

Feb. 26, 1935.

O. PETERSON
COMBINATION DEVICE
Filed April 23, 1930

1,992,541

Fig. 1

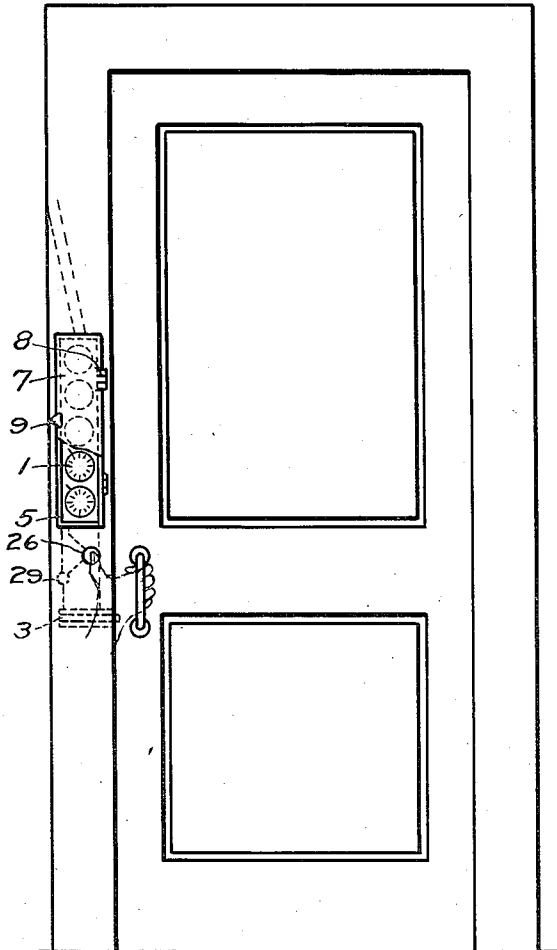


Fig. 2

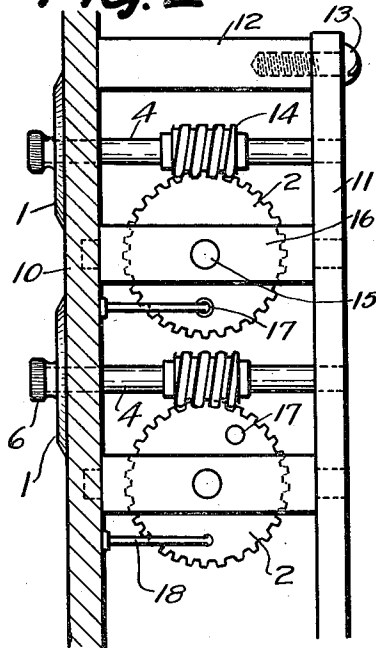


Fig. 3

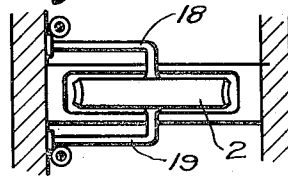


Fig. 5

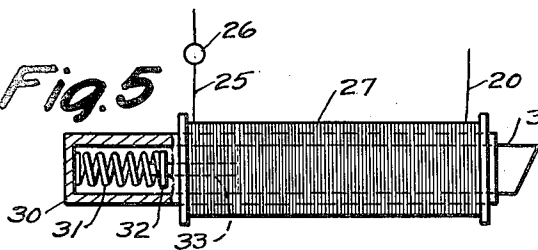
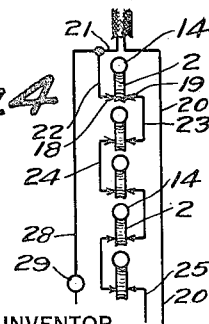


Fig. 4



INVENTOR
Oscar Peterson
BY
Harry Bowen
ATTORNEY

UNITED STATES PATENT OFFICE

1,992,541

COMBINATION DEVICE

Oscar Peterson, Seattle, Wash.

Application April 23, 1930, Serial No. 446,432

1 Claim. (Cl. 200—45)

The invention is a combination device for operating electro-magnetic door locks, in which a plurality of gears and dials are so arranged that the combination may be readily changed.

5 The object of the invention is to provide a combination device for operating electro-magnetic locks which is adaptable for a home, office or any other use.

10 Another object of the invention is to provide a combination device for operating electro-magnetic locks in which the combination may readily be changed.

15 A further object of the invention is to provide a combination device for operating electro-magnetic locks which may readily be installed.

20 A still further object of the invention is to provide a combination device for operating locks which is formed with units that may readily be added or subtracted to increase or decrease the number of combinations obtainable.

And a still further object of the invention is to provide a combination device for operating locks which are of a simple and economical construction.

25 With these ends in view the invention embodies a bolt slidable in a solenoid in combination with a plurality of dials which are connected to gears having contact members extending through the gears and engaging contact points at the sides 30 of the gears.

Other features and advantages of the invention will appear from the following description taken in connection with the drawing, wherein:

35 Figure 1 is a view showing a door with the lock mounted in the frame and part of a lock casing broken away.

Figure 2 is a vertical section showing the gears and dials through which the lock is operated.

