

W. Johnson,
Permutation Lock.

N^o 84,192.

Patented Nov. 17, 1868.

Fig. 1.

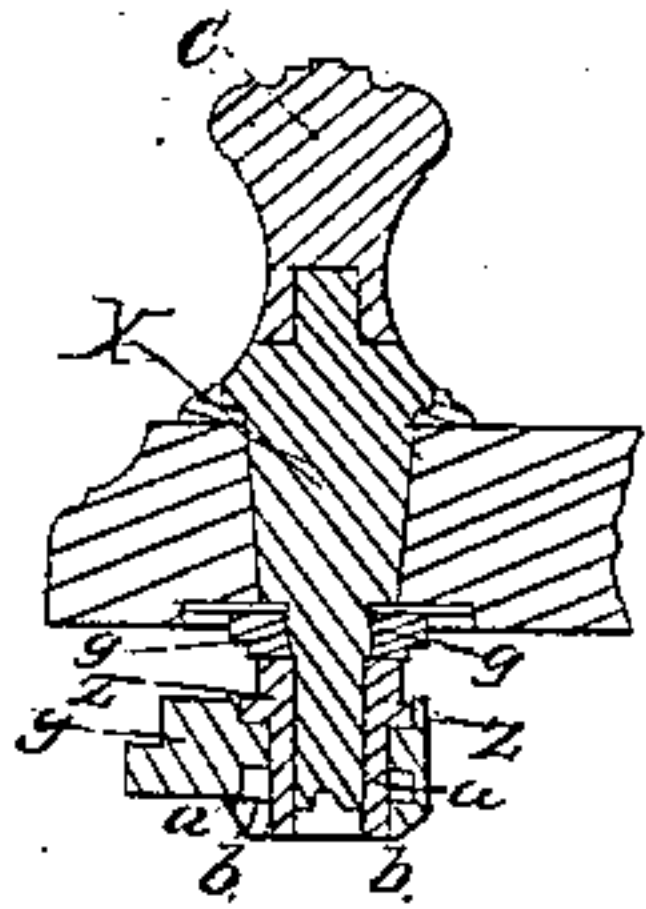


Fig. 2.

