No. 852,291. PATENTED APR. 30, 1907.

M. J. O'LEARY.

PERMUTATION PADLOCK.

APPLICATION FILED JUNE 6, 1906.

Fig. 1

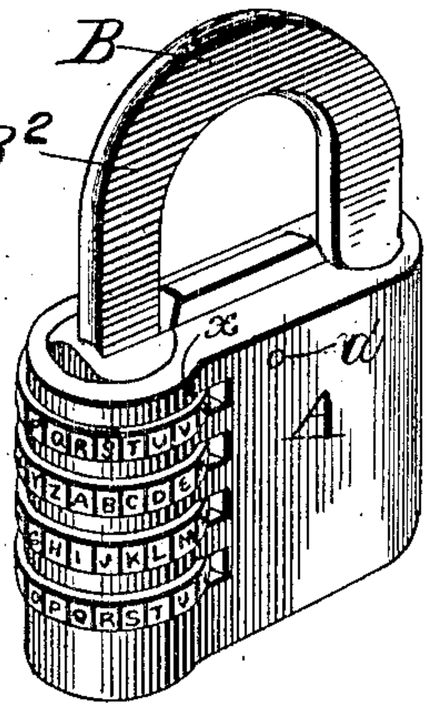



Fig. 2

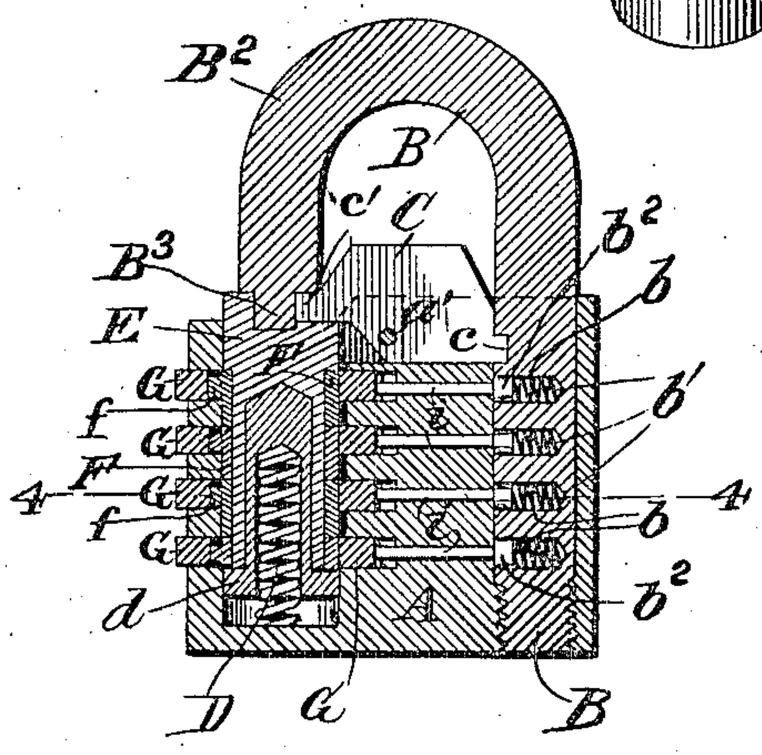



Fig. 3

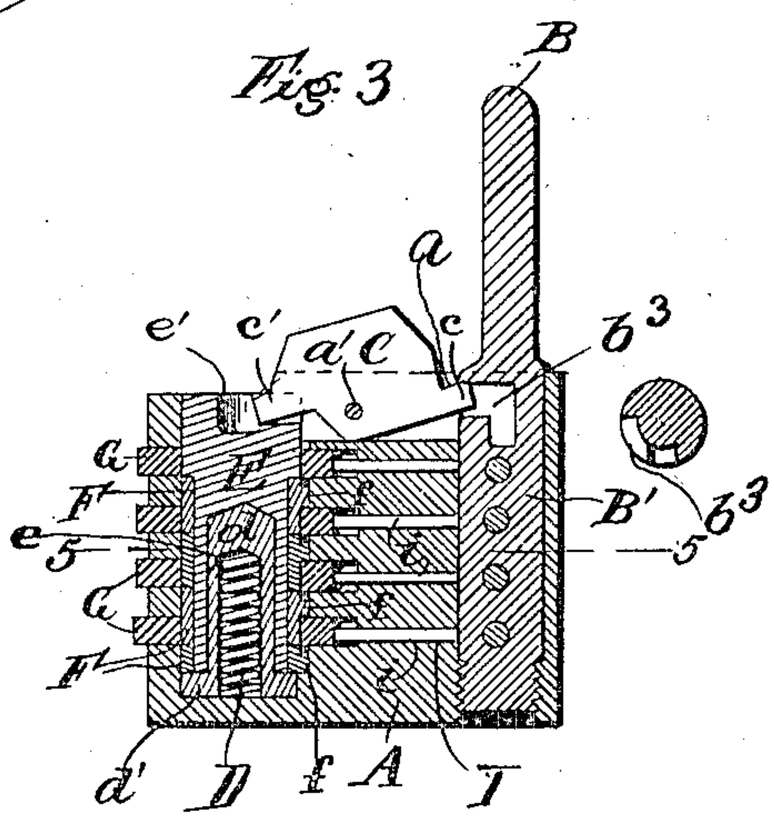



Fig. 4

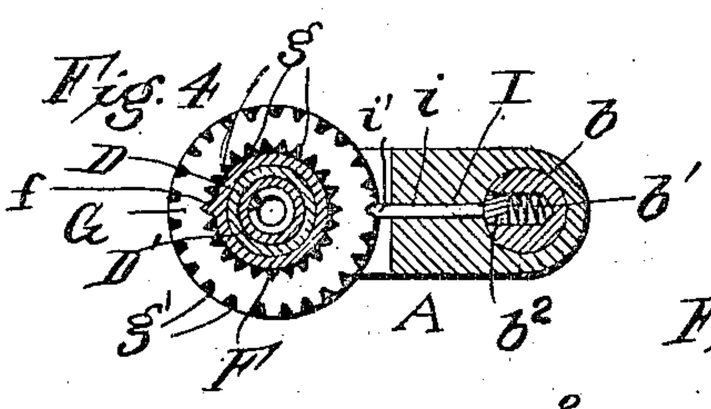



Fig. 5

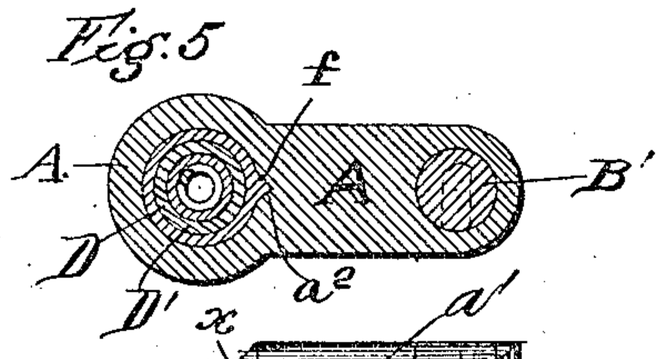



Fig. 6

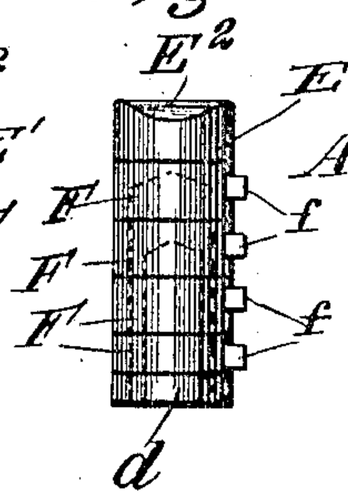



Fig. 7

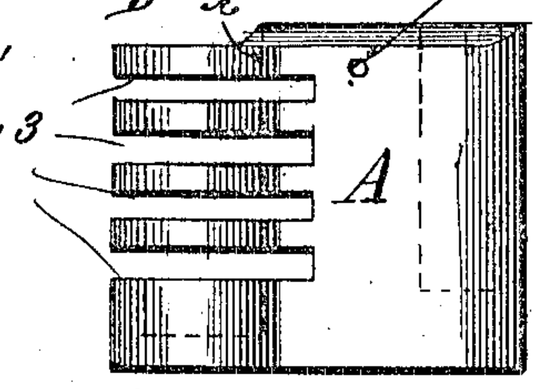



Fig. 9

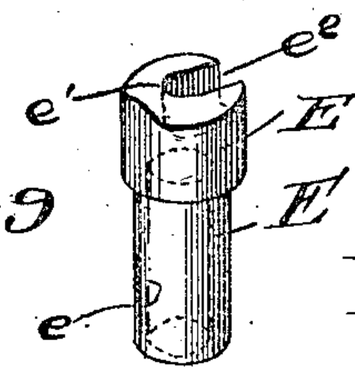



Fig. 10

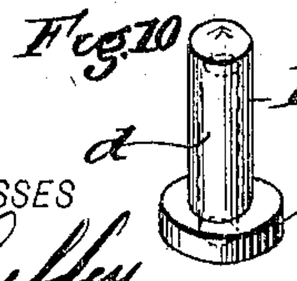



Fig. 11

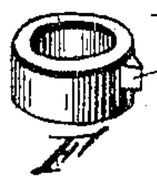
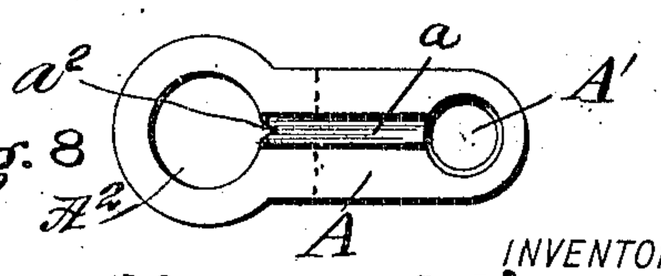



Fig. 8

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# UNITED STATES PATENT OFFICE.

MATTHEW J. O'LEARY, OF CHICKASHA, INDIAN TERRITORY, ASSIGNOR OF ONE-HALF TO CHARLES EVERETT PLATT, OF CHICKASHA, INDIAN TERRITORY.

## PERMUTATION-PADLOCK.

No. 852,291. Specification of Letters Patent. Patented April 30, 1907.

Application filed June 6, 1906. Serial No. 320,423.

*To all whom it may concern:*

Be it known that I, MATTHEW J. O'LEARY, a citizen of the United States, and a resident of Chickasha, District 19, Indian Territory, have invented certain new and useful Improvements in Permutation-Padlocks, of which the following is a specification.

My invention relates to improvements in permutation padlocks and has for its object to produce a padlock of the type set forth, which shall be simple, efficient and strong and one which can be readily operated, and the combinations (of which a great number may be used), changed at will in a simple manner without dismembering the component parts.

