

(Model.)

F. EGGE.
PADLOCK.

No. 427,843.

Patented May 13, 1890.

Fig 1

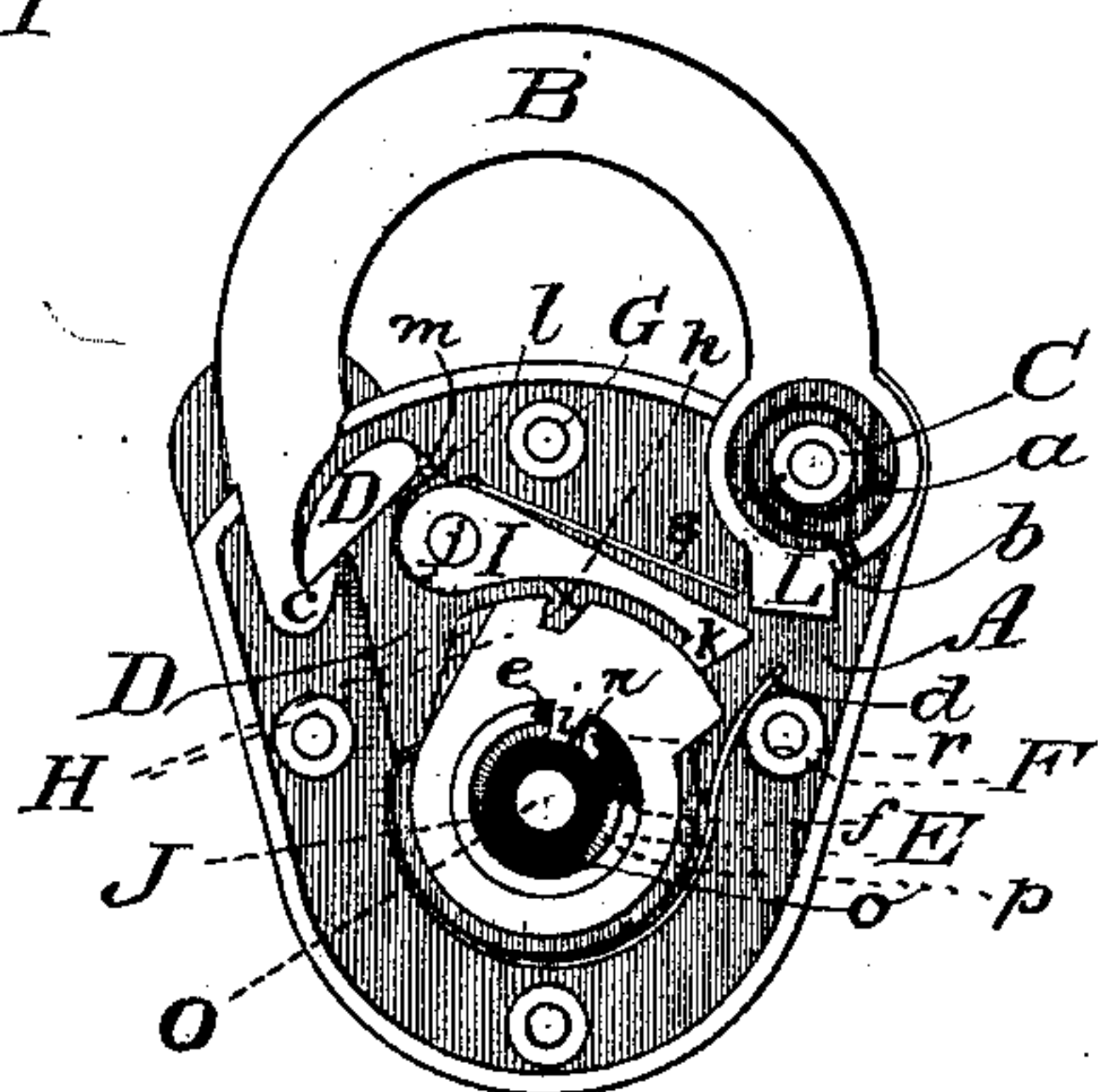


Fig 2

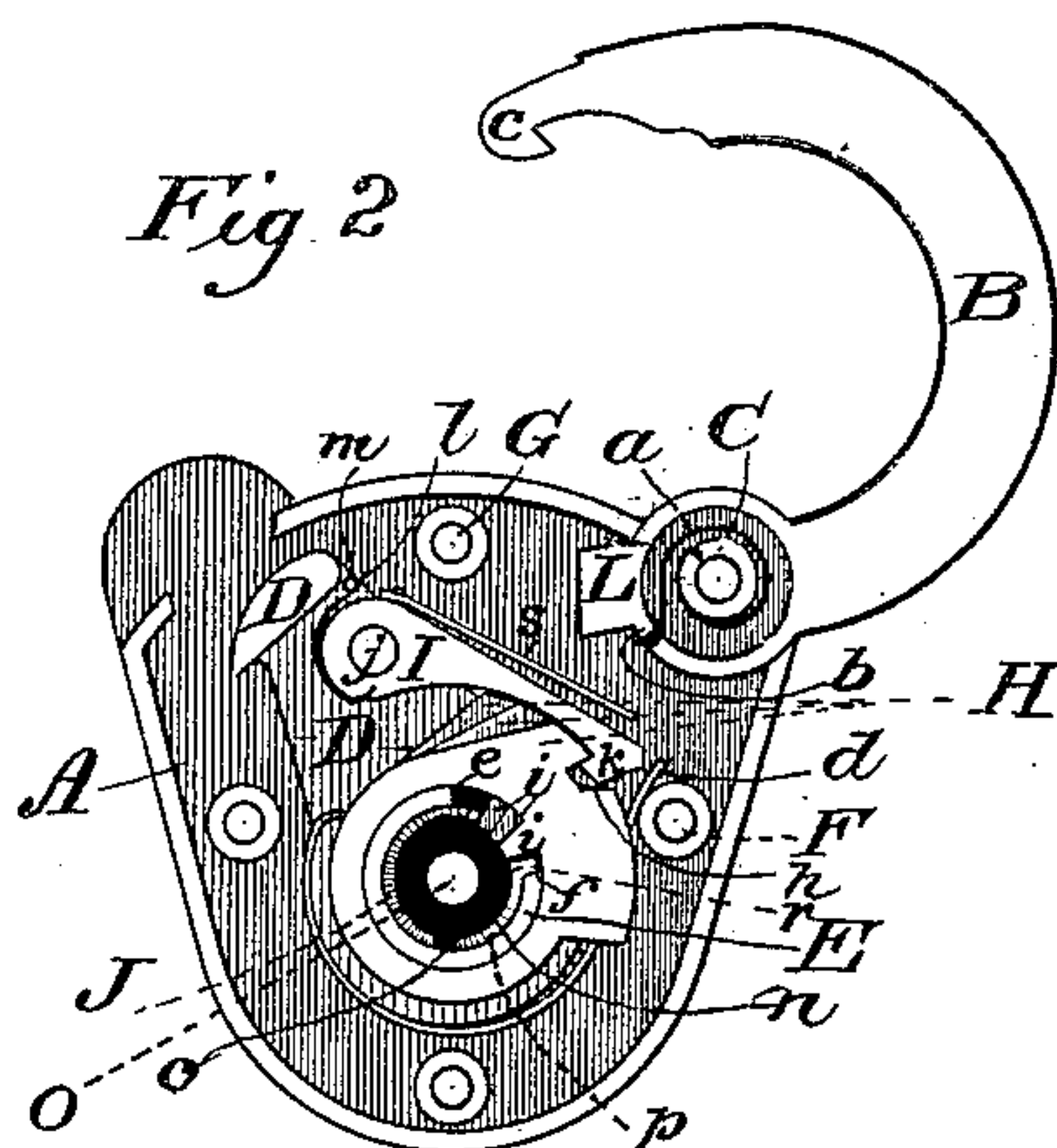


