

No. 736,189.

PATENTED AUG. 11, 1903.

P. YOE.
INDICATOR LOCK.
APPLICATION FILED OCT. 9, 1902.

NO MODEL.

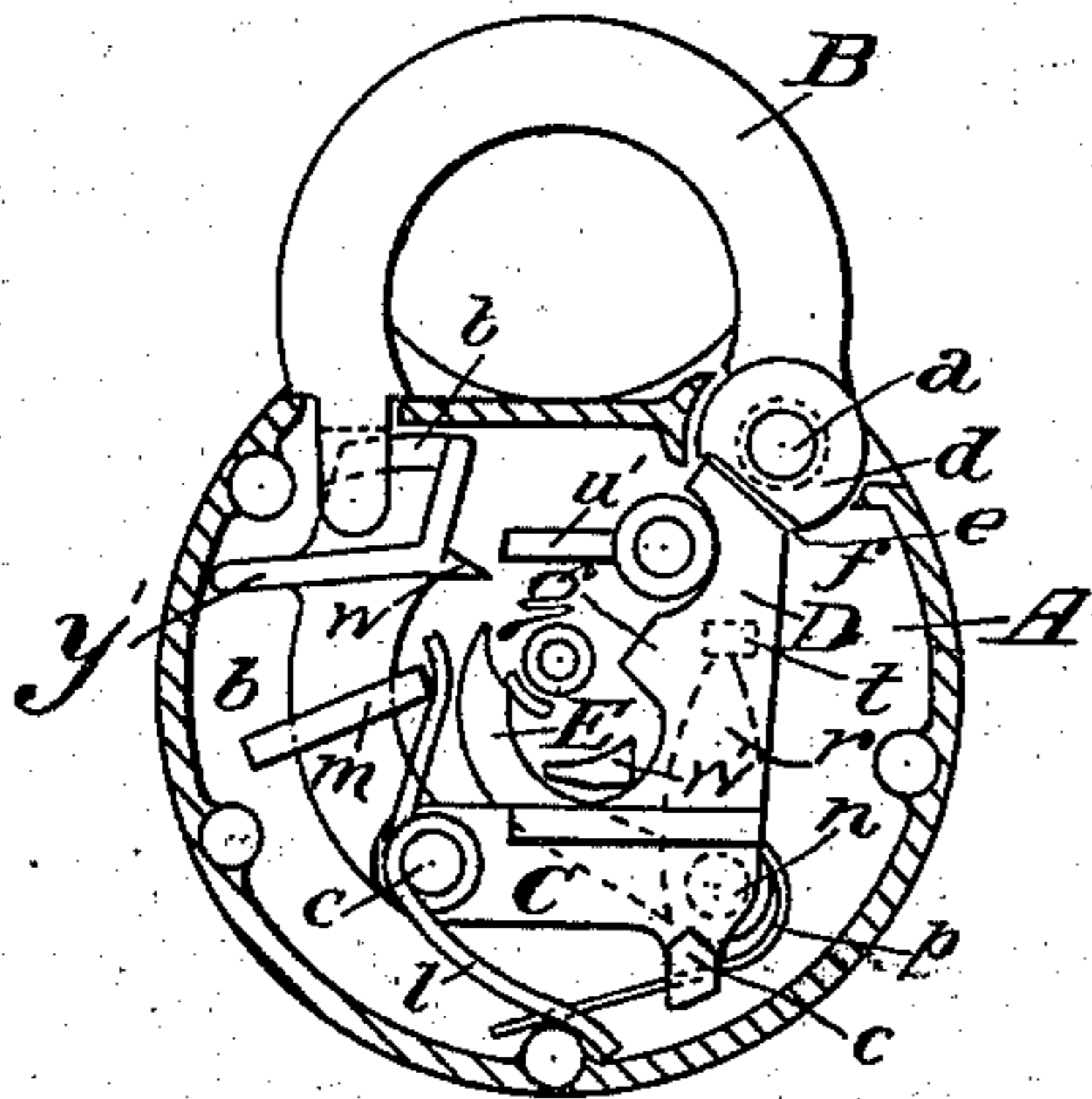


Fig. 1.