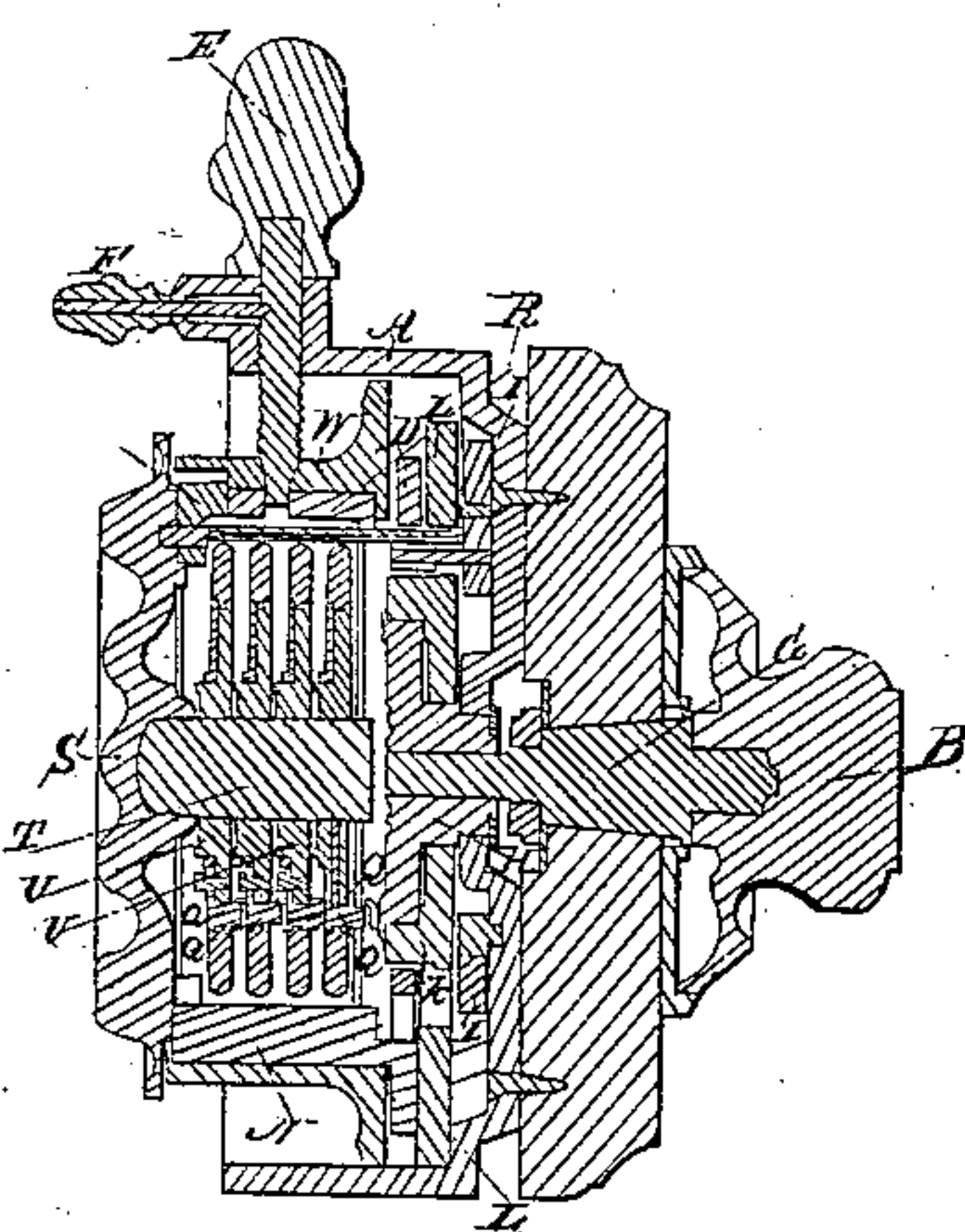


Fig. 3.