Fig 3

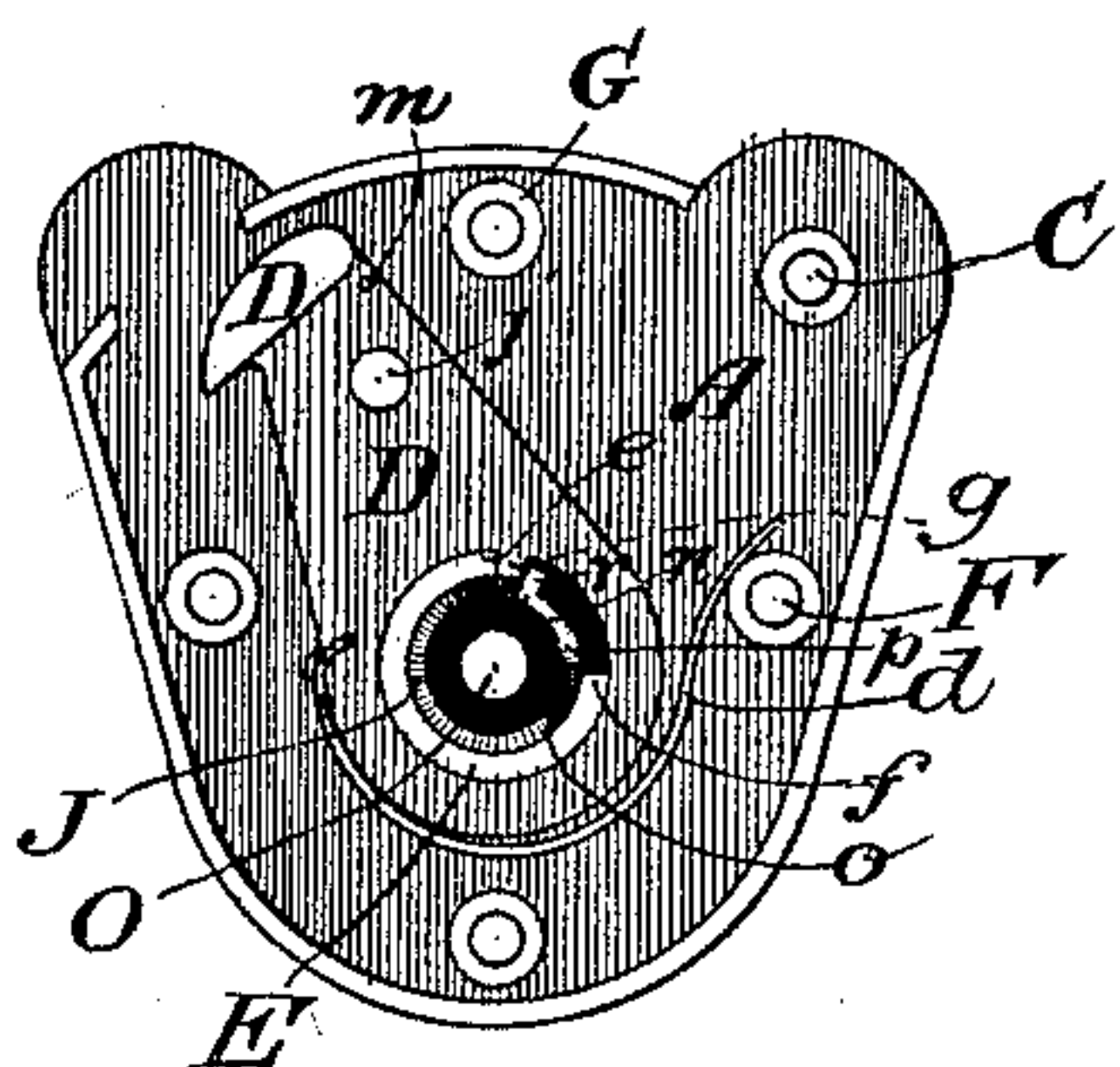


Fig 4

