

No. 688,495.

Patented Dec. 10, 1901.

V. J. VAN HORN.

REGISTERING LOCK.

(Application filed May 14, 1900.)

(No Model.)

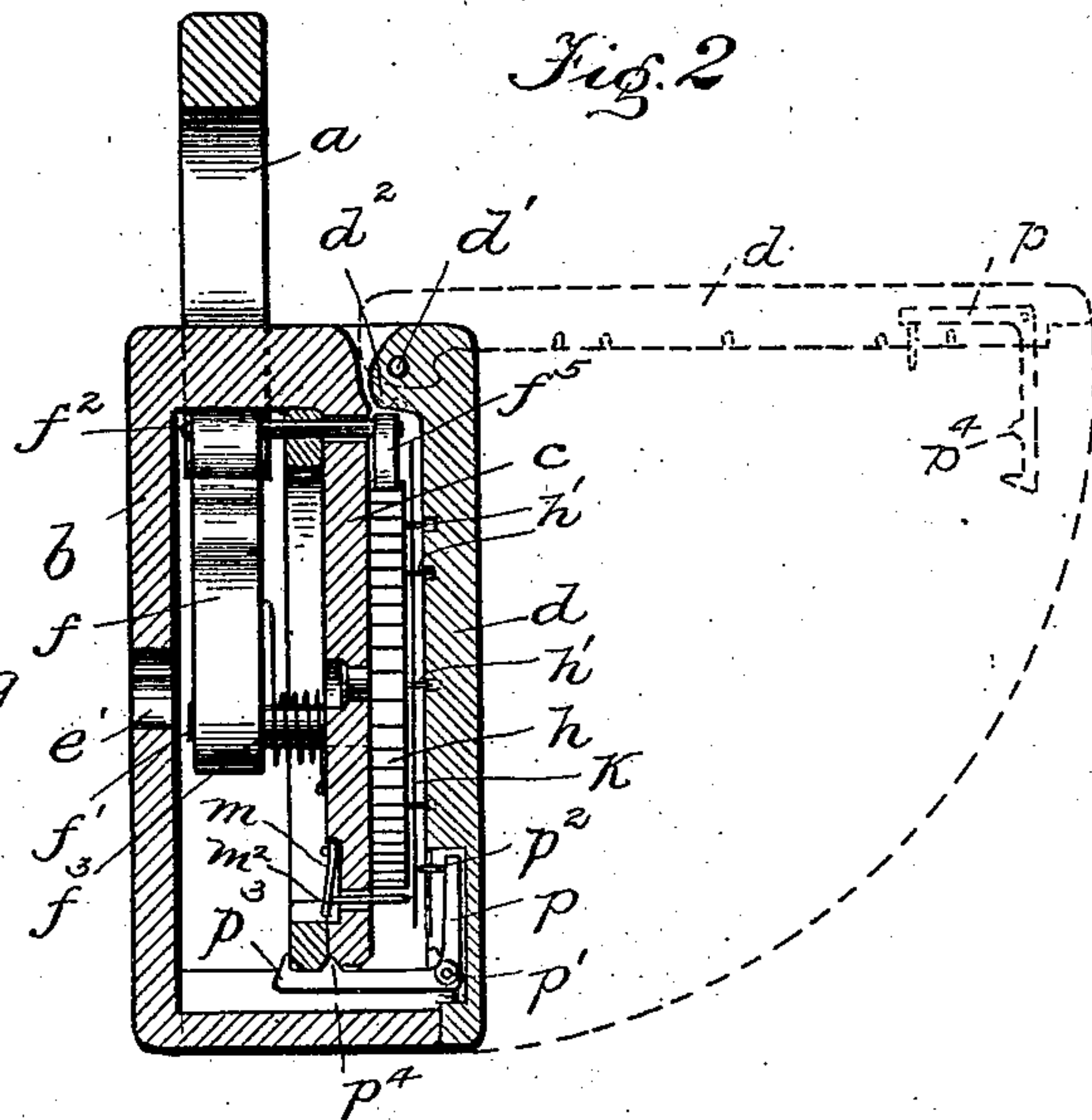
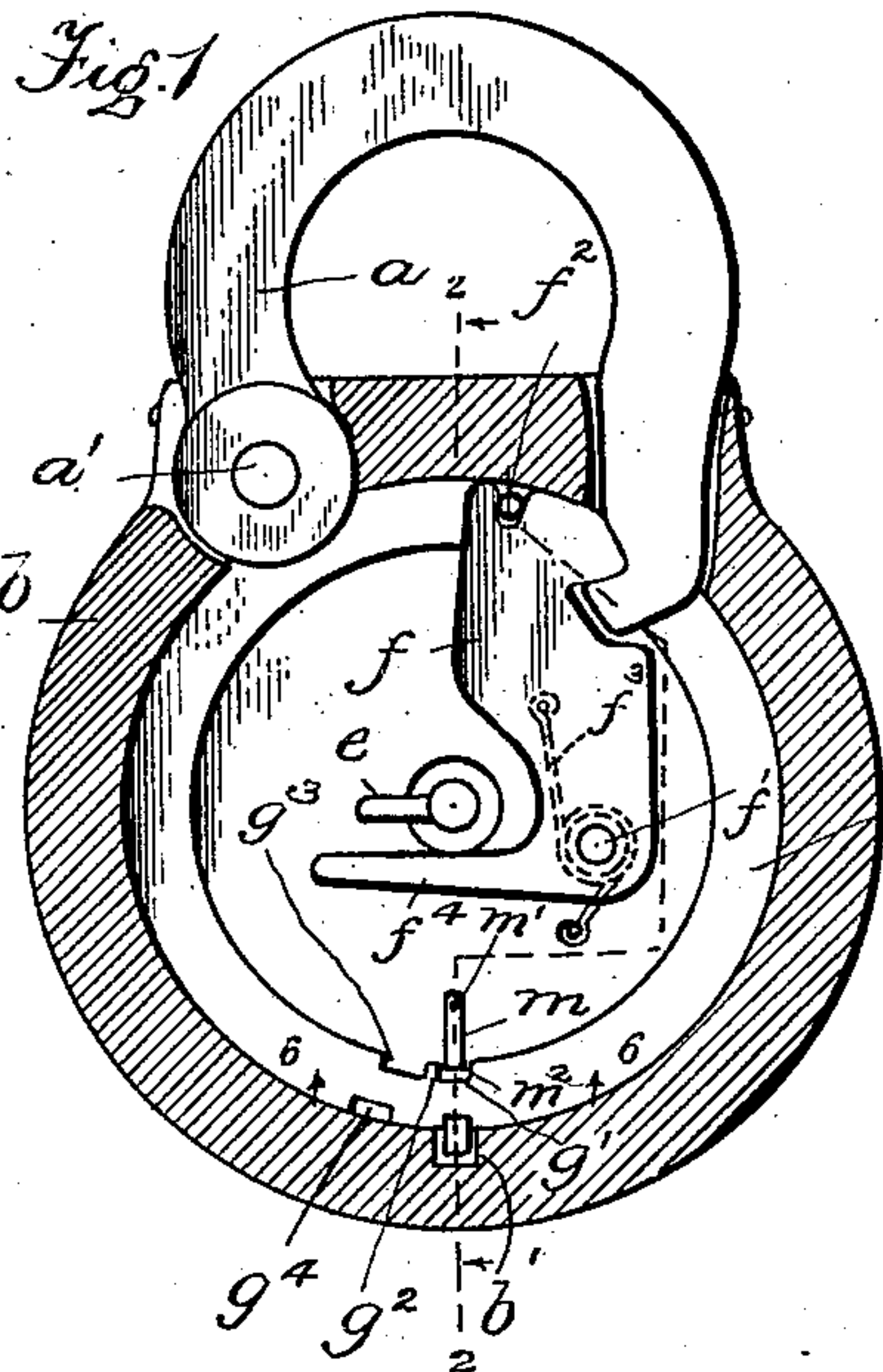