To these ends my invention consists in certain novel features of construction, arrangement and combination of parts as will be hereinafter fully described and pointed out in the claims, reference being had to the accompanying drawings, in which

Figure 1 is a perspective view of a lock embodying my improvements. Fig. 2 is a vertical section of same, showing the shackle locked. Fig. 3 is a similar section with the shackle released or unlocked. Fig. 4 is a horizontal section on line 4—4 of Fig. 2. Fig. 5 is a similar view on line 5—5 of Fig. 3. Fig. 6 is a side view showing locking sleeves on plunger. Fig. 7 is a side view of the body portion with shackle and locking parts removed. Fig. 8 is a top view of same. Fig. 9 is a perspective view of the plunger removed. Fig. 10 is a similar view of the spring pressed plug. Fig. 11 is a perspective view of one of the locking sleeves.

In carrying out my invention I use a casting or body portion A of suitable size and shape having the vertical passage A′ bored through one end to receive the long leg of shackle B; said bore is internally threaded near its lower end to receive the threaded lower end B′ of the shackle B, as shown in Figs. 2 and 3. The opposite end of the body portion is also provided with a vertical bore $A^2$ somewhat larger than the bore A′, and a suitable number of horizontal slots $A^3$ are cut into the body portion intersecting the bore $A^2$, and extending toward the vertical center of the body portion, as indicated in Fig. 7.

The shackle B which consists of the long leg B′ and the short leg $B^2$, is provided in its longer leg with the horizontal sockets *b* within which are placed coiled springs *b′* which bear against small dowel pins $b^2$, these small sockets corresponding in number to the cut-out portions in the other side of the body; the longer leg B′ is also provided with the angular recess $b^3$, just above the upper horizontal socket *b*, within which the rear end or nose *c* of a latch C plays, said latch being pivoted within a vertical slot *a* at *a′*, as shown in Fig. 3, and having the nose *c′* at its other end.

Within the hole $A^2$ of the body portion, said hole or opening extending not entirely through the body vertically, is placed a coil spring D, and over this a plug D′ which is provided with a vertical socket *d* in its center within which the spring D is seated; said plug is also provided with a horizontal annular flange *d′* at its lower end upon which rests the lower end of the plunger E which has a central vertical opening *e* in its lower portion, said opening fitting over the plug D′. The plunger E is provided with an enlarged head E′ in the center of which is a vertical socket *e′*, and a slot $e^2$ extending from said central socket to the outer edge of the head E′; the slot $e^2$ is of less depth than central socket *e* and is designed to receive one end of the latch C hereinbefore referred to.