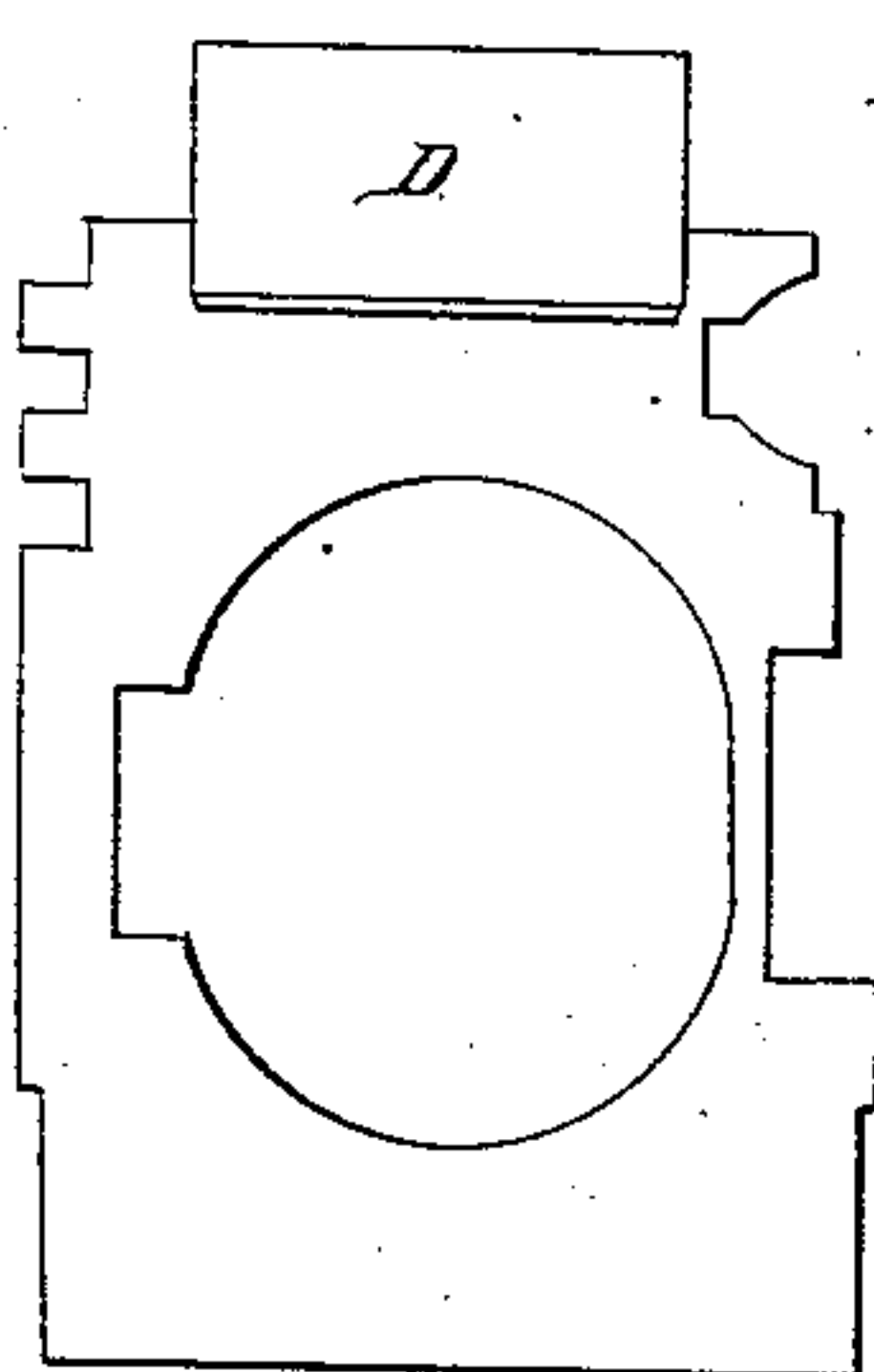


Fig. 4.