Fig. 3

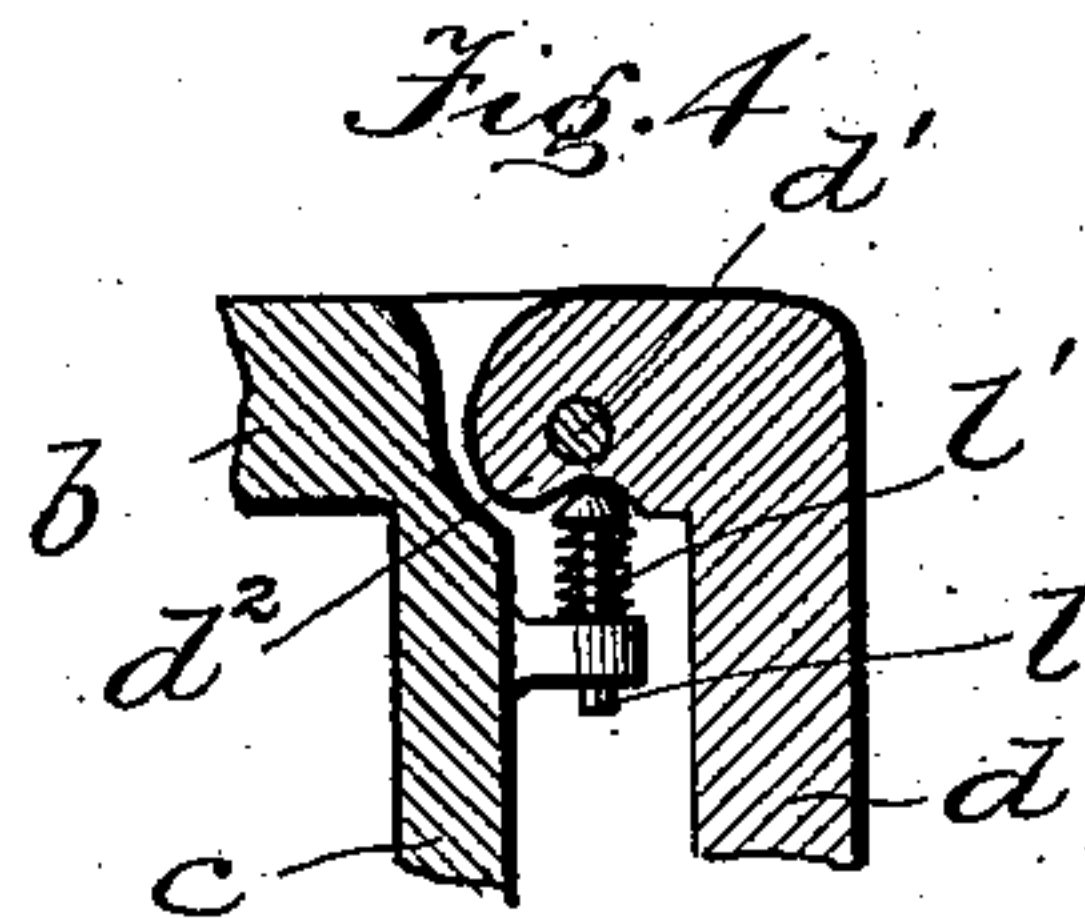
