

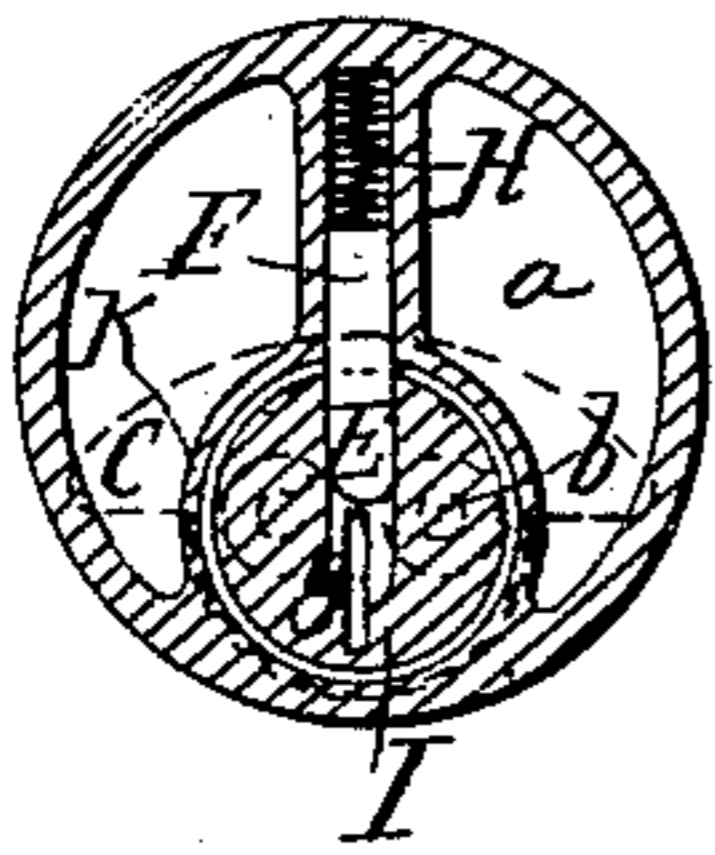
*Hermann & Taylor,*

*Pin Lock.*

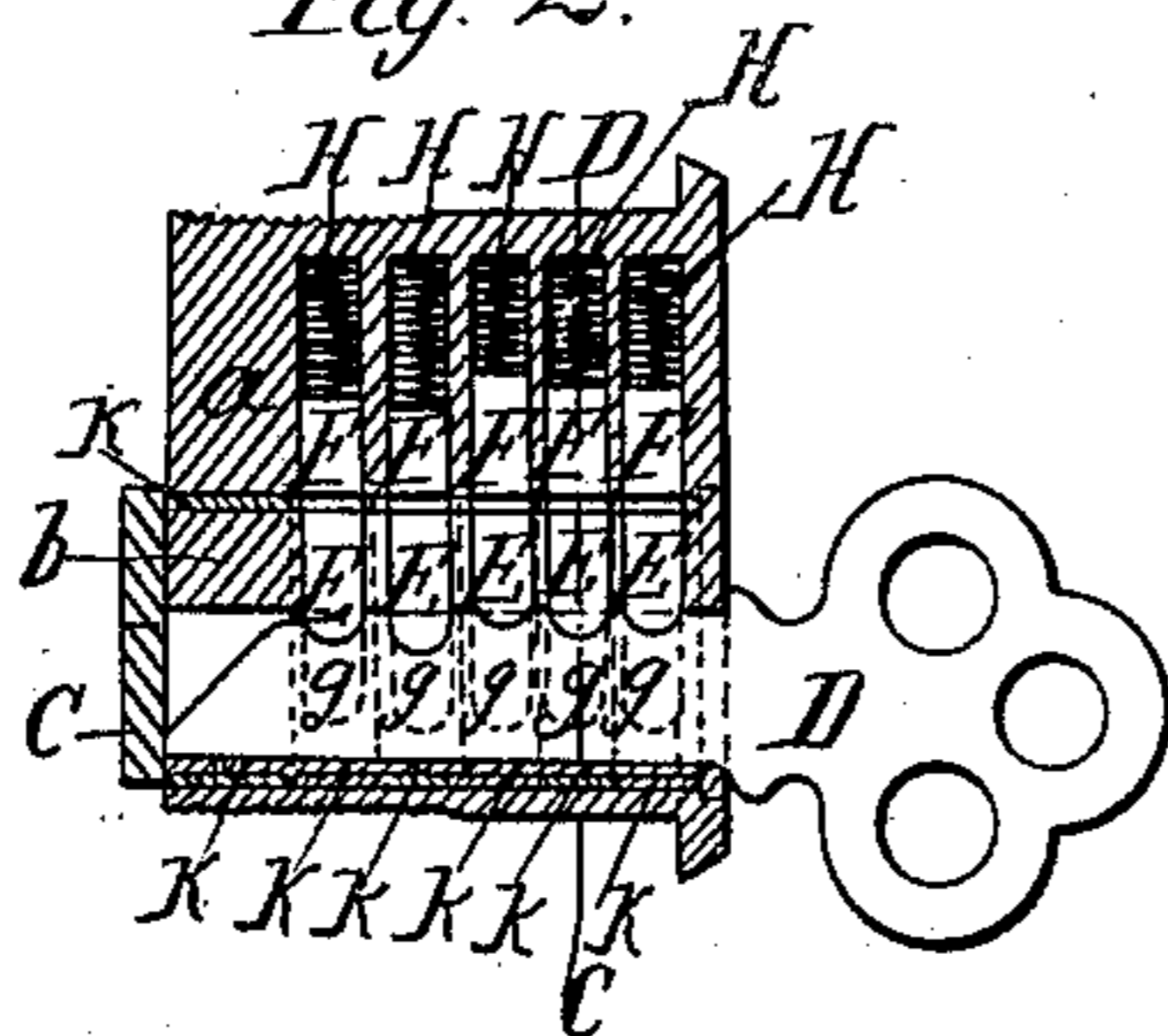
*No. 113,295.*

*Patented Apr. 4. 1871.*

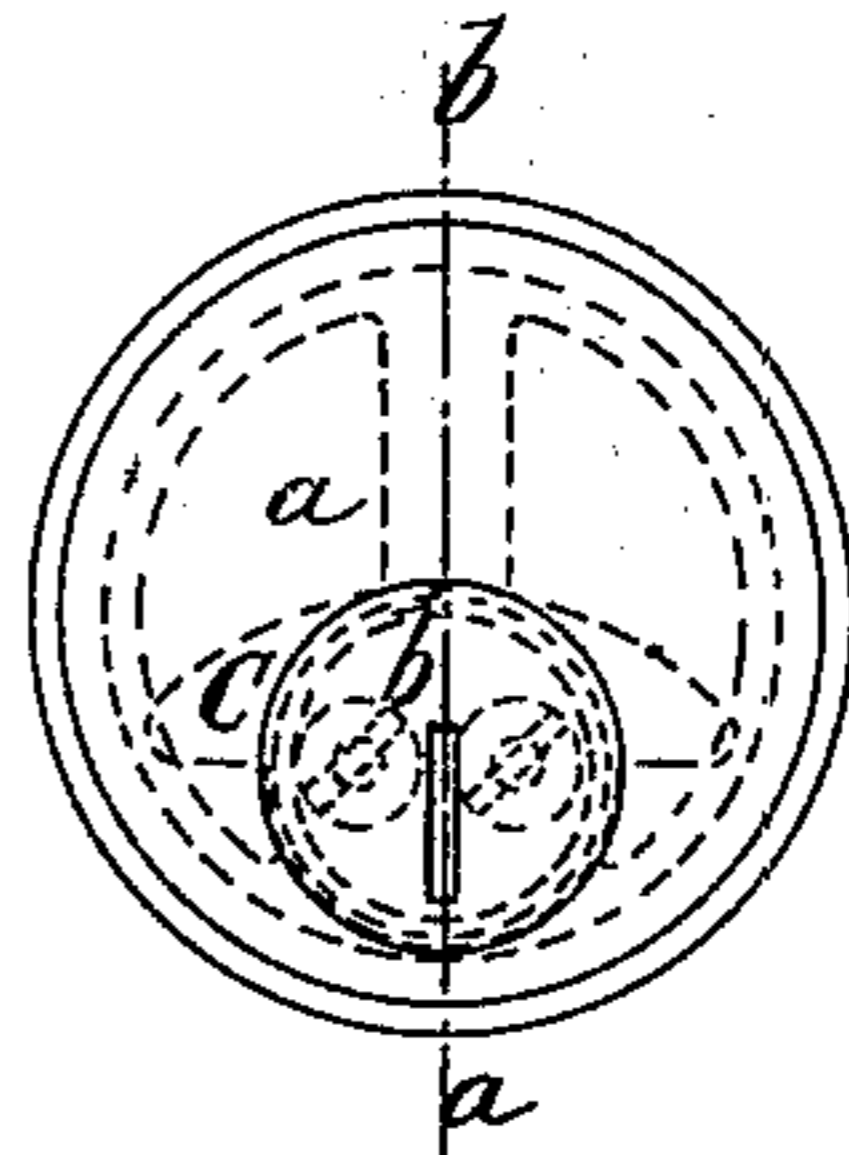
*Fig. 3.*



*Fig. 2.*



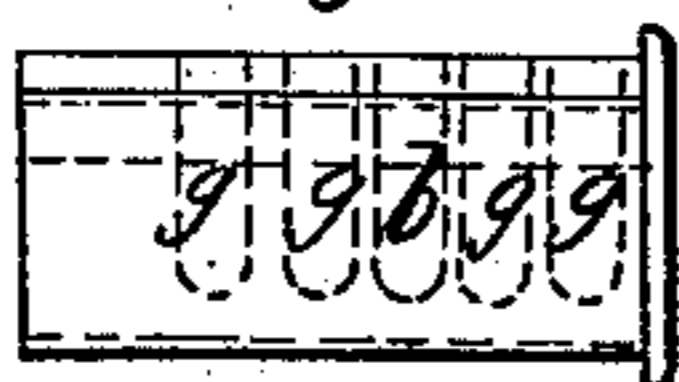
*Fig. 1.*



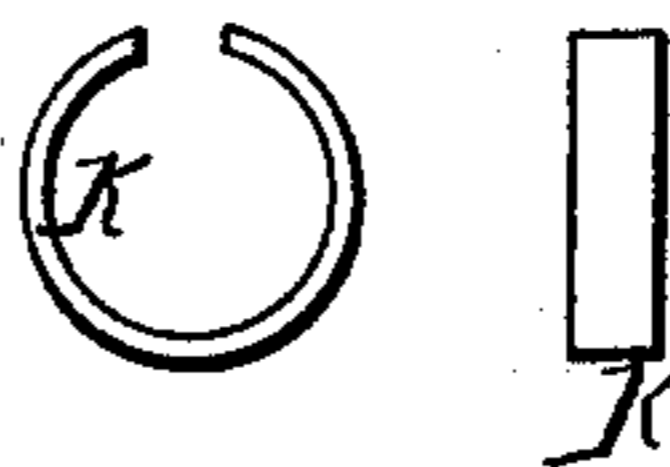
*Fig. 4.*



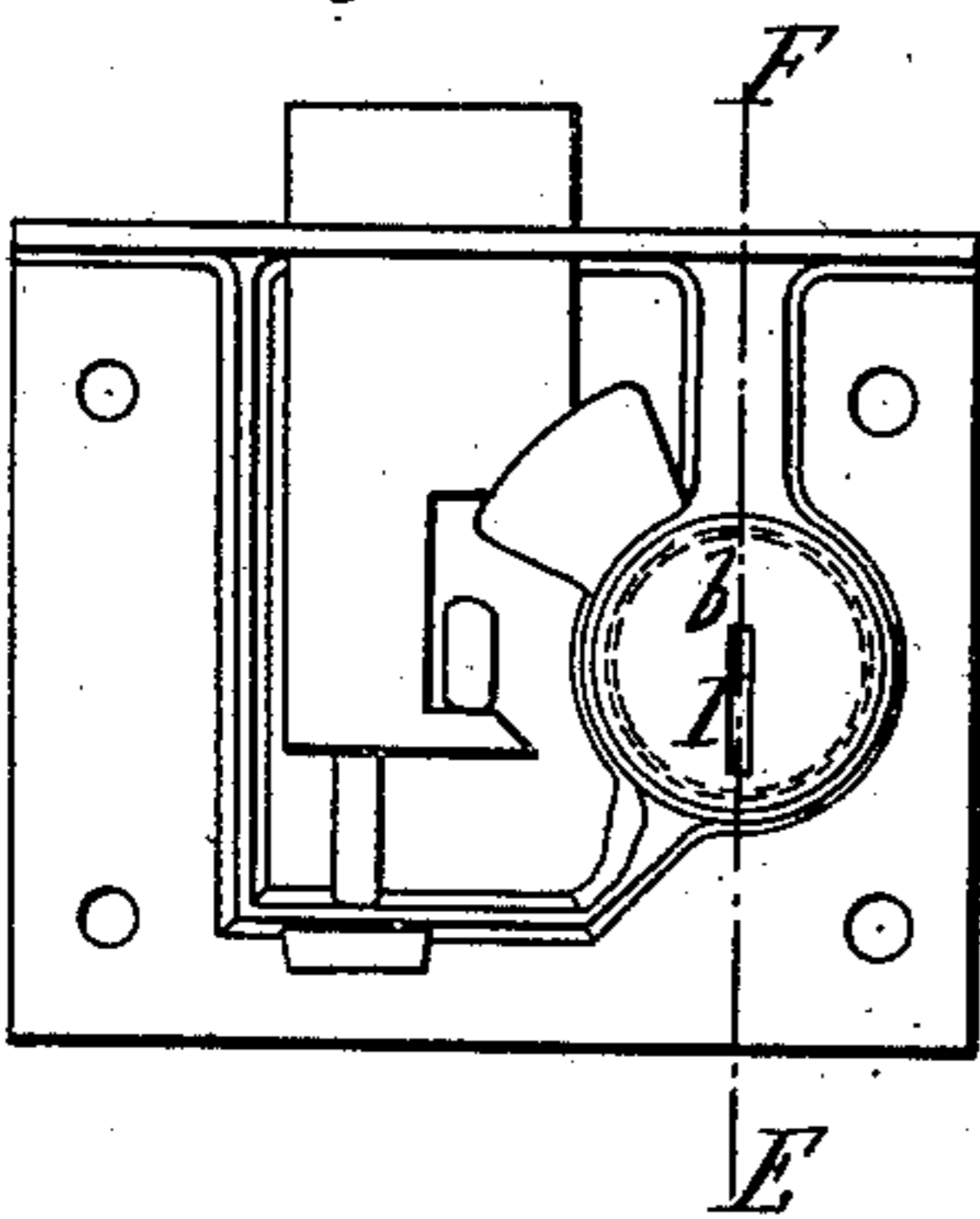
*Fig. 5.*



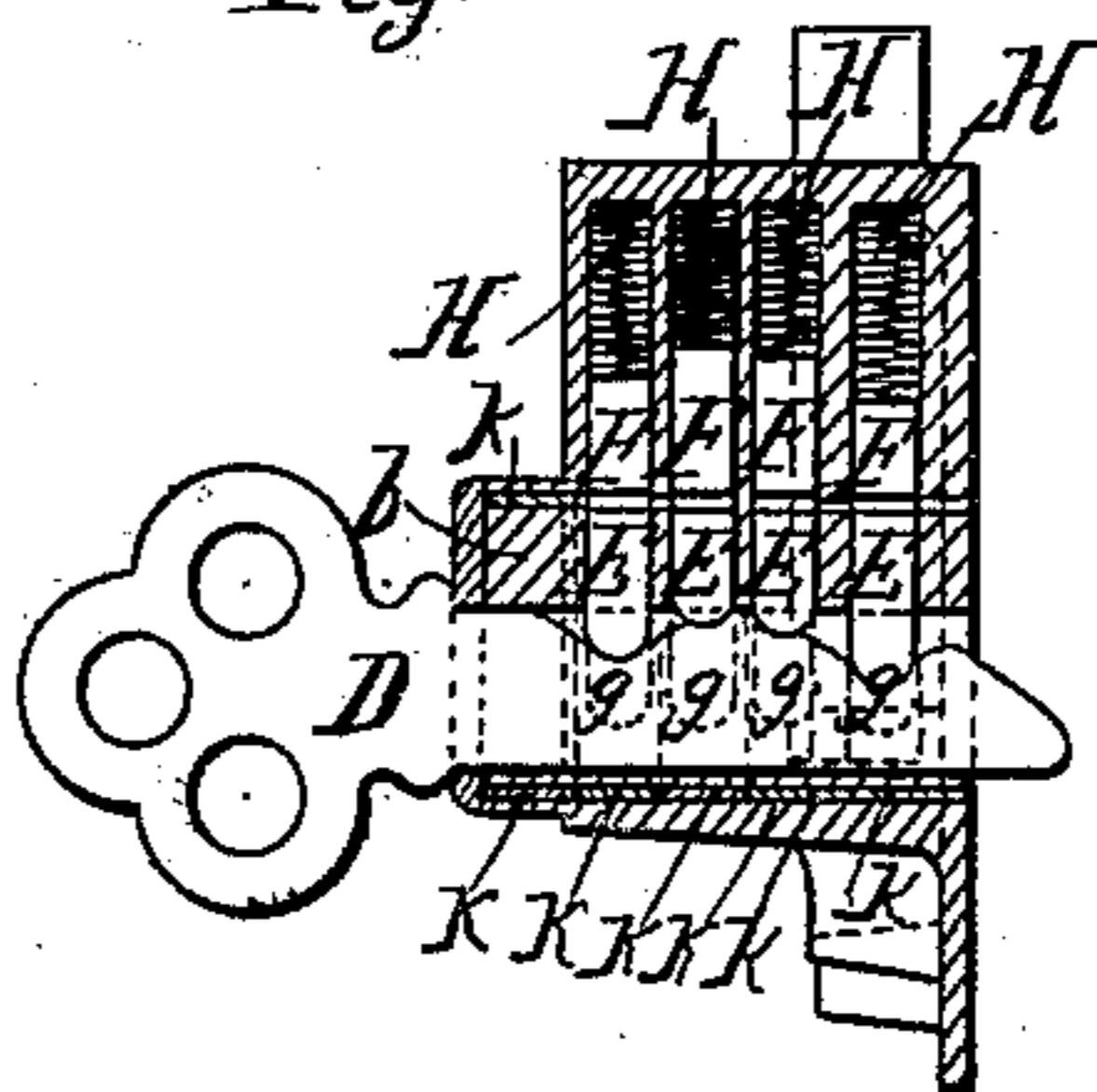
*Fig. 6.*



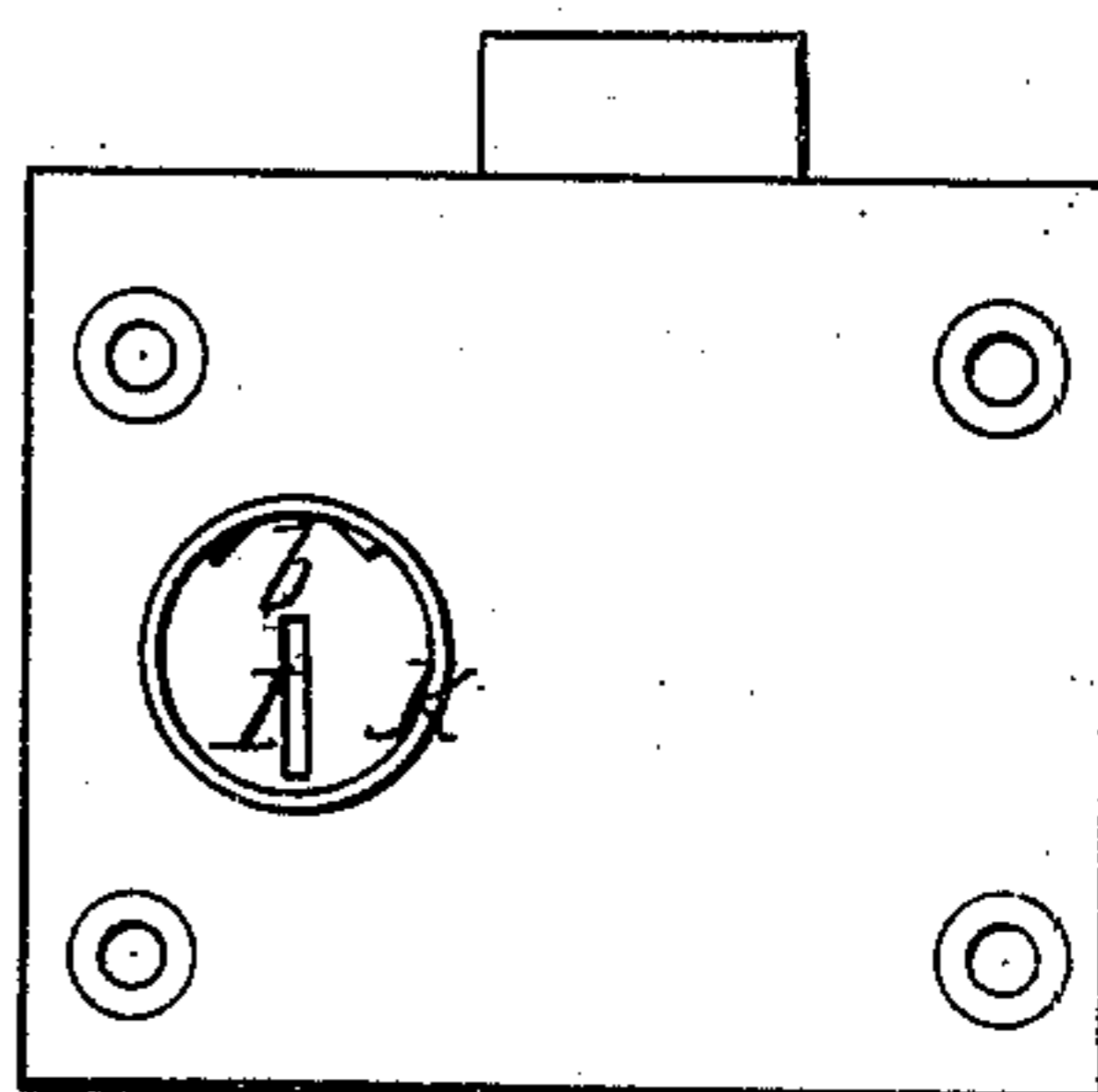
*Fig. 7.*



*Fig. 8.*



*Fig. 9.*



*Witnesses;*

*Allan W. Richards  
Harry R. Loune*

*Inventors;*

*August Hermann  
W. H. Taylor*