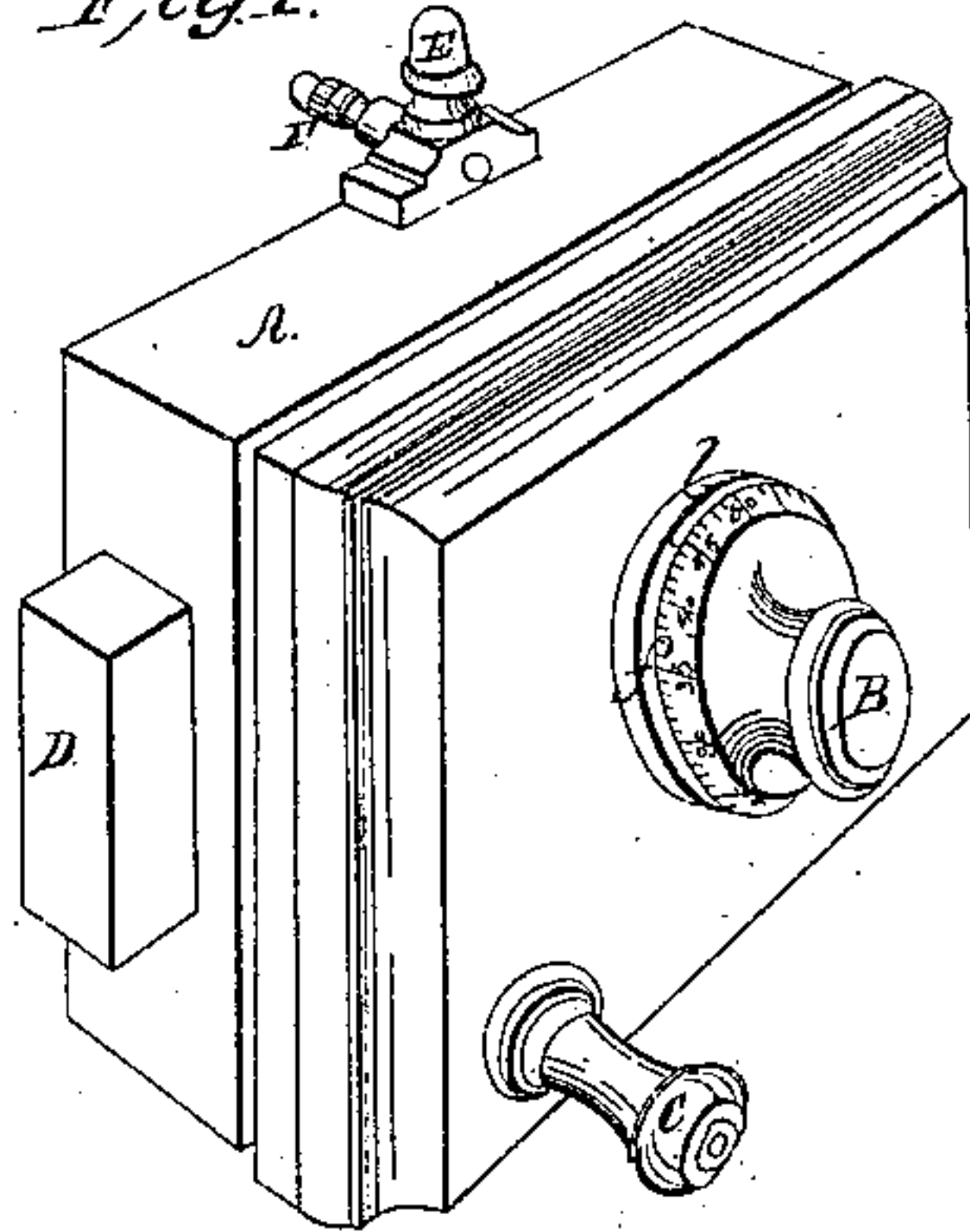


Fig. 5.