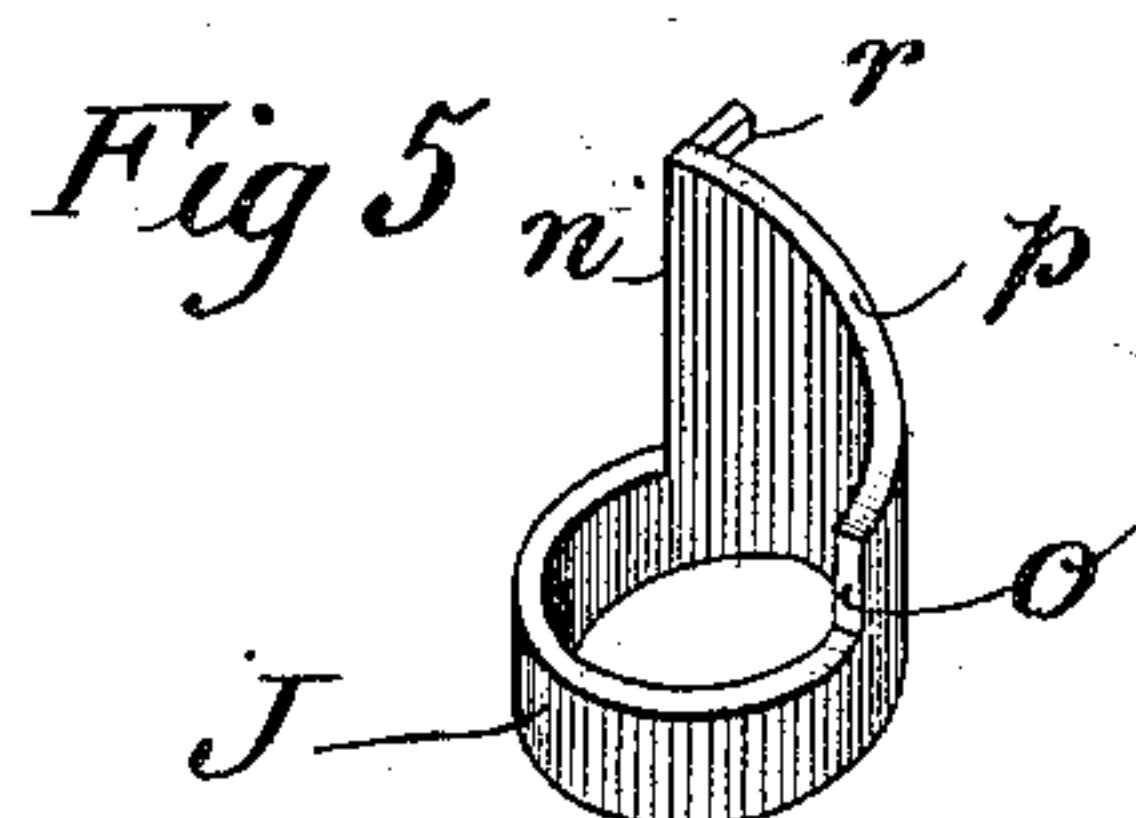
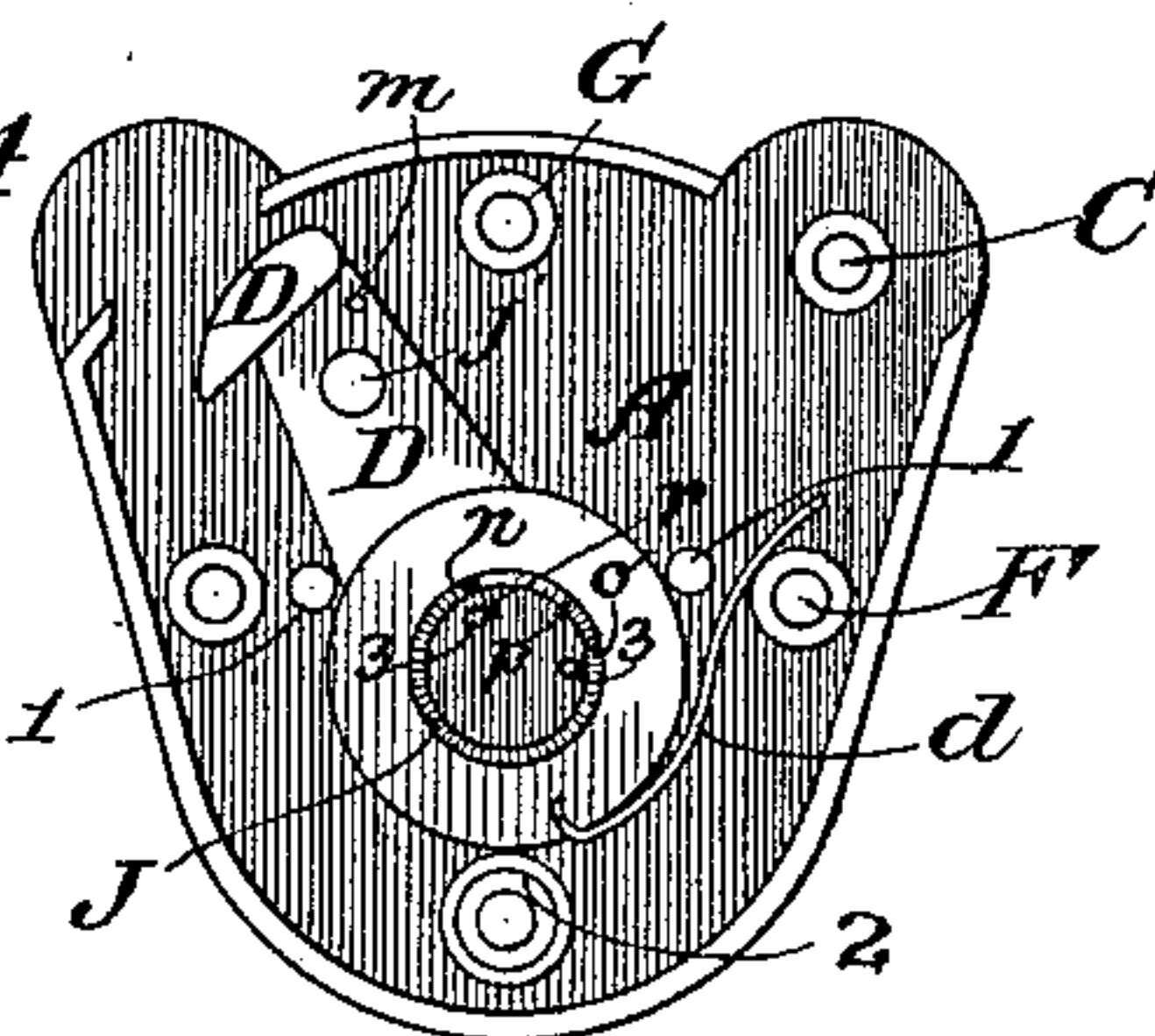


