June 6, 1950 W. A. SUMMEY 2,510,201

AUTOMOBILE TRUNK LOCK

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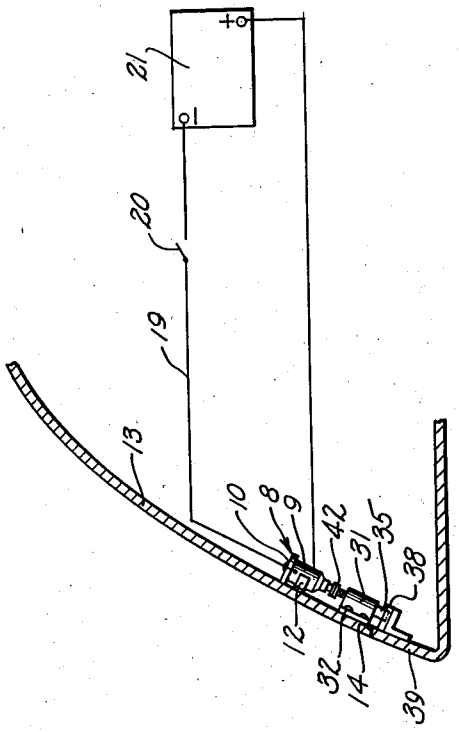

Fig. 2

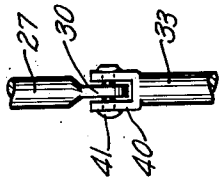

Fig. 3

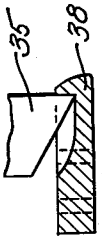

Fig. 4

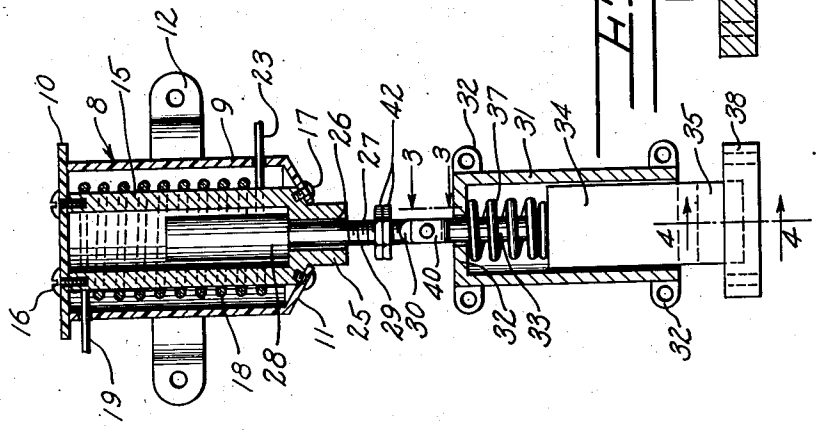

Fig. 1

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AUTOMOBILE TRUNK LOCK

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Application February 27, 1948, Serial No. 11,780

1 Claim. (Cl. 292—144)

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This invention relates to a lock positioned entirely inside the trunk of a car and entirely invisible from the exterior, the lock being adapted to be electrically-operated from the instrument board inside the car.

An object of the invention is to provide a lock of this kind which is solenoid-operated and of simple, efficient construction and operation.

Another object is to provide a lock in which the heretofore common difficulties connected with the use of exterior locks, such as inoperativeness arising out of moisture, freezing, lost keys, etc., have been obviated.

Another object is to improve the appearance of automobiles by the elimination of exterior lock-operating handles on the trunk-lid, and likewise to facilitate the cleaning and polishing of cars by such elimination.

These and other objects are attained by the means described herein and illustrated in the accompanying drawings, in which:

Figure 1 is a longitudinal cross sectional view through the locking means of this invention, the bolt and catch being shown in elevation.

Figure 2 is a side view of the invention applied to the trunk lid and adjacent body portion of a car, the lid and body being shown conventionally and in cross section, the view also comprising a schematic showing of an automobile electrical circuit by which the lock is actuated.