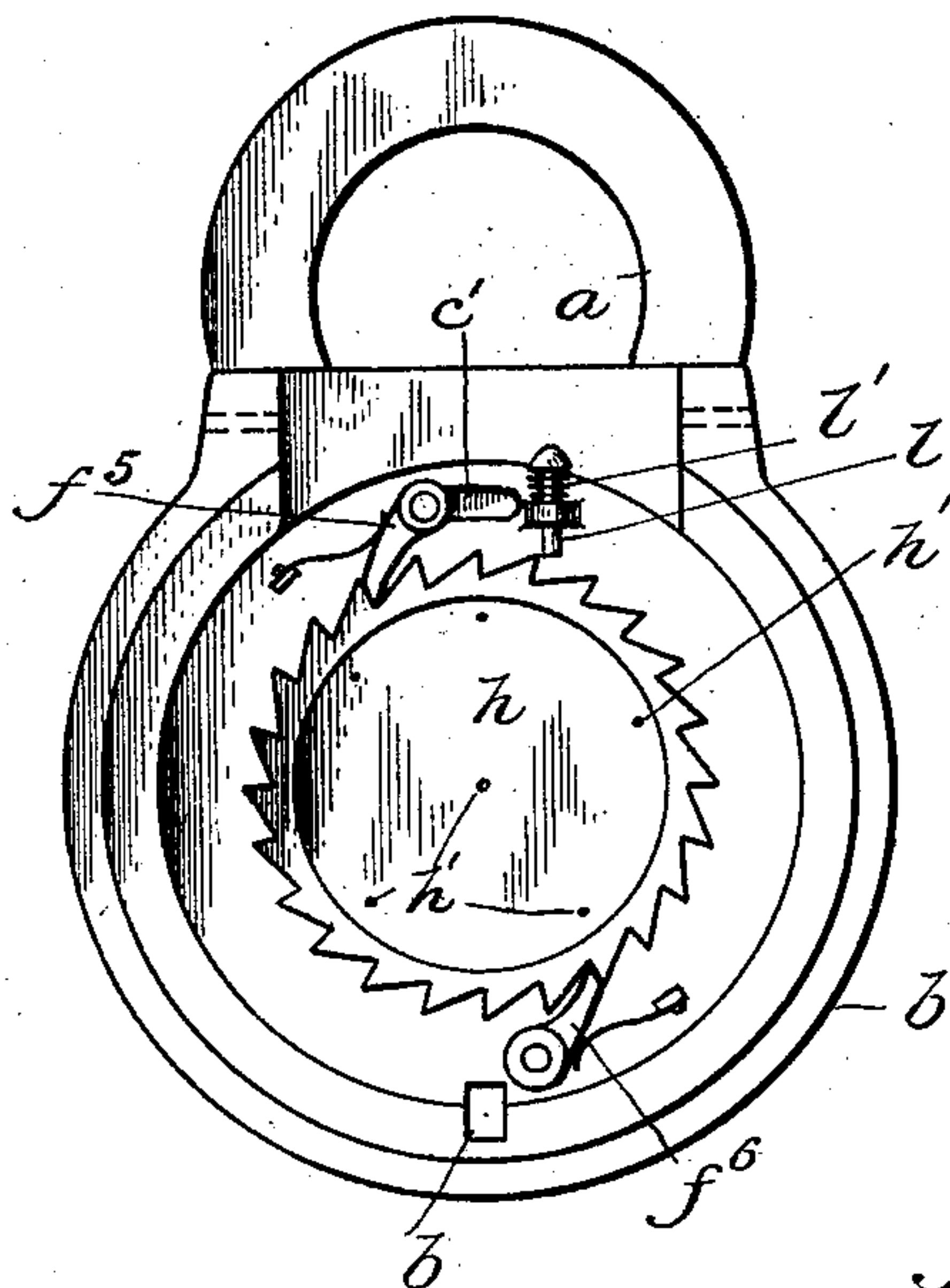


