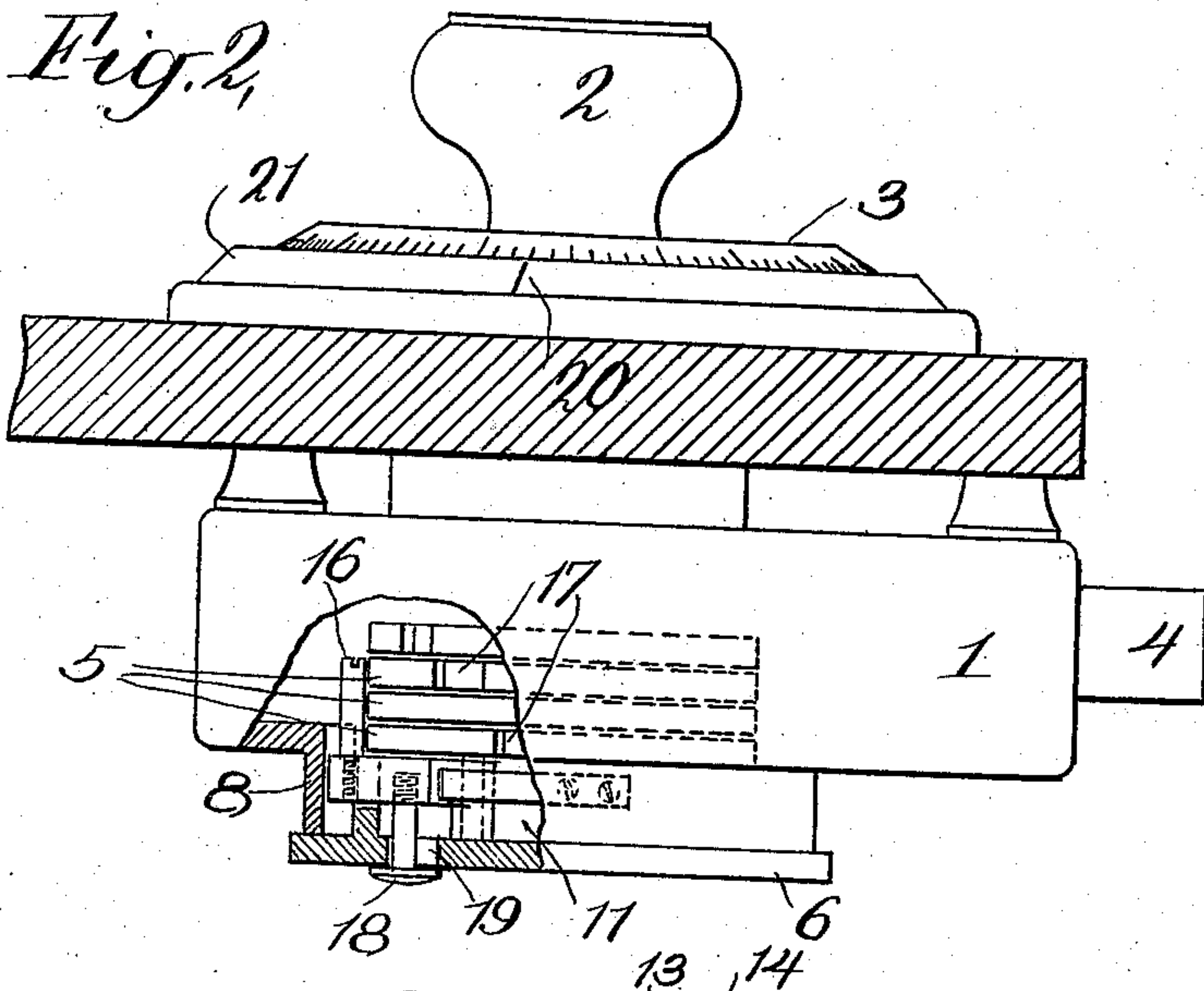
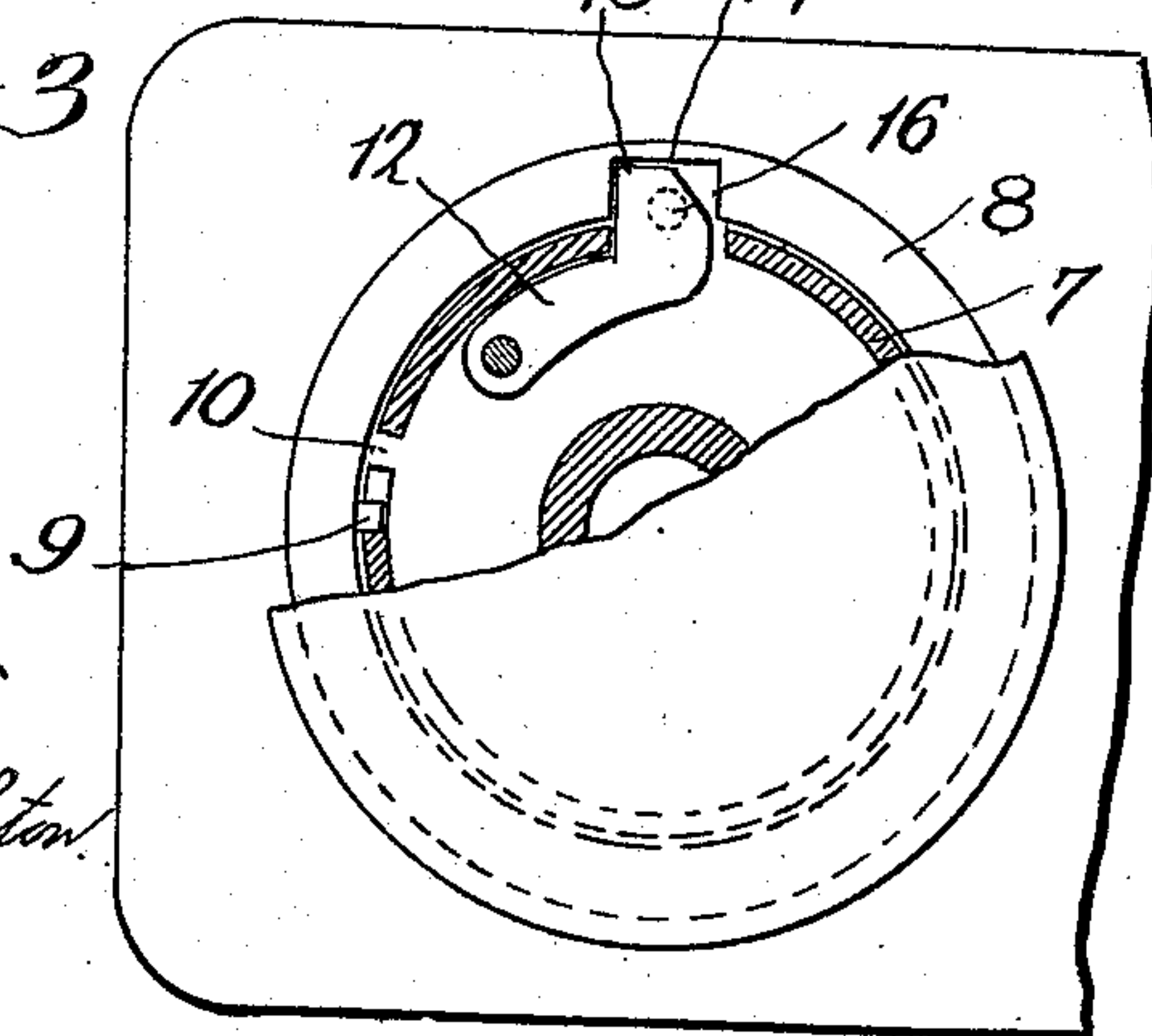


