

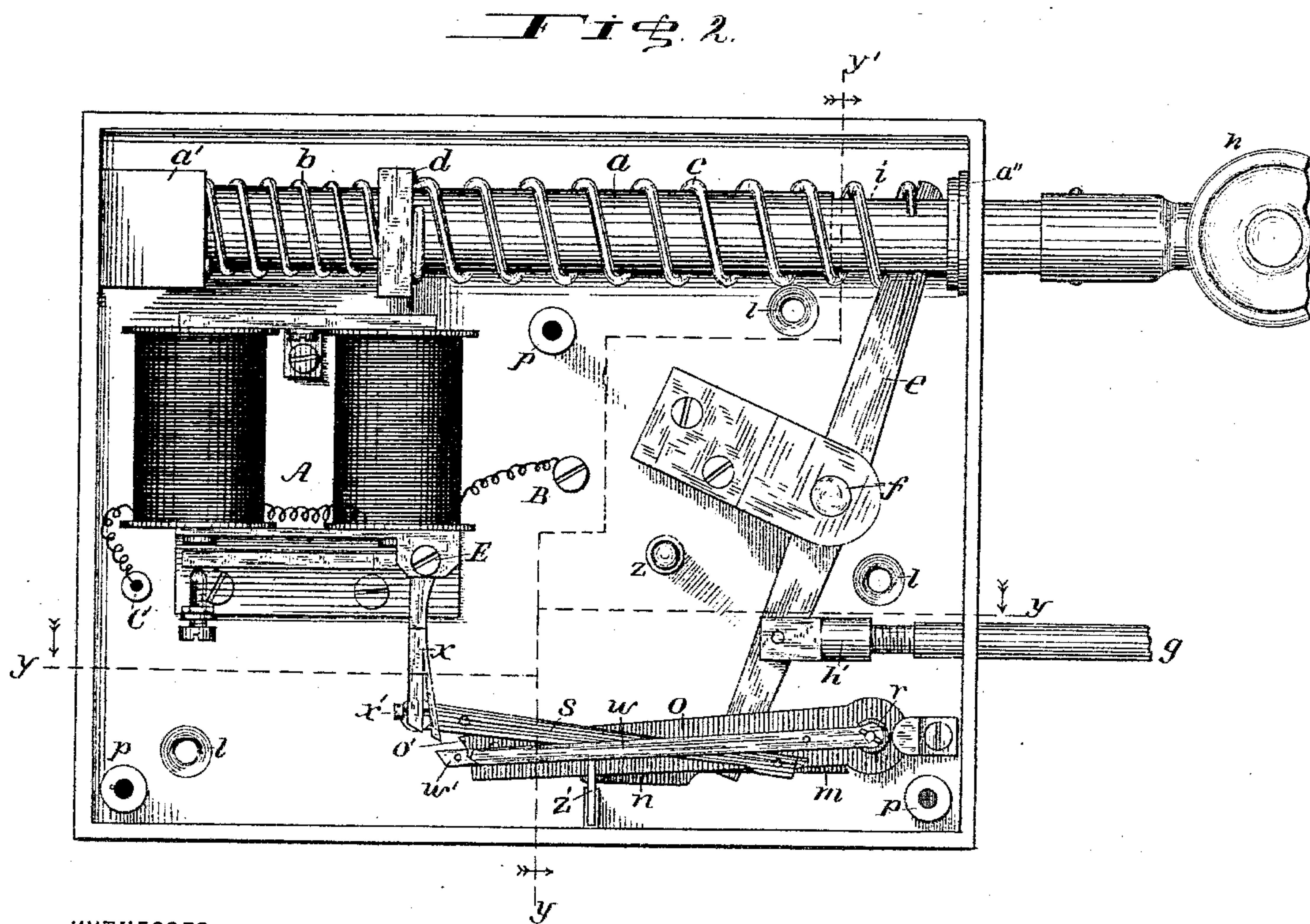
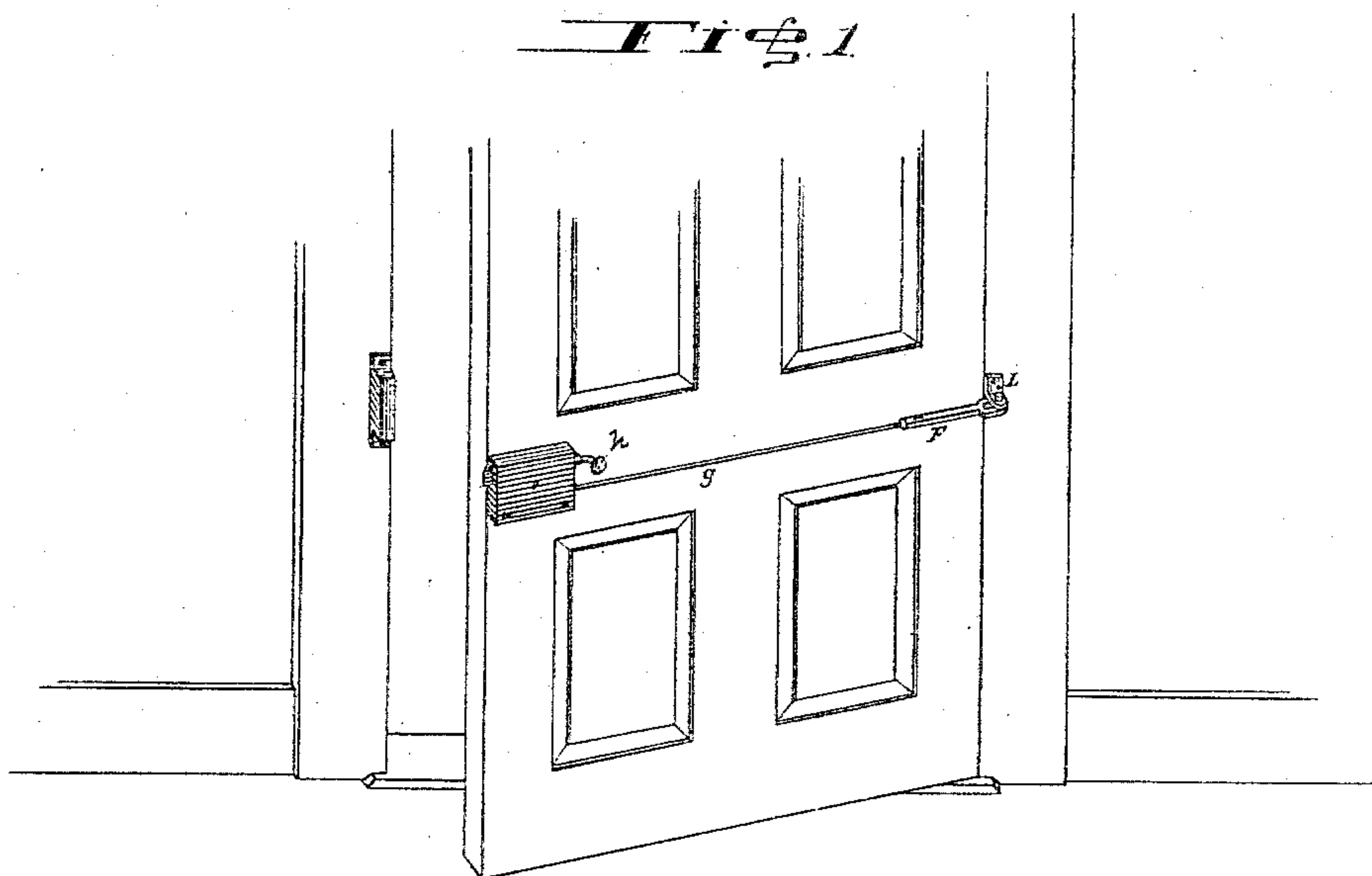
(No Model.)