Fig. 5

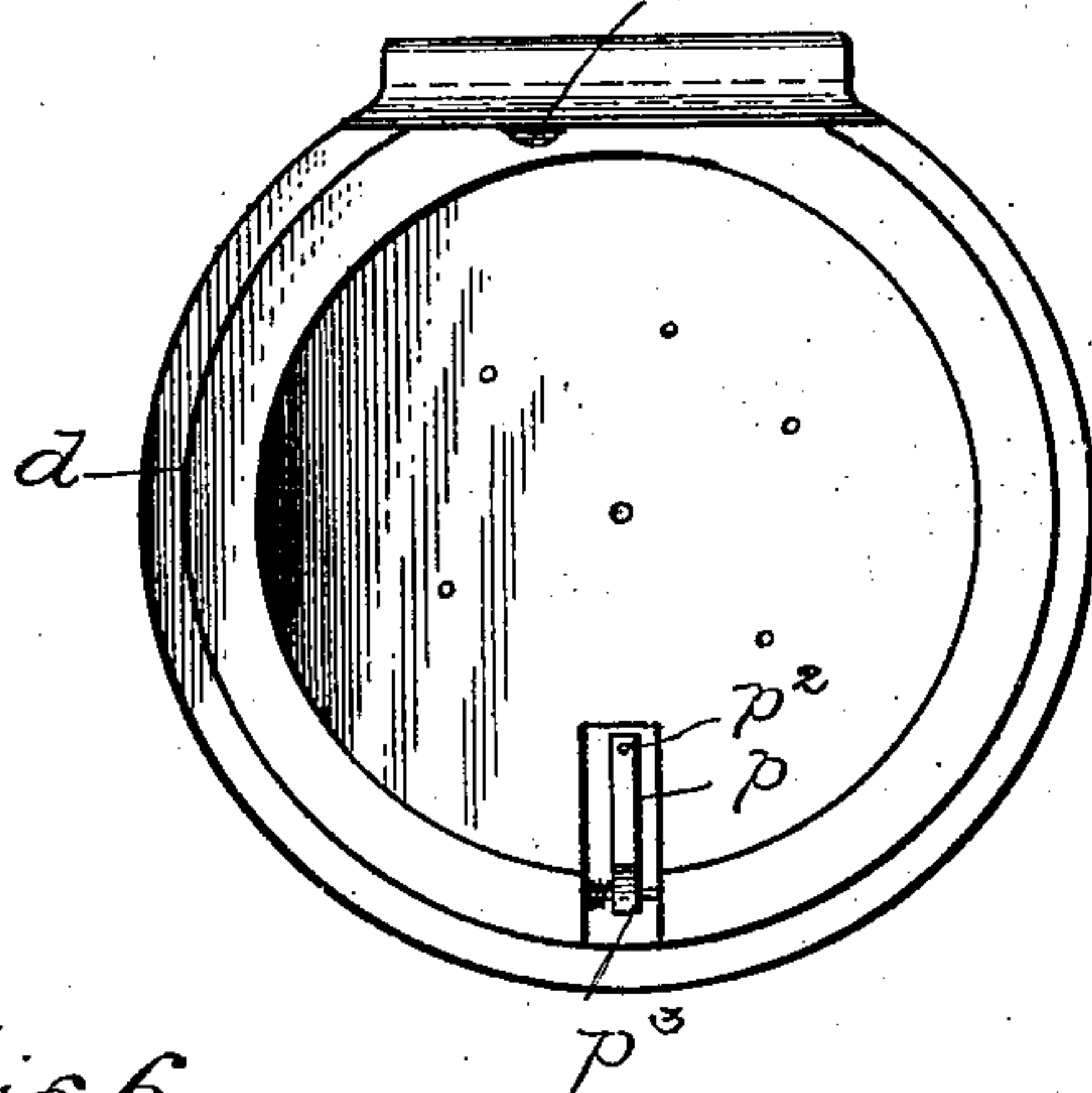


Fig. 6

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REGISTERING-LOCK.

SPECIFICATION forming part of Letters Patent No. 688,495, dated December 10, 1901.

Application filed May 14, 1900. Serial No. 16,625. (No model.)

To all whom it may concern:

Be it known that I, VANDIVER J. VAN HORN, a citizen of the United States, residing at Keokuk, in the county of Lee and State of Iowa, have invented a certain new and useful Improvement in Registering-Locks, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to a registering-lock, my object being to provide a lock having associated therewith mechanism whereby a record is made upon a piece of paper or other suitable material each time the lock is opened or unlocked.

It is frequently desirable to keep a record of the number of times a lock is opened—such, for instance, as a lock which controls the entry to an apartment or a lock which controls the lid or cover of a box or other receptacle—and in accordance with my invention I associate with the locking mechanism apparatus which is actuated whenever the lock is opened to pierce a suitable piece of paper or other material or otherwise permanently alter the character thereof, whereby a record is produced by the opening of the lock.

In the preferred form of my invention I provide a casing provided with two separate compartments, one for the locking mechanism and the other for the recording element. This latter compartment is provided with a cover, which is adapted to be opened only when the lock is unlocked. I further provide as a means of preventing any tampering with the lock to make a false record a device which will record all attempts to open the lock and make alterations of the interior mechanism.