The inner vertical wall of the bore or hole $A^2$ is provided with the notch or V shaped recess $a^2$ to permit the passage into said bore of the sleeves F, each sleeve having a V-shaped lug or projection *f* near its upper end, said sleeves with the rings G forming the tumblers of the locks; said rings G are provided with a series of internal notches *g* any one of which will fit over the lug or projection *f* of sleeve F according to the combination decided on, and said rings G are also provided with a circumferential series of similar notches *g′* around their outer edge.

Extending from each of the slots $A^3$ inwardly are the horizontal passages I, extending from said slots to the bore A′, and in which are placed the pins *i*, one end of which is flat and the other *i′* pointed or sharpened. These pins are intended to bear at their flattened ends against the dowels $b^2$ and their pointed ends to engage the V-shaped notches *g′* in the periphery of the outer member G of the tumblers of the lock when the padlock is in its locked condition.

In Fig. 2 the parts of the lock are shown in their normal locked position; that is, the plunger E carried on the plug D′ in turn car-

ries the tumblers, which were inserted horizontally into the slots $A^3$, the members F and G forming said tumblers having been previously arranged to form a combination; each tumbler has 26 letters arranged on its periphery, one letter being arranged between every two notches, the lug *f* on the sleeves F being placed in one of the internal notches *g* of rings G.

In the position of parts shown in Fig. 2, the dowels $b^2$ press lightly against the ends of pins *i*, forcing their pointed or sharpened ends *i'* into the slots $A^3$, and against the outer rings G of the tumblers, said sharpened ends jumping into the notches *g'* on the periphery of rings G but permitting them to be freely turned.

The short leg $B^2$ of the shackle has at its end the downwardly projecting pin $B^3$ which when the padlock is in its locked condition fits into the socket *e'* in the plunger E, and side movement of the shackle is thereby prevented. The upper side faces of the plunger E are rounded off or beveled as shown at $E^2$ to permit the pin $B^3$ at end of shackle to ride easily up same when locking the same.

The rings G may be designated as the indicator rings, and the sleeves F, as lock sleeves; if they are now combined as desired to unlock the padlock, the lug *f* on the sleeve which has been previously set in one of the internal notches *g* of the ring G must be brought into vertical alinement with the notch $a^2$ in the inner wall of the bore $A^2$; each indicator ring must be so turned that the lug of its sleeve is in vertical alinement with each and all of the lugs below or above it. When the tumblers have been so turned as to accomplish this result, the plunger E may be pushed down releasing the pin $B^3$ which will permit the short leg $B^2$ of the shackle B to be swung to one side; at the same time, the long leg B' of the shackle being threaded at its lower end into the body of the lock moves vertically as the leg is swung, and the heel *c* of the pivoted latch C is carried upwardly by the shape of the angular slot $b^3$ and forces the nose *c'* of the latch C into the slot $e^2$ in the head of plunger E; at the same time the solid portion of leg B' of the shackle is brought around and bears against the flat ends of the pins *i* holding the pointed or sharpened ends *i'* of same into rigid engagement with the notched rings G, and preventing turning of the same while the shackle is open.

To lock the padlock again the short leg $B^2$ is swung around again, the long leg moving downwardly during such swing until the spring pressed dowels $b^2$ are opposite the flat ends of the pins *i'*; this movement of the shackle carries the heel *c* of the latch C downwardly and consequently moves the nose *c'* upwardly permitting the plunger to move up again; the pin $B^3$ strikes against the rounded or beveled top side faces of the plunger, and forces it down until the pin $B^3$ is immediately over the socket *e'* when the plunger and the plug D' will be moved up by the spring D and lock the shackle, the locking sleeves F being carried by the plunger in its up and down movements.

There will be, of course, some mark on the outer face of the body portion adjacent to the tumblers by which it can be known when the parts are in correct position for unlocking, and such a means may be a mark as "x" shown in Fig. 7; so that when the letters forming the combination are in alinement with this the padlock can be opened.

The combination can be readily and quickly changed by holding down the plunger when the shackle is in locked position turning the indicator rings G to the desired letters, and then releasing the plunger, and the locking sleeves F being carried by said plunger; the lugs thereon will be seated in other notches in the inner face of the rings G.

