

C. Flesch.

Permutation Lock.

Nº 71373

Patented Nov. 26, 1867.

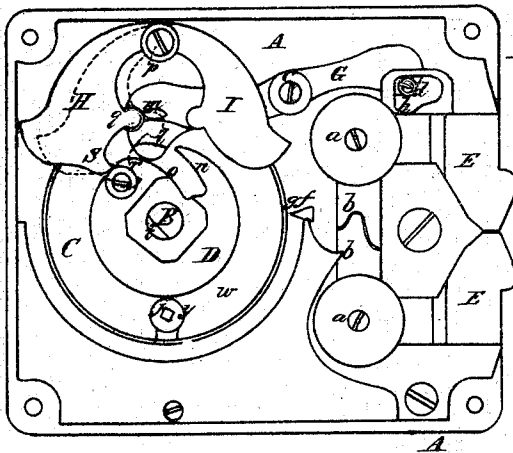


Fig. 1

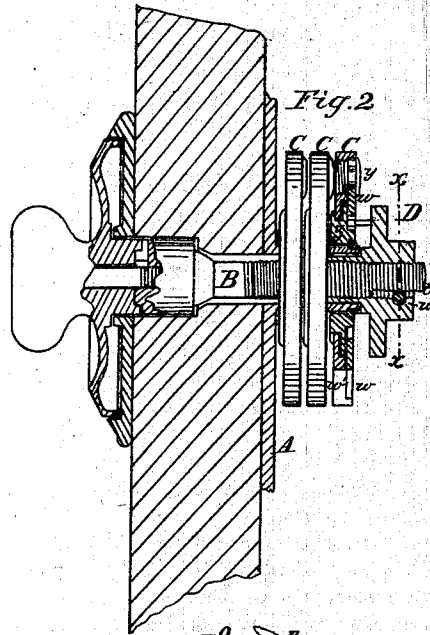


Fig. 2

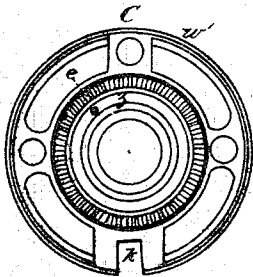


Fig. 3

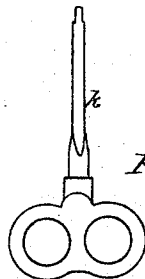


Fig. 4

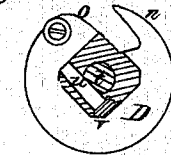


Fig. 5

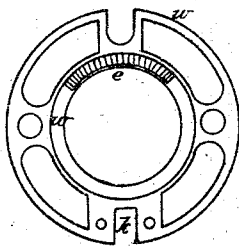


Fig. 6

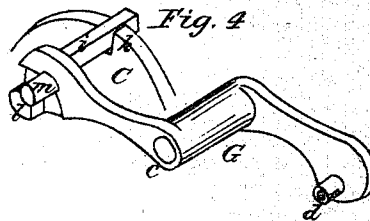


Fig. 7

Witnesses

D. A. Davis
George Raines

Inventor

Chas. Flesch.
By J. Fraser & Co.
Attys

United States Patent Office.

CHARLES FLESCH, OF ROCHESTER, NEW YORK.

Letters Patent No. 71,373, dated November 26, 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, CHARLES FLESCH, of Rochester, in the county of Monroe, and State of New York, have invented certain new and useful Improvements in Permutation Locks; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings making part of this specification.

Figure 1 is an elevation of my improved lock, with the back plate removed to show the interior.

Figure 2, a section in the plane of the spindle.

Figure 3, a section in plane of line *z z*, fig. 2, showing the method of adjusting the spindle.

Figure 4, a perspective view of the dog-lever.

Figure 5, a view of the plates of one of the combination wheels laid open.

Figure 6, a view of the keys.

Like letters of reference indicate corresponding parts in all the figures.

This improvement is on a plan similar to that patented by me February 19, 1867, (No. 62,191,) but is intended to simplify the construction and lessen the cost.

The invention consists in the employment of a pivoted weight for holding the dog elevated from the wheels in the construction of the cam for throwing the bolt; in the method of adjusting the spindle to doors of different thicknesses; and in the construction of the combination wheels.