Fig. 3



WITNESSES:  
May S. Trimble

A. M. Houghton

INVENTOR

Frank Duesterwald

BY

Maule & Mesley

ATTORNEYS

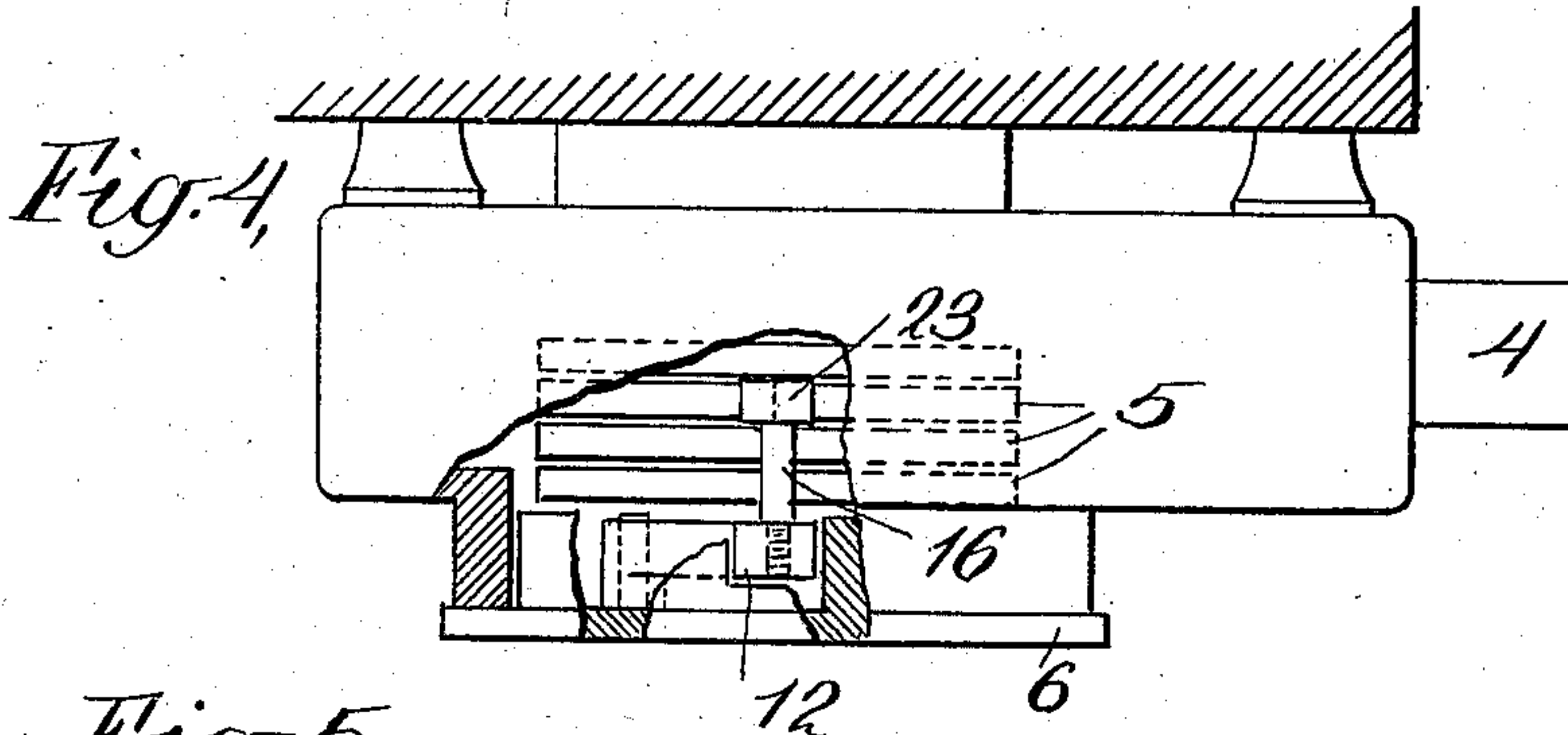