3 Sheets—Sheet 1.

C. WÜEST.
ELECTRIC DOOR LOCK.

No. 300,334.

Patented June 10, 1884.



WITNESSES.

C. J. Bell
Oscar Kauck.

INVENTOR

Conrad Wüest
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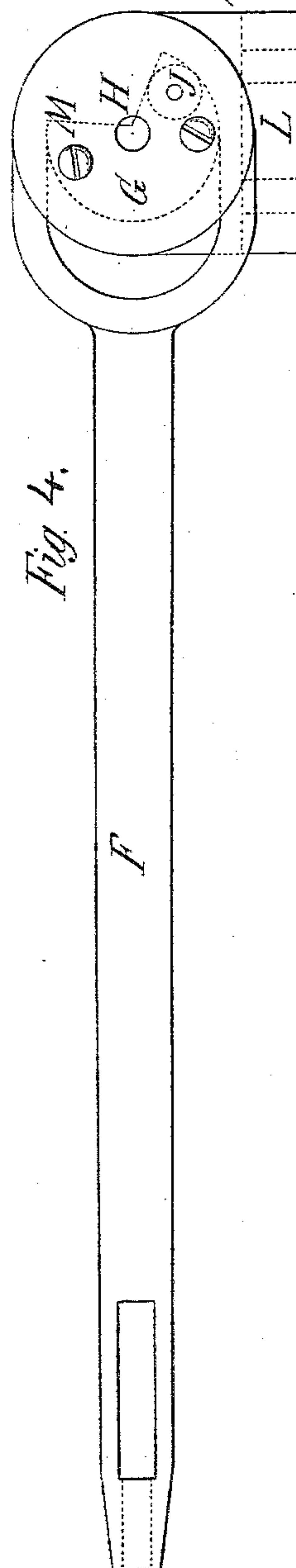
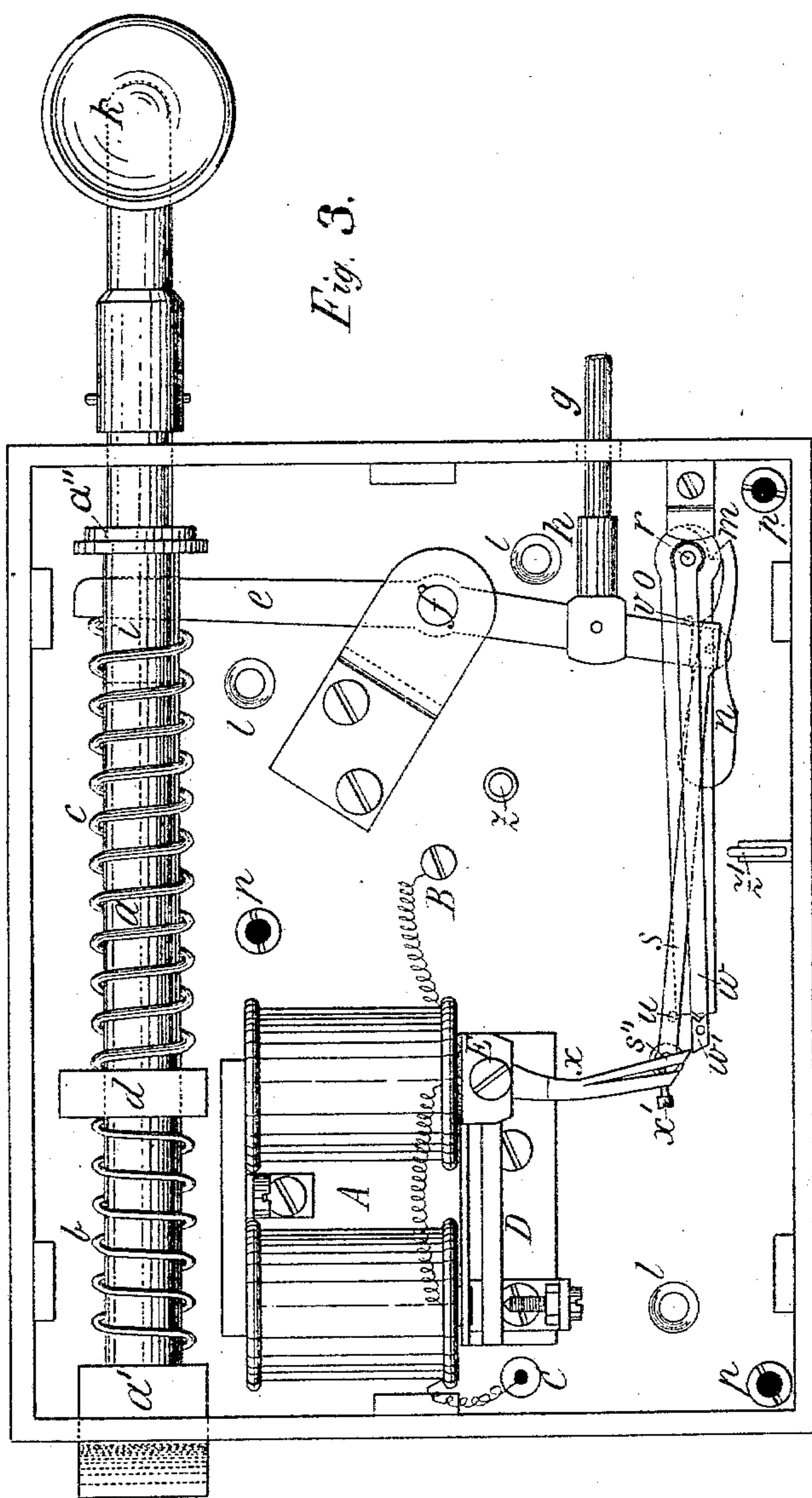
(No Model.)