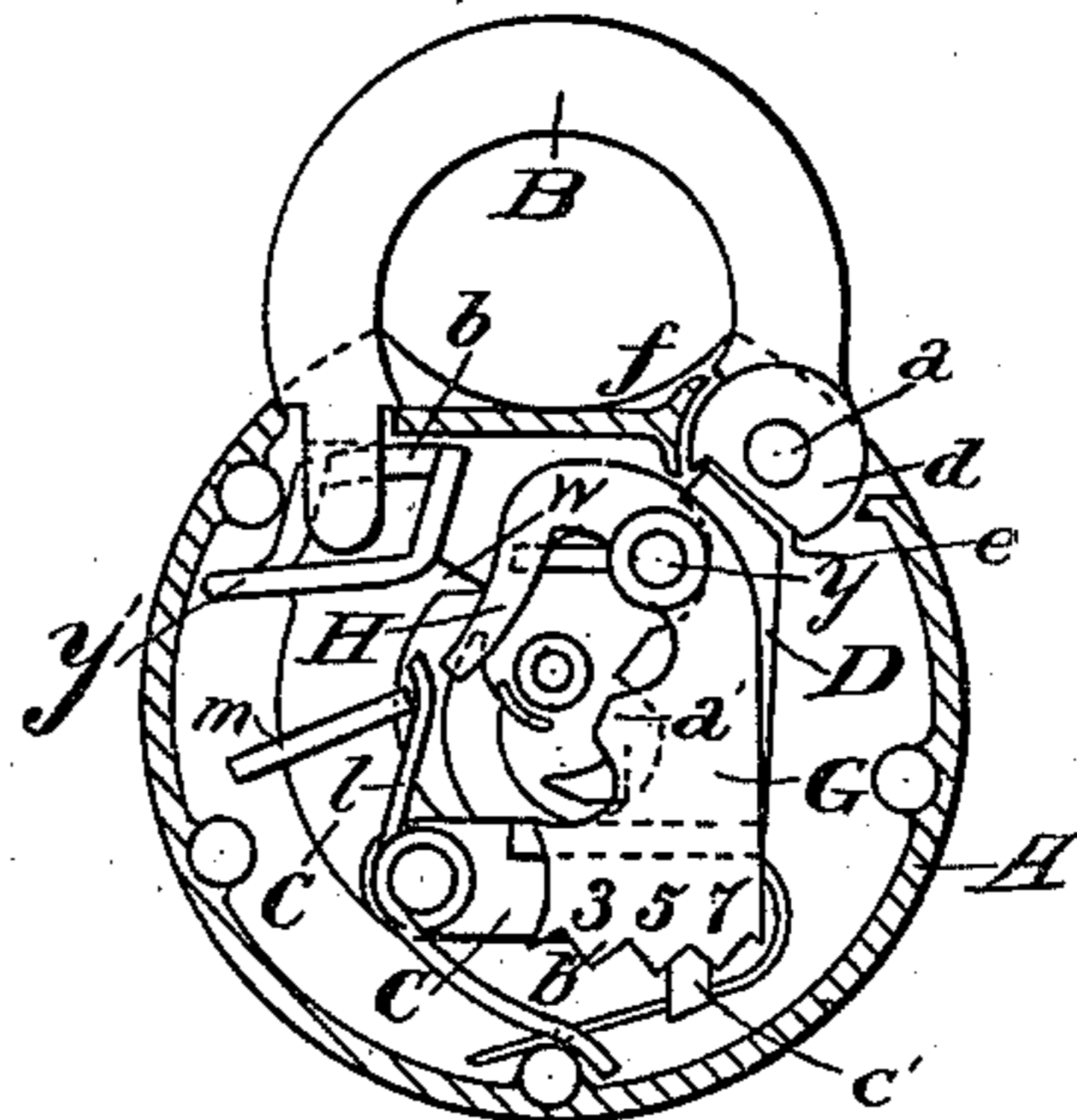


Fig. 3.