Fig 6

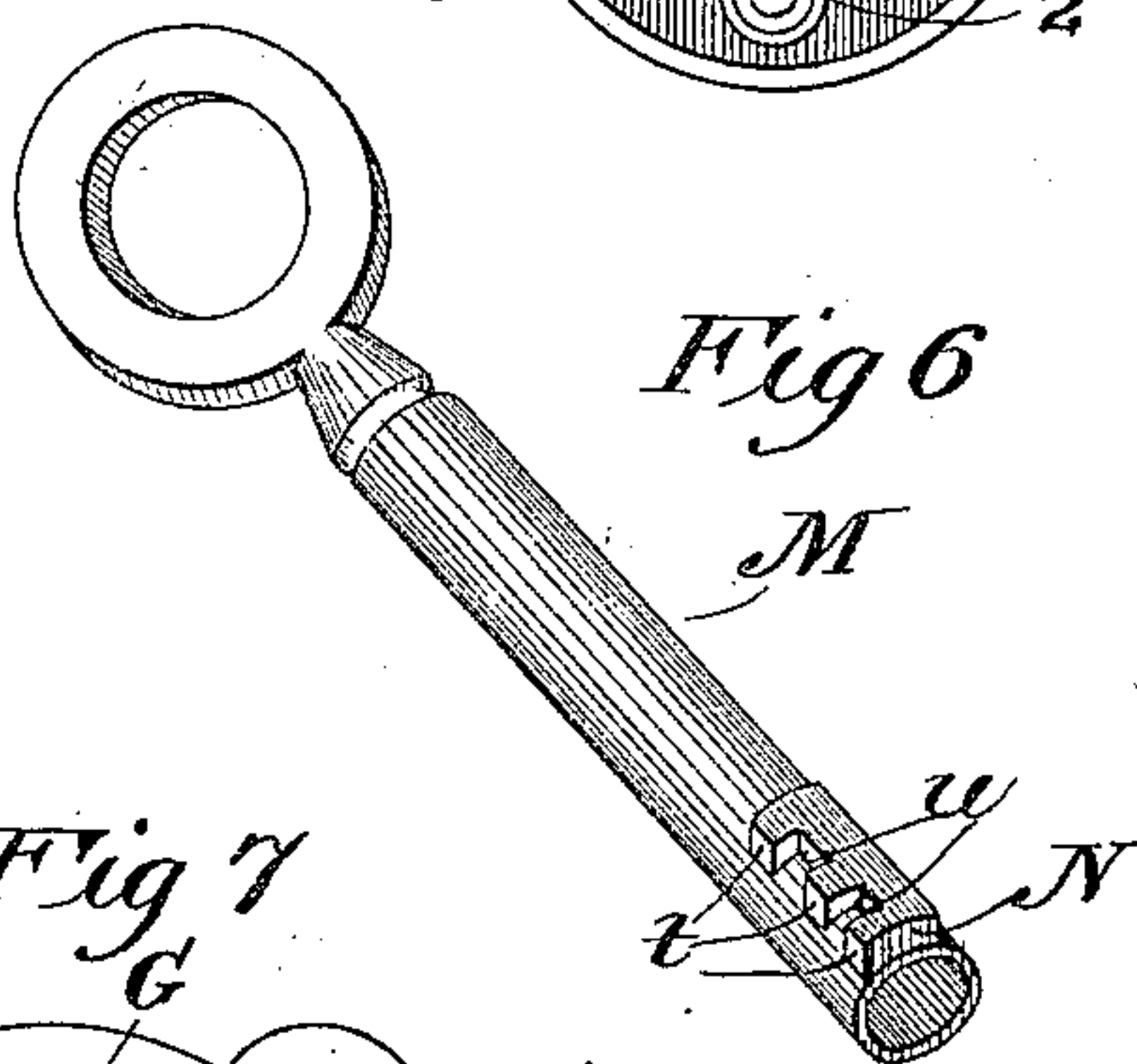