3 Sheets—Sheet 2.

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ELECTRIC DOOR LOCK.

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(No Model.)

3 Sheets—Sheet 3.

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FIG. 5.

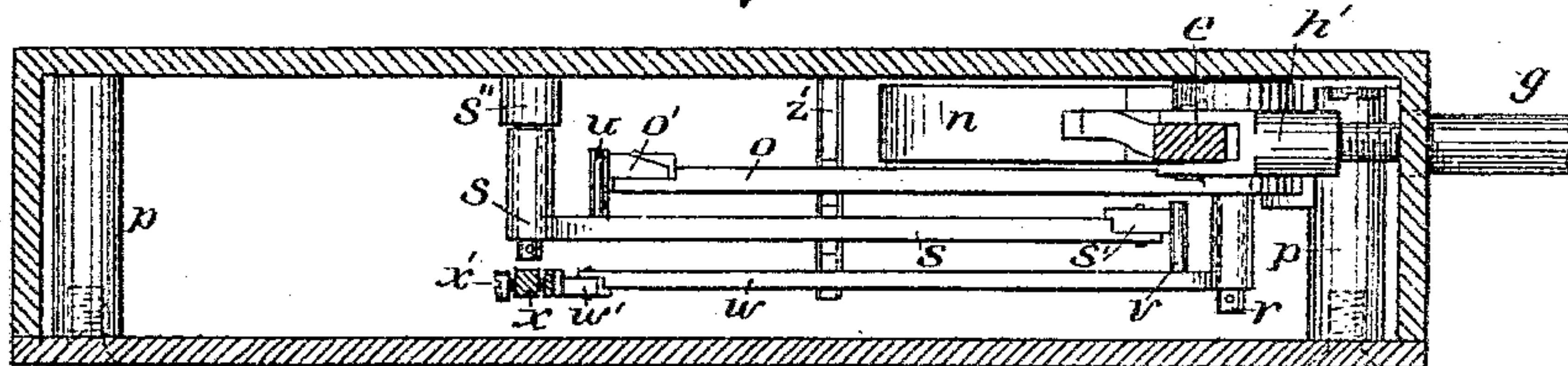


FIG. 6.