As represented in the drawings, A is the lock-case, B the spindle, C C C the combination wheels, and D the cam inside, by which the parts are operated. The general construction and arrangement of the parts are similar to those of my aforesaid patent. The bolt is formed of two jaws, E E, which shut together to serve as a stop to the heavy bolt-work of the safe-door, as shown in fig. 1. These jaws are pivoted at *a a*, and have intermatching toggles, *b b*, by which they receive a simultaneous action. The upper jaw is raised and lowered by the dog-lever G, pivoted at *c*, and engaging with the said jaw by a projection, *d*, fitting in a loose eye, *h*. When the arm *i* of the lever falls into the notches *k k* of the wheels, (fig. 4,) and not till then, will the jaw be raised. The lever G, opposite the arm *i*, is provided with two flies or projections, *l m*, as clearly shown in figs. 1 and 4. The fly *l* is intended to act in connection with a cam-hook, *n*, of the cam-head, to draw down the end of the lever to open or unlock the jaws when the wheels are so set that the arm *i* can fall into the notches. When the wheels are so set the lever will fall of its own weight sufficiently to bring the fly *l* within reach of the cam-hook, when the latter, striking over it, will draw it down as before stated. When the cam is turned in the opposite direction, the eccentric surface *o* of the cam will again elevate the fly *l*, and consequently close the jaws. Thus, the opening and closing of the jaws is accomplished by positive force, and the action is invariable at all times.

The device of the hook and fly for accomplishing this action is exceedingly simple and effective. Its use has a specific relation to the opening and closing of the jaws, which, from the peculiar motion, cannot be operated by the ordinary cam of permutation locks, which simply moves the bolt back and forward in a longitudinal direction. It will be seen that the action in my case is vertical instead of longitudinal.

The other fly, *m*, is intended to act in connection with a weight, H, pivoted at *p*, so as to swing freely, and having a bearing, *g*, (preferably a friction-roller,) which strikes under the fly. This holds the lever G elevated, so that the dog will be raised from the edge of the wheels at all times, except when a cam projection, *r*, of the cam, (preferably, also, a friction-roller,) strikes a projection, *s*, of the weight, at which time the fly *m* will be disengaged from the bearing, *g*, and the dog will momentarily fall upon the wheels. This action of throwing the weight off is necessary to allow the dog to fall into the notches when the combination is set. The device above described for elevating the dog from the wheels is of the simplest character. The weight will perform the action positively, at all times, and cannot easily get disarranged. The same action keeps the fly *l* from the edge of the cam D. A plate, I, of similar form to H, may be attached rigidly on the opposite side of the pivot, as shown in fig. 1, to give a pleasing effect. The inner end of the spindle, resting in the cam-head, is flattened, or provided with a square side, as shown at *t*, (fig. 3,) and a conical or tapering pin, *u*, with a screw-head, *v*, is passed through the cam-head, resting against this flattened surface, as clearly shown. This prevents the spindle from turning, and it can be made perfectly tight at any time by screwing in closer, so that there can be no rattling

or play of the parts. By the removal of the tapering pin it will be seen that the spindle can be turned out or in at any time, so as to increase or lessen its length, to adapt it to doors of different thicknesses, an effect that is necessary in the ordinary application of locks. A clamping shoulder, held up by two screws against the flattened end of the spindle, has before been employed, but such is not only liable to get detached by the action, but it is also expensive, and in the way of the other parts. My conical pin is simple, out of the way, and is not liable to get out of place, and it has the superior advantage of tightening up effectually. The combination wheels are similar in construction to those of my aforesaid patent, but I have added, in combination with the special construction there shown, the feature of intermatching teeth for holding the centre in place when the two plates are clamped together. The wheel consists of two plates or sides, $w w'$, which are clamped together to hold the adjusting-centre z between them by the double-shouldered screw y , which, by turning, raises and lowers the outer plate. In the old wheel thus constructed, the centre, z , being smooth, might under some circumstances slip in its bearing if sudden violence were offered, or if the clamping were not very tight. To obviate all difficulty of this kind, I provide the inner edge of the centre z with a series of teeth, z , and also provide the plate w with a segment of similar teeth, e' , as clearly shown in fig. 5. These teeth, clamping together, effectually prevent any movement of the centre. At the same time, the teeth are of such gauge that when the plates of the wheel are unclamped they separate, so that the centre can be moved by the application of the key k in the socket j of the screw y . A key, L , is employed for raising the weight H away from contact with the fly m , by simply inserting said key in a hole in the back plate of the lock, and under the weight. The object of this is to allow the dog to fall into the notches of the wheels, and hold said wheels in place against turning, while the centres of the wheels are being changed to a different combination. A sharp-edged projection, f , (fig. 1,) is cast in the lock-case, opposite the edges of the wheels, and said edges are provided with lines g , which come opposite the projection when the notches of the wheels are in position to receive the arm i . This arrangement is for the purpose of indicating the position of the wheels to the eye when the lock is open.

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

1. The combination of the weight H with the fly m of the lever G , and the wheels $C C C$, operating in the manner and for the purpose substantially as herein set forth.
2. The combination of the cam-hook n , and eccentric surface e , with the fly l of lever G , operating substantially in the manner and for the purpose set forth.
3. The combination and arrangement of the conical or tapering screw-pin u with the flattened side of the spindle B , operating in the manner and for the purpose set forth.
4. The employment of the intermatching teeth $e e'$, in combination with the clamping-plates $w w'$, and screw y , arranged and operating as specified.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

CHARLES FLESCH.

Witnesses:

R. F. OSGOOD,
J. A. DAVIS.