My invention is applicable to any form of lock, and for the purpose of illustration I have shown in the accompanying drawings a padlock equipped after the manner of my invention, and from the explanation thereof it will be readily understood how the mechanism may be applied to any form of lock. While I have thus illustrated one particular form of lock for the purpose of illustration, it will be understood that I do not confine myself to the mechanical details therein dis-

closed, since the registering feature is equally applicable to any and all other forms of locks.

I have illustrated my invention in the accompanying drawings, in which—

Figure 1 is a view of the lock, the front of the casing being cut away to disclose the interior. Fig. 2 is a sectional view of the lock on line 2 2, Fig. 1. Fig. 3 is a view of the lock with the cover removed. Fig. 4 is a detail view of the hinge of the cover and parts operated thereby. Fig. 5 is a view of the cover of the lock. Fig. 6 is a detail view of the piercing mechanism.

Like letters refer to like parts in the several figures.

The shackle *a* of the lock is pivoted at *a'* to the casing *b*, which is provided with a partition *c* and with a cover *d*, hinged at *d'* to the casing *b*. The key *e* is adapted to pass through the keyhole *e'*, and the end thereof is adapted to engage and rock the locking-bar *f*, which is pivoted at *f'* to the partition *c*. Within the casing is a ring *g*, carrying a pin *f²*, extending transversely therethrough, which pin is adapted to rest in a slot provided in the locking-bar *f*. A spring *f³* is attached to the locking-bar *f* and a suitable pin carried on the partition *c*, whereby the locking-bar is returned to its initial position when released by the key *e*. When the key *e* is turned to bring the end thereof into engagement with the arm *f⁴* of the locking-bar *f*, said locking-bar is rocked upon its pivot *f'* and the upper end thereof is carried to the left, as seen in Fig. 1, thereby engaging pin *f²* and rocking the ring *g*. The pin *f²* extends through a slot *c'* in the partition *c* and carries upon the end a pawl or dog *f⁵*, adapted to engage the teeth of a ratchet-wheel *h*, which is journaled in the partition *c*. A dog *f⁶* engages the teeth of the ratchet-wheel to prevent the backward movement thereof. The ratchet-wheel *h* carries upon its face a plurality of prongs or pins *h' h'*, arranged at irregular intervals and adapted to pierce the recording-sheet *k*, which is preferably circular in form and adapted to be held in position by the pins *h'*, the center pin *h'* piercing the center of the paper disk. The ends of the pins *h'* extend into openings provided in the cover *d*, so that the disk *k* is held between

the face of the ratchet-wheel and the inner face of the cover d , and its removal from the pins is thereby prevented. The cover d is provided with a cam-like portion d^2 , which is adapted to engage a pin l (shown more clearly in Fig. 4) to depress the said pin against the tension of the spring l' when the cover is opened. The lower end of the pin l is thus caused to engage the teeth of the ratchet-wheel, as shown in Fig. 3, to prevent the rotation of the ratchet-wheel while the cover is open.

Upon the partition c is mounted a spring-plate m , one end of which is secured to the partition by a suitable screw m' , while the other end carries a pin m^2 , adapted to pass through a suitable opening in the partition c and to rest opposite the outer portion of the recording-disk k . The free end of the spring m tends to move outward from the face of the partition c and normally rests in a recess g' , provided on the inner periphery of the ring g . When the ring g is rocked in opening the lock, the projection g^2 of the ring g engages and depresses the free end of spring m , thereby forcing the pin m^2 through the partition c to cause the same to engage the recording-disk k and pierce the same, thus making a hole therein, which serves as a record to indicate that the lock has been opened. The further movement of the ring g carries the free end of the spring m into the slot g^3 , which permits the free end of the spring to move outward, thus withdrawing the piercing-pin m^2 from the disk k . The further movement of the ring g causes the pawl f^5 to engage the teeth of the ratchet-wheel to thereby rotate the same through one step to carry a fresh portion of the recording-disk into position opposite the piercing-pin m^2 . When the key e releases the lock, the spring f^3 serves to carry the parts back to the initial position.

As shown more clearly in Fig. 6, projection g^2 is of diamond shape, so that as the ring g is moved contra-clockwise to unlock the lock the lower face of the ring g engages the end of spring m and depresses the same. When the ring g moves clockwise, however, to return the parts to the normal position, the upper oblique face of the projection g^2 engages the end of spring m and moves the same upward, so that the end of spring m passes over the top of the projection g^2 during the return of the ring g . The piercing-pin is thus prevented from making a record during the return stroke of the ring g .