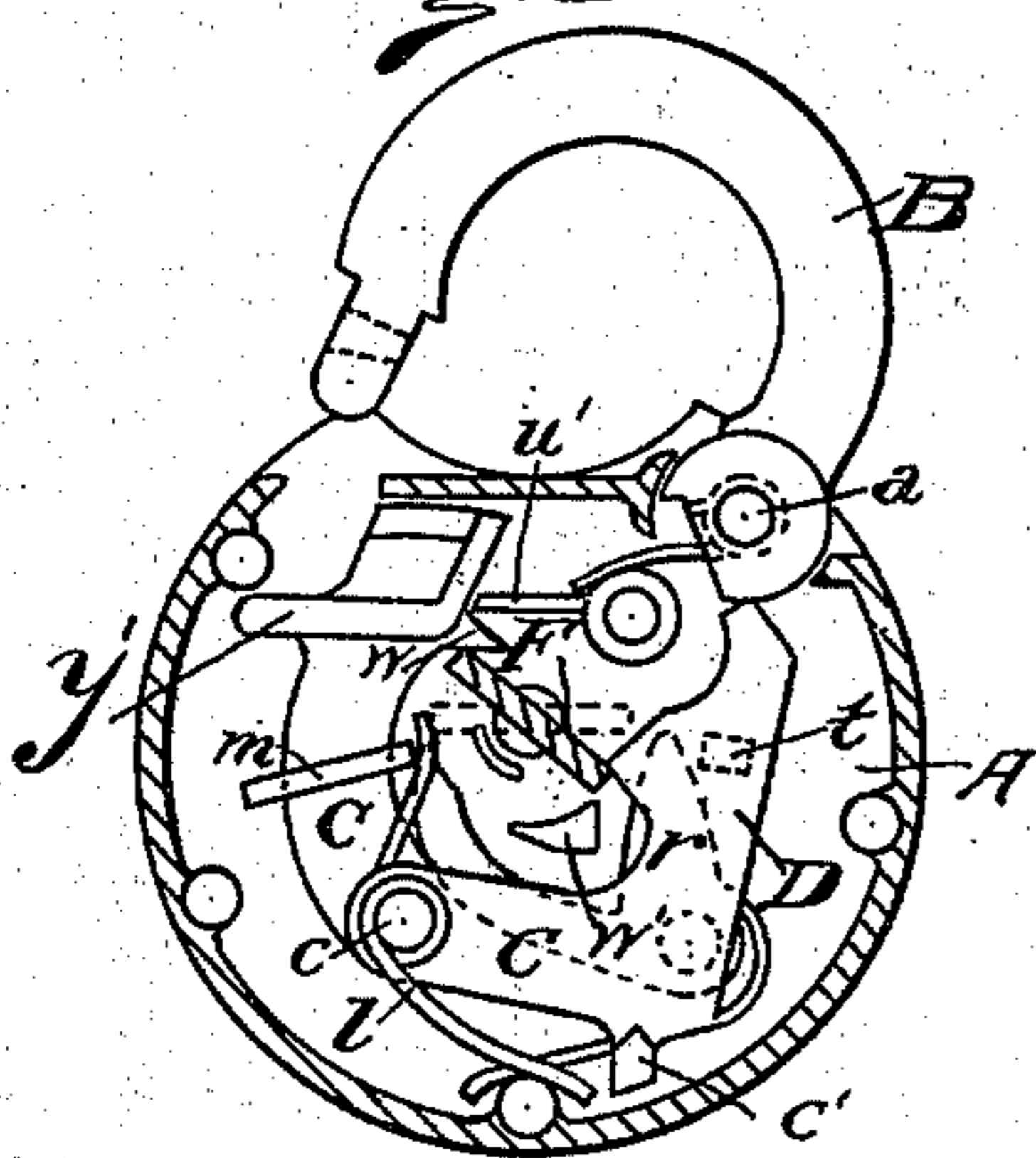


Fig. 2.

