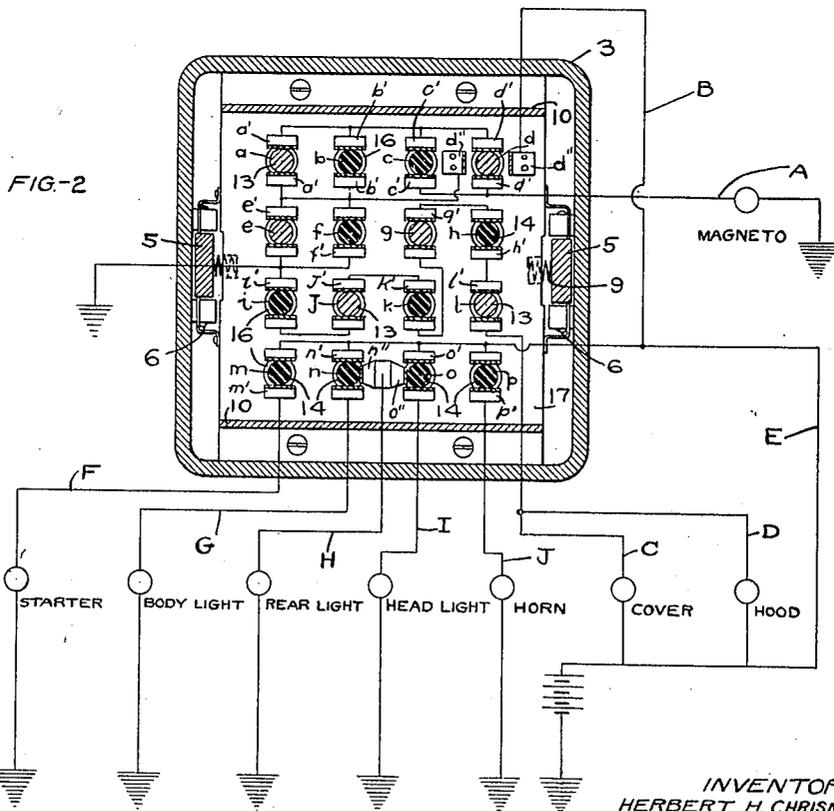
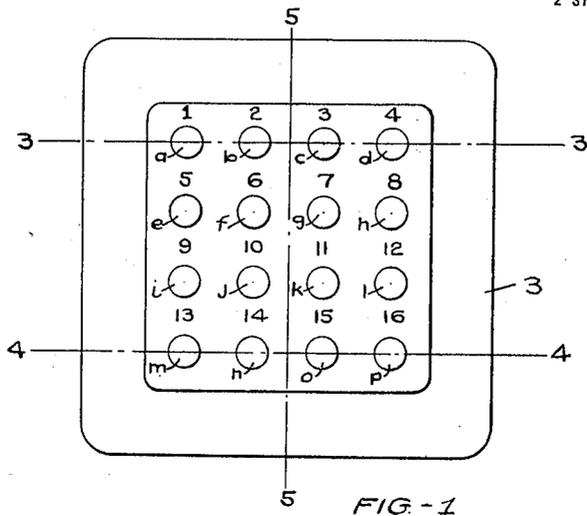


H. H. CHRISMAN & F. W. ADSIT.  
 COMBINATION LOCK FOR AUTOMOBILES.  
 APPLICATION FILED APR. 7, 1917.

1,298,177.

Patented Mar. 25, 1919.

