

A. L. MANDULA.
COMBINATION LOCK.
APPLICATION FILED APR. 6, 1911.

Patented Dec. 19, 1911.
2 SHEETS-SHEET 1.

1,012,388.

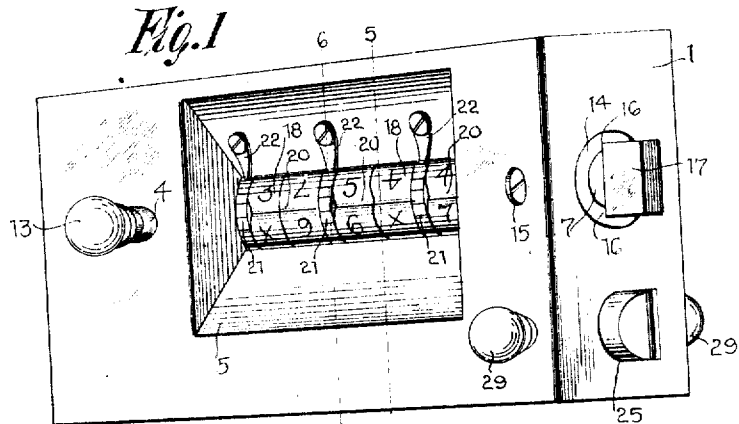
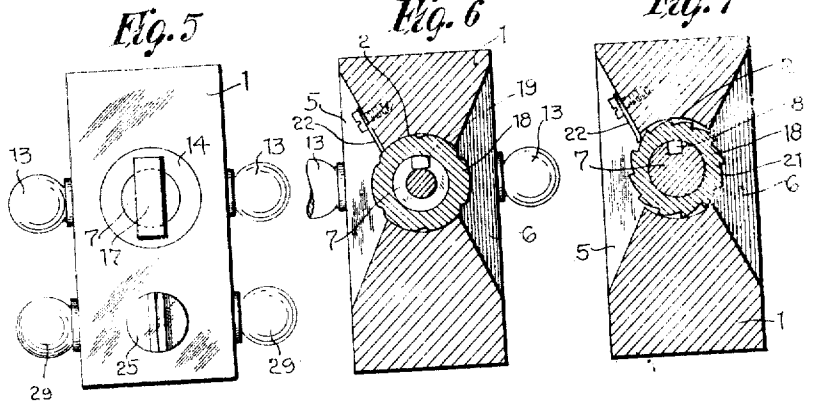


Fig. 8

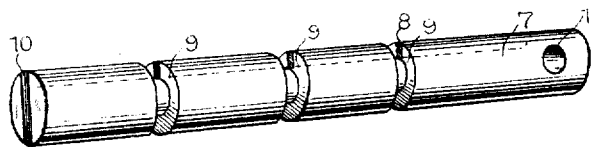
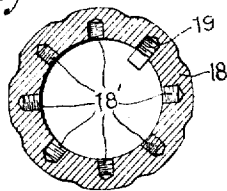