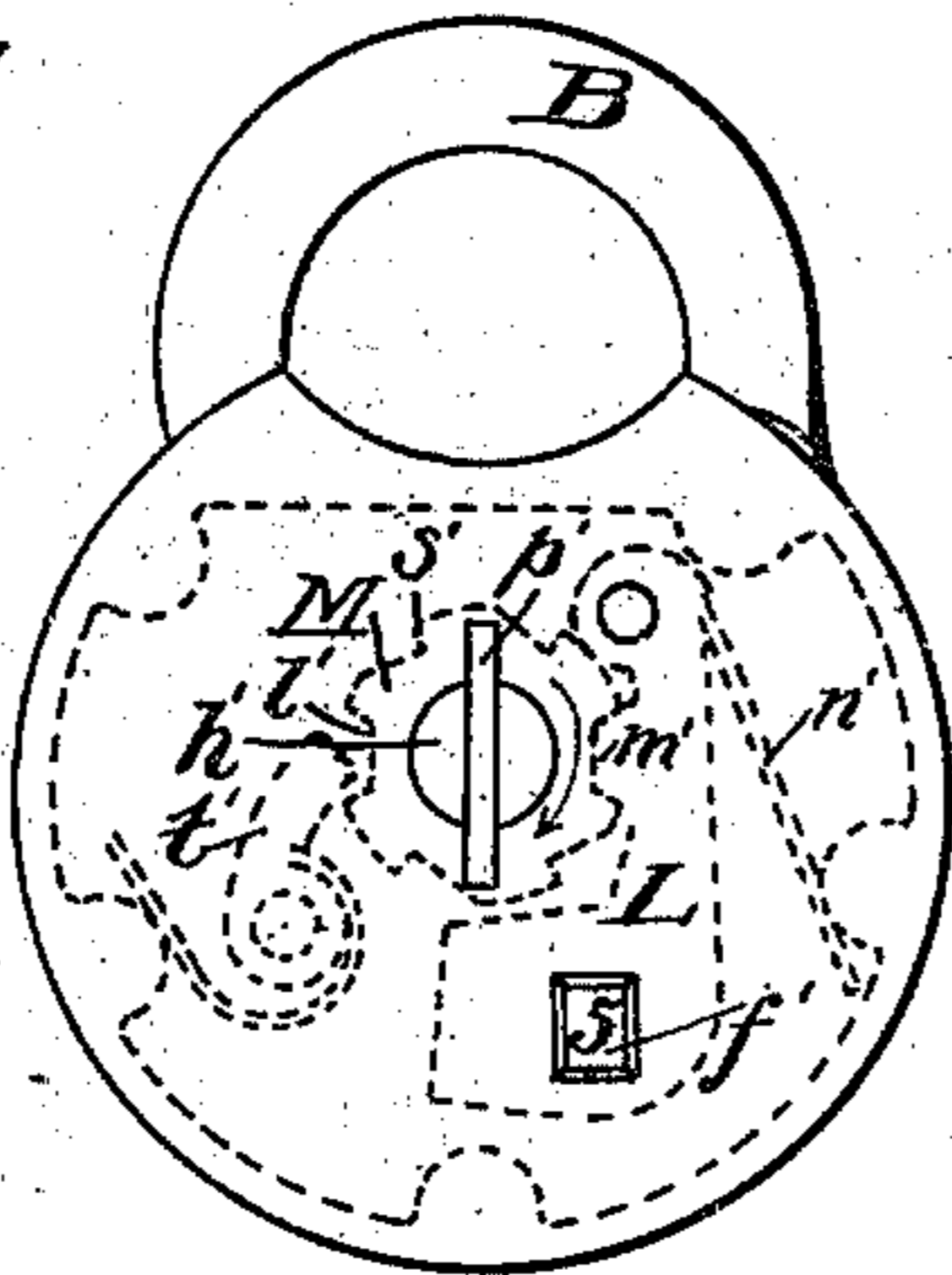


Fig. 5.