2 SHEETS—SHEET 1.



WITNESSES:  
*B. Hall*  
*E. A. Paul*

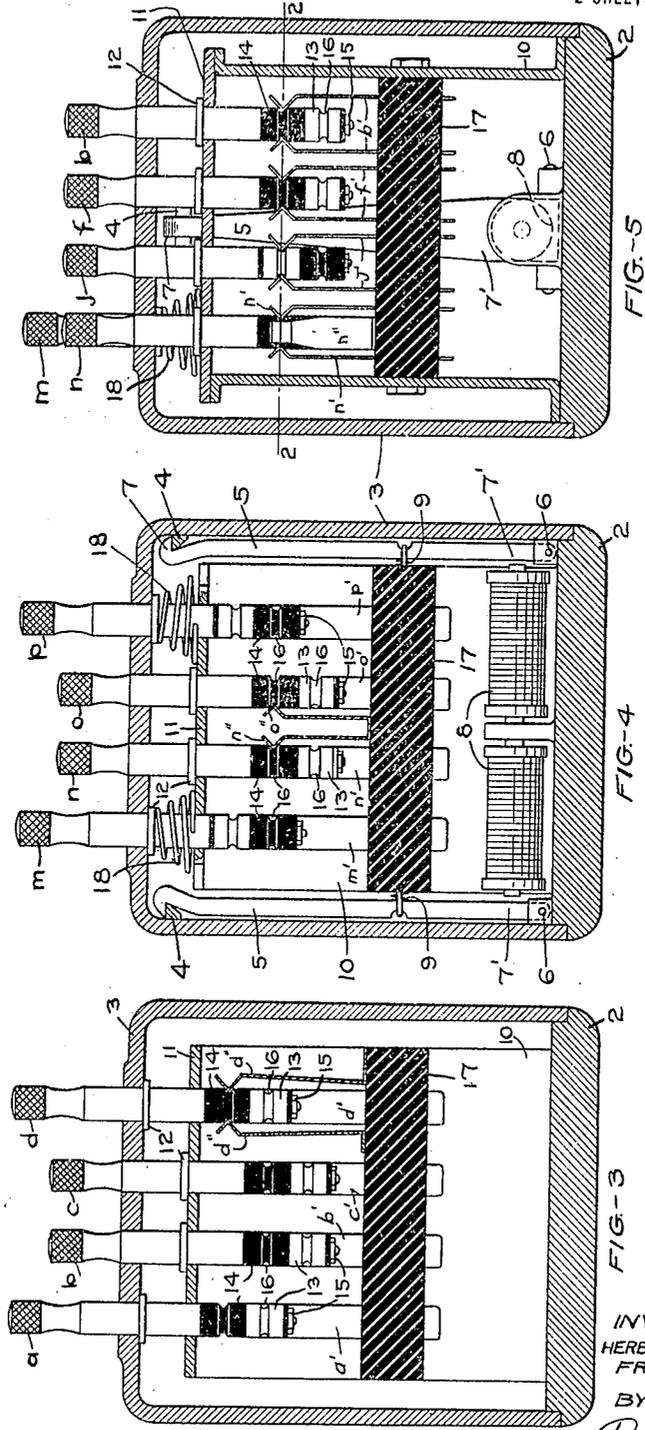
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 ATTORNEYS.

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# UNITED STATES PATENT OFFICE.

HERBERT H. CHRISMAN AND FRANK W. ADSIT, OF MINNEAPOLIS, MINNESOTA; SAID  
ADSI ASSIGNOR TO SAID CHRISMAN.

COMBINATION-LOCK FOR AUTOMOBILES.

1,298,177.

Specification of Letters Patent.

Patented Mar. 25, 1919.

Application filed April 7, 1917. Serial No. 160,402.

*To all whom it may concern:*

Be it known that we, HERBERT H. CHRISMAN and FRANK W. ADSIT, citizens of the United States, residents of Minneapolis, county of Hennepin, State of Minnesota, have invented certain new and useful Improvements in Combination-Locks for Automobiles, of which the following is a specification.

10 The object of our invention is to provide a combination lock for controlling the magneto and other circuits of the car to prevent the possibility of any one tampering with the car or using it without the consent  
15 of the owner.

A further object is to provide a combination lock device having a series of keys of such construction that the combination may be changed at the will of the owner.

20 A further object is to provide a lock composed of comparatively few parts and one which will be inexpensive to manufacture and install on a car.

The invention consists generally in various constructions and combinations, all as hereinafter described and particularly pointed out in the claims.