No. 867,916.

PATENTED OCT. 8, 1907.

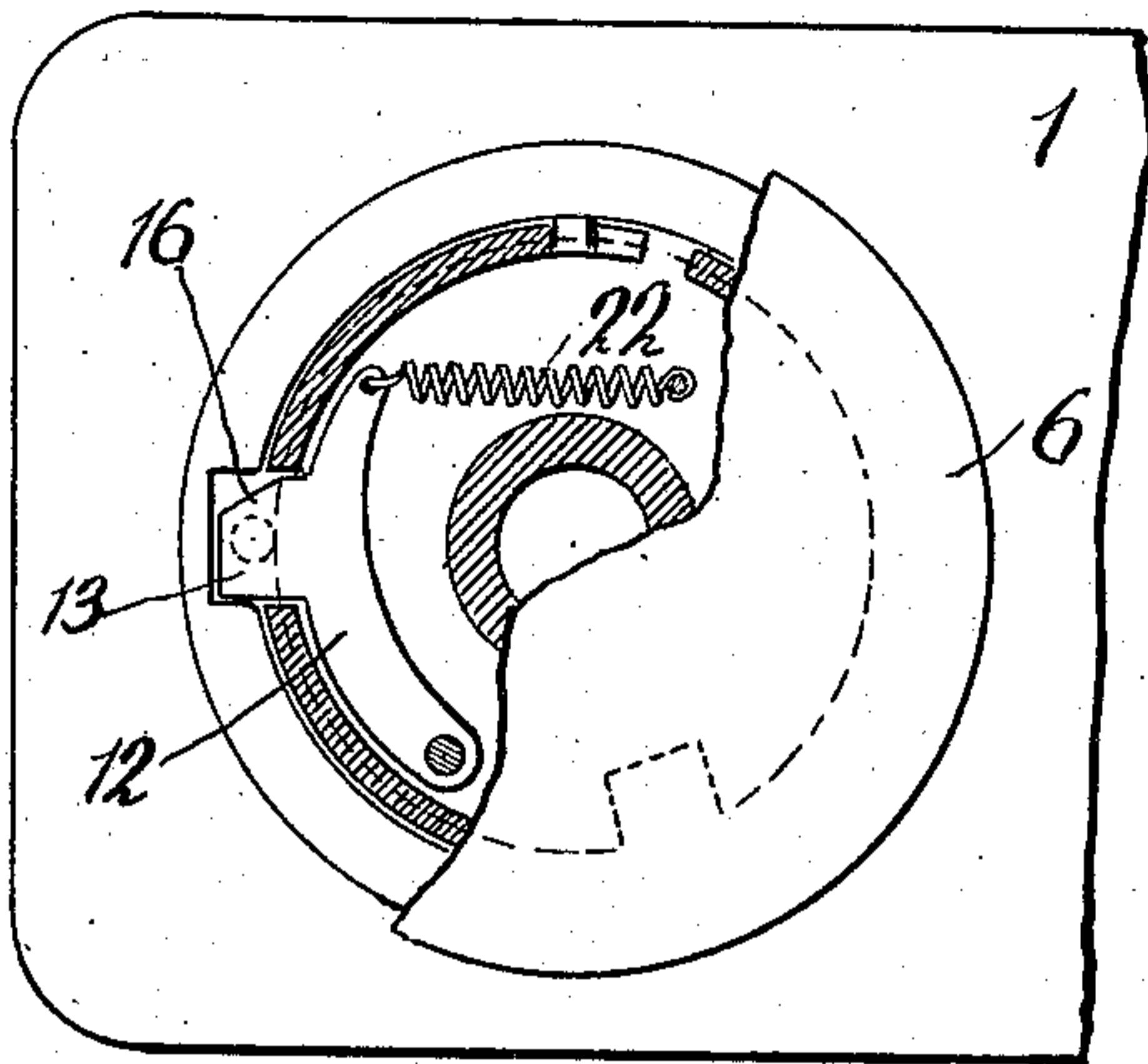
F. DUESTERWALD.  
LOCK PROTECTING DEVICE.