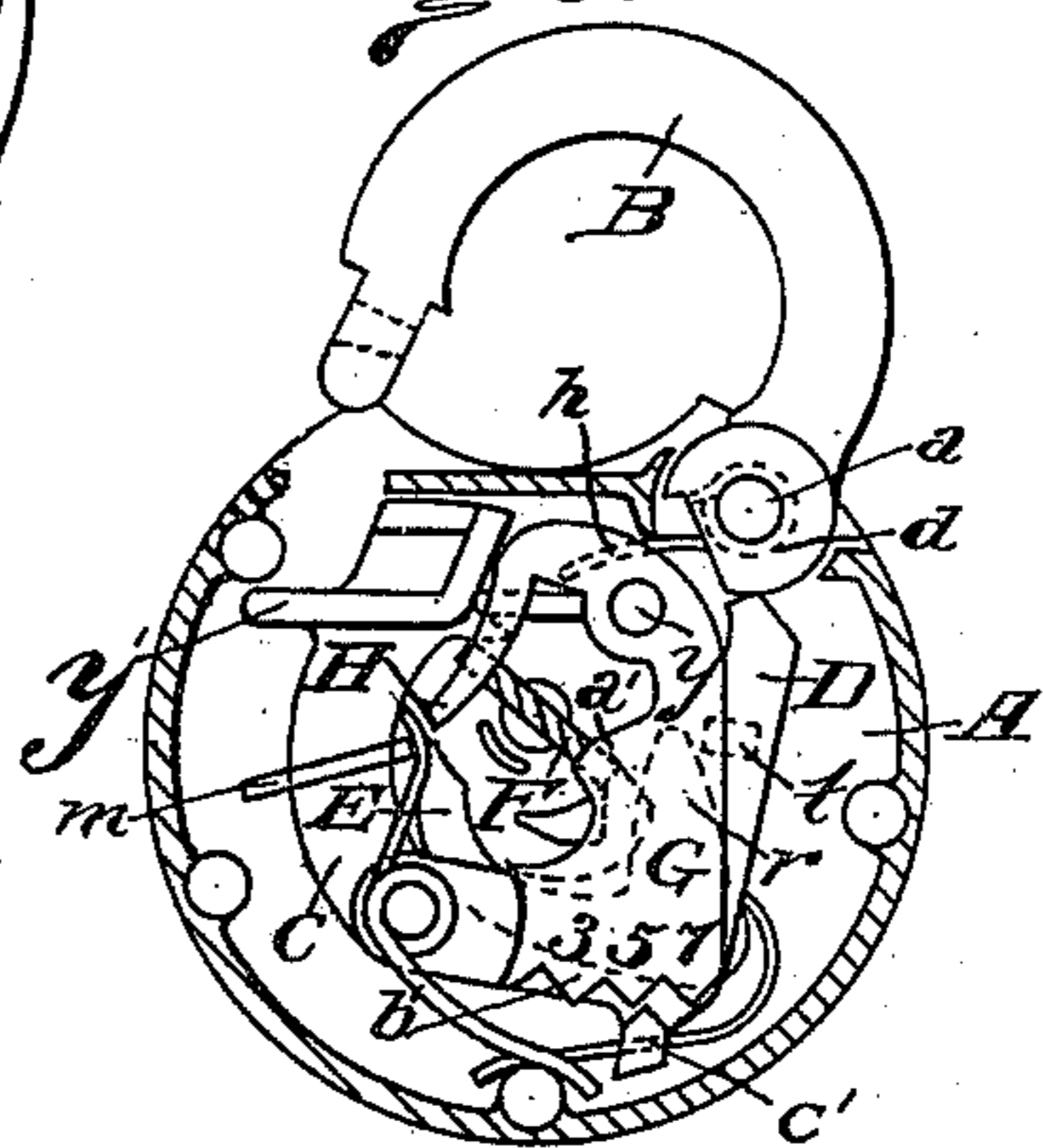


Fig. 4.

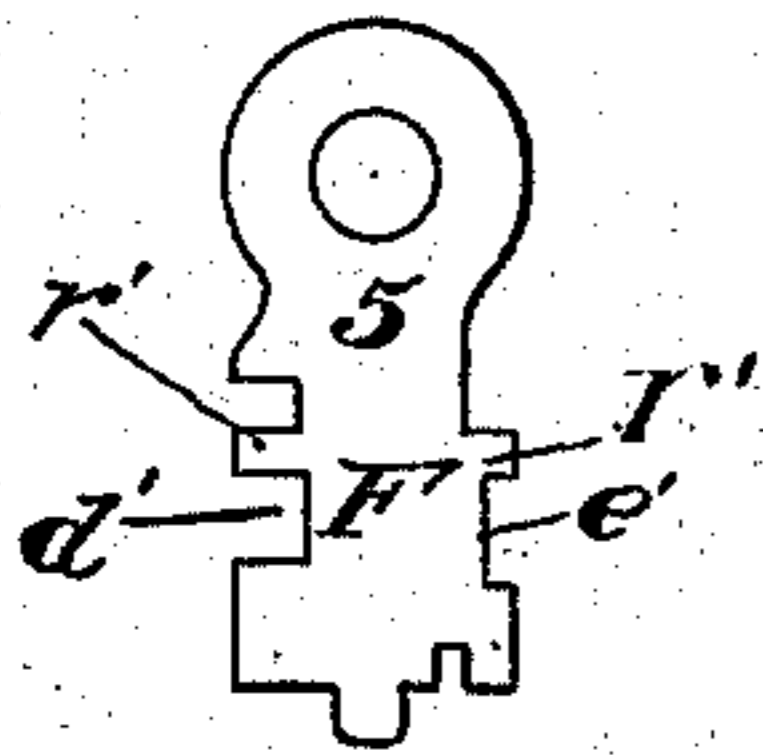


Fig. 7.

