R. WRLLA.

COMBINATION PADLOCK.

APPLICATION FILED JULY 15, 1908.

906,354. Patented Dec. 8, 1908.

Fig. 1.

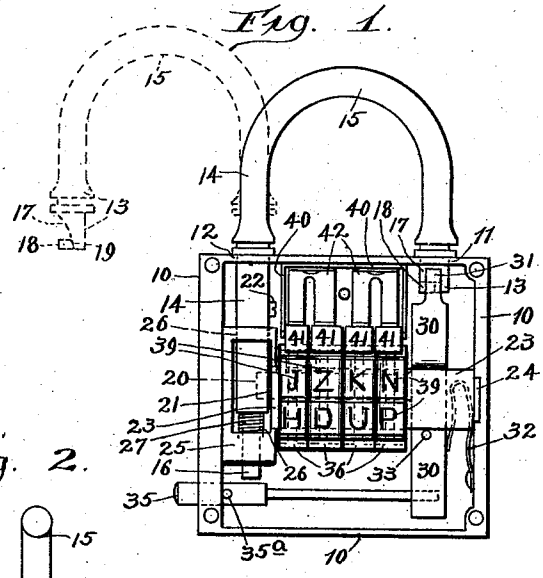


Fig. 2.

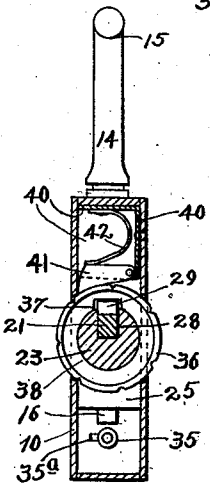


Fig. 4.

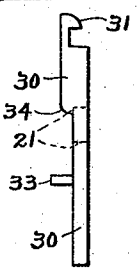


Fig. 3.

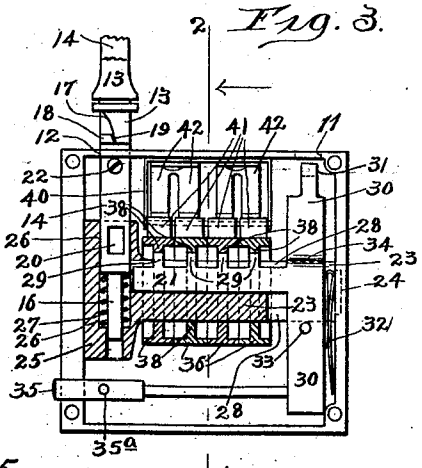
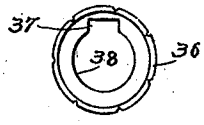


Fig. 5.



Witnesses:

Chas. E. Gorton.

M. A. Hyman.

Inventor:

Rudolph Wrlla.

By Chas. C. Tillman

Atty.

THE NORRIS PETERS CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

RUDOLPH WRLLA, OF CHICAGO, ILLINOIS.

COMBINATION-PADLOCK.

No. 906,354. Specification of Letters Patent. Patented Dec. 8, 1908.

Application filed July 15, 1908. Serial No. 443,730.

To all whom it may concern:

Be it known that I, RUDOLPH WRLLA, a subject of the Emperor of Austria-Hungary, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Combination-Padlocks, of which the following is a specification.

This invention relates to improvements in that type of locks known as permutation or combination locks, and while it is more especially intended for use as a pad lock and is so illustrated in the drawing and will hereinafter be described as such, yet it is not necessarily limited thereto; and it consists in certain peculiarities of the construction, novel arrangement, and operation of the various parts thereof, as will be hereinafter more fully set forth and specifically claimed.

The principal object of the invention is to provide a lock of the above-named character, which shall be simple and inexpensive in construction, strong, durable and effective in operation, and which cannot be opened except by a person familiar with the combination.

Another object of the invention is to so construct the parts of the device that if the casing should be opened by removing the rivets or fastenings which secure its face and back plates thereto, or if the shackle or yoke should be sawed or cut in two parts, the parts would still remain in their locked positions and could not be unlocked except by the initiated or person having knowledge of the combination of the tumblers.

Other objects and advantages of the invention will be disclosed in the subjoined description and explanation.

In order to enable others skilled in the art to which my invention pertains, to make and use the same, I will now proceed to describe it, referring to the accompanying drawing, in which—

Figure 1 is a view in side elevation of a lock embodying the invention, showing one of the plates of the casing thereof removed and illustrating the parts in their locked positions, but so that they may be unlocked; Fig. 2 is a transverse sectional view taken on line 2—2 of Fig. 3 looking in the direction indicated by the arrows; Fig. 3 is a view partly in section and partly in elevation with one of the plates of the casing removed, and showing the parts in their unlocked positions; Fig. 4 is an end view of the combined locking-bolt and catch for the two prongs of the shackle, showing it detached; and Fig. 5 is an end view of one of the tumblers.