APPLICATION FILED JULY 18, 1906. RENEWED JULY 25, 1907.

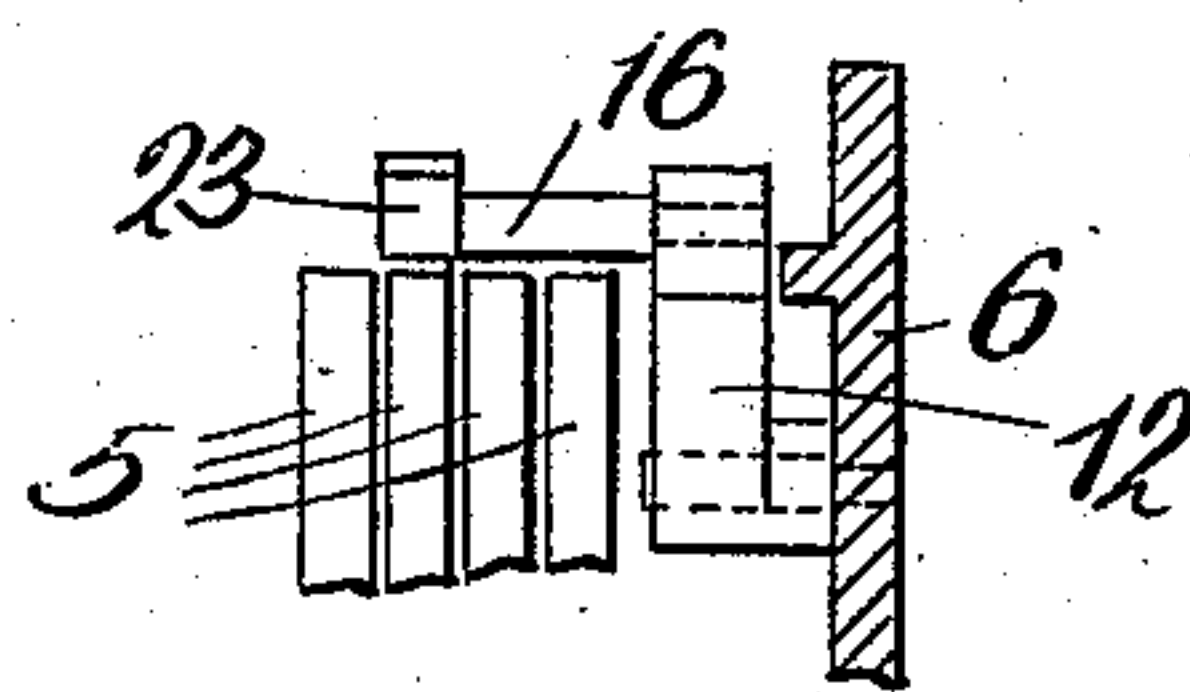
2 SHEETS—SHEET 2.



