J. E. & L. P. Barnes,

Till Check.

No. 107,590. Patented Sep. 20. 1870.

Fig. 1.

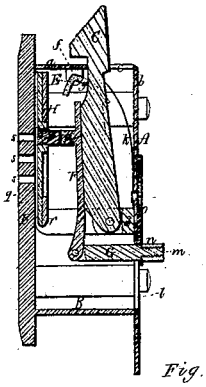


Fig. 2.

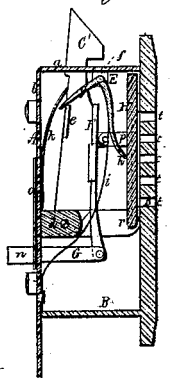
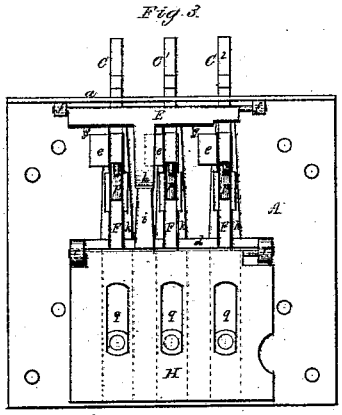


Fig. 3.



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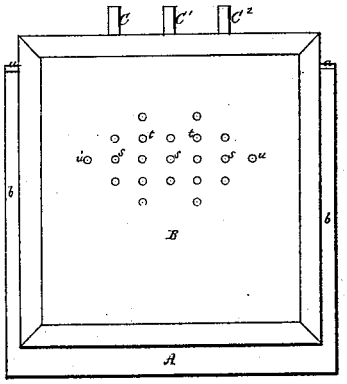

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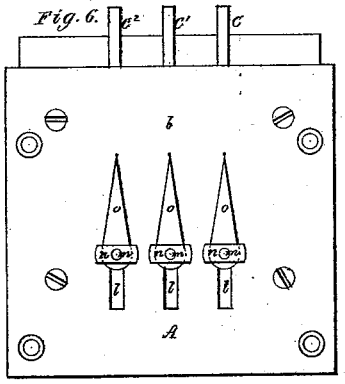


Fig. 12.

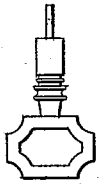


Fig. 4.

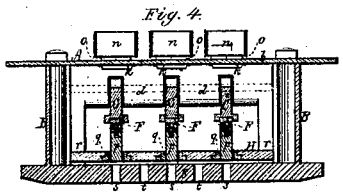


Fig. 7.

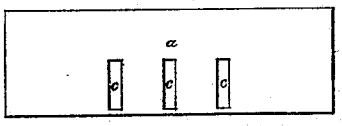


Fig. 8.

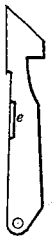


Fig. 9.

Fig. 10.

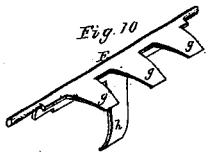
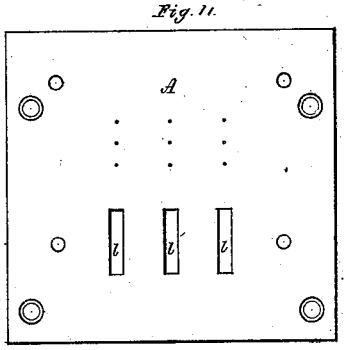


Fig. 11.



Witnesses

S. N. Piper

L. N. Bullard

J. E. Barnes & L. P. Barnes

by their attorney.

W. W. Eaton

United States Patent Office.

JOSEPH E. BARNES, OF DANVERS CENTRE, AND LUCIUS P. BARNES, OF FITCHBURG, MASSACHUSETTS.

Letters Patent No. 107,590, *dated September* 20, 1870.

IMPROVEMENT IN PERMUTATION LOCKS.

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

To all persons to whom these presents may come:

Be it known that we, JOSEPH E. BARNES, of Danvers Centre, of the county of Essex and State of Massachusetts, and LUCIUS P. BARNES, of Fitchburg, of the county of Worcester and State of Massachusetts, have invented a new and useful Permutation Lock, and do hereby declare the same to be fully described in the following specification and represented in the accompanying drawing, of which—

Figure 1 is a vertical transverse section of the lock, it being taken through one of the latches;

Figure 2 is another vertical transverse section of the lock, it being taken through the tail and spring of the catch-shaft;

Figure 3 is a view of the mechanism of the lock as it appears when the cap is removed from the lock-plate, and the key-plate is turned back from its normal position in front of the several latches;

Figure 4 is a horizontal transverse section;

Figure 5 is a front elevation; and

Figure 6 is a rear elevation of such lock.

In such drawing—

A denotes the lock-plate, and B the cap or cover for the works or internal parts of the lock, the said plate and cap being formed as represented.