Like numerals of reference, refer to corresponding parts throughout the different views of the drawing.

The reference numeral 10 designates the casing, which may be of any suitable size, form and material, but preferably of metal and rectangular in shape as shown, and has two spaced apart openings 11 and 12 in a part thereof which in the present instance is shown as being the top, for the reception and operation of the prongs 13 and 14, respectively, of the shackle 15 which is adapted to engage the part or parts to be locked. As shown in Figs. 1 and 3 of the drawing the prong 13 is much shorter than the prong 14 and is adapted to extend through the opening 11 into the casing a short distance only, while the prong 14 is adapted to extend through the opening 12 in the casing to near the bottom thereof and has its lower portion reduced as at 16, as is clearly shown in Fig. 3. The prong 13 is provided at its lower end with a recess 17 and below said recess with a transverse projection 18 which has its inner end slightly beveled as at 19 to co-act with the latch or catch of the locking-bolt, as will be presently explained. The prong 14 is provided just above its reduced portion 16 with an opening or recess 20 to receive the free end of the locking-bolt 21, and for this purpose said recess is formed in that surface of the prong 14 adjacent to the bolt 21 when the shackle is in the position shown in Fig. 1 of the drawing. The upper portion of the part of the prong 14 located within the casing is provided with a screw or projection 22 to act as a stop against the top of the casing so as to prevent the removal of the shackle therefrom, yet to permit it to be raised or moved outwardly to a sufficient extent to allow the prong 13 to be withdrawn from the casing through the opening 11 therein to the end that the shackle may be rotated on the prong 14, as will be understood by reference to the dotted lines shown in Fig. 1 of the drawing. Extended crosswise of the casing 10 and from one side thereof to the other is a shaft 23 which has one of its ends secured in a suitable recess 24 on the inner surface of one of the sides of the casing, and has its other end provided with a transverse extension 25 which rests against the inner surface of the other side of the casing and may be secured thereto if desired. This transverse ex-

tension is provided with an opening 26 for the reception and operation of the prong 14, and also for the reception of a spring 27 which is coiled around the reduced portion 16 of the prong and has one of its ends resting against the bottom of the opening 26 and its other end against the bottom of the enlarged portion of said prong. As is clearly shown in Figs. 2 and 3 of the drawing the shaft 23 is provided with a longitudinally extending slot 28 which communicates with the opening 26 in the extension 25, and is for the reception and operation of the locking-bolt 21 which is provided with a series of spaced apart projections 29 which are extended a slight distance through the slot 28 in the shaft 23, as is clearly shown. The locking-bolt 21 is provided at its end opposite the prong 14 with a transverse latch or extension 30 which has at its upper end a catch 31 rounded or beveled on its upper surface to permit of the passage of the rounded or beveled portion 19 of the projection 18 below the recess 17 in the lower portion of the prong 13 of the shackle. Located between the outer surface of the extension 30 and the adjacent wall of the casing thereto is a spring 32 which is adapted to force the bolt 21 and the extension 30 thereon to the position shown in Fig. 1 of the drawing, so that the free end of the bolt 21 will engage the recess 20, and the catch 31 on the extension 30 will engage the projection 18 on the lower portion of the prong 13 of the shackle. Just below the shaft 23 the extension 30 is provided with a projection 33 and above the shaft 23 said extension is thickened as at 34, which thickened portion and projection will act as guides therefor in its movements on the shaft.

Extended to one side of the casing 10 in the bottom thereof, and connected at its inner end to the lower portion of the extension 30, is a push or releasing rod 35 by means of which it is evident that the extension 30 and locking-bolt 21 may be forced from the positions shown in Fig. 1 to that shown in Fig. 3, or from the locked to the unlocked positions. Mounted on the shaft 23 and around the locking-bolt 21 are a series of ring-like tumblers 36, each of which has a recess 37 in its inner periphery to permit of the passage of the projections 29 on the locking-bolt 21 when said recesses are alined on the shaft and locking-bolt. By reference to Fig. 3 it will be seen that each of the tumblers 36 is provided with an internal annular flange 38 in which the recesses 37 are formed. Each of the tumblers 36 is provided on its outer surface with a series of characters, such as letters, 39 to indicate the positions to which the tumblers must be turned in order to bring their recessed portions in alinement with one another and in alinement with the projections 29 on the locking-bolt in order that said bolt may be retracted and projected. Between the upper portion or top of the casing and the tumblers is located a removable casing 40 which has its lower portion open as will be understood by reference to Fig. 2 of the drawing. Pivotally secured between the ends of the casing 40 are a series of brakes 41 which are pressed against the tumblers 36 by means of springs 42 located between the brakes 41 and the upper portion of the casing 40, and, as is apparent, will serve to retard the movement of the tumblers so that they may be suitably set with respect to one another.

