

A. HARDIN.

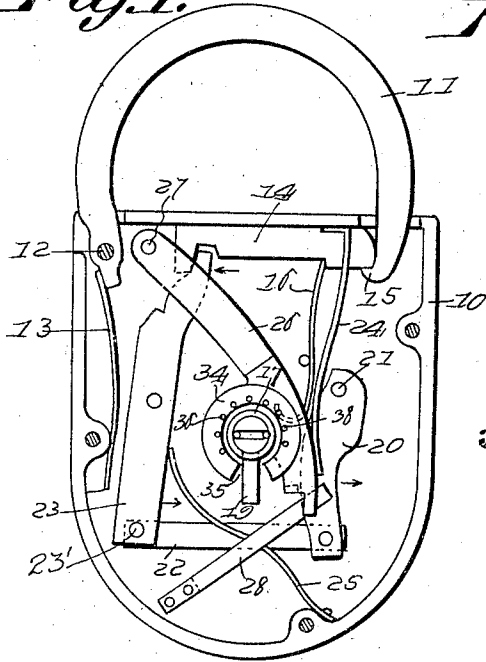
LOCK.

APPLICATION FILED NOV. 25, 1919.

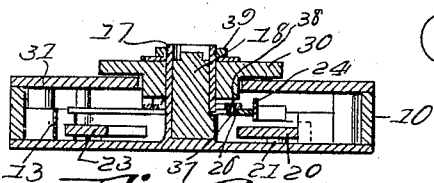
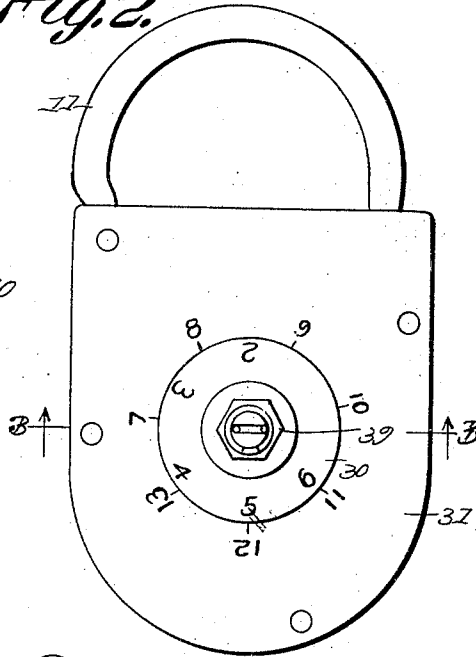
1,383,113.

Patented June 28, 1921.

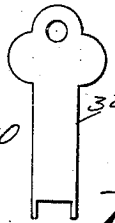
*Fig. 1.*



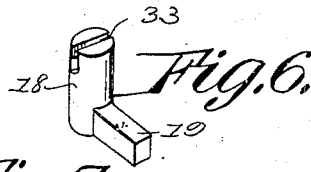
*Fig. 2.*



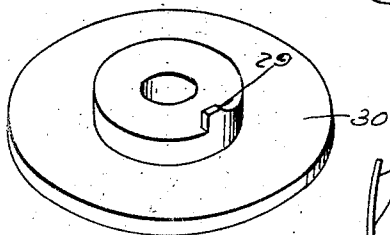
*Fig. 3.*



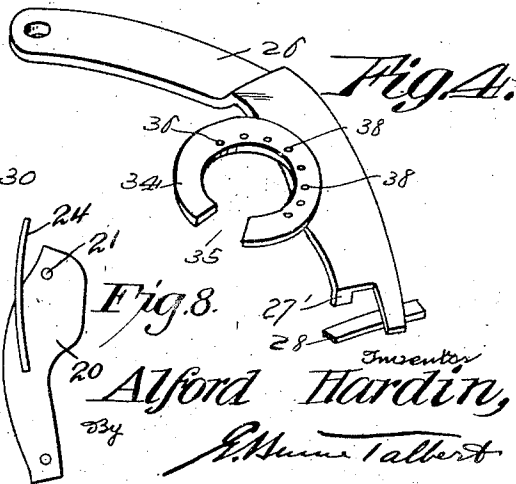
*Fig. 4.*



*Fig. 5.*



*Fig. 6.*



*Fig. 7.*

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# UNITED STATES PATENT OFFICE.

ALFORD HARDIN, OF MURRAY, OHIO.

## LOCK.

1,383,113.

Specification of Letters Patent. Patented June 28, 1921.

Application filed November 25, 1919. Serial No. 340,592.

*To all whom it may concern:*

Be it known that I, ALFORD HARDIN, a citizen of the United States of America, residing at Murray, in the county of Hocking and State of Ohio, have invented new and useful Improvements in Locks, of which the following is a specification.

The object of the invention is to provide a simple and efficient combination lock mechanism suitable for use in connection with padlocks and adapted for general purposes, and with this end in view the invention consists in a construction and combination of parts of which a preferred embodiment is shown in the accompanying drawing, wherein:

Figure 1 is a front view of the lock with the face plate omitted.

Fig. 2 is a front view with the face plate and adjustable combination disk in position.

Fig. 3 is a transverse section on the plane indicated by the line 3-3 of Fig. 2.

Fig. 4 is a detail view of the retaining arm.

Fig. 5 is a reversed perspective view of the combination disk.

Fig. 6 is a detail view of the ward and spindle.

Fig. 7 is a view of the key.

Fig. 8 is a detail view of the trip showing the connection of its actuating spring therewith.