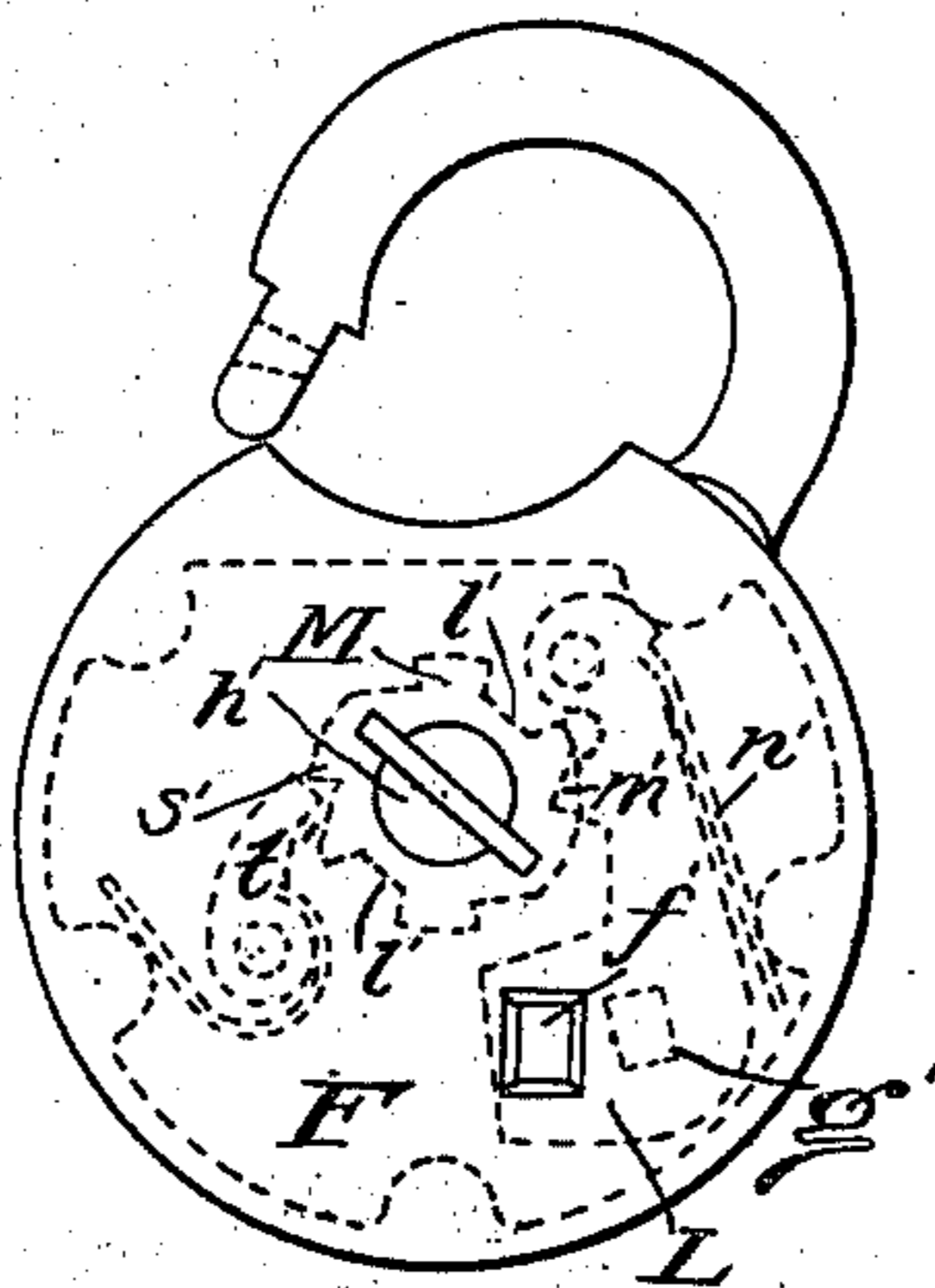


Fig. 6.

Witnesses
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INDICATOR-LOCK.

SPECIFICATION forming part of Letters Patent No. 736,189, dated August 11, 1903.

Application filed October 9, 1902. Serial No. 126,511. (No model.)

To all whom it may concern:

Be it known that I, PHILIP YOE, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Indicator-Locks, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention has for its object to supply a lock of the padlock variety, the lock to be opened by a series of different keys and to be provided with registering mechanism to register the number of the key used to open the lock.

It is the purpose of my invention to so simplify the construction that such padlocks can be cheaply manufactured and in which a minimum of parts shall be employed, so that the padlock shall be adapted for general use.

In the drawings, Figure 1 is a plan view of my lock with the front case and registry-plate removed and with the shackle closed. Fig. 2 is a similar view showing the key in the lock and the shackle open. Fig. 3 is a plan view similar to that shown in Fig. 1 with the registering-plate in place. Fig. 4 is a view corresponding to Fig. 2 with the registry-plate in place. Fig. 5 is a plan view of the padlock, showing the shield for the registry device and its lock in dotted lines and in which the shackle is closed. Fig. 6 is a similar view with the shackle open. Fig. 7 is a plan view of one of the keys.

A is the case of the padlock, provided with the shackle B, pivoted on the pin *a* in a suitable opening in the top of the case and provided with a slot at its free end to receive the hook *b* on the bolt C, which bolt is pivoted on the pin *c*, so that the oscillation of the bolt will release or lock the shackle. The hub *d* of the shackle is cut away on one side, as shown at *e*, and the bolt C carries an arm D, whose outer end is beveled off, as shown at *f*, to engage within the cut-away portion of the hub of the shackle. The arm D also carries a projecting portion *g*, against which the web of the actuating-key bears to oscillate the bolt to release the shackle. When the bolt is thus oscillated by the key, as will be hereinafter

described, the beveled end *f* of the bolt is carried beyond the cut-out portion of the hub of the shackle, and the spring *h*, mounted around the pin *a* and bearing on the shackle, throws same up and out of the case. It will be seen also that when the shackle is thrown up the cylindrical portion of the hub will lie in the pathway of the bolt, so that the bolt cannot be locked until the free end of the shackle has been pressed back into the case.

l is a spring mounted on the pivot-pin *c* for the bolt bearing between the case and the lug *m* on the bolt C.