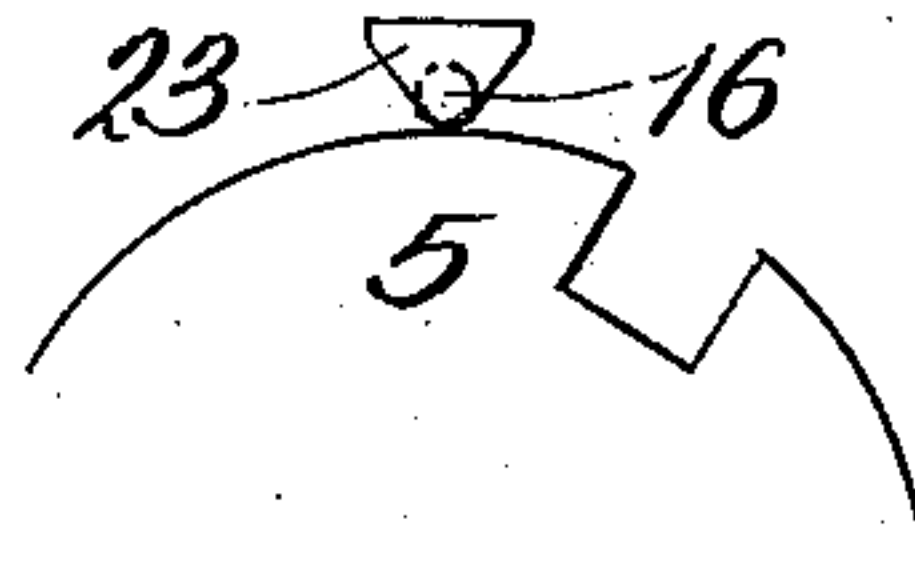
*Fig. 5,*



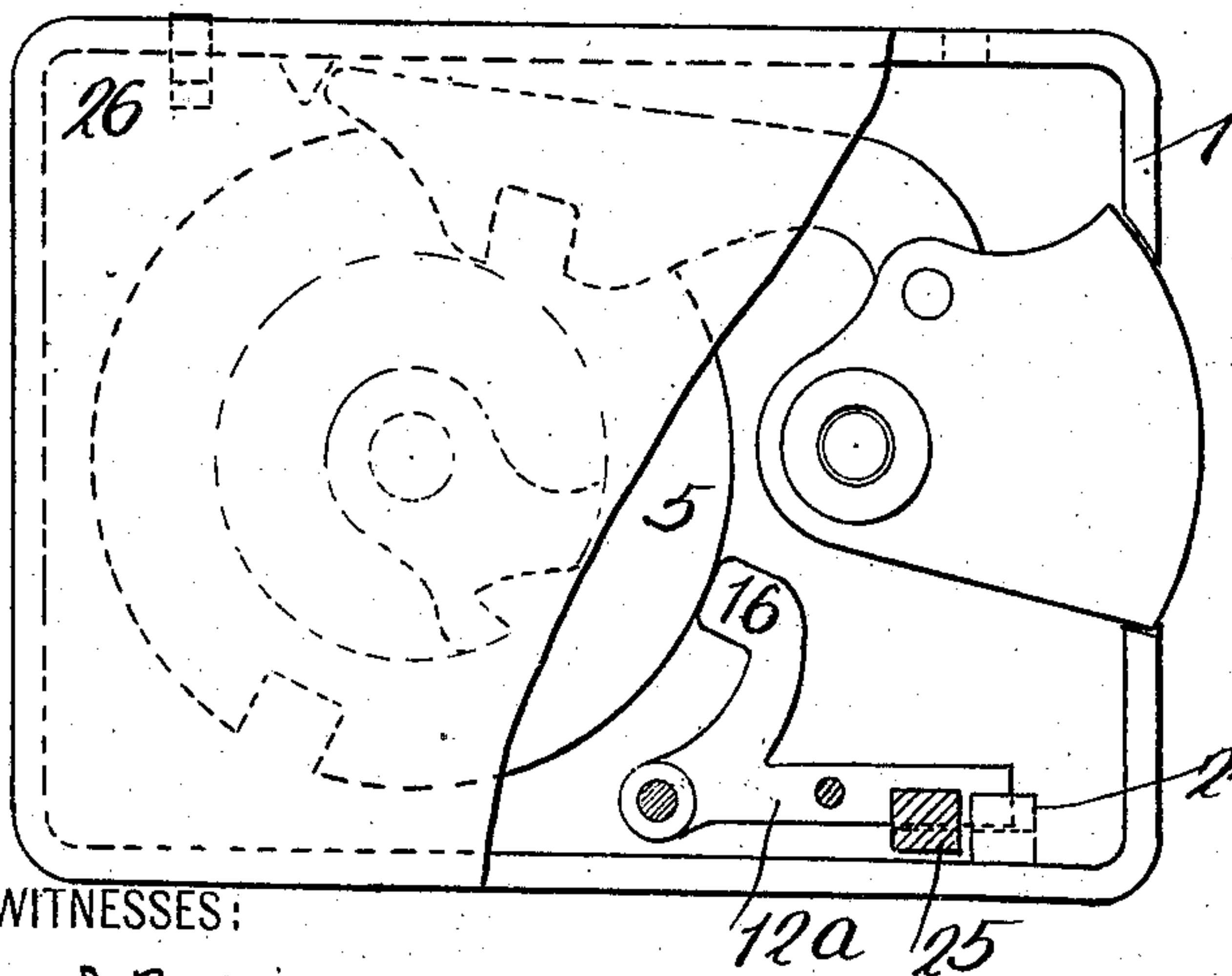
*Fig. 6*



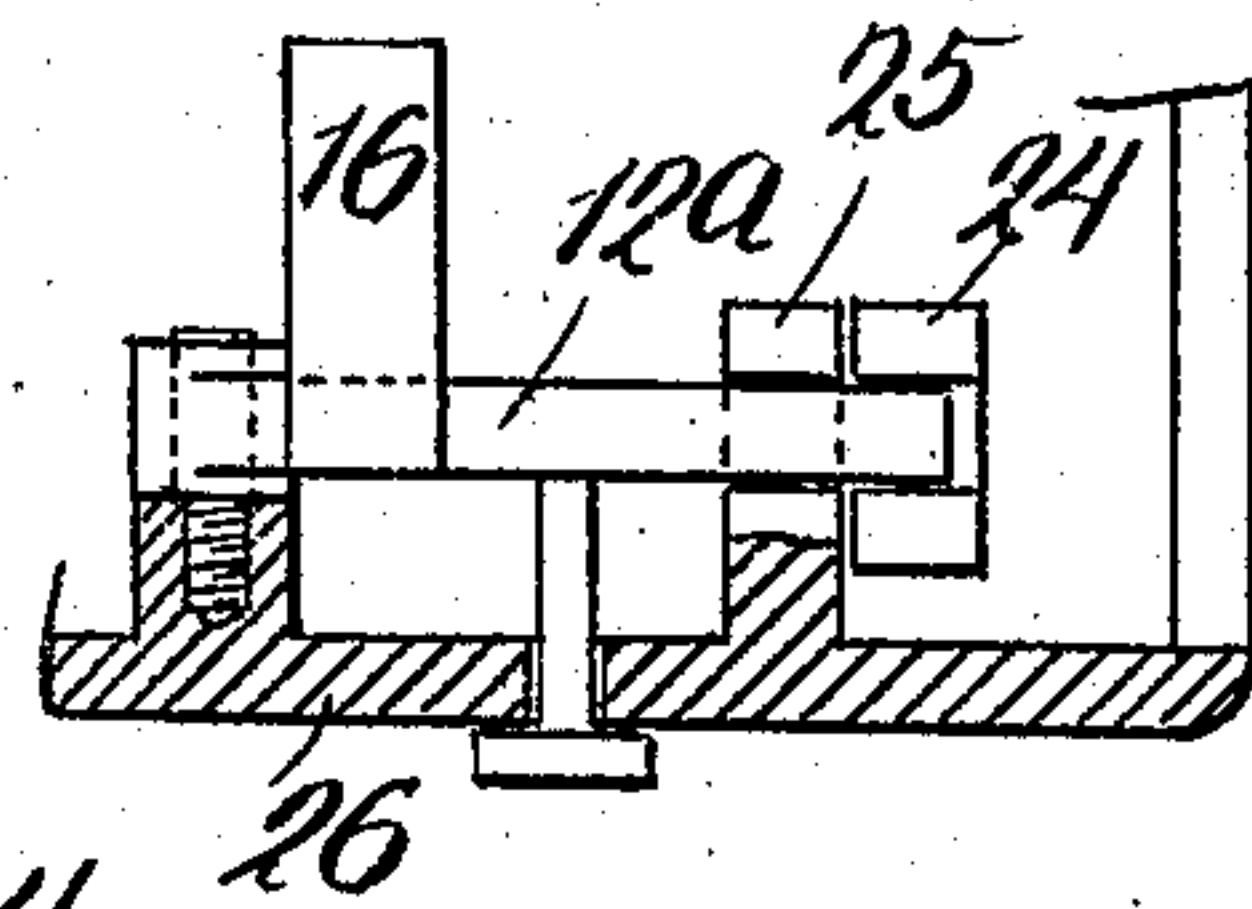
*Fig. 7,*



*Fig. 8,*



*Fig. 9*



WITNESSES:

May J. Trimble

A. M. Loughton.

INVENTOR

Frank Duesterwald

BY

Marble M. Moley

ATTORNEYS



# UNITED STATES PATENT OFFICE.

FRANK DUESTERWALD, OF NEW YORK, N. Y., ASSIGNOR TO CHARLES E. LEIGHTON, OF  
BROOKLYN, NEW YORK.

## LOCK-PROTECTING DEVICE.

No. 867,916.

Specification of Letters Patent.

Patented Oct. 8, 1907.

Application filed July 18, 1906, Serial No. 326,729. Renewed July 25, 1907. Serial No. 385,615.