Fig. 9

Fig. 12



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Fig. 3

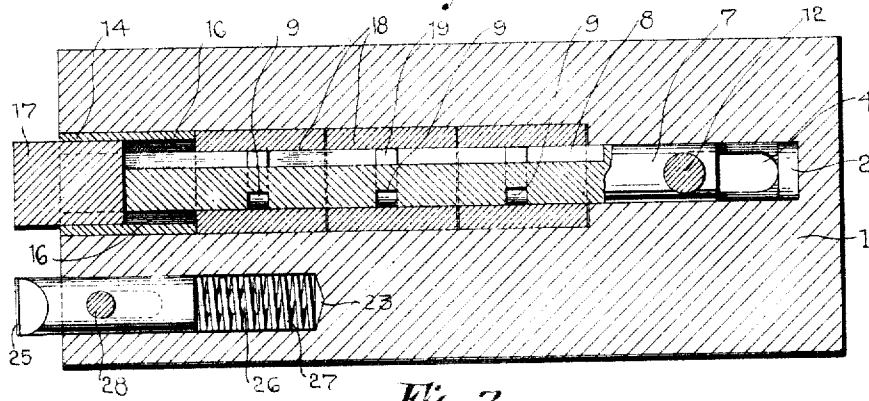


Fig. 2

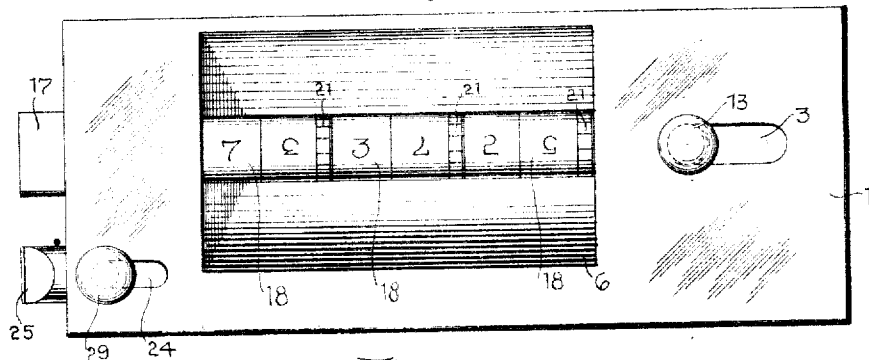


Fig. 4

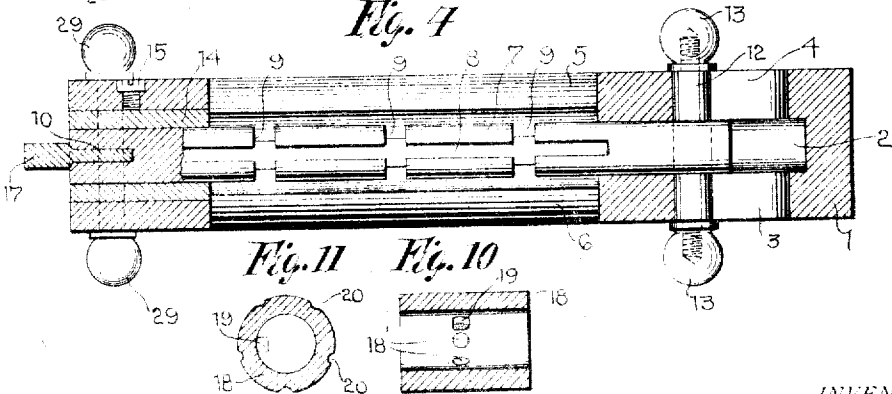


Fig. 11

Fig. 10

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UNITED STATES PATENT OFFICE.

AUGUST L. MANDULA, OF STREATOR, ILLINOIS, ASSIGNOR TO PAULINA MANDULA, OF STREATOR, ILLINOIS.

COMBINATION-LOCK.

1,012,388.

Specification of Letters Patent.

Patented Dec. 19, 1911.

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To all whom it may concern:

Be it known that I, AUGUST L. MANDULA, a citizen of the United States, residing at Streator, in the county of LaSalle and State of Illinois, have invented certain new and useful Improvements in Combination-Locks, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to locks of the permutation type which can be used upon a door or a trunk. The principal object of the same is to provide a novel type of plunger and locking disks for holding the plunger in an extended position, the disks being provided with adjustably mounted locking pins.

This invention is illustrated in the accompanying drawings, wherein:—

Figure 1 is a perspective view of the lock, locking from the inside face. Fig. 2 is a view of the outer face of the lock. Fig. 3 is a longitudinal vertical sectional view through the lock. Fig. 4 is a longitudinal horizontal sectional view through the lock. Fig. 5 is an end view of the lock. Fig. 6 is a transverse sectional view along the line 5—5 in Fig. 1. Fig. 7 is a similar view to Fig. 6, along the line 6—6 in Fig. 1. Fig. 8 is a perspective view of the sliding plunger within the lock. Fig. 9 is a perspective view of the sleeve which surrounds the outer end portion of the plunger. Fig. 10 is a longitudinal sectional view through one of the locking disks. Fig. 11 is a transverse sectional view through one of the locking disks. Fig. 12 is an enlarged sectional view through one of the locking disks.