A portion, *a*, of the lock-plate is arranged at a right angle with the remainder or part, *b*, and has three, or any other suitable number of parallel slots, *c c c*, made in it, as shown in Figure 7, which is a top view of such part *a*, each of such slots being for the reception of one of a series of latches, C C^1 C^2.

These latches, arranged as shown in the drawing, have their heads projecting through the several slots, the tails of such latches being pivoted to the lock-plate, or a projection or rib, *d*, extended therefrom.

Each latch has an ear, *e*, projecting from one side of it, the same being as shown in Figure 8, which is a side view, and in Figure 9, which is a rear view of one of the latches.

There is a catch-shaft, E, arranged along the inner side of the part *a* of the lock-plate and across the several latches C C^1 C^2, the journals of such shaft being supported in bearings, *f f*, projecting from the part *a*.

Figure 10 is a perspective view of the catch-shaft, its projections or catches, *g g g*, of different lengths, and its tail or arm, *h*, they being arranged in manner and so as to extend from it as shown.

A spring, *i*, fixed to the lock-plate and arranged as represented, bears against the rear side of the said tail or arm *h*.

Furthermore, there is to each latch another such spring, fixed to the lock-plate, and arranged to act against the latch, as shown at *k* in fig. 1.

Ranging lengthwise of and on each latch is a slide, F, which at its lower end is pivoted or hinged to a post, G.

Each of the posts G slides in one of a series of slots, *l l l*, made in the part *b* of the lock-plate, the post being provided not only with a change-screw, *m*, and nut *n*, but with an index-finger, *o*, all formed and arranged as represented.

Figure 11 exhibits a rear view of the lock-plate as it appears without the index-fingers, such view showing a series of dots, indentations, or marks, or divisions made in the plate, to determine the positions for the index-fingers, in order to vary those of a series of studs or pins, *p p p*, which project from and are pivoted to the several slides F F F.

The several pins *p p p* are extended through a series of parallel slides, *q q q*, so arranged in and applied to the key-plate H as to be capable of being moved longitudinally therein, such key-plate being at its lower corners pivoted to the projections *r r* from the lock-plate or the rib *d* thereof.

The key-plate rests against the tail or arm of the catch-shaft.

The mechanism, as above described as applied to the lock-plate, is incased by a cover or cap, B, which may be fastened to the lock-plate by screws.

The said cap, where it covers the key-plate is provided with a series of key-holes, of which there is a vertical range, *s*, to each of the studs or pins *p*, and there are also other or intermediate ranges, *t*, and one or more outside ranges, *u u*.

Each of such key-holes may be simply a round hole made through the cap and to receive the head of a key formed as shown in Figure 12.

We would remark that the distances apart from center to center of the dots or divisions on the back of the lock-plate are to correspond with those of the key-holes of the ranges to operate with the studs *p p p*.

In preparing or setting this lock for being used, the screw-nuts of the posts are to be turned or loosened, and the posts are to be moved so as to cause the extreme points of the index-fingers to rest against such of the divisions as it may be desirable to have them set against, after which the nuts should be turned down so as to clamp the posts fast to the lock-plate.

These movements of the posts will have caused corresponding movements of the jaws *p p p*, and the slide in the key-plate, the ends of the pins being

brought opposite to or in connection with the key-holes corresponding to the divisions against which the index-fingers may point.

Each of the latches, when locked, is forced against the front end of its slot in the plate *a*, but when unlocked it is back against or nearly against the other end of such slot, it being held back by its ear and one of the catches *g* of the catch-shaft.

By forcing the key successively into the proper key-holes the latches may be unlocked, but should the key be forced into a wrong key-hole all the latches unlocked will be immediately locked, as the key, under such circumstances, would cause the key-plate to be moved so as to effect the tripping of the catch-shaft.

Thus it will be seen that, even should a person succeed in unlocking one of the latches, an attempt to force the key into another or wrong key-hole will cause the latch previously unlocked to be locked.

If desirable, one of the latches may be made without an ear, or the catch-shaft projection next to the ear may be made too short to operate with the ear. Under these circumstances the latch can only be actuated by its spring and the key.

We claim—

The combination of the catch-shaft E, provided with the operating spring *i*, the tail *h*, and catches *g*, as described, with the series of latches C C^1 C^2, and their springs *k*, and with the adjustable pins *p*, and the key-plate H, either with or without its slides *q*, and the key-hole plate provided with key-holes, as described.

Also, the combination therewith of the divisions on the lock-plate A, the index-fingers *o*, and the clamp-screws *m*, and nuts *n*, applied to the pins or studs *p p p*, by means substantially as specified.

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LUCIUS P. BARNES.

Witnesses:
R. H. EDDY,
J. R. SNOW.