*To all whom it may concern:*

Be it known that I, FRANK DUESTERWALD, a citizen of the United States, residing at New York, in the borough of Brooklyn, county of Kings, and State of New York, have invented certain new and useful Improvements in Lock-Protecting Devices; and I do hereby declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in lock protecting devices, and is particularly intended for use in connection with permutation locks such as are commonly used on the doors of safes and vaults, the purpose of my invention being to prevent persons who do not have the combination of the lock from gaining access to the lock case, or a part thereof, while the door of the safe or vault is open, and so to prevent such persons from learning the combination of the lock by examination thereof, or from becoming familiar with its construction, and to prevent tampering with the lock such as may lead to derangement thereof.

My improved lock protecting device does not interfere with access to the lock mechanism by persons having the correct combination.

The invention herein described embodies inventions of my patents No. 828,276, dated August 7, 1906, and No. 832,542, dated October 2nd, 1906, and one of the forms of device herein illustrated and described, is illustrated and described, but not specifically claimed, in said Patent No. 832,542.

My invention comprises a pivoted locking member controlled by the permutation mechanism of the lock and adapted to lock the back plate of the lock casing against removal; also such a pivoted member, mounted upon the back plate itself; and other features of invention hereinafter described and particularly pointed out in the claims.

I will now proceed to describe my invention with reference to the accompanying drawings, in which certain forms of lock protecting device embodying my invention are illustrated, and will then point out the novel features in claims.

In the said drawings: Figure 1 shows a rear view of a permutation lock of ordinary construction, portions of the back of the lock being broken away to show the bayonet joints by which the back plate is held in place and to show my improved lock protecting device. Fig. 2 shows a top view of the said lock, a portion of the casing being sectioned to show the mechanism. Fig. 3 is a view similar to Fig. 1, illustrating an alternative construction. Fig. 4 is a view similar to Fig. 2, showing a top view of the form of lock illustrated in Fig. 3. Fig. 5 is a view similar to Fig. 1, illustrating

a further alternative form of device. Fig. 6 is a detail side view of that portion of the locking member which engages the tumblers, and Fig. 7 is a detail end view thereof, and illustrating particularly the shape of said portion of the locking member, whereby one of the tumblers when rotated, may push the locking member out into locking position. Fig. 8 shows a rear view of a permutation lock of that class wherein the tumblers are mounted upon a spindle of the casing, rather than upon the spindle of the back plate, as in the previous views, a portion of the back plate being broken away to show the locking device; and Fig. 9 shows a detail top view of the locking pawl and associated parts of said figure.

Referring first to Figs. 1 and 2, 1 designates a permutation lock of ordinary construction, 2 the knob thereof, 3 the dial, 4 the main bolt and 5, 5 tumblers arranged to be rotated by rotation of the knob. I do not illustrate the construction of this lock in detail, as said lock may be of any suitable or ordinary construction. 6 designates a removable back plate customarily in such locks. Said back plate in the particular construction shown, is provided with an inwardly projecting flange 7 fitting within the cylindrical flange 8 of the lock casing, said flange 8 provided with pins 9 adapted to engage bayonet slots 10 of the flange 7. In the particular form of lock shown, the tumblers 5 are mounted upon a spindle 11 projecting inwardly from the back plate, so that said tumblers are removed from the lock when the back plate is removed.

My improved lock protecting device comprises a pivoted pawl 12 mounted in the annular space of the back plate between spindle 11 and flange 7; said pawl having a head 13 projecting through an orifice in flange 7 and adapted to engage in notch 14 in flange 8 of the lock casing, and by so engaging, to prevent rotation of the back plate, such as required to release the bayonet catches and permit the back plate to be removed. A spring 15 tends to press the pawl outward. Said locking pawl is provided with a projecting portion 16 in close proximity to the edges of tumblers 5, and adapted to enter the notches 17 of said tumblers when all said notches are lined up opposite said member 16. Pawl 12 is further provided with an operating member 18 projecting through a slot 19 in the back plate 6, whereby said pawl may be moved inward by hand when the tumblers permit. Normally the notches of the several tumblers will not all be lined up opposite the member 16, and therefore the locking pawl 12 cannot be moved inward to unlock the back plate. But if the permutation mechanism of the lock be operated according to its correct combination, read with reference to a special mark 20 on the index ring 21 of the lock, the notches 17 of the tumblers 5 will all be lined up oppo-



site member 16, and then pawl 12 may be pressed inward by means of hand piece 18 against the action of spring 15, member 16 fitting into the notches 17 of the tumblers. When the pawl 12 has been pressed in this manner the back plate may be rotated sufficiently to free the bayonet catches, and the back plate may then be removed.