I claim—

1. A permutation padlock consisting of a body portion, a shackle member having one leg revolubly and slidably mounted in one side of said body portion, and an independently mounted spring actuated plunger in the opposite side of said body, said plunger adapted to lock and unlock the free end of the shackle.

2. A permutation padlock consisting of a body portion, a shackle member having one leg revolubly and simultaneously slidably mounted in said body portion, a slidable plunger mounted in said body portion and adapted to lock the free end of said shackle, and rotatable tumblers mounted on said plunger.

3. A permutation padlock consisting of a body portion, a shackle member rotatably and slidably mounted in said body portion, a spring actuated plunger mounted in said body portion, locking sleeves mounted on said plunger, said sleeves provided with lugs or projections, indicator rings fitted on said locking sleeves, each provided with a series of internal notches to fit the lugs of the locking sleeves, and pins operated by the revolution of the shackle to lock the indicator rings.

4. A permutation padlock consisting of a body portion having two vertical bores at opposite sides, a shackle member comprising a loop and legs of unequal lengths, the longer leg mounted in one of said bores, a hollow plunger mounted in the other of said bores, and having a socket in its upper end, the shorter leg of the shackle having a pin at its lower end adapted to engage said socket, said body having horizontal passages intersecting the vertical bore containing the plunger, sleeves mounted on said plunger within the passages, lugs projecting from said sleeve, indicator rings mounted on said sleeves and

having internal notches to fit said lugs, and notches in their peripheries, a plug fitted in the lower end of said plunger, a spring mounted in the body and adapted to normally force the plug and plunger upwardly, a vertical groove in the body portion extending into the bore carrying the plunger and rings, a latch pivoted in the upper part of the body portion, said latch having a nose adapted to engage the upper end of the plunger, and a heel adapted to be engaged and moved vertically by the long leg of the shackle, and spring actuated horizontal pins mounted in the body portion and adapted to engage at their free ends the notches in the periphery of the indicator rings.

5. A permutation padlock consisting of a body portion, having vertical bores at opposite sides, a shackle member consisting of a loop and legs of unequal length, the longer leg revolubly and longitudinally movable in one of said bores, a spring actuated plunger mounted in the other of said bores, locking sleeves mounted on said plunger and having lugs projecting outwardly therefrom, indicator rings mounted on said sleeves and having internal notches adapted to fit over said lugs, said indicator sleeves having also notches in their periphery, horizontal pins mounted in the body portion and engaging at one end the peripheral notches of the indicator rings, dowel pins mounted in horizontal openings in the longer leg of the shackle member and adapted to engage the opposite end of the horizontal pins, springs located in said horizontal openings in the rear of said dowel pins, the bore of the body portion carrying the plunger having a vertical notch or groove to permit vertical movement of the lugs of the locking sleeves when they are in alinement.

6. A permutation padlock consisting of a body portion having two vertical bores at opposite sides, a spring actuated plunger mounted in one of said bores, and carrying locking sleeves and indicator rings on said sleeves, a shackle member comprising a short leg adapted to be engaged by said plunger, a loop and a long leg mounted in the other of said vertical bores, and having in its face an angular groove, a latch pivoted in the upper part of the body portion, and having a heel adapted to engage the said angular groove and a nose adapted to engage a groove in the upper end of the plunger, said long leg of the shackle having a screw threaded end fitting in threads within its bore, whereby a rotary movement of said shackle will cause the same to move vertically and tilt the latch on its pivot.

7. A permutation padlock consisting of a body portion, a shackle member having one leg revolubly and slidably mounted in said body portion, a spring actuated plunger mounted in said body portion and adapted to lock and unlock the free end of the shackle, and rotatable tumblers mounted on said plunger.

8. A permutation padlock consisting of a body portion, a shackle member having one leg revolubly and slidably mounted in said body portion, an independently mounted spring actuated plunger in the opposite side of the body portion, and a latch engaging the long leg of the shackle and the said plunger, whereby rotation of said long leg of the shackle in one direction will cause the said plunger to move downwardly to unlock the free end of the shackle.

9. A permutation padlock consisting of a body portion, a shackle member having one leg revolubly and simultaneously slidably mounted in said body portion, a slidable plunger mounted in said body portion and adapted to lock the free end of said shackle, a pivoted latch engaging the shackle member and slidable plunger, and rotatable tumblers mounted on said plunger.

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Witnesses:
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CHAS. D. PREST.