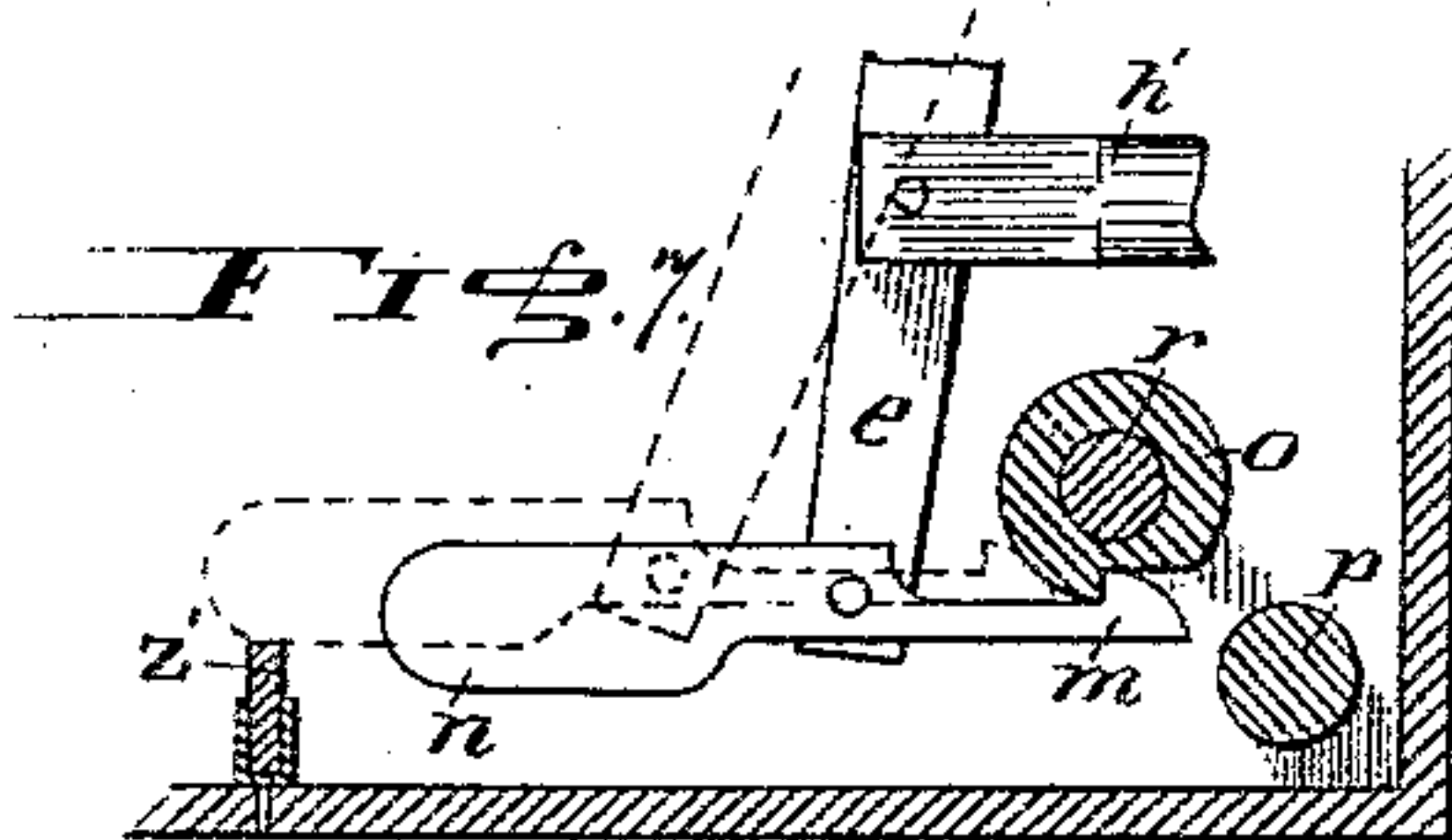
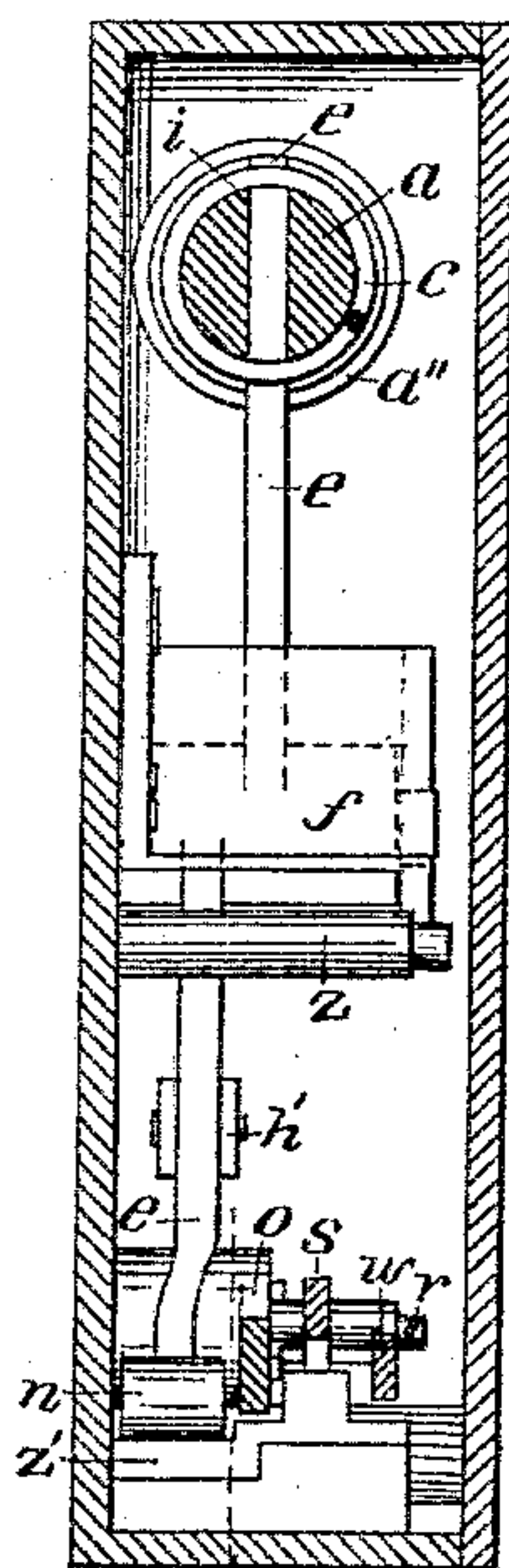