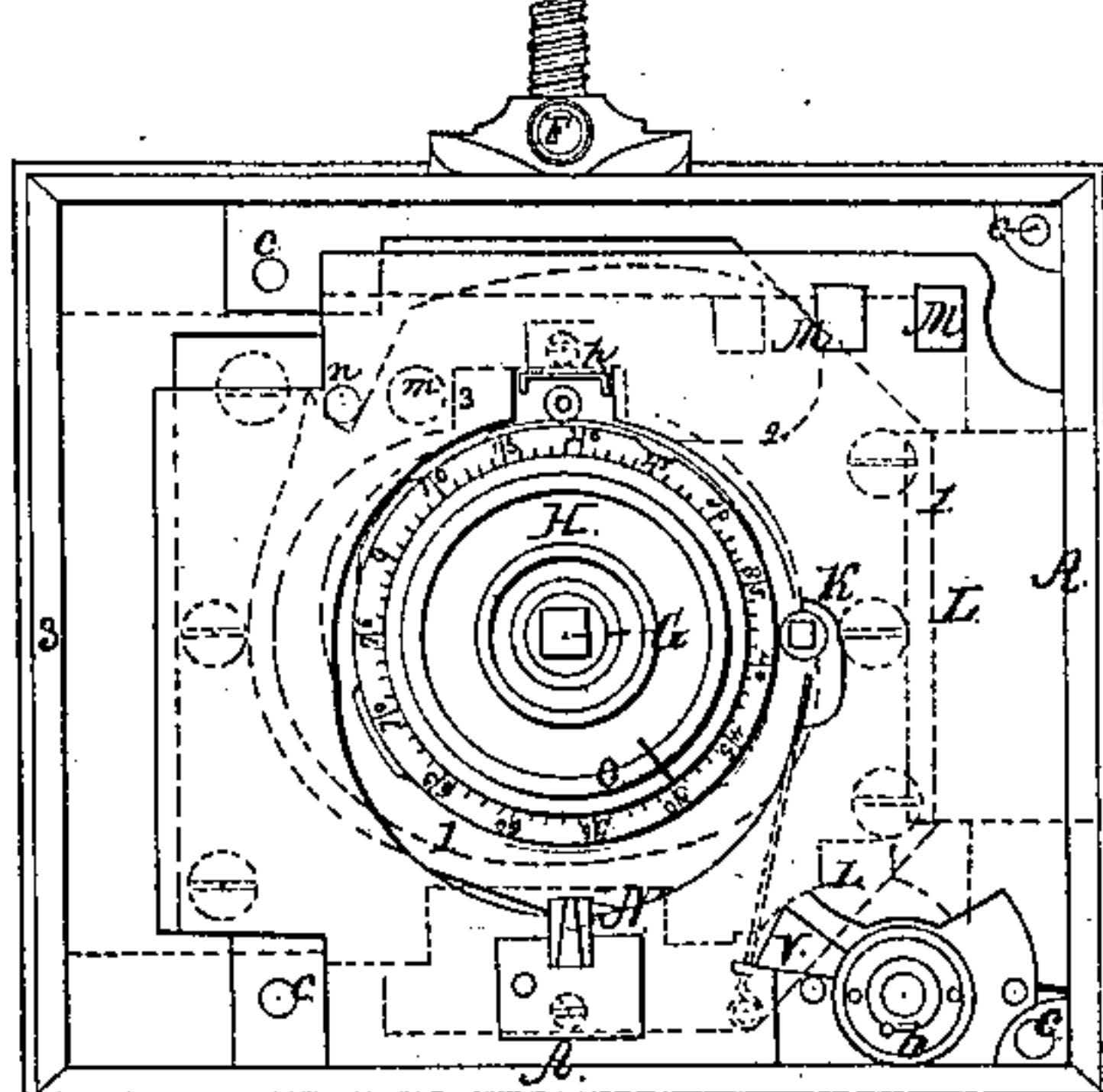


Fig. 6.

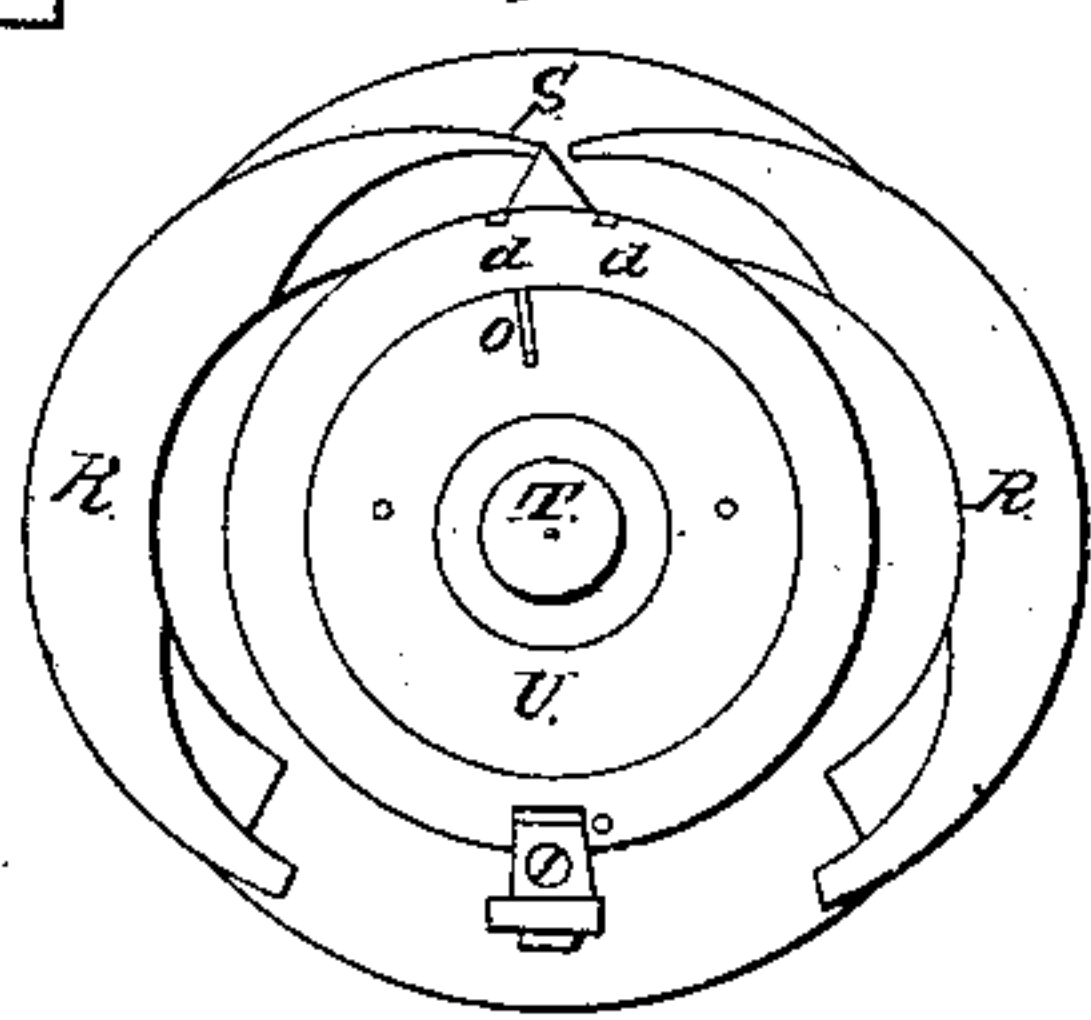


Fig. 7.