The invention is shown applied to a padlock type of structure embodying a casing 10 and a shackle 11 pivoted at 12 to the casing and having an actuating spring 13, the shackle engaging bolt 14 being mounted for terminal engagement with the nose 15 and being yieldingly held in its normal or locking position by a spring 16.

Mounted within a suitable sleeve bearing 17 at a convenient point in the lock casing is an operating spindle 18 carrying a ward 19 adapted for engagement with a trip arm 20 pivoted at 21 and connected by a link 22 with a bolt retracting lever 23, said trip 20 having an actuating spring 24 tending to move it toward the spindle 18 and the bolt retracting lever which is pivoted, as at 23', also preferably having an actuating spring 25.

Mounted for limited swinging movement in a plane perpendicular to the plane of movement of the trip arm 20 is a retaining arm 26 mounted at 27 upon the casing and having at its free end a stop lug 27' nor-

mally in the path of the ward 19 and serving as a means for preventing such movement of the ward as to release the shackle, said retaining arm being actuated by a spring 28 tending to remove the stop lug 27 from the path of the ward 19, while the said retaining arm is held in position to maintain said lug in interfering relation with the ward by means of a cam 29 carried by an adjustable combination disk 30 mounted upon the face plate 31 of the lock casing and having a series of characters for respective registration with characters on the face plate, said cam being movable with relation to the retaining arm by the manipulation of the disk to permit release of said arm and therefore movement of the ward through the agency of a key 32 adapted for engagement with a seat 33 in the spindle 18, to actuate the trip arm 20 and thereby withdraw the bolt 14 from engagement with the shackle. Carried by the retaining arm is a mutilated bearing ring 34 provided at one point with a cut-away portion or gap 35 forming a seat for the reception of the cam, said ring being adjustably mounted upon the retaining arm to permit of disposing said gap or seat in different positions with relation to the path of movement of the cam by the turning of the combination disk. The adjustment of said ring may be effected in a variety of ways but in the construction illustrated it is provided with a series of openings 36 for respective registration with openings 37 in the retaining arm for the reception of holding pins 38. When the cam 29 bears upon the ring and thus holds the retaining arm in a depressed position against the tendency of the spring 28 the stop lug 27' is maintained as above described in the path of the ward 19 and the turning of the combination disk 30 to register the cam with the seat 35 in the ring will release the retaining arm and permit it by reason of the spring 28 to be moved to a position withdrawing the lug 27' from the path of the ward 19 so that the spindle 18 may be turned and the trip arm moved in the direction of the arrow in Fig. 1 to withdraw the bolt from engagement with the shackle.

The combination disk is mounted upon the sleeve bearing 17 and may as shown be held in place by a nut 39.

What is claimed is:

1. A lock having a bolt and a trip arm operatively connected therewith for communi-

110

cating unlocking movement thereto, a ward mounted for pivotal movement to engage said trip arm, a retaining arm having a stop lug normally arranged in the path of said  
 5 ward for preventing engagement thereof with the trip arm, and a movable combination disk provided with means for normally maintaining said retaining arm in position to interfere with the unlocking movement of  
 10 said ward.

2. A combination lock having a bolt and a trip arm operatively connected therewith for communicating unlocking movement thereto, a ward pivotally mounted for movement  
 15 to communicate unlocking movement to said trip arm, a spring actuated retaining arm carrying a stop lug for normally obstructing the movement of said ward to prevent engagement thereof with the trip arm and  
 20 yieldingly impelled in a direction to withdraw said stop lug from the path of the ward, and a combination disk having a cam for normally holding said retaining arm in ward obstructing position, said retaining  
 25 arm having means complementary to said cam for releasing the former to permit removal of the stop lug from the path of the ward.

3. A combination lock having a bolt and a trip arm operatively connected therewith  
 30 for communicating unlocking movement thereto, a pivotal ward for engagement with said trip arm, a retaining arm provided with a stop lug normally maintained in the path of said ward to prevent engagement thereof  
 35 with the trip arm and yieldingly impelled in a direction to withdraw said lug from the path of the ward, said retaining arm having an annular seat provided with a gap, and a combination disk having a cam adapted for  
 40 engagement with said seat to hold the re-

taining arm in its normal position and adapt it when in registration with said gap to release the same.

4. A combination lock having a bolt and a trip arm operatively connected therewith  
 45 for communicating unlocking movement thereto, a pivotal ward for actuating said trip arm, a retaining arm having a stop lug normally arranged in the path of said ward and provided with an angularly adjustable  
 50 annular seat, and a combination disk mounted for revoluble movement co-axially with said seat and carrying a cam for engagement therewith to maintain the retaining arm in its normal position, said seat being provided  
 55 with a gap for engagement with the cam to release the retaining arm.

5. A combination lock having a bolt and a trip arm operatively connected therewith for communicating unlocking movement there-  
 60 to, a ward having a spindle provided with a key seat and mounted for movement to actuate said trip arm, a retaining arm carrying a lug for arrangement in the path of movement of said ward and having an ac-  
 65 tuating spring for withdrawing the lug from the path of the ward when the retaining arm is released, an annular seat ring being carried by the retaining arm for angular adjustment with relation thereto and  
 70 provided at an intermediate point with a gap, and a revoluble combination disk arranged in co-axial relation with said seat and provided with a cam for engagement therewith to normally maintain said retain-  
 75 ing arm in its ward obstructing position.

In testimony whereof I affix my signature.

ALFORD HARDIN.