Pivoted on the pin *n* and held up by the spring *e* is the tumbler E. This tumbler is provided with two arms, one of which is actuated by the key, and the other arm *r* when the parts are in their locked position bears underneath the bolt C against a lug *t* on the under surface of the bolt C. When this tumbler is in the position shown in Fig. 1, the arm *r* of the tumbler prevents the movement of the bolt. When the tumbler is shifted by the actuation of the key, as will be hereinafter described, the end of the arm *r* will pass by the lug *t*, and the bolt C can then be oscillated. This oscillation is obtained against the pressure of the spring *l* by the web of the key F bearing against the beveled projection *g* on the arm D of the bolt, and the parts are so shaped that the arm D will by this action be thrown a sufficient distance beyond the hub *a* of the shackle to allow the web of the key to pass the point of the projection *g*, when the action of the spring *l* will return the arm D to bear against the hub *d* and bring the point of the projection *g* behind the web of the key and prevent the return of the key until the shackle is closed.

W is a lug on the bolt which when the bolt is oscillated to release the shackle projects into the pathway of the key on the opposite side, and this prevents its further forward movement also until the shackle is closed and the bolt returned by the spring *l* to its locking position. The key is thus held in the padlock until the shackle is locked.

G is a plate mounted to oscillate on the pin *y*. The body of this plate is located at one side of the key-opening and carries a projection *a'*, extending toward the key-opening on

that side, while H is an arm on the plate G, curved around to the opposite side of the key-opening. The lower edge of this plate is provided with teeth b' , which teeth are engaged by the tooth c' , projecting upward from the lower edge of the bolt C, to hold the plate G locked when the bolt C is in its locking position and to release the plate when the bolt is oscillated to release the shackle. The plate G carries a series of numerals, as many as there are teeth for the plate, and as many keys for opening the lock are provided as there are teeth for the registering-plate. These keys are cut away at $d' e'$, so that the horizontal distance between the edges $d' e'$ shall remain constant, but so that for each key the edges $d' e'$ shall lie at different distances from the axis of rotation of the key. The space between the arm H and the projection a' of the plate G is just sufficient to allow the web of the various keys to pass, and it is evident that the varying distances of the surfaces $d' e'$ of the various keys, the axis of rotation of the several keys remaining constant, will cause the plate G to take different positions to correspond with the numeral on the key which will register with the same numeral on the plate, which will be visible through the opening f' in the front of the case. As already explained, the key will be held in the lock by the lugs g and w on the bolt, and at the same time the registering-plate will be locked by the key between the arm H and the projection a' . The closing of the shackle will allow the bolt to return to its locking position, and the key can then be further rotated into position for removal from the lock, while with the return of the bolt the tooth c' will engage and lock the registering-plate.

In order that the registering-plate may not be tampered with when released by the opening of the bolt, I pivot a shield L to the under surface of the front plate of the padlock. This shield L has an opening g' , (shown in dotted lines, Fig. 6,) which when the lock is closed registers with the opening f' in the front casing. The shield is held and locked in this position by the disk or escutcheon-plate M, provided with hub portion h' , which is mounted to rotate in a circular opening in the front plate of the case. The body of the disk M extends behind the front plate and is provided with the notches $l' l'$, beveled each way on opposite edges of the disk and arranged to receive the projection m' on the shield L, the shield being pressed toward the disk by the spring n' . These notches are on opposite sides of the slot p' in the case and the disk M, through which the key is inserted, and the slot in the disk is engaged by the bits $r' r'$ on the key, which turns the disk with the key and pushes back the shield, as shown in Fig. 6, so that as soon as the key is inserted and turned the opening g' in the shield is withdrawn from the slot f' , concealing the registry-plate and numerals from outside interference.

In order to prevent any return of the key after it has started to throw the bolt, teeth s' are formed on the disk to be engaged by the spring-pressed pawl t' , pivoted to the under side of the front plate of the padlock.

To prevent any picking of the lock, guards $u' w'$, Figs. 1 and 2, are fixed to the back wall of the case, extending up to the front wall at each end of the slot p' , and at the opening for the shackle a guard y' is formed on the bolt C.