I have shown the member 16 as being a screw pin removable from the pawl when desired. It is desirable to have said member 16 removable, in order to prevent lock-outs, after changing the combination of the lock, and for the convenience of the safe trade. In my said Patent No. 828,276, I have fully explained the reasons which make it desirable to have said member 16 removable, and have claimed broadly a locking member provided with such a removable member for engaging the permutation mechanism. Therefore I do not claim such invention broadly herein.

It will be noted that the locking device of Figs. 1 and 2 is particularly suitable when it is desired to apply my invention to existing locks, as it requires no change in the construction of the locks of the class illustrated in said figures, other than the cutting of the notch 14 in the flange 8 of the lock case, and the cutting of an orifice or slot in flange 7 of the removable back plate for the head 13 of the pawl, and another slot 19 in the back plate for the operating member 18, and the attachment of pawl 12 and spring 15. In practice, in applying my invention to existing locks, a new back plate already fitted with the pawl 12 and spring 15, will ordinarily be substituted for the original back plate, and in such case all that is required is to cut the notch 14 in flange 8 of the lock, and to transfer the tumblers from the old back plate to the new.

In the lock shown in Figs. 3 and 4, I employ a construction similar to that shown in Figs. 1 and 2, except that the locking pawl 12 is arranged to swing inward by gravity, no operating device 18 being required. In this case the notch 14 in flange 8 is placed at the top of the flange, and the pawl 12 is correspondingly pivoted, so as to drop by gravity when the notches 17 of the tumblers are opposite the pin 16. In Fig. 5 I illustrate a similar construction in which the locking pawl instead of being gravity actuated, is arranged to be drawn inward by a spring 22. In both these so called "automatic" forms of locking device, I arrange to have the pawls 12 press outward into engagement with the notches 14 by the action of one of the tumblers 5, when said tumblers are rotated after setting the back plate in place. To this end, as shown in Figs. 6 and 7, I provide the pin 16 in both of these forms of device, with a beveled portion 23 which will be engaged by the edge of the notch of the corresponding tumbler when said tumbler is rotated, thus forcing out pin 16 and pawl 12.

In my said Patent No. 832,542 I have claimed broadly a locking device for permutation locks, wherein the locking member is arranged to be retracted and forced out automatically. Therefore I do not claim such invention broadly herein.

In Figs. 8 and 9 I illustrate a pivoted pawl 12<sup>a</sup> such as herein described, adapted for locking the back plates of locks in which the tumblers are not mounted upon the back plate. Said pawl is, as before, provided with a member 16 controlled by the tumblers, and when in its outer or locking position, said pawl fits within notches in lugs 24 and 25, one carried by the back plate, here numbered 26, the other forming a part of the lock casing. When said pawl engages notches of both of these members, obviously the back plate cannot be removed until, upon proper operation of the permutation mechanism, the pawl is caused or permitted to retire from said notches.

What I claim is:—

1. In a permutation lock, the combination with permutation mechanism and an inclosing casing therefor having a removable member, of locking means for said removable member comprising a pivoted locking member carried by said removable member and arranged to engage a portion of the lock which is not removable with said removable member, said locking member provided with means engaging and controlled by said permutation mechanism.

2. In a permutation lock, the combination with permutation mechanism and an inclosing casing therefor having a removable member, of a locking pawl pivoted to said removable member and arranged to engage the main portion of the lock casing, and provided with means engaging and controlled by said permutation mechanism, controlling its movement.

3. In a permutation lock, the combination with a lock casing having a removable member provided with a tumbler-spindle, and tumblers on said spindle, and means for holding said member in place, of a pivoted locking member carried by said removable member and arranged to engage a portion of the lock which is not removable with said removable member, said locking member provided with means engaging and controlled by said tumblers, controlling its movement.

4. In a permutation lock, the combination with a lock casing having a back plate provided with a tumbler spindle and a flange surrounding said spindle and fitting into an orifice of said lock casing, and tumblers on said spindle, of a locking member carried by said back plate and located between said spindle and flange, and arranged to engage a portion of the lock which is not removable with said removable member, said locking member provided with means engaging and controlled by said tumblers, controlling its movement.

5. A permutation lock comprising permutation mechanism, a casing inclosing the same and having a removable member, and a locking device for said removable member comprising a member pivotally supported, normally preventing removal of said removable casing member, controlled by said permutation mechanism, and comprising removable means to prevent locking of said removable casing member.

6. A permutation lock comprising permutation mechanism, a casing inclosing the same and having a removable member, and a locking device for said removable member comprising a pivoted pawl normally preventing removal of said removable casing member, controlled by said permutation mechanism, and comprising removable means to prevent locking of said removable casing member.

In testimony whereof I affix my signature, in the presence of two witnesses.

FRANK DUESTERWALD.

Witnesses:

CHAS. E. LEIGHTON,  
CHAS. W. N. AKBERG.