

S. Wheeler,

Permutation Lock.

N^o 68,922.

Patented Sep. 17, 1867.

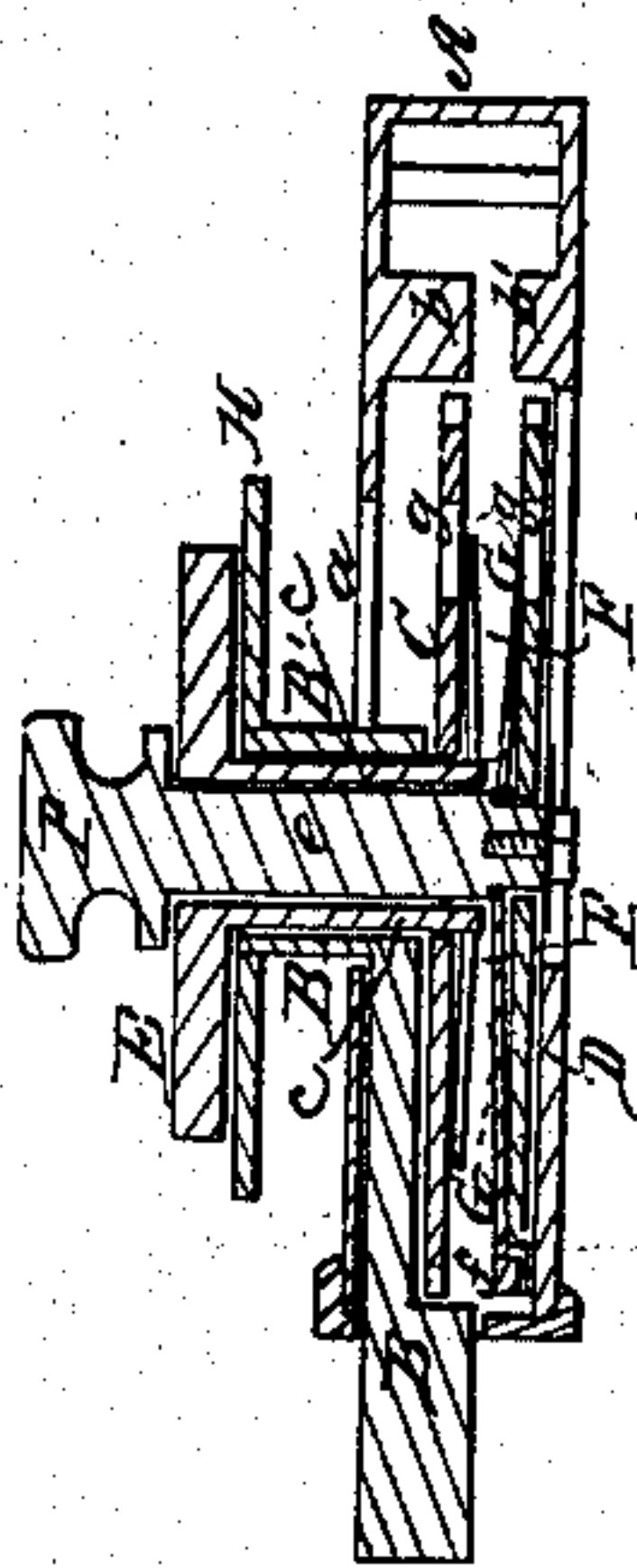


Fig. 3

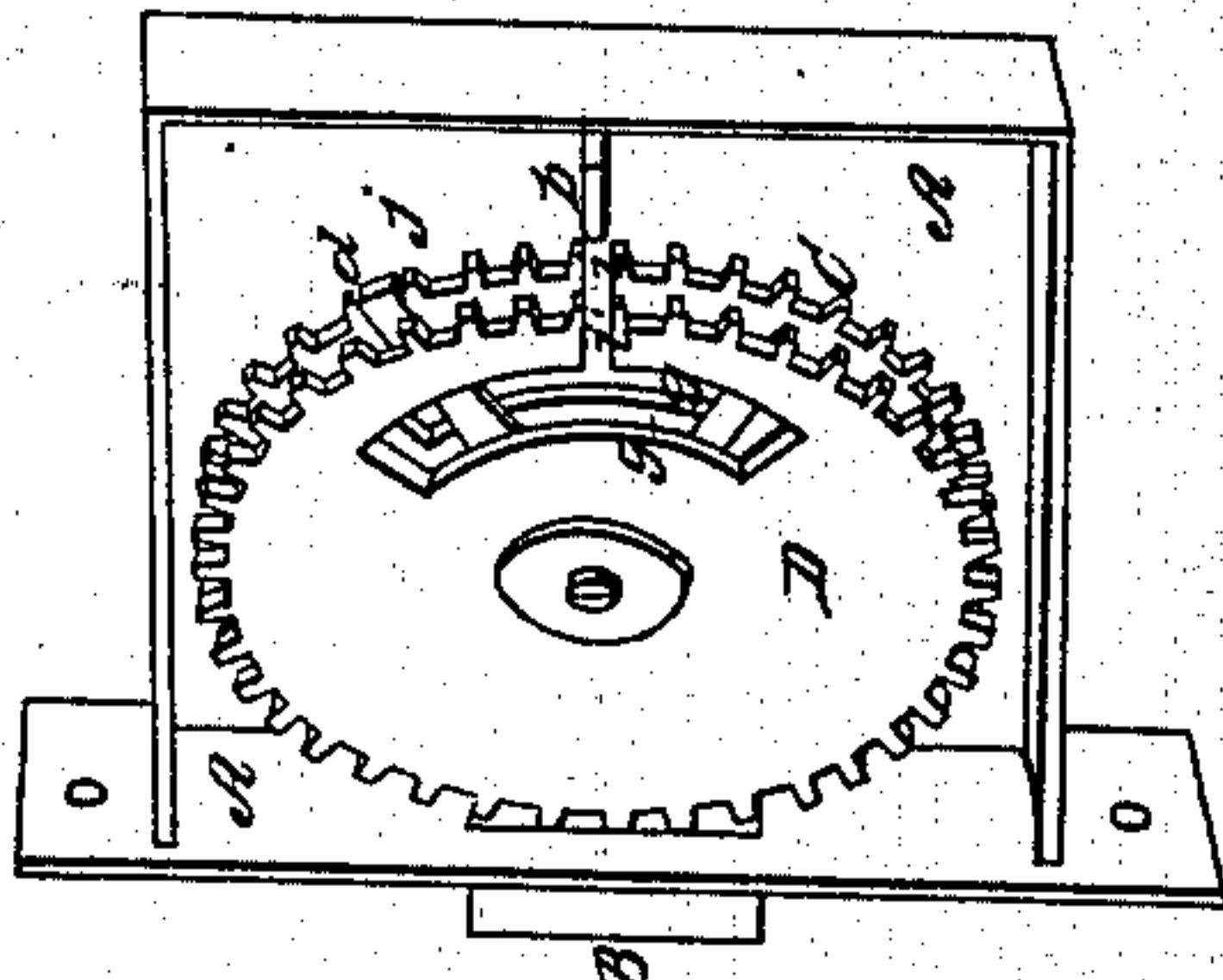


Fig. 4

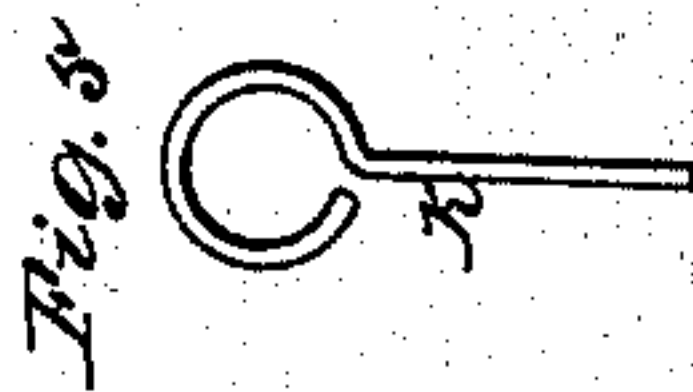


Fig. 5

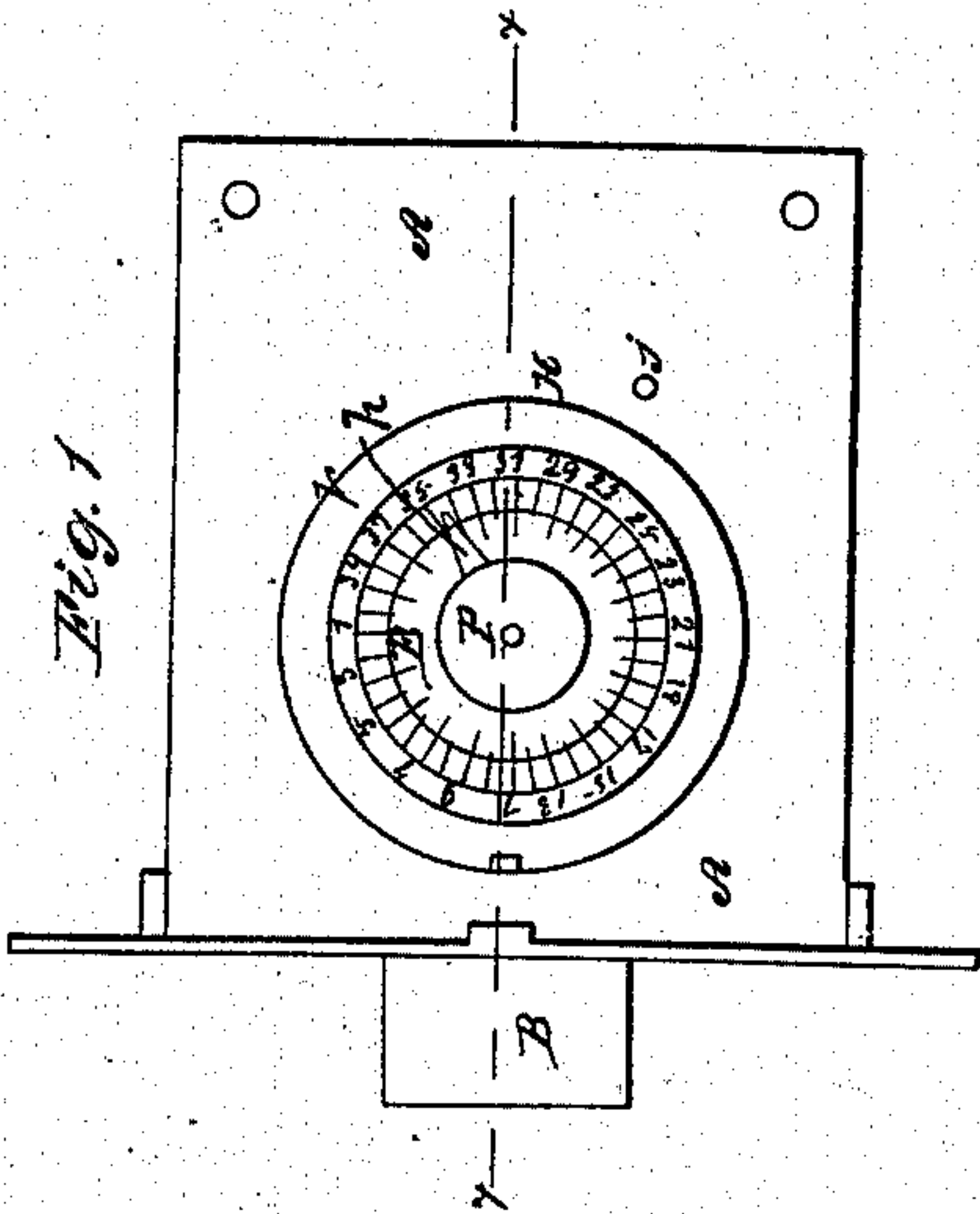


Fig. 1

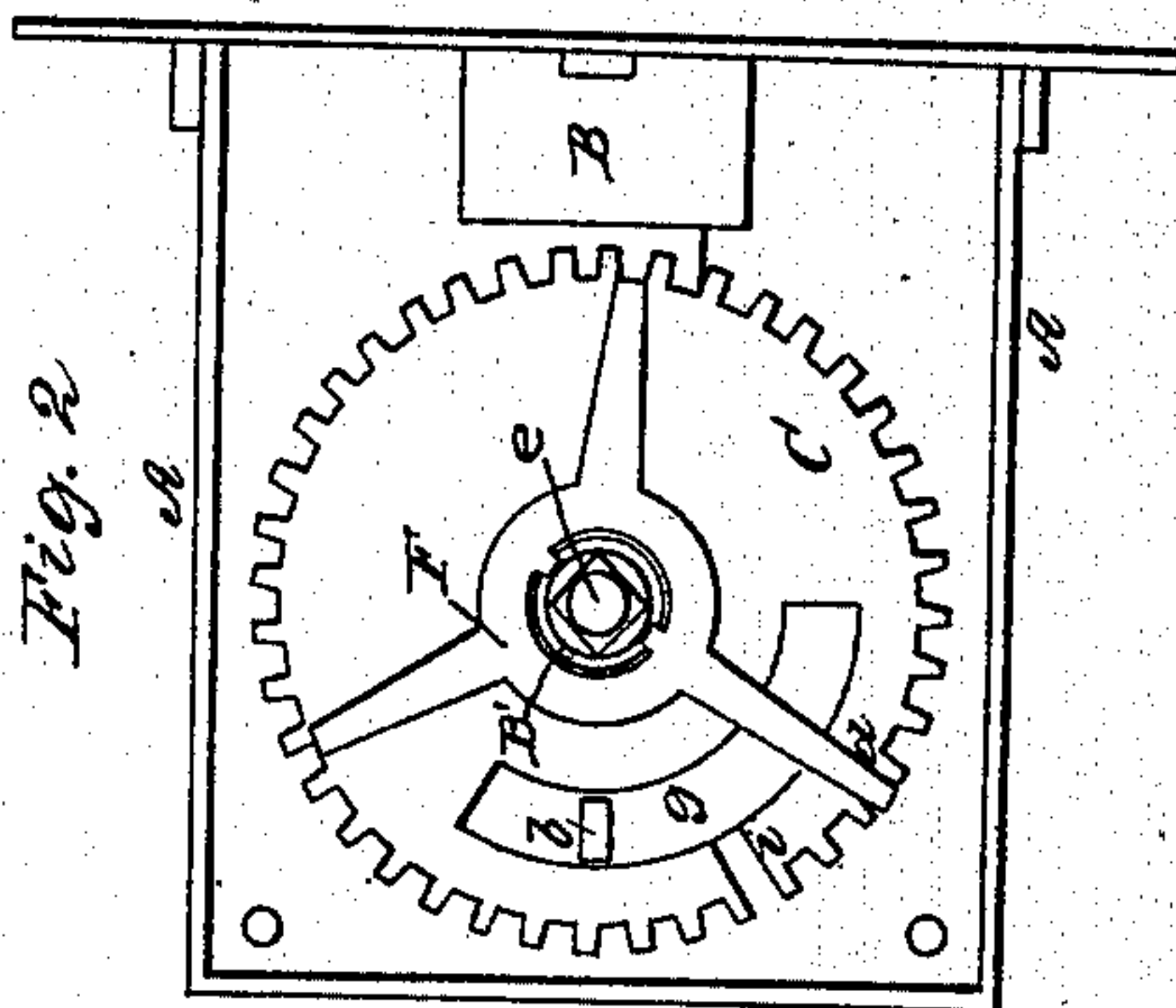


Fig. 2

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SETH WHEELER, OF ALBANY, NEW YORK.

Letters Patent No. 68,922, dated September 17, 1867.

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, SETH WHEELER, of Albany, in the county of Albany, State of New York, have invented an improved Permutation Lock; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a view of one side of my permutation lock, showing the index-plate and its pointer.

Figure 2 is an inside view of the lock with one of the permutation wheels or tumblers removed.

Figure 3 is a section through the lock taken in the plane indicated by red line $x x$ in fig. 1.

Figure 4 is a perspective view of the lock with one of the face-plates removed.

Figure 5 shows a pin which is used for effecting the changes in the lock.

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

The nature of this invention consists in the application to a sliding-bolt of two or more toothed wheels, which are both free to rotate independently of each other, and which are adjusted and set for effecting the different combinations of numbers, by means of an index-plate and hand arranged outside of the lock-case, and so applied to the bolt that it shall serve as a means of shooting it back and forth, as will be hereinafter described.

It also consists in slotting the toothed permutation wheels in such manner that when the bolt is unlocked these wheels can be turned partially around, so as not to leave them in the position required for unlocking the bolt, thereby preventing the combination of numbers by which the lock is set from being detected, as will be hereinafter explained.

To enable others skilled in the art to understand my invention, I will describe one practical mode of carrying it into effect.