FIG. 8.



FIG. 9.

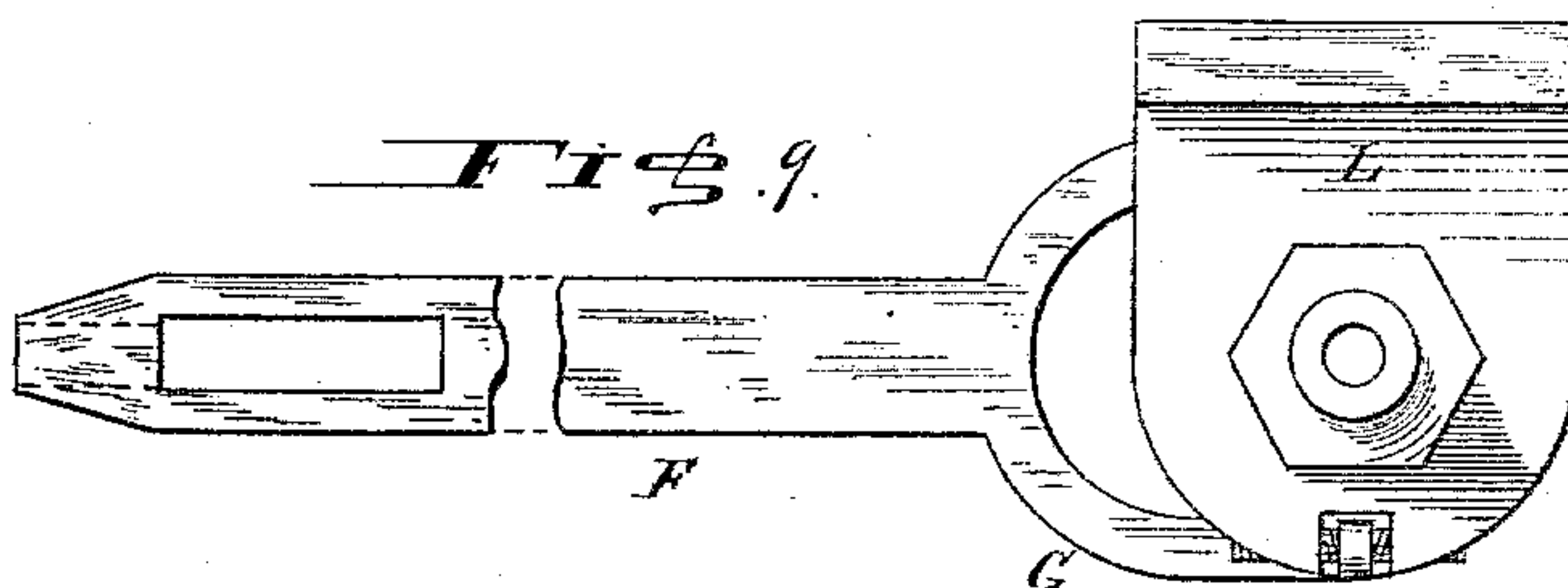


FIG. 10.

