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LOCK FOR AUTOMOBILE HOODS.

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Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

Fig. 6.

INVENTOR

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WITNESSES

J. M. Hougham

C. L. Landau.
To all whom it may concern:

Be it known that I, ARVID P. SUINNERGREN, a citizen of the United States, and a resident of Wilkinsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Locks for Automobile-Hoods; and I do hereby declare the following to be a full, clear, and exact description thereof.

The present invention pertains to new and useful improvements in locks for automobile hoods, and as its principal object aims to provide a device of this character which is adapted to be electrically controlled. The further object is to provide a lock bolt which is arranged to be connected to the horizontal portion 11 of the chassis frame member 12 as in Fig. 4. The member 10 is relatively thick, and is cored at one end of its upper face to provide a chamber therein which is insulated material indicated as 13. In this insulating material are embedded binding posts 14 and 15 which are connected to the terminals of the winding of the solenoid field B.

The field winding B is arranged adjacent one terminal of the barrel A and abuts at its inner end against an iron washer 16, which in turn bears against an internal collar 17 which is secured within the member A. A fiber disk 18 is interposed between the members B and 16. A similar fiber disk 19 is interposed between the outer ends of the member B and the closure plug 20. This closure plug 20 is threaded as at 21, so that it may be properly engaged with the inner threads of the member A. A laterally extending annular flange or lip 22 is formed on the member 20 to limit the distance which the spacer pin 23 may be projected into the internal tube or sleeve 24 of the solenoid. A pair of diametrically opposed sockets 25 are formed in the outer faces of the member 20 providing for the removal of this member by a spanner or similar tool. A set screw indicated at 26 may be employed for securing the closure plug 20 against rotation and consequent accidental displacement. On the inner faces of the member 20 is formed a centrally located boss 27 into which is driven the spacer pin 23. This spacer pin 23 is provided to prevent the inner end of the slidable core or bolt C from engaging against the member 27. As will be readily appreciated the mem-
ber 23 provides an air gap between the members 27 and C even when this latter member has been drawn completely into the member B. By this means the retention of the core C against the boss 27, due to the residual magnetism of the magnetic circuit, which retention might take place were it not for the described air gap, is prevented. The head 28 of the lock bolt C is formed of hard an-

ered brass or phosphor bronze, since this material is possessed of relatively slight magnetic properties and will not be affected by the residual magnetism of the member 17 as readily as would a head of iron or steel.

At diametrically opposed points circular openings 29' are formed in the barrel A so that the locking pin (which is carried by the hood and will be later described in detail) may be projected into the barrel and enga-
ged by the head 28 of the locking bolt. The plug 29 is channeled on its inner face as at 30 to permit the locking pin to pass into the barrel beyond the head 28 of the member C.

The helical spring 31 is wound about the member C and is disposed within the member 17 as shown in Fig. 1. This spring 31 bears at its one terminal against the head member 28 and at its other terminal against the member 16, being thus disposed in order that it may normally hold the head member 28 in a position to lockingly engage the pin member referred to above. The opening 32 which is defined by the member 17 is, as originally formed, rectangular so that it will serve as a guide for the head member 28 and will normally hold this member against rotation in the barrel. The upper and lower sides of the opening 32 are channeled or cored as at 33 to provide air gaps, which will reduce to a minimum the effect of the residuary magnetism of the member 17 and the head 28, and to provide a cylindrical chamber for the accommodation of the spring 31.

The locking pin 34 referred to above is adjustably carried by an L-shaped bracket plate 35, which member is adapted to be secured by bolts, rivets or any other suitable fastening devices to the hood 36 at the lower edge thereof. Openings 37 are of course formed in the vertical portion of the member 35 to receive these bolts or other fastening devices. An elongated slot 38 is formed in the horizontal portion of the member 35, and through this slot is passed the upper terminals of the member 34. Nuts 39 and 40 are threaded on the pin member 34 to bear against the lower and upper faces of the horizontal portion of the bracket 35, and a locking nut 41 is provided to hold the member 34 against rotation after it has once been set in the proper position. In securing the barrel A to the horizontal portion of the chassis channel bar 11 bolts 42 are passed through the openings 43 in the member 10 and through the member 11 in the manner best shown in Fig. 4. Upon reference to this last mentioned figure it will be observed that when the hood is lowered the pin 34 will be projected through the openings 29', and that the head member 28 of the locking bolt will be projected into engagement with the notch 44 of the bolt—thus holding this member and consequently the hood against upward movement until the solenoid winding B is excited causing the member C to be drawn inwardly with the resultant disengagement of the members 28 and 34.

As shown in the wiring diagram of Fig. 6 a lock is provided for each side of the automobile so that each section of the hood may be independently locked or unlocked. As further shown one terminal of the wind-
ing of each solenoid is grounded as indicated at 45, while the other terminal of the wind-
ing of each solenoid leads to a push button or snap switch 46. The two switches 46 are located under the channel bar 13 so that the operator may release the lock immediately prior to lifting the hood. The members 46 are electrically connected, as indicated at 47, and from this member 47 a lead 48 runs to the combination ignition controlling switch 49. The member 49 connects with the battery 50 through the lead 51 and the positive terminal of the battery is grounded as at 52. It will be apparent that by inter-
posing the switches 46 in the controlling circuit either one of the hood locks may be operated without effecting the other lock.

Relative to the combination ignition switch lock 49 it is desirable to explain that any type of lock of this character may be employed without departing from the spirit of the invention. It is of course essential that the lock be of such nature that it will be impossible for any unauthorized person to close the circuit between the leads 51 and 48.

In reduction to practice, I have found that the form of my invention, illustrated in the drawings and referred to in the above description as the preferred embodiment, is the most efficient and practical; yet realizing that the conditions concurrent with the adoption of my device will necessarily vary, I de-
sire to emphasize the fact that various minor changes in details of construction, propor-
tion and arrangement of parts may be re-
sorted to, when required, without sacrificing any of the advantages of my invention, as defined in the appended claims.

What is claimed is:

1. An electrically controlled lock comprising a locking pin, and a retaining device co-

operating with said pin, and one of said members being movable relatively to the other, said retaining device including a sole-
A core longitudinally movable in said coil, and a locking head secured to one end of said core and co-acting directly with said locking pin.

An electrically controlled lock comprising a locking pin, and a retaining device cooperating with said pin and one of said members being moveable relatively to the other, said retaining device including a solenoid coil, a metallic casing surrounding said coil and forming a magnetic circuit, a core longitudinally movable in said coil, and a locking head secured to one end of said core and co-acting directly with said locking pin.

An electrically controlled lock comprising a locking pin, and a retaining device cooperating with said pin and one of said members being moveable relatively to the other, said retaining device including a solenoid coil, a core longitudinally movable in said coil, a casing for said coil forming a magnetic circuit, said casing having a head disposed in proximity to one end of said core, spacing means between said head and said core, and a locking head secured to the end of said core remote from said first named head, said locking head co-acting directly with said locking pin.

In testimony whereof, I, the said ARVID P. SUNNERGREN, have hereunto set my hand.

ARVID P. SUNNERGREN.

Witnesses:

J. N. COOKE,

JOSEPHINE MACGILVRAY.