# United States Patent Office.

AUGUST HERMANN AND WARREN H. TAYLOR, OF STAMFORD, CONNECTICUT, ASSIGNORS TO THE YALE LOCK-MANUFACTURING COMPANY, OF SAME PLACE.

Letters Patent No. 113,295, dated April 4, 1871.

## IMPROVEMENT IN PIN-LOCKS.

The Schedule referred to in these Letters Patent and making part of the same.

*To whom it may concern:*

Be it known that we, AUGUST HERMANN and WARREN H. TAYLOR, both of Stamford, in the county of Fairfield and State of Connecticut, have invented a new and useful Method of Constructing Key-Locks; and we do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawing making a part of this specification.

The object of our invention is to produce a key-lock which shall be entirely proof against picking; and

The nature of the invention is such as to make it applicable to many kinds and forms of locks, although in the accompanying drawing it is shown as applied to the well-known Yale "pin-lock."

In most locks, as at present constructed, security against picking is sought by making intricate wards, by false notching the tumblers, by making a very close and fine gating, or in some similar way; but, by skillful and delicate manipulation, all such locks may be picked.

The construction of our lock, however, is such that while, in the ordinary sense of the term, it may be as readily "picked" as other locks, (by which expression we mean that its tumblers or their equivalents may be set upon a "gating,") the gating upon which it is possible to pick it is a false one, and does not permit the opening of the lock. In other words, the true gating is guarded by the interposition of a false one, and the component parts of the lock are so arranged that the application of pressure (which is the necessary concomitant of all tentative processes of picking) will be resisted by the parts which constitute the false gating, and cannot in any way be applied to those which constitute the true gating.

In the annexed drawing, representing, first, an adjustable escutcheon (containing such parts of the lock as are acted upon by the key) for rim or mortise-latches, and, second, a drawer-lock complete—

Figure 1 is a front elevation of said escutcheon.

Figure 2 is a longitudinal section of same on the line A B.

Figure 3 is a transverse section on line C D.

Figure 4 is a rear elevation of the plug B.

Figure 5 is a side elevation of the same.

Figure 6 is a front and side elevation of rings K.

Figure 7 is a front elevation of a drawer-lock.

Figure 8 is a transverse section of same on the line E F.

Figure 9 is a rear elevation of same.

Similar letters of reference indicate corresponding parts throughout.

A is the shell or case of the lock.

B is the plug or barrel.

C is the cam, which communicates motion to the bolt.

D is the key.

E E E, the lower pins, sliders, or tumblers.

F F F, the upper pins, sliders, or tumblers.

G G G, the holes in the plug for pins E E E.

H H H, the springs acting upon pins F F F.

J J, the stop-notches.

K K K, the safety-rings.

The construction of the Yale pin-lock being well known, a brief description of it here will be sufficient.