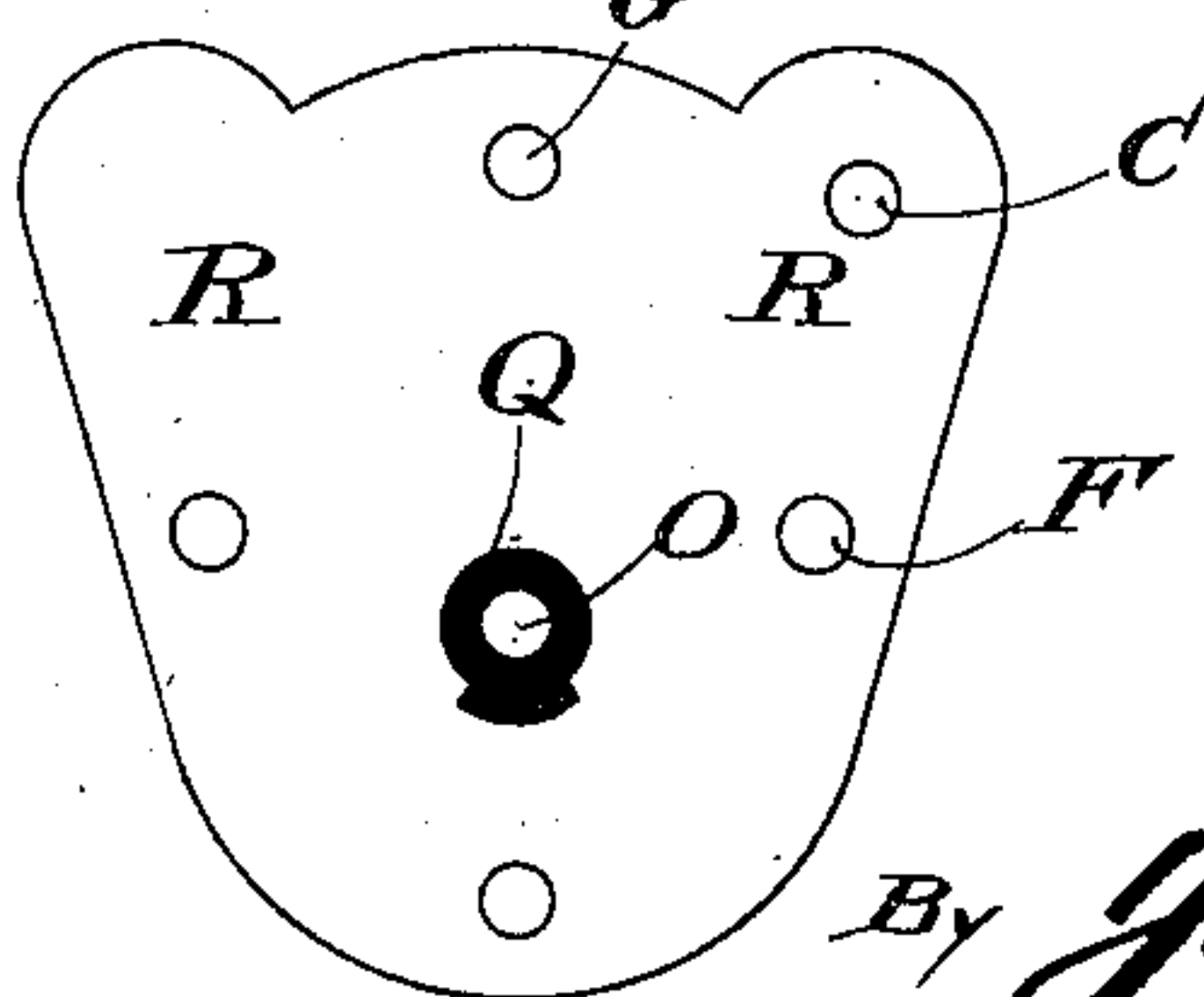