Figure 3 is a detail fragmental view of the connection between the solenoid and the lock plunger of the invention.

Figure 4 is a detail view showing the operative association of the bolt and catch.

With detailed reference to the drawings: the lock comprises a solenoid 8 having a housing 9, a removable top 10, and a reduced apertured lower end 11. The housing 9 is provided with brackets 12 whereby it may be secured to the interior of a trunk lid 13 (Figure 2) at a point somewhat above the lower edge 14 of the lid.

Interiorly of the housing 9 a solenoid spool or cylinder 15 is secured by upper bolts 16 and lower bolts 17. A winding 18 on the spool is connected at the upper end to a circuit wire 19 proceeding to a switch 20 positioned in the car, preferably on the dash or instrument board, and from the switch to one pole of a battery 21. At the lower end, the winding 18 is connected by

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a similar wire to the opposite pole of the battery.

The spool 15 is hollow and formed with a reduced lower end 25 projecting beyond the apertured lower end 11 of the solenoid housing. This lower end 25 of the spool is formed with a bore 26 for slidably receiving the projecting arm 27 of a solenoid plunger 28 positioned in spool 15. The outer portion of arm 27 is threaded as at 29 and, as seen in Figure 3, has an apertured, flat end 30 for connection with the bolt means to be described.

Positioned below the solenoid and adjacent the lower edge 14 of the trunk lid is a bolt housing 31 having ears 32 secured to the trunk lid. Housing 31 has an apertured upper end 32 through which slidably extends the connection rod 33 of a bolt 34 positioned in the housing. The latter is formed with a tapered lower end 35 projecting beyond the open bottom end 36 of the bolt housing. Encircling the rod 33 in the bolt housing is an expansion spring 37 having its opposite ends bearing, respectively, against the top of bolt 34 and the inner face of upper end 32 of said housing. The spring is normally effective for yieldably maintaining the bolt in a projected position and in engaged relation with a catch 38 secured to the body portion 39 of the car just below said edge 14 (Figures 2 and 4).

The rod 33 of the bolt, at its outer end is bifurcated, as at 40, for receiving the flattened end 30 of solenoid arm 27, and the bifurcation is apertured for the reception of a pin 41 which also passes through said end 30.

When the switch 20 is closed, the solenoid is energized and retracts plunger 28 upwardly, thereby disengaging the bolt from its catch.

For securing a fine adjustment of the bolt relative to the catch, the threaded portion 29 of solenoid arm 27 is provided with nuts 42 which when moved upwardly, reduce the upward lift of the bolt by contacting the end 25 of the solenoid spool. When moved downwardly on said arm, said nuts permit a proportionately greater lift of the bolt before they contact the lower surface of spool end 25.

What is claimed is:

An electrically operated door lock comprising a bolt housing attachable to a door adjacent an edge of the latter and having an open end and an end wall provided with an aperture there-

through, a bolt slidable in said housing and having a beveled end projectable from the open end of the housing to engage a fixed catch, a rod secured at one end to the inner end of said bolt and extending slidably through said end wall aperture, a bolt projecting expansion spring in said housing between said bolt and said housing end wall, a solenoid cylinder having in one end a bore aligned with the opening in said bolt housing end wall, an armature slidable in said cylinder, an arm extending from said armature slidably through said bore and pivotally connected at its end remote from said armature to the end of said rod remote from said bolt, a solenoid winding on the outside of said cylinder, a solenoid housing surrounding said winding and secured to said cylinder, and a bracket secured to said solenoid housing for attaching said solenoid to a door.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
508,389	Immel	Nov. 7, 1893
1,588,026	Hill	June 8, 1926
2,035,895	Kelly	Mar. 31, 1936
2,041,387	Adams	May 19, 1936
2,158,451	Wilson	May 16, 1939
2,162,638	Plueckhahn	June 13, 1939

FOREIGN PATENTS

Number	Country	Date
706,521	Germany	May 28, 1941