40 Figure 3 is a cross section showing one of the gears with the contact points on the sides thereof.

Figure 4 is a diagrammatic view showing the circuit through the gears.

Figure 5 is a detail showing the solenoid.

45 In the drawing the lock is formed as it would be made wherein numeral 1 indicates the dials, numeral 2 the gears, and numeral 3 the lock bolt.

50 The dials 1 are mounted upon pins 4 in a casing 5 as shown in Figure 1 and may be provided with knobs 6 by which they may be rotated. The casing 5 may be mounted on a door frame, as shown, and may be provided with a cover 7 which is mounted upon the casing by hinges 8 and held by a latch 9. Although a casing is 55 shown in Figure 1, it will be understood that this

casing may be omitted and the dials mounted directly upon a plate 10 as shown in Figure 2. The pins 4 are rotatably mounted between the plate 10 and a bar 11 which may be attached to posts 12 on the plate 10 by screws 13. On the 5 inner portion of the shaft 4 are worm gears 14 that mesh with and operate the large gears 2 rotatably mounted upon pins 15 in brackets 16. The brackets 16 are also mounted in the plate 10 at one end and in the bar 11 at the other. 10 The gears 2 are preferably made of a nonconducting material, and pins 17 which are made of a conducting material are placed through the gears. These pins engage contact points 18 and 19 which bear against both sides of the gears, as 15 shown in Figure 3, and are arranged so that as the gears are set with the pins 17 engaging the points 18 a circuit may be completed through the points. These points may be connected in any suitable manner to any suitable source of 20 electric current.

In the view shown in Figure 4 one wire of the circuit, which is indicated by the numeral 20, extends through the device, and the other wire, which is indicated by the numeral 21, is connect- 25 ed by a wire 22 to one of the contact points, as shown. The other contact point on the opposite side of the gear is connected by a wire 23 to one of the contact points engaging the next gear, and then the contact point on the opposite side 30 of the said next gear is connected by wires 24 to the contact point of another succeeding gear. This method of connecting the contact points may be continued through as many gears as may be desired. A portion of the wire which is con- 35 nected to the contact point of the last gear in use, which is indicated by the numeral 25, is connected to one end of a solenoid while the other wire 20 is connected to the opposite end. The wire 25 is provided with a button switch which 40 is indicated by the numeral 26, and it will be observed that when the combination has been set by turning the dials so that all of the contact points engage pins extending through the gears and the button 26 is pressed, a circuit will be com- 45 pleted through a solenoid, which is indicated by the numeral 27. The opposite ends of the wires 20 and 21 may be connected to any suitable source of electric current.

The lock is also provided with another wire 50 28 which by-passes the dials and gears and connects directly to the solenoid in place of the wire 25 so that this circuit may be completed through the solenoid from the inside of the door 55 without operating the dials. This wire is pro-

vided with a button switch 29 which is located on the inside of the door, whereas the button switch 26 is located upon the outside.

The bolt 3 is slidably mounted in the solenoid 5 27 and the solenoid is mounted in the door frame in such a manner that as a solenoid is energized it will draw the bolt 3 into it to release the door. At the inner end of the solenoid is a casing 30 having a spring 31 therein which en- 10 gages a disc 32 on a pin 33 extending from the inner end of the bolt 3. This is comparatively a light spring which holds the bolt 3 in the out- ward position when the solenoid is not energized.

It will be understood that other changes may 15 be made in the construction without departing from the spirit of the invention. One of which changes may be in the design and arrangement of the gears, another may be in the design or arrangement of the dials or in the use of other 20 means for operating the same, and still another may be in the use of this combination of dials and gears for operating a lock of any other de- scription.

The construction will be readily understood 25 from the foregoing description. In use the lock may be installed with the bolt in the door frame and the casing on the outside of the frame, and when it is desired to open the door the person knowing the combination may set the gears by 30 turning the dials until all of the contact mem- bers in the gears are engaged in the contact points, and then by pressing the button, a cir- cuit will be completed and the lock bolt with- drawn. As soon as the button is released the 35 solenoid will release the bolt and the combina-

tion may be upset. It will be noted that the door may be gripped by the handle as shown in Fig- ure 1, and at the same time the thumb of the hand gripping the handle may be placed upon the button 26 so that the lock may readily be 5 operated as the door is gripped.

The combination may readily be changed by removing the bar 11 and slightly rotating the worms 14 while holding the gears 2 stationary. It will be observed that by this method any one 10 may set or reset the combination.

Having thus fully described the invention that I claim as new and desire to secure by Letters Patent, is:

As an article of manufacture, a combination 15 device having a plurality of independently oper- able gears positioned one above the other, an in- dicating dial for each gear with the dials also positioned one above the other, separate and in- dependent knobs for said dials, worms meshing 20 with said gears, shafts upon which said worms and dials are mounted, a casing in which said gears and worms are mounted and in which the rear member of said casing is removable, per- mitting adjustment of the relation of said worms 25 to said gears to change the combinations, contact members carried on said gears, contact arms positioned on said casing cooperating with said gear contacts, said casing adapted to be installed in a door frame adjacent the lock of said door, 30 said combination device being adapted to operate said lock when all of the gears are so positioned that their respective contactors are in contact with their respective fixed contactors.

OSCAR PETERSON. 35