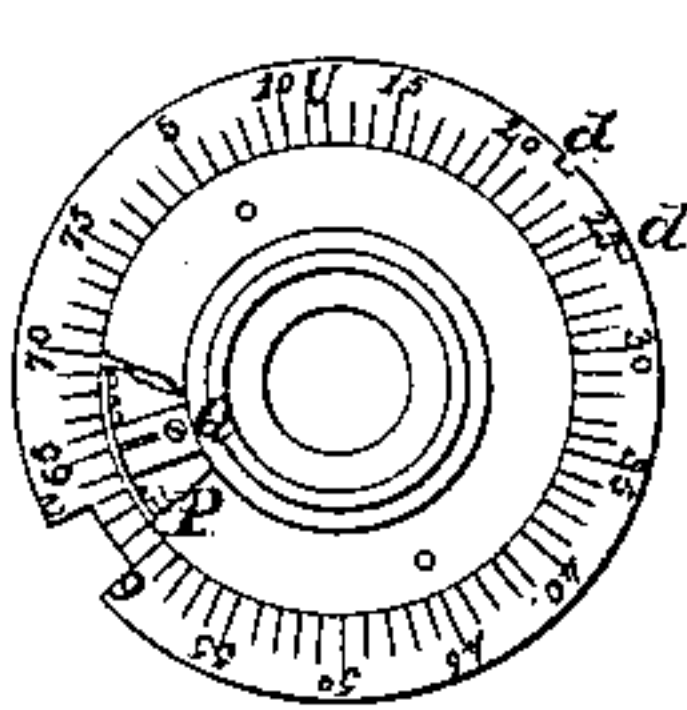
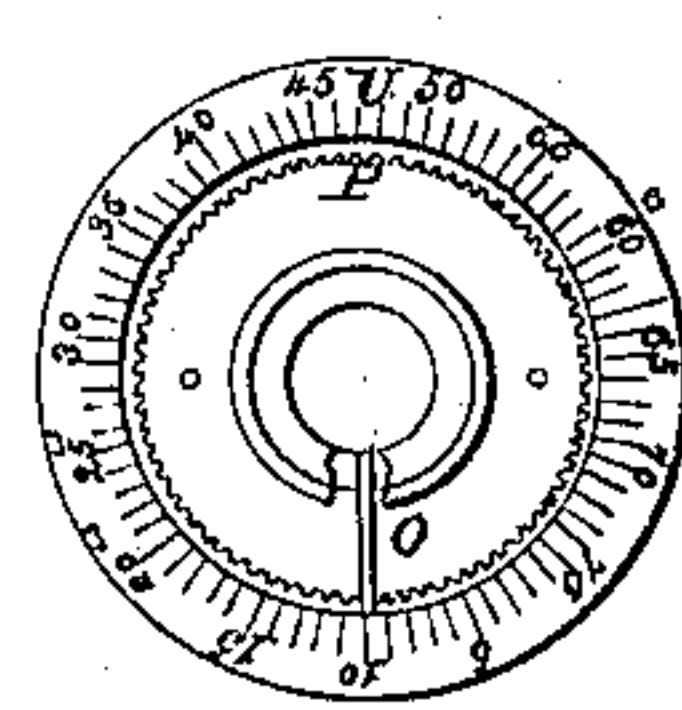


Fig. 8.



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Letters Patent No. 84,192, dated November 17, 1868.

IMPROVEMENT IN PERMUTATION-LOCKS.

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

To all whom it may concern:

Be it known that I, WILLIAM JOHNSON, of the city and county of Milwaukee, and State of Wisconsin, have invented a new and useful Improvement in Bank-Locks; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawing, forming part of this specification, in which—

Figure 1 is a perspective view.