Fig 7

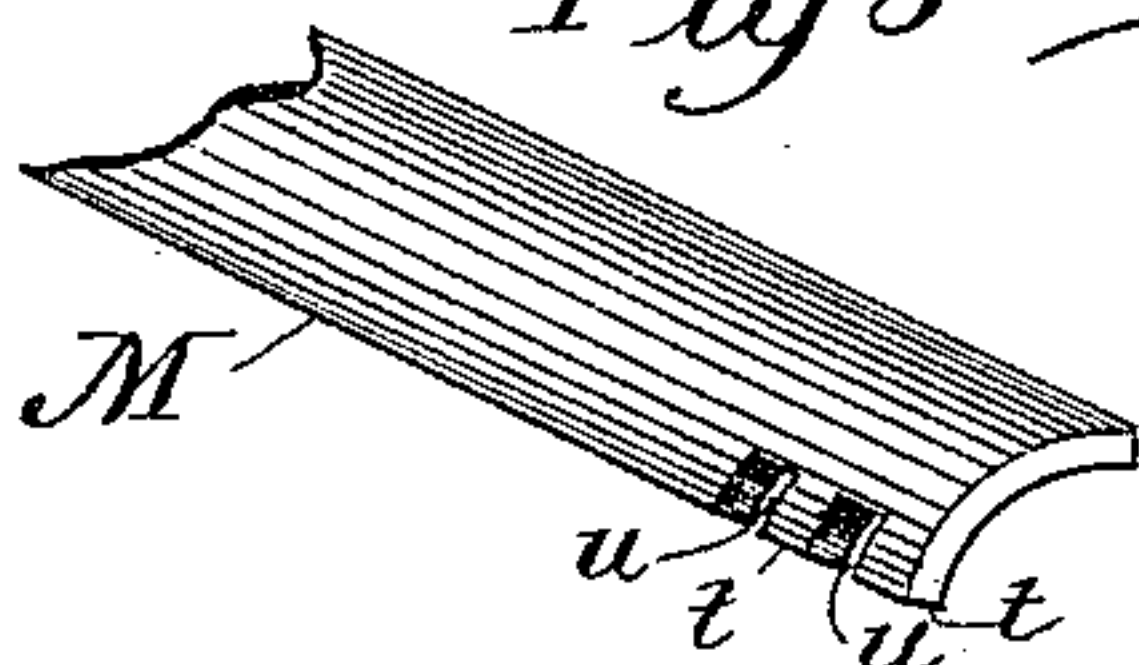


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attg.

Fig 8



Witnesses
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UNITED STATES PATENT OFFICE.

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PADLOCK.

SPECIFICATION forming part of Letters Patent No. 427,843, dated May 13, 1890.

Application filed April 29, 1889. Serial No. 308,930. (Model.)

To all whom it may concern:

Be it known that I, FREDERICK EGGE, a citizen of the United States, residing at Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in 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.

My invention relates to locks, but has especial reference to the construction of the tumblers so as to adapt them for the use of a peculiar key; and it consists in the details of construction and combination of elements such as will be hereinafter fully set forth, and then specifically designated by the claims.

In the accompanying drawings, Figure 1 is a plan of my improved lock embodied in the form of a padlock, the face-plate being removed and the parts being in locked position; Fig. 2, a similar view showing the parts in unlocked position; Fig. 3, an interior plan with the shackle, tumblers, and tumbler-dog removed; Fig. 4, a view similar to Fig. 3, but showing peripheral bearings for the hook instead of the central hub shown in Figs. 1, 2, and 3; Fig. 5, a detail perspective of the tumbler-guard; Fig. 6, a detail perspective of the key; Fig. 7, a face view of the lock with the cover-plate in position and the shackle removed, and Fig. 8 a broken detail perspective showing a flat key made in accordance with my improvement.

Similar letters and numerals denote like parts in the several figures of the drawings.

I have shown my invention embodied in the form of a padlock; but of course it may be applied to an ordinary door or drawer lock without any change of form or operation.

A is the casing, and B the shackle, which latter is adapted to open with a spring action through the medium of a coil-spring *a*, one end of which is secured to the shackle-post C, the other end being secured behind a shoulder *b* on the head L of said shackle. The nose of the shackle is formed into a hook *c*.

D is a hook or bolt pivoted within the casing, preferably around a hub E, and having a spring *d* secured thereto and bearing against

a post F, whereby a spring action may be imparted to said hook. The hub is slotted at right angles to its periphery, so as to afford shoulders *e f*. The upward movement of the hook is limited by the post G, while the downward movement is arrested by the impact of the lug *g* against the shoulder *e*. This confining of the movements of said hook within certain limits may, however, be effected in any ordinary manner, as by pins projecting upward from the casing, and I therefore do not wish to be limited in this particular.

H are tumblers around said hub and supported one over the other upon the hook. These tumblers are provided with the usual gates *h*, (the upper one only being shown,) in their peripheries adapted to be brought into alignment by the action of the key, as will be presently set forth. Each tumbler has a lug *i* extending inwardly within the slotted portion of the hub and between the shoulders *e f*, said lug projecting beyond the inner periphery of said hub, so that it will be clearly seen that the swing of said tumblers is limited by the shoulders *e f*.

I is the tumbler-dog, pivoted to the hook, as seen at *j*, the nose *k* of said dog being in close proximity to the peripheries of the tumblers. A spring *l* at the tail of the dog and bearing against any suitable pin *m*, projecting from the hook, imparts a spring action to said dog, tending to force the nose *k* against the tumblers.