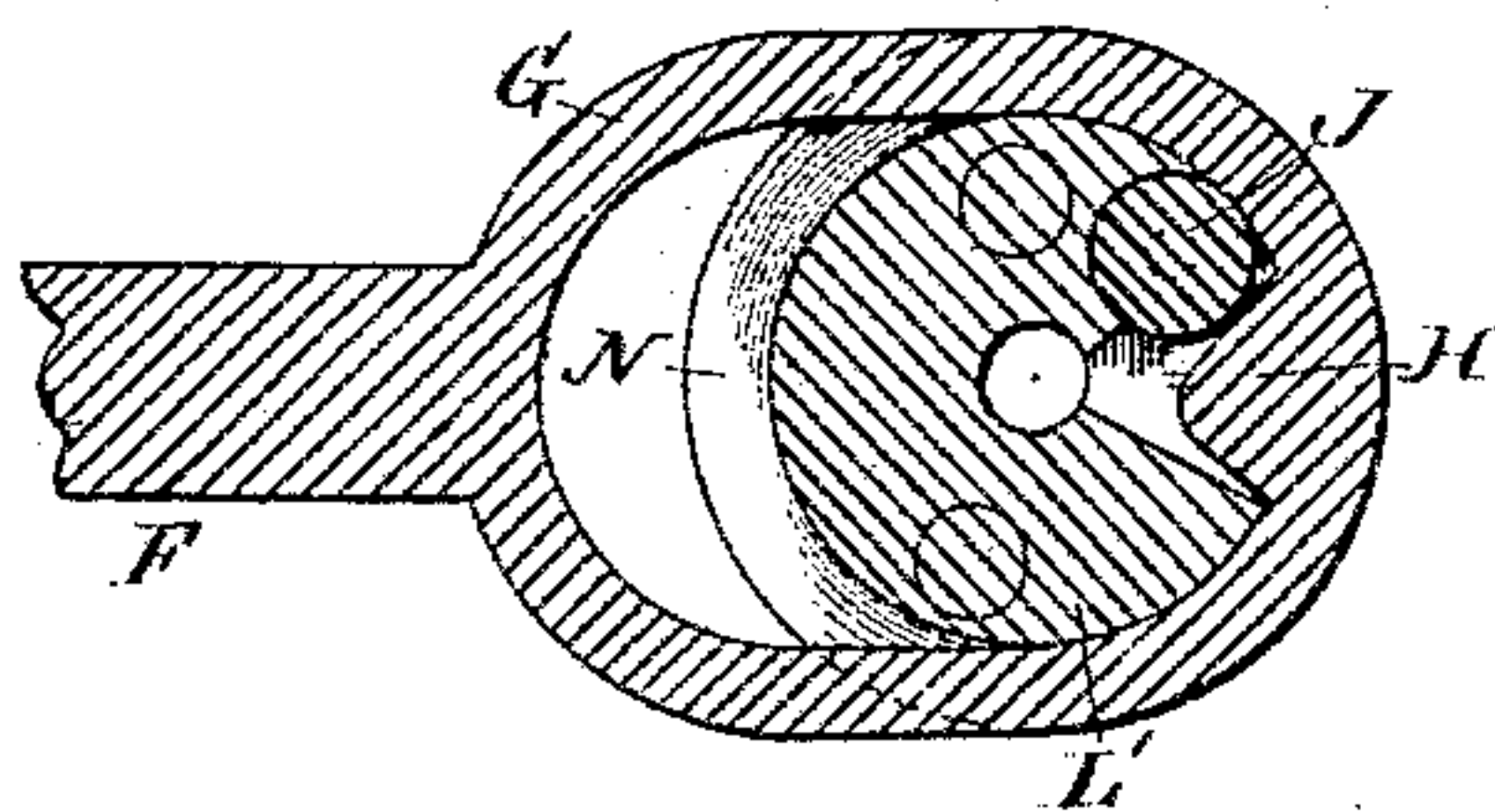
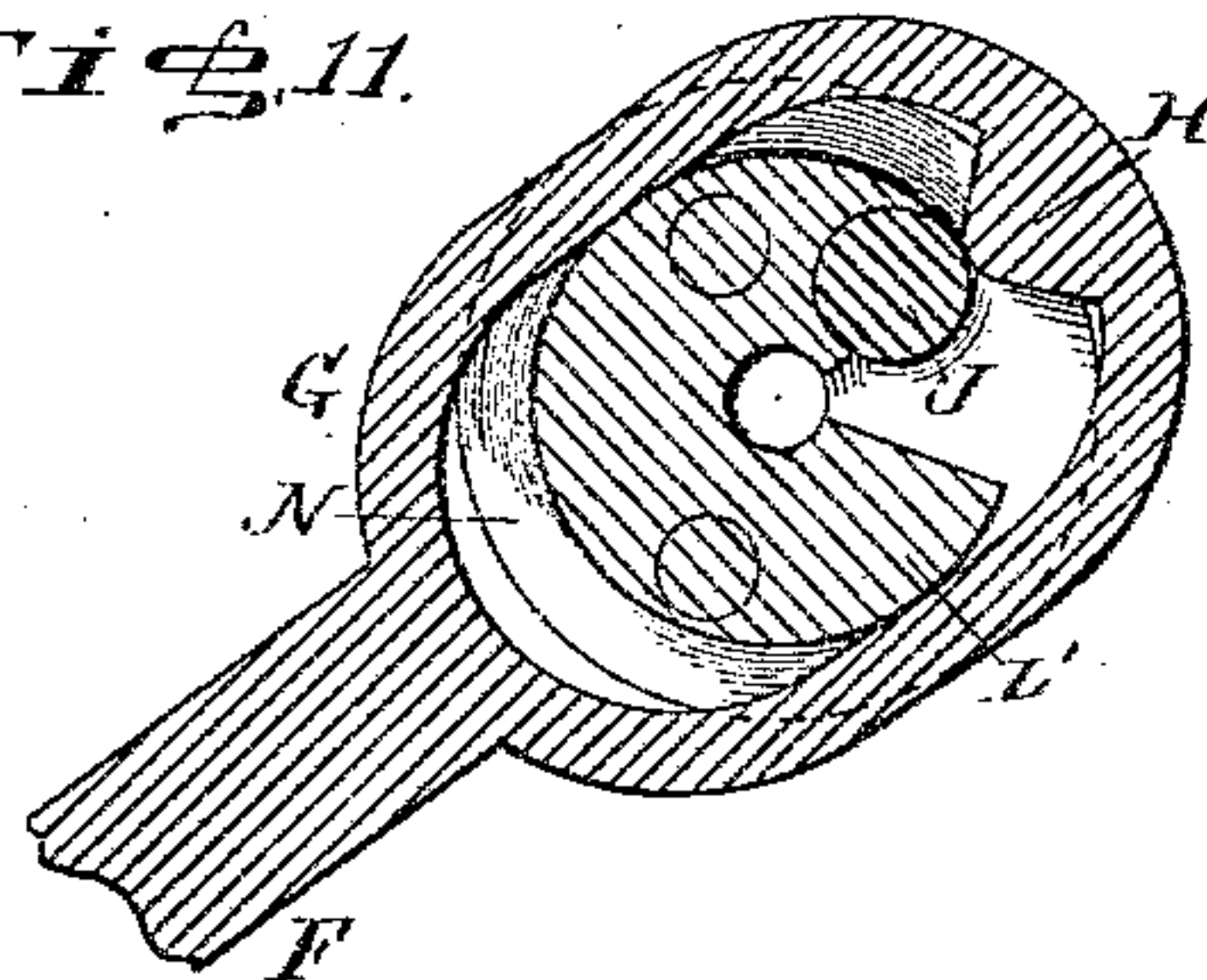