In the accompanying drawings forming part of this specification,

30 Figure 1 is a plan view of a combination lock embodying our invention,

Fig. 2 is a horizontal sectional view on the line 2—2 of Fig. 5,

35 Fig. 3 is a vertical sectional view of the line 3—3 of Fig. 1,

Fig. 4 is a similar view on the line 4—4 of Fig. 1,

40 Fig. 5 is a vertical sectional view, taken at right angles substantially to the other sections on the line 5—5 of Fig. 1.

In the drawing, 2 represents a suitable base. 3 is a cover therefor, having lugs 4 formed on its inner walls. 5 represents locking latches pivoted at 6 on the base and  
45 having hooked ends 7 for engaging the lugs 4 and also provided with armatures 7'. 8 represents electromagnets, through which an electric circuit is closed by the movement of the circuit-closing keys or pins, as will  
50 hereinafter be described in detail. The latches 5 are normally held in their locking position by springs 9. Mounted on the base 2 within the casing is a frame 10

having a top plate 11 in which a series of circuit closing pins or keys are mounted for  
55 a vertical sliding movement, said keys projecting through holes in the top of the casing in position to be grasped by the fingers of the operator. The pins preferably have stop collars 12 thereon for limiting their  
60 downward movement in the plate 11. There may be any desired number of these pins or keys, but we prefer to provide four rows of four keys each and designate them by reference letters *a* to *p* inclusive. These  
65 keys are provided with insulating and conducting surfaces which we will indicate by reference numerals 13 and 14, the surfaces being preferably formed by rings or sleeves of conducting and insulating material, which  
70 are placed on the reduced ends of the keys and held by suitable means, such as lock nuts 15. When these nuts are removed, the sleeves may be taken off and reversed in position, if desired. The sleeves have annular  
75 grooves 16 therein, into which the contact springs snap when the keys are moved back and forth between them. A block 17 is mounted in the frame 10 intermediate to the top and bottom thereof and  
80 composed of suitable insulating material and in this block the circuit closing springs are mounted, there being a pair of them for each key and we will therefore designate them by the same reference letters with  
85 the addition of the prime mark. The springs preferably project through the block 17 and are connected to the various electric circuits by means of which the different elements essential in the operation of the  
90 car are controlled.

Referring to Fig. 2, A represents the magneto circuit and by means of the keys *a*, *b*, *c*, *d*, *e* and *f* several different combinations  
95 may be obtained, the circuit being closed by moving the pins in and out to engage the insulating and conducting surfaces with the circuit closing springs. Evidently the owner of the car can arrange these conducting surfaces so that a combination of, say, three  
100 keys may be made which will render it practically impossible for any unauthorized person to determine which pins to operate to obtain the right combination and close the circuit to start the car. This magneto circuit A is shown grounded on the car. An-  
105

other group of keys *g*, *h*, *i*, *j*, *k* and *l* are used for controlling the hood and cover circuits C and D, the pins being moved back and forth and the insulating and conducting surfaces being arranged to obtain any desired combination. The keys *m*, *n*, *o* and *p* control the lights of the car, the horn and the starter. These keys are not arranged in combination, but each has a battery circuit E and conductors F, G, H, I and J leading to the starter, body, rear and head lights and the horn, movement of one key *m* closing the circuit through the starter while the lights are controlled by the movement of the keys *n* and *o* and the circuit closing springs *n'*, *o'*, *n''* and *o''* between them. Movement of the key *p* will close the circuit to sound the horn. The two keys *m* and *p* are preferably provided with compression springs 18 which normally hold these keys in a raised position, as indicated in Fig. 4, so that when they are pressed down to operate the starter or sound the horn they will return to their normal raised position as soon as released.

There may be any desired number of keys and without changing the electrical connections or combinations may be varied by removing the keys and reversing the positions of the insulating and conducting surfaces thereon, so that even when the combination has been detected the owner of the car can readily shift the keys to form another one. These keys cannot be removed until the casing 3 is taken off and as this casing is closed at all points, it will be impossible for any one to examine the interior and ascertain how the combination has been effected or learn the relative position of the insulating and conducting surfaces of the keys.

In connection with the key D, we prefer to provide contact springs D' connected with a battery circuit B through which the engine may be started before it is shifted over onto the magneto circuit A. The springs D' are secured to the insulating block and project upwardly on each side of the key D for contact therewith.