This invention comprises a case 1, which is provided with a longitudinally extending tubular opening 2. The transversely extending slots 3 and 4 lead from the sides of the lock and intersect the longitudinal opening 2, adjacent the inner end of the opening and the recesses 5 and 6 are cut intermediate the length of the lock and also intersect the longitudinally extending opening 2. The plunger 7 which is mounted within the opening 2 is provided with a longitudinally extending slot 8 and with a plurality of annular grooves 9; the illustrated plunger being provided with three of these grooves. The outer end of the plunger is provided with a slot 10 and the inner portion is provided with a transverse open-

ing 11, which is positioned in alinement with the slots 3 and 4 when the plunger is in place. A rod 12 is passed through the opening 11 and has a large head 13 threaded upon each end so that the rod will be held in place. The outer portion of the opening 2 is enlarged and has a sleeve 14 positioned therein, and held in place by a screw 15. This sleeve surrounds the outer portion of the plunger 7 and is provided with a pair of oppositely disposed longitudinally extending slots 16. A bolt 17 is rigidly mounted in the slot 10 and has its edge portions sliding within the slots 16 thus preventing rotation of the plunger 7.

Disks 18 are mounted upon the central portion of the plunger 2 and are each provided with a pin 19 which fits within one of the grooves 9 and is also of such dimensions that it will fit within the slot 8. In the preferred form the disks are provided with the series of threaded sockets 18' in one of which the threaded pin 19 is secured. By having the pin removably mounted, the combination can be changed by removing the pin and replacing it in another socket. These disks are each provided with longitudinally extending grooves 20, which make it easier to turn the disks and is also provided near one end with a series of ratchet teeth 21 which are engaged by the springs 22, secured to the case 1. A second longitudinally extending opening 23 is formed in the block beneath the opening 2 and slots 24 are formed through the case near the outer end of the opening 23 to intersect the same. A plunger 25 is mounted within the opening 23 and is provided with a reduced inner end 26 about which a coil spring 27 is positioned. The coil spring contacts with the inner end of the opening 23 and tends to move the plunger 25 outwardly. An operating pin 28 is passed through the plunger and extends through the slots 24 and a head 29 is secured upon each of the outer ends of the pin 28.

In the operation of this device the case is mounted within the door, and the plunger moves outwardly so that the bolt 17 will enter the opening formed in the jamb and lock the door. The disks 16 are then moved to scatter the combination and the lock of the door will be securely locked. In order to open the door the disks are turned so as to bring the character above the pins 19 in

the proper place so that the lugs will be in alinement with the slot 8. The plunger can then be moved inwardly and the door will be unlocked. If desired the plunger can be moved inwardly and the combination scattered, so that the door will remain unlocked. When in this position the plunger 25 holds the door closed. The door can be easily opened by moving the plunger 25 inwardly against the tension of the spring 23. This plunger 25 will hold the door securely fastened but will not lock the same. It should be noted that the springs 22 prevent the disks from being turned except in one direction and also act as a brake to prevent the disks from turning too rapidly.

If it is desired to change the combination the heads 13 are removed and the rod 12 withdrawn. The plunger can then be withdrawn so that the disks can be removed from it. After the disks have been removed the pins 19 can be moved to different sockets and the lock reassembled.

What I claim is:—

1. A lock comprising a case provided with a longitudinally extending opening and with a plurality of transverse openings intersecting said longitudinal opening, a plunger mounted in said longitudinal opening, a plurality of locking disks mounted upon said plunger and exhibited through certain of said transverse openings, means for re-

sisting the turning of said disks, a sleeve positioned within the outer portion of said longitudinal opening and surrounding said plunger, said sleeve provided with oppositely disposed longitudinally extending slots, a bolt mounted in said plunger and sliding within said slots, and an operating pin passing through said plunger and protruding through the remaining ones of said transverse openings.

2. A lock comprising a case provided with an opening, a sleeve mounted in the outer portion of said opening, and provided with oppositely disposed longitudinally extending grooves, a plunger slidably mounted in said opening, a bolt carried by said plunger and fitting into said grooves, and locking disks mounted upon said plunger.

3. A lock comprising a case provided with an opening, a plunger mounted in said opening, locking disks mounted upon said plunger, each being provided with a plurality of threaded sockets leading from its inner face, and a locking pin screwed into one of said sockets.

In testimony whereof I hereunto affix my signature in presence of two witnesses.

AUGUST L. MANDULA.

Witnesses:

J. R. SCHURMAN,
M. Kopp.