The operation of the lock will be sufficiently evident from what has already been described. As many keys can be used for opening the padlock as the size of the padlock will permit teeth to be formed on the registering-plate, each key having a web portion in a different position to the axis of rotation of the key, and the keys are numbered to correspond with the numbers of the registry-plate. The number of the key last used will be shown at the opening f' when the lock is closed. When another key is inserted in the slot p' , the key is turned in the direction shown by the arrow in Fig. 5. The rotation of the escutcheon-plate M throws the shield L into a position concealing the registering-plate. At the same time the web of the key contacts with the tumbler E and throws the arm r of the tumbler out of contact with the lug t on the bolt, and the bolt is then oscillated by contact of the key-web with the projection g on the arm D of the bolt. As soon as the arm D is pressed back from under the cut-away portion f of the hub of the shackle the shackle is released and thrown up by the spring h . At the same time the registry-plate takes its proper position to register the number of the key by contacting with the edges $d' e'$ of the key, the movement of the bolt having withdrawn the tooth c' from the teeth b' of the registering-plate and allowing freedom of movement. The key is now held fast in the lock by the projections $g w$ on the bolt and so remains until the padlock is closed by pressing in the shackle. The spring l , bearing against the lug m , throws the bolt back to its locking position, and the key can then be rotated in the same direction until in line with the slot p' in the case, when it can be withdrawn. In this position the projection m' on the shield L is forced into the other notch l' in the escutcheon-plate M, displaying at the sight-opening the number of the key that has been used.

It will be noticed that the number of parts of the padlock are very limited, consisting for the operation of the lock of only three pieces—the tumbler E, oscillating bolt C, and registry-plate G, each of these parts being provided with a spring. The escutcheon-plate and the shield for the opening, together with the locking-pawl t and their springs, make up all the parts of the padlock.

Of course as many wards may be employed as may be desired for the keys, and the various details of construction may be changed

without departing from the spirit of my invention, which consists, essentially, in designing a construction in which only three pieces are required to obtain an accurately-
5 working indicator-lock.

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

1. In a padlock, the combination, with the
10 case, and a key for the same, of a shackle, and a bolt pivoted in the case, with arms extending on each side of the key-opening, one arm engaging the free end of the shackle to lock the same, and the other arm actuated
15 by the key, with a projection on the actuated arm of the bolt to prevent the return of the key to its original position when the shackle is open, substantially as described.

2. In a padlock, the combination, with the
20 case, and a key for the same, of a shackle, and a bolt pivoted in the case, with arms extending on each side of the key-opening, one arm engaging the free end of the shackle to lock same, and the other arm actuated by
25 the key, with a projection on the actuated arm of the bolt to prevent the return of the key to its original position when the shackle is open, and a lug on the locking-arm of said bolt to prevent the further rotation of the key
30 after the bolt is thrown, substantially as described.

3. In a padlock, the combination, with the case, and a key for the same, of a shackle, and a bolt pivoted in the case, with arms extending on each side of the key-opening, one
35 arm engaging the free end of the shackle to lock same, and the other arm actuated by the key, with a projection on the shackle to prevent the return of the bolt to its locking
40 position when the shackle is open, and lugs on the opposing edges of both of said arms to prevent the movement of the key in either direction after the bolt has been oscillated to release the shackle, substantially as de-
45 scribed.

4. In a padlock, the combination, with the case, and a key for the same, of a shackle, a bolt pivoted in the case, with arms extending on each side of the key-opening, one arm

engaging the free end of the shackle to lock
50 the same, and the other arm actuated by the key, a plate carrying indicating devices, pivoted in the case, and having an arm which extends said plate to embrace opposite sides
55 of the key-opening, with wards on the key to fit between the arm and body of the indicating-plate when the shackle is opened to lock the plate in any desired position, substantially as described.

5. In a padlock, the combination, with the
60 case, and a key for the same, of a shackle and a bolt pivoted in the case, with arms extending on each side of the key-opening, one arm engaging the free end of the shackle to lock same, and the other arm actuated by
65 the key, a plate carrying indicating devices, pivoted in the case, and having an arm which extends said plate to embrace opposite sides of the key-opening, with wards on the key to fit between the arm and body of the indicat-
70 ing-plate when the shackle is opened, and a tooth on the bolt to engage the indicating-plate when the shackle is locked, whereby the indicating-plate may be always locked in position except when being actuated, sub-
75 stantially as described.

6. In a padlock, the combination with an indicating-plate to indicate the key operating the lock and means for locking the plate in position, and an opening in the case for displaying the designated numeral, of a shield,
80 having an opening to register with the sight-opening in the case, and a rotating escutcheon-plate to engage said shield and shift same to cover the sight-opening when the key is op-
85 erated, substantially as described.

7. In a padlock, the combination, with an indicator-plate, and a series of keys to operate it, of an escutcheon-plate to guide the keys with means for enforcing a half-revolu-
90 tion of the escutcheon-plate and a bolt to lock the indicator-plate, substantially as described.

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Witnesses:

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