The device is small and compact and can be readily mounted in an inconspicuous place on the car.

In starting the car, the operator will move the key *d* to close the circuit through the battery and form a spark in the cylinder. As soon as the engine is started, the circuit through the magneto may be established by the movement of the key *c*, the engine having been turned over previously by the movement of the key *m* in the starter circuit F. Whenever desired, the head and rear lights may be turned on by the movement of the key *o* and the body light by the key *n*. The horn circuit J is controlled by the key *p* through which normally the circuit is broken, as well as through the key *m*. Circuits are also provided for the hood and for

the cover of the combination lock. These combinations may be changed by shifting the position of the keys and changing the insulating and conducting surfaces thereof.

In various ways the details of construction herein shown and described may be modified and still be within the scope of our invention.

We claim as our invention:

1. A combination lock comprising a casing, contact springs mounted in said casing and insulated from each other, electric conductors connected with certain of said contact springs and circuit closing keys mounted in said casing and having insulating and conducting surfaces positioned to engage said contact springs when said keys are moved, and said insulating and conducting surfaces being arranged for closing the circuit through said springs when certain of said keys in the circuit are moved in one direction and certain other keys are moved in the opposite direction.

2. A combination lock comprising a base and a frame mounted thereon, an insulating block mounted in said frame, contact springs carried by said block, electric circuits connected in groups with said springs, a series of keys mounted in said frame for sliding engagement with said contact springs, said keys having insulating and conducting surfaces, certain of said keys being movable in one direction to close the circuit through said springs and other keys being movable in the opposite direction for closing the same circuit.

3. A device of the class described comprising a base, arms pivoted thereon, a cover having means for interlocking with said arms, electro-magnets and armatures therefor connected with said arms and concealed when the cover is in its closed position, an electric circuit for said magnets and a plurality of keys operable outside said cover for closing said circuit to trip said arms and release said cover.

4. A combination lock comprising a casing, contact springs mounted in said casing and insulated from each other, electric conductors connected with certain of said contact springs and forming therewith a plurality of electric circuits, and circuit-closing keys mounted in said casing and having insulating and contacting surfaces positioned to engage said contact springs and complete the electric circuit therethrough and through the conductors connected with said springs, some of the keys in a circuit being mounted for inward movement and others in the same circuit for outward movement to close the circuit through their respective contact springs.

5. A combination lock comprising a base, a frame mounted thereon, insulating contact springs mounted in said frame, a series of

electric circuits for said springs, certain of said circuits being connected with a certain group of springs and other circuits being connected with other groups of springs, circuit closing keys mounted in said frame and having insulating and conducting surfaces for engagement with said springs for closing the circuits therethrough when certain of said keys are operated, and said insulating and conducting surfaces being mounted for reversal on said keys, whereby the movement of one or more keys to close the circuit may be changed.

6. A combination lock comprising a base, a frame mounted thereon, insulated contact springs mounted in said frame, electric circuits connected with groups of said springs, a cover for said frame and springs, circuit closing pins mounted in said frame and projecting through said cover, said keys having insulating and conducting surfaces for contact with said springs, certain of said keys being movable in one direction for closing the circuit between their springs and others of said keys being movable in the other direction for closing the circuit through their springs, and some of said keys having means

for normally holding them in their projected or non-circuit closing position.

7. The combination, with the electric circuits of an automobile, including the starter, front and rear lights and the like, a permutation lock device including a base and a plurality of contact springs mounted thereon, some of said springs being connected with each of said circuits, a plurality of circuit closing keys mounted in said base and having insulating and conducting surfaces to engage said springs, each of the starter and front and rear light and other circuits having a plurality of said springs and said circuit-closing keys therein irregularly arranged in said base, and each of said circuits being independent of the other circuits and closed only by the movement of the keys in that circuit certain of said keys being movable in one direction to close the circuit and other keys movable in the opposite direction for closing the same circuit.

In witness whereof, we have hereunto set our hands this 28th day of March 1917.

HERBERT H. CHRISMAN.  
FRANK W. ADSIT.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."