FIG. 11.



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UNITED STATES PATENT OFFICE.

CONRAD WÜEST, OF ZURICH, SWITZERLAND.

ELECTRIC DOOR-LOCK.

SPECIFICATION forming part of Letters Patent No. 300,334, dated June 10, 1884.

Application filed November 21, 1883. (No model.)

To all whom it may concern:

Be it known that I, CONRAD WÜEST, a citizen of Switzerland, residing at Zurich, in the canton of Zurich, Switzerland, have invented certain new and useful Improvements in Electric Door-Locks; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

The present invention relates to electric door-locks and door-latches; and the object of the invention is to provide a lock or latch which can be opened by hand, and can also be opened by means of an electric current, in the latter case the electric button being placed wherever desired, either inside or outside of the room or building.

The invention consists of a spring-bolt lock or latch, which can be opened by an electric current, and is reset automatically by the opening or closing of the door, so that it will latch when the door is shut, and be in a position to be reopened again by the electric current.

It further consists of certain details of construction, as hereinafter described and claimed.

In the drawings, Figure 1 is a view illustrating the manner of attaching the lock to a door. Fig. 2 is a view of the operating mechanism of the lock, the front of the case being removed, and showing the spring-bolt before it is set. Fig. 3 is a similar view showing the parts in the positions occupied by them when it is set ready to be opened by the electric current. Fig. 4 is a plan view of the cam device employed to reset the lock. Fig. 5 is a horizontal section taken on the line $y y$ of Fig. 2. Fig. 6 is a vertical section taken on the line $y' y'$ of Fig. 2. Fig. 7 is a detail view taken on the line y'' of Fig. 6. Fig. 8 is a front view of the cam device, showing its bracket for attachment to the door-casing. Fig. 9 is a top view of the same as herein shown applied to the door, Fig. 4 being a view of the opposite side. If the lock is attached to a door opening in the opposite direction, then the position of the cam device will be reversed. Figs. 10 and 11 are hori-

zontal sections of the cam, taken on the line y'' of Fig. 8, showing the position of the cam when closed and open, respectively.

The locking or latching bolt a has two encircling-springs, b and c , the former bearing against the head a' of the bolt and the lug or standard d , through which the bolt passes, and operating to throw the bolt out, and the latter bearing against the end of the lever e , which passes up through a slot, i , in the bolt and the opposite side of the lug d , and operating to retract the bolt by throwing the lever e back against the end of the slot i . The springs b and c are relatively weak and strong, the former being strong enough to throw out the bolt when the spring c cannot act, and the latter strong enough to overcome the spring b and retract the bolt when it is free to act. A collar, a'' , limits the throw of the bolt inward. The spring c can be compressed by the lever e , as shown in Fig. 3, and when thus compressed the bolt can be retracted by means of the handle h , and the door opened or closed by hand in the usual manner, for the compressed spring c has no influence on the bolt. The lower end of the lever e , which is journaled at f , has a pivoted hook-catch, m , which is weighted at n , and which can engage with a notch in the arbor of the lever-arm o , when the lower arm of the lever e is drawn backward, as shown in Fig. 7. The lever-arm o is pivoted on the stud r , and its extreme end comes beneath a pin, u , carried by a second lever-arm, s . This end of this second lever, which is pivoted on a stud, s'' , extends beneath a pin, v , carried by the third lever-arm, w , pivoted on the stud r . The end of this third lever catches under the tip of one arm of the bent lever x , pivoted at E , the other arm of which forms an armature for the electro-magnet A . Each of the levers o , s , and w is provided at its end with a small pivoted steel finger, o' , s' , and w' , which allows each lever to drop back past the pins u v and end of lever x after they have been thrown up. The end of the arm x has a spring-tip, which can be adjusted by means of the screw x' . One end of the coil of the electro-magnet A is connected with the lock-case at B , and the other passes through an insulated opening at C , and connects with an electric button placed wher-

ever desired, a battery being of course included in the circuit, which can be completed through the cam device. The three lever-arms, with their locking-pins and the armature-lever, constitute a delicate trigger mechanism, which releases the lever *e* and allows the spring *c* to retract the latch-bolt, when the circuit through the electro-magnet coil is closed and the armature is raised, each lever-arm being released in turn and thrown upward until the first of the series releases the hook *m*. They then fall back into the positions shown in Fig. 2. A stud-pin, *z*, covered with india-rubber, forms an elastic cushion, which checks the motion of the levers when the latch-opening mechanism is operated, and when not set the levers rest on the india-rubber support *z*, as shown in Fig. 2.