Figure 2, a transverse sectional view.

Figure 3, a plan view of the back side of the lock, with the revolving tumblers and tumbler-guides removed, the black dotted lines marked 1, showing the outlines of depression in the centre.

Figure 4, revolving tumbler-guides, with tumblers set.

Figure 5, a revolving tumbler, showing a stop, (through a portion of the tumbler broken away,) holding the outer rim of the tumbler from turning on the inner portion, this stop having a shank projecting through to the tumbler-shaft, which, when on the shaft, keeps the stop pressed out, so that its outer end is pressed into one of the slots on the inside of the outer rim.

Figure 6, a revolving tumbler, with a stop secured to the inner part of the tumbler by a screw, the outer end of the stop fitting into one of the slots on the inside of its outer rim.

Figure 7, sectional view of the key.

Figure 8, the bolt of the lock.

Similar letters of reference in each of the figures indicate corresponding parts.

The object of my invention is to produce a lock, which cannot be picked by burglars, nor be blown off with powder or other explosive material.

A is the lock-case.

B, dial-knob.

C, key-knob.

D, bolt; its position over plate L in fig. 3, shown by blue dotted lines marked 3.

E, screw, which holds the inner machinery of the lock in place.

F, spring-catch, to prevent screw E from working loose.

G, indicator-stem.

H revolving changeable disk.

I, guard, to keep the fences from touching the revolving tumblers, when the disk and tumblers are not in the right position for locking and unlocking the bolt, and also a stop to keep the plate L from being moved at the wrong time, its lower end shown in fig. 3, and the rest of it indicated by red dotted lines, marked 2.

K, a roller on the end of a spring, which presses it against a flange on disk H, for the purpose of making an inequality of friction, as the roller passes over inequalities in the flange *k*. This roller and spring indicate nothing relating to the movement of the lock, they being intended as a burglar-disconcerter.

L, a plate, with stops M.M, to prevent the bolt D from being moved back or forward, when the revolving tumblers are not adjusted for the purpose.

N, fence, attached to plate L.

O, stop on disk H, held out by a spring, and on revolving tumbler, fig. 5, held out by its stem against the tumbler-shaft T.

P, slots on the inside of the outer rims of disk H, and on the revolving tumblers, into which stops O fit.

Q, a stop, secured by a screw, to prevent the outer rim of revolving tumbler, fig. 6, from turning on the inner portion of the tumblers.

R R, wings of the revolving-tumbler guides, hung on screws at their upper ends, so that they may be opened to put in place or take out the revolving tumblers, and closed to hold the tumblers in place, and secured by the screw E when the lock is together.

S, cap of the revolving-tumbler guide, fig. 4.

T, shaft on cap S, over which the revolving tumblers are placed, and on which they revolve.

U U U U, revolving tumblers.

V, a stop on cap S, under which the points of wings R R pass when closed, holding them secure to cap S.

W, curb, enclosing the revolving tumblers U, and guides R R. This curb has a flange-plate, by which it is held by screws to the lock-case A.

X, key-stem.

Y, key-bit, with which to move bolt D. This bit has a round hole through its shank, into which fits a round bolt, with a square hole in its centre, into which key-stem X fits. On one side of the hole in the shank of the bit Y is turned a recess, into which is placed a rubber ring, *a*, which is covered by a washer, over which screws a nut, *b*, on the end of the socket Z, which passes through the bit-shank. On the other end of this hub is a shoulder, which fits in a recess on the other side of the shank of the bit Y, and as the nut is screwed down on to the rubber ring, it is pressed hard against the socket and shank of the bit Y, so that when the key-stem X is turned by knob O, it holds the bit on to the socket solid enough to turn bolt D, when the revolving tumblers and disk H are in the proper position; but when they are not in the proper position for the bolt to be moved, the socket will turn in the bit-shank.