From the foregoing and by reference to the drawing it will be seen and clearly understood that, by placing the tumblers 36 in the positions shown in Figs. 1 and 3 or so that their recesses 37 will be alined with respect to one another, as well as with respect to the projections 29 on the locking-bolt 21, said bolt, as well as its extension 30 which carries the catch 31 for the shorter prong of the shackle, will be free to be moved back and forth on the shaft 23, and that when moved to the position shown in Fig. 1 the free end of the locking-bolt 21 will engage the recess 20 in the prong 14 of the shackle, while the catch 31 will engage the projection 18 on the prong 13 thereof, thus locking both ends of the shackle. By pressing on the outer portion of the releasing rod 35 it is apparent that the extension 30 and locking-bolt 21 will be moved to the positions shown in Fig. 3, in which operation the catch 31 will be disengaged from the projection 18 on the shorter prong of the shackle and the free end of the locking-bolt 21 will be disengaged from the recess 20 in the longer prong of the shackle, thus permitting the spring 27 to force the shackle outwardly until the shorter prong thereof shall have been withdrawn from the opening therefor in the casing, when it is apparent that the shackle may be turned or rotated on its longer prong and disengaged from the part or parts locked thereby.

It will be obvious from the above description that the device is susceptible of considerable modification without material departure from the principles and spirit of the invention, and for this reason I do not desire to be understood as limiting myself to the precise form and arrangement of the several parts of the device herein set forth in carrying out my invention in practice.

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

1. In a combination pad-lock, the combination with a casing, of a longitudinally recessed shaft transversely located therein and having at one of its ends an apertured transverse extension, a shackle having prongs extended through openings in the casing and having recesses therein, a locking-bolt located in the longitudinal recess of said shaft

and provided with outwardly extending projections, a transverse extension on one end of said bolt and provided at one of its ends with a catch to engage the recess in one of the prongs of the shackle, a series of ring-like tumblers mounted on the shaft and locking-bolt and each having an internal recess for the passage of the projections on said bolt, and means to move the locking-bolt and catch of the transverse extension thereon in and out of engagement with the prongs of the shackle.

2. In a combination pad-lock, the combination with a casing, of a longitudinally recessed shaft transversely located therein and having at one of its ends an apertured transverse extension, a shackle having a long and a short prong extended through openings in the casing, the longer prong having its lower portion reduced and extended into the opening of said extension, a spring located in the said extension and engaging said prong to force the same outwardly, a locking-bolt located in the longitudinal recess of said shaft and provided with outwardly extending projections, a transverse extension on one end of said bolt and provided at one of its ends with means for engagement with the lower portion of the shorter prong of the shackle, a series of ring-like tumblers mounted on the shaft and locking-bolt and each having an internal recess for the passage of the projections on said bolt and a series of characters on its outer surface, and means to move the locking-bolt and catch of the transverse extension thereon in and out of engagement with the prongs of the shackle.

3. In a combination pad-lock, the combination with a casing, of a longitudinally recessed shaft transversely located therein and having at one of its ends an apertured transverse portion, a shackle having a long and a short prong provided with recesses and extended through openings in the casing, the longer prong of the shackle mounted for rotation and having its inner portion reduced and located in the opening of said extension, a spring surrounding the reduced portion of said prong, a spring-actuated locking-bolt located in the longitudinal recess of said shaft and adapted to extend at one of its ends into the opening of the extension thereof, a series of outwardly extending projections on said bolt, a transverse extension on the opposite end of the bolt having at one of its ends a catch for engagement with the lower portion of the shorter prong of the shackle, a spring to actuate the locking-bolt and the extension thereon, a series of ring-like tumblers mounted on the shaft and locking-bolt and each having an internal recess for the passage of the projections on said bolt when alined, and a releasing rod extended through the casing and connected at one of its ends to the extension on the locking-bolt.

RUDOLPH WRLLA.

Witnesses:
CHAS. C. TILLMAN,
M. A. NYMAN.