l are screw-holes for attaching the lock to a door, and *p* studs to receive the screws of the cover. The lock is set, when the door is opened, by means of the cam device. The wire or rod *g* screws into the link *h'*, pivoted to lever *e* at one end, and at the other end into the rod *F*. The screw-threads at the end of the rod *g* are right and left handed, to allow for adjusting the length of the rod. The cam mechanism consists of an oblong ring, *G*, formed at the end of the rod *F*, having a cam projection, *H*, on its inner face. The bracket *L*, which is screwed to the door-casing, has two circular plates, *M* and *N*, between which there is a circular block *L'*, having an open sector portion corresponding to the cam projection *H*. This block fits in the open center of the oblong ring *G*. To reduce the friction a roller, *J*, is inserted between the upper and lower plates, and this rolls on the cam *H* when the door is opened or closed. In opening the door, the rod *F* is swung outward and the cam and ring *G* are drawn back into the position shown by Fig. 11, which draws back the lower end of lever *e* until the hook *m* catches in the notch of the arbor of the first lever. This takes place when the friction-roller *J* reaches the top of the cam projection *H*. The spring *c* is then compressed, the bolt thrown out by the spring *b*, and the lock set ready for the bolt to be retracted by the electric current.

I am aware that electric locks having a bolt-retracting spring compressed and set by the shutting of the door have been heretofore known, and that a lever held by a trigger has been used for confining the same, and I do not claim the same, broadly; but

What I do claim as new, and desire to secure by Letters Patent, is—

1. The combination, with a lock having a bolt-retracting spring which is automatically contracted through the instrumentality of a lever by the opening or shutting of the door and held by a trigger, of a rod pivoted to the door-casing and attached to the lever of the bolt-retracting mechanism, whereby the latter is automatically set, when the door is swung open, by the movement of the rod with respect

to the lock, substantially as and for the purpose described.

2. The combination, with a lock having an automatically-retracting bolt mechanism held by a trigger-lever, of a rod pivoted to the door-casing and attached to the bolt-retracting mechanism, and an electro-magnet, the armature of which engages and holds said trigger-lever, whereby the bolt-retracting mechanism is set in operation by an electric impulse, and the same is then automatically reset when the door is swung open, substantially as and for the purpose set forth.

3. The combination, with the sliding bolt *a* of a self-setting lock, of two coiled springs, *b* and *c*, of different strength encircling the bolt, the weaker of which operates to project the bolt, and the stronger to retract it, together with the lever *e*, which operates to compress and hold the spring *c*, and a trigger mechanism holding said lever, substantially as and for the purpose set forth.

4. The combination, with the sliding bolt *a*, having the head *a'* and the slot *i*, of an automatically-setting lock, said bolt passing through a lug, *d*, attached to the casing, of a weak projecting-spring, *b*, encircling the bolt between the lug and head, and a strong retracting-spring encircling the bolt between the lug and slot, together with the spring compressing and holding lever *e*, passing through the slot, substantially as and for the purpose set forth.

5. The combination, with a lock having an automatically-retracting bolt mechanism, of the spring compressing and holding lever *e*, the weighted hook *m*, pivoted at the lower end thereof, and the trigger-lever *o*, having a notch or shoulder with which the hook *m* can engage, substantially as and for the purpose set forth.

6. The combination, with a lock having an automatically-retracting bolt mechanism, of the spring compressing and holding lever, and a system of compound levers, each of which has a projection near its fulcrum with which the preceding lever can engage, and an articulated tip to engage with the succeeding lever, together with a trigger-lever engaging with the tip of the last of the system, the whole forming a trigger mechanism which holds the bolt-retracting spring with a slight pressure on the trigger, substantially as and for the purpose set forth.

7. In combination with a lock having an automatic bolt-retracting mechanism, the bracket *L*, adapted to be fastened to the casing of a door, and having the notched block *L'*, together with the ring *G*, having cam *H* and rod *g*, connected with the lock, the block *L'* fitting within the ring and forming a surface for the same to bear against, substantially as and for the purpose set forth.

8. In combination with a lock having an automatic bolt-retracting mechanism, the bracket *L*, adapted to be fastened to the cas-

ing of a door, and having the notched block
L' and friction-roller J, together with the ring
G, having cam H and rod g, connected with
the lock, the block L' and friction-roller J fit-
5 ting within the ring and forming a surface for
the cam to bear against, substantially as and
for the purpose set forth.

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

CONRAD WÜEST.

Witnesses:

T. A. BOWERY,
ED. EGLI.