Z, the socket in the bit-shank.

a, the rubber ring.

b, nut on socket Z.

c c c c, screw-holes, for the screws which hold curb W to the lock-case A.

d d, slots in the revolving tumblers, for the fence *h* on guard I to fit in.

e, slots on the opposite sides of the revolving tumblers, for the fence N to fit in.

f, dial under knob B.

g, screw-collars on key-stem X, to keep it in place.

h, fence on guard I.

i, roller on guard I, under fence *h*.

k, outer ring on disk H.

l, mark above dial *f*.

m, pin, shown by dotted circle through guard I, hanging it to the lock-case.

n, a pin on plate L, which hooks into a recess in guard I.

Operation.

The lock being together, as shown in fig. 2, the revolving tumbler U U U U backs towards disk H. The stops Q on the three outer tumblers set, the outer one at 15, the next at 35, the next at 65, and stop O on the tumbler next disk H at 10, and the stop O on disk H at 50. Take hold of knob B and turn from right to left, till the figure 15 on the dial under the knob passes the mark *l* above the dial four times. This gathers up the revolving tumblers, the stops O and Q projecting above the surface on both sides of the tumblers, so that they hook on to each other, the tumblers being kept apart by a ring projection near their centres. Turn on in the same direction after the tumblers are gathered by the four turns, till the figure 15 comes exactly under the mark *l* on the dial; then turn the knob B from left to right, till the figure 15 passes the mark three times, and continue on till 35 comes directly under the mark *l*. Then reverse the motion, and turn from right to left, till 35 has passed the mark twice, and continue on till 65 comes under the mark *l*; then reverse the motion, turning from left to right, till 65 has passed the mark once, and continue on till 10 comes under the mark *l*; then reverse the motion, turning from right to left, till 50 comes under the mark, being careful at each stop to have the figures exactly under the mark *l*. This brings the stops *d d* on the upper side of the tumblers all in line, and the slots *e* in the under sides of the tumblers in line, and also a depression in disk H at the top, under the roller *i* on guard I, so that the fence *h* can drop into slots *d d*, and the fence N can be raised, entering slots *e*. Then take hold of knob C, and turn from right to left; this brings bit Y against plate L, moving it so that stops M M are thrown above the slots in bolt D, and fence N enters the slots *e* in the revolving tumblers. As plate L is raised, pin *n*, rising, lets fence *h* drop into the slots *d d*, by means of the upper part of guard I being released from the weight of plate L hanging on it by pin *n*. This releases bolt D from all obstructions, and as the key is turned, it strikes the shoulder in the talon of the bolt, and throws it out. The bolt being thrown out, the key turned in the talon far enough to let plate L drop, which brings stops M M into the slots in the bolt, and as it drops,

pin *n*, hooking into recess of guard I, raises fence *h* out of the slots in the top of the tumblers, and fence N drops out of slots *e*. This raises fence *h* entirely free from the tumblers, and drops fence N below the tumblers, so that when they are turned by knob B, the tumblers are not touched by the fences, then disarranged by turning knob B.

To throw the bolt D back, pursue the same course exactly that was pursued in throwing it out.

To change the combination, draw back spring-catch F, so that its points shall be out of the hole in screw E. Then unscrew the screw E till its point shall be raised out of the hole in the tumbler-guides; this will permit the guides to be raised out of the curb W, taking the revolving tumblers U U U U with them, when the wings R R can be opened, and the tumblers taken out, and the combination changed.

To change the number on the disk H, press the stop O back, (which is held out by a spring,) and turn the centre so as to make the stop O come opposite the number desired. The stop O in tumbler, fig. 5, slips back, when the tumbler is taken off the shaft, which permits a change of number, and the others are changed by removing the screw in stop Q.

To put these tumblers into the lock, put them into the guards, as shown fig. 4, close the wings R R, so that their points hook under stop V; then put them into the curb W, the top of the wings R under screw E; then screw E down, so that its point, entering the hole in the guides, wedges the wings R R apart, so that they press firmly against the sides of the curb W, and are held firmly in place. When screw E is screwed down till the hole in it comes opposite the point of the spring-catch F, it enters the hole and prevents the screw from working loose.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. Guard I and fence *h*, in combination with plate L, substantially as described.
2. The stop O held in slot P by shaft T, in combination with tumbler U, substantially as and for the purpose set forth.
3. Key-bit Y, socket Z, rubber ring *a*, and nut *b*, in combination with key-stem X, substantially as described.

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Witnesses:

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