It consists of the shell or case A, containing a plug, B, and a series of holes formed partly in the shell and partly in the plug. Each of these holes contains two pins and a spring above them, which forces the pins to the bottom of the hole.

The insertion of the key below these pins raises them, so that the joint between the two pins contained in each hole exactly coincides with the joint between the shell and plug, thus permitting the rotation of the latter, and the unlocking of the lock through the instrumentality of the cam C.

The picking of a lock thus constructed is accomplished by applying a gentle pressure tending to rotate the plug B, thus forcing each of the pins against one side of its hole at the intersection of the shell and plug, and then feeling, with a suitable picking tool, which of the pins "binds" the most.

By slowly raising the pins thus found the rotative pressure on the plug will cause the latter to slightly revolve so soon as the pin has been raised to the point at which the joint between its two parts coincides with the joint between the shell and plug, and by this slight revolution of the plug the upper portion of the pin will be held up. By now feeling out the pin which next binds, it can in like manner be picked, and after it the next, and so on until all of the pins have been raised and the plug is free to revolve.

To guard against this method of picking we construct our lock with a series of loose rings, K K K, enveloping the plug, and intervening between it and the shell, and, furthermore, we cut in the plug, on its upper side, and on each side of the pin-holes, two longitudinal "stop-notches," J J, as shown in fig. 4.

Each of the rings K K is cut open, at one portion of its circumference, for a distance equal to the diameter of one of the pins E E, and the lock is so put together that the opening thus made is directly in line with and over the pin-holes in the plug.

Now, when the true key is inserted, the pins E E are raised so that the joints between them and the pins F F are flush with the outside surface of the rings K K, and coincident with the joint between the rings K K and shell A.

The plug is now free to revolve by the action of the key D, and in so doing the pins E E, by reason of their projection through the cut-away portion of the rings K K, carry the rings with them, so that the latter revolve with the plug.

In the event, however, of an attempt to pick the lock in the method hereinbefore described, it will be found that, as the pins are raised by the picking tool, they will yield to the pressure when the joint between their two parts coincides with the joint between the plug and the rings, and that, while the pressure is maintained, the pin which binds cannot be raised to this joint without catching under the ring. By a skillful lock-pick all the pins may thus be raised without great difficulty to the point at which their several joints coincide with the joint between the plug and inside of rings, and the plug revolved.

It will be seen, however, that the plug now revolves within the rings, and that the latter remain stationary, so that the pins F F, being forced down by the springs above them, pass through the openings in the rings and bear against the periphery of the plug.

As the plug revolves the pins F F will now follow the outline of its periphery, and will enter the stop-notches J J and effectually arrest the further revolution of the plug B, and so prevent the unlocking of the lock.

As ordinarily constructed these locks have the bottom of the key-hole in the plug left open, and we have found that a lock so constructed, even if provided with the rings K K, may be picked by applying rotative pressure to the rings, one at a time, by means of a sharp-pointed instrument passed into the key-hole, and operating on the rings at the bottom thereof.

We therefore construct our lock with a plug, the key-hole of which is closed at the bottom, leaving the plug with the hole formed, as it were, in the solid metal, thus placing the rings completely beyond reach,

and rendering the lock proof against the most skillful attempts at picking.

Although in the foregoing specification reference has been made only to the application of our safety principle to the Yale pin-lock, it is evident that it is equally applicable to any and all locks of any similar construction, and that, by suitable modifications, it can be applied to many other forms of locks.

Having thus described our invention,

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

1. The combination, with a movable part or plug, B, of one or more safety-rings, K K K.

2. The movable part or plug B, when constructed with one or more suitably-formed holes, apertures, projections, or notches J J, substantially in the manner, as and for the purposes described.

3. The combination of a movable part or plug, B, having a key-hole formed therein, all the sides of which are entirely closed, save where the necessary apertures for the insertion of pins, sliders, or tumblers occur, and provided with one or more stop-notches, J J, with one or more safety-rings, K K K.

4. The combination of a movable part or plug, B, having thereon stop-notches J J, with tumblers, pins, or sliders E E, any of the dimensions of which are greater than the thickness of the key D.

5. A safety-ring, K, one portion of the circumference of which is wholly or in part removed or cut open, or is raised, indented, or expanded, when constructed and used in the manner as and substantially for the purposes hereinbefore described.

AUGUST HERMANN.

W. H. TAYLOR.

Witnesses:

HENRY R. TOWNE,

A. W. RICHARDS.