J is a tumbler-guard consisting of a ring provided with shoulders *n o*, the upper edge of said guard being inclined from *n* to *o*, as seen at *p* in Fig. 5. *r* is a pin projecting outwardly from said guard near the shoulder *n*. This guard is inserted within the hub, so that the pin *r* extends within the slotted parts of said hub, the lugs *i* of the tumblers being between the shoulders *e n*. The guard can be turned freely in the hub within the limits prescribed by the pin *r* and shoulders *e f*.

s is a flat spring secured to the dog I, and extended rearward in close proximity to the forward edge of the heel of the shackle, the function of said spring being to prevent any swing of the hook to unlock the shackle without properly assembling the tumblers.

M is the key, which is tubular, and is pro-

vided with a concentric bit N, within which latter are side wards *t* and notches *u*.

O is the post for the key, and when the latter is inserted in the lock and turned properly the wards and notches will engage the lugs *i* and so arrange the tumblers that the gates *h* will be brought into alignment, thus permitting the nose of the dog I to spring within said gates, and thereby establish a rigid connection between said tumblers and the hook, whereby the further action of said wards and notches against the lugs *i* will raise the hook out of engagement with the hooked nose *c* of the shackle and permitting the latter to spring back to the position shown at Fig. 2. The dropping of the dog I within the tumbler-gates carries the spring *s* beyond the heel end of the shackle, so that there will be nothing to prevent the raising of the hook. After the parts have been brought by the key to the position shown at Fig. 2 the turning back of the latter to withdraw it from the key-hole Q in the face-plate R will cause the rear edge of the bit N to strike the shoulder *o* on the guard and carry the latter back to the position shown at Fig. 1, thus throwing the dog I out of the gates *h* and disarranging the tumblers. When the shackle is closed, the hooked nose *c* will strike the head of the hook D and force the latter upward until an engagement is effected with said nose. As the heel of the shackle strikes the spring *s* the latter will yield to permit said heel to pass beyond it, and will then return to normal position, as shown at Fig. 1.

The hub E and post O may be dispensed with and exterior bearing-points 1 2 be provided for the hook-body, which would be made circular, as shown at Fig. 4, and the key be formed with a solid body instead of being tubular; also, the pin *r* would then project inward and limit the movement of the guard by abutting against the pins 3, extending from the casing. I prefer the construction shown at Fig. 1, since it affords a very strong and secure lock, and I only refer to the modification shown at Fig. 4 in order to guard against the possible perversion of such construction into something not within the pale of mechanical skill and not contemplated in my invention. The guard J prevents any successful tampering with the tumblers, and also serves to always bring the latter back to the position shown at Fig. 1, for should said guard be independently manipulated by a picking-tool, so that the pin *r* has abutted against the shoulder *f*, the incline P will thereby be brought beneath the key-hole Q, and the key when inserted will strike said incline and drive the guard back to normal position. This throwing back of the guard might of course be accomplished by giving the key a turn backward; but such a pro-

ceeding is undesirable and would detract from the market value and merit of the lock. Of course tumblers with independent springs may be used in connection with my improvement; but the principles which are embodied in my invention afford a rare opportunity for the use of loose tumblers, which latter present additional obstacles to picking, and are always used when the construction of the lock will permit of such use. I prefer to use the key shown at Fig. 6, since it turns in so small a circuit and presents such a limited contact with the tumblers that it is well nigh impossible to pick the lock. I have shown this key formed by a concentric bit N around the barrel of the key; but it is only necessary that the wards and notches in said bit should be cut in the arc of a circle concentric with the rotary movement of the key-shank, and therefore said key can be made, as shown at Fig. 8, in which instance I would use the ordinary rotary hub as a key-guide and of course dispense with the post O.

I claim—

1. The combination of the spring-actuated hook or bolt journaled within the lock-casing, the tumblers having a common pivotal point, and provided with gates and lugs, as described, and the spring-dog pivoted to and carried by said hook or bolt and adapted to enter said gates, substantially as set forth.

2. The combination, with the resilient hook or bolt and the pivoted gated tumblers, said hook and tumblers having a common pivoted point, of the dog pivoted to and carried by said hook and adapted to engage with the gates in the tumblers, substantially as set forth.

3. The combination of the tumblers pivoted around a shouldered hub, and having lugs extending inwardly between and beyond the shoulders on said hub, of the guard within said hub, having shoulders and inclined between said shoulders, and the pin projecting from said guard immediately beyond said lugs, substantially as set forth.

4. The combination of the shackle, the hollow hub rigid with the casing and slotted to form shoulders *e f*, the spring-actuated hook pivoted around said hub, the tumblers also pivoted around said hub, and having lugs *i* extending within and beyond the slotted part of the hub, the gates within the peripheries of the tumblers, and the dog carried by the hook and adapted to lock said tumblers rigid with said hook, substantially as shown and described.

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

FREDERICK EGGE.

Witnesses:

R. H. BRODERICK,
JNO. H. GREEN.