The drawings represent my invention applied to a mortise-lock. A is the lock-case and B is the sliding-bolt. This bolt has a tubular collar, B', formed on one side near its inner end, which projects perpendicularly from said side, and passes freely through an oblong slot, a , which is made through one side of the lock-case of sufficient length to allow the bolt to be shot back and forth the required distance, directly in line with the centre of the tubular collar a , and on the inside of the slotted face-plate is a lug, b , shown in figs. 2, 3, and 4, one edge of which may be slightly bevelled, for a purpose which will be hereinafter described; and directly opposite this lug b , and in the same plane, is a corresponding lug, b' , which is formed on the opposite face-plate of the lock-case, as shown in fig. 3. C D are two wheels of the same diameter, having spurs or teeth formed in their peripheries like gear-wheels. The wheel C is applied upon the inner end of a tubular shaft, c , which passes through the collar B', and carries on its outer end, outside of the lock-case, a graduated index-wheel or disk, E. This wheel C is secured to its tubular shaft by means of a spring-spider, F, having three arms, one of which, d , has a tooth formed on it that enters one of the teeth of its wheel C. From the central ring or hub of the spider F lugs project and enter recesses formed in the end of the tubular shaft c , as shown in fig. 2. When the tooth on arm d is in a space between any two of the teeth of wheel C, this wheel will turn with its shaft c ; but when said tooth is forced inward from between said teeth, the wheel is free to turn around its shaft. The wheel D, which is constructed in all respects like wheel C, is applied upon the inner cylindrical end of a solid shaft, e , and held in place thereon by means of a washer and screw, as shown in figs. 3 and 4. This wheel D is also provided with a spider, G, which is keyed fast upon its shaft e , and which also has a tooth formed upon one of its arms f , that is adapted to enter any one of the spaces between the teeth of its wheel, and thus connect the latter to its shaft, so as to turn with it. If desirable, more than two spurred wheels may be employed; but for the purpose of illustrating my invention, two of these wheels will answer, and for simple forms of door and cabinet locks, only two wheels need be employed. Each one of these wheels C D has a slot cut in it, between two of its teeth, which communicates with a concentric slot, g , of sufficient length to allow the wheel to turn one-quarter round, more or less. The slots $i i'$ are of sufficient width to allow of the passage of the respective lugs $b b'$ through them, when the bolt is moved back or unlocked, and the concentric slots g through said wheels are equal in width to the length of their respective lugs $b b'$, so that when the bolt is unlocked the wheels may be turned, as shown in fig. 2, and the slots or openings $i i'$ moved to one side or the other of the said lugs. The shaft e which carries the wheel D on its inner end, as described, has a knob, P, secured on its outer end, from which projects a hand, h , that points to certain numbers or marks which are made upon the face of the index-

disk E, as shown in fig. 1. A circular disk, H, is secured upon the outer end of the tubular collar B', as shown in figs. 1 and 4, which has an index-mark upon its face, pointing inward to the circumference of the disk E, so that by turning the latter any one of the marks or numbers thereon can be made to register with the said index mark.

The lock is adjusted for use by turning the two permutation wheels C and D until their radial slots *i i'* are in line with their fixed lugs *b b'*, and then noting the positions of the index-hand *h* and index-wheel E. Suppose the slot *i* in wheel C stood in line with its lug *b*, when the number 19 on the index-wheel E registered with the index-mark on the disk H, and the slot *i'* in wheel D stood in line with its lug *b'*, when the index-hand *h* on shaft *e* pointed at number 16 on the face of the index-wheel. Whenever the indices are adjusted as above stated, the bolt can be moved back and forth. To change this combination a pin, K, shown in fig. 5, is inserted through a hole, *j*, which is made through the lock-case, as shown in figs. 1 and 4, and brought against the tooth or arm *d* of the spider F; then, by pressing the tooth inward, and at the same time turning the index-plate, this tooth will be moved into another notch between the teeth of the wheel C, thus changing the combination from 16-19 to 15-18, and if said tooth be changed another notch, the combination will stand 14-17, and so on.

The tooth on arm *f* which engages the wheel D with its shaft *e*, is adjusted from notch to notch precisely in the manner above described, by means of the key or pin K. When the toothed arms *d f* are brought opposite the holes which are made through the lock-case for admitting the pin K, the numbers on the index-plates corresponding to such positions should be remembered or recorded, so that the combinations can be changed when desired. It will be seen that when the bolt is shot back the wheel C D may be turned partially around, thus avoiding the combination by which the lock is set from being discovered when the bolt is unlocked. It will also be seen that the permutation wheels C D, their shafts, and the index-disks and pointer, are all applied to the bolt, so as to move with it backward and forward.

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

1. The application to a sliding-bolt of the toothed and notched wheels C D, having suitable indices applied to their shafts, so that said wheels and indices shall move with this bolt, substantially as described.
2. Providing a concentric slot in the toothed wheel or wheels within which the lugs *b b'* may be received, for the purpose of allowing said wheels to be turned when the bolt is unlocked, substantially as described.
3. The adjustable toothed spiders F G, or their equivalents, applied to the toothed and slotted wheels C D, in combination with the lugs *b b'* and devices for indicating the positions of the said slots *i i'* in said wheels when in line with said lugs, substantially as described.

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Witnesses:

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