To the cover d a bell-crank lever p is pivoted at p' , one arm of said lever carrying a piercing-pin p^2 , while the opposite end carries a lateral projection or catch p^3 and is adapted to extend through a slot b' in the casing b , said catch p^3 being adapted to engage the face of the ring g . The cover is thus normally locked in position. When, however, the ring g is rocked in unlocking the lock, the channel or slot g^4 therein is brought

opposite the catch p^3 and the catch is thus free to be withdrawn, thus permitting the opening of the cover. Upon the arm of lever p is a lateral projection p^4 , which is adapted to engage an oblique wall on the partition c , so that when the cover is opened the engagement of this projection p^4 with the oblique wall serves to rock the bell-crank lever p upon its pivot, thereby causing the piercing-pin p^2 on the end thereof to pierce the recording-disk k . A record is thus made each time the cover of the lock is opened.

The advantages of having the locking mechanism in a separate compartment from that containing the recording element are many. This arrangement permits of changing an ordinary lock into one of my registering-locks with very small alterations and no enlargement, which would otherwise be necessary. It further does away with but one key and allows the lock to be opened for the purpose of replacing the recording-disk without offering any opportunity for tampering with the mechanism which records the unlocking of the lock. This can be done only by destroying the case of the lock.

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

1. In a lock, the combination with a casing provided with two compartments, of locking mechanism in one of said compartments, a recording element in the other compartment completely inclosed and sealed therein, means for permanently altering said recording element when the locking mechanism is actuated, a cover for said second compartment permitting access to the interior thereof, and a lock for said cover, substantially as described.

2. In combination, a lock provided with two compartments, locking mechanism contained in one of said compartments, a recording element contained in the other, a cover for said second compartment, means for permanently altering said recording element when the locking mechanism is actuated and means for permanently altering said recording element when the said cover is opened, substantially as described.

3. In a lock, the combination with a casing provided with two compartments, of locking mechanism contained in one of said compartments, a recording element contained in the other compartment, a set of pins arranged at irregular intervals and arranged to pierce said recording element so that it may be held in only one position, a cover for said second compartment, means for permanently altering said recording element when the locking mechanism is actuated, and means for permanently altering said recording element when said cover is opened, substantially as described.

4. The combination with a lock provided with two compartments, of locking mechanism contained in one of said compartments, a

recording element contained in the other compartment, a cover for said second compartment, means for preventing motion of said recording element when said cover is opened, and means for moving said recording element when the locking mechanism is actuated, substantially as described.

5 5. In a lock, the combination, with locking mechanism, of a recording-disk, means for altering said disk when said locking mechanism is actuated and a plurality of pins set at irregular intervals and arranged to pierce said recording-disk so that it may be held in only one position, substantially as described.

10 6. In a lock the combination with a casing, of a recording element contained therein, a ring associated with the locking mechanism, and a piercing-pin moved by said ring to pierce said recording element, substantially as described.

15 7. In a lock, the combination with a casing provided with two compartments, of locking mechanism contained in one of said compartments, a recording element contained in the other compartment, a cover for said second compartment adapted to be opened only when the lock is unlocked, a ring associated with said

locking mechanism and a piercing-pin moved by said ring to pierce said recording element, substantially as described.

30 8. In a lock, the combination with a casing provided with two compartments, of locking mechanism contained in one of said compartments, a recording element contained in the other compartment, a piercing-pin for altering said recording element, a ring associated with said locking mechanism, and adapted to actuate said piercing-pin, and a cover for said second compartment adapted to be opened only when the lock is unlocked, substantially as described.

35 9. In a lock, the combination with a casing, of a cover therefor and a bell-crank mounted on said cover, one end of said bell-crank serving as a catch, and the other as a piercing device, substantially as described.

40 In witness whereof I have hereunto subscribed my name in the presence of two witnesses.

VANDIVER J. VAN HORN.

Witnesses:

A. J. MCCRARY,
GEORGE I. REMER.