Sept. 20, 1938. S. PAPP 2,130,559

ELECTRIC DOOR LOCK

Filed Sept. 24, 1937 2 Sheets-Sheet 1

Fig. 1.

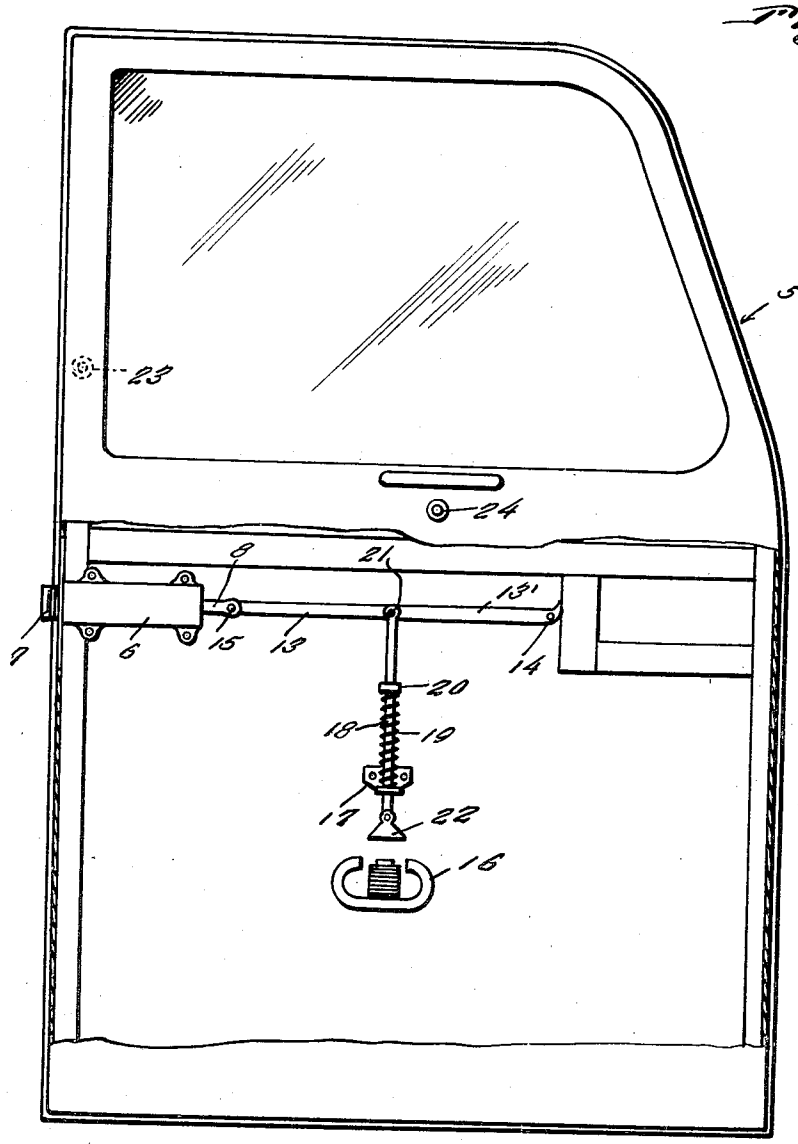
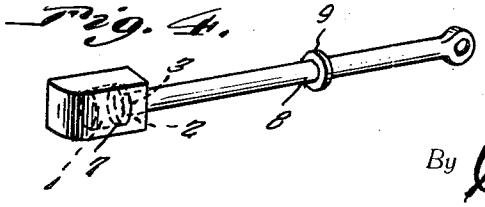


Fig. 4.



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Filed Sept. 24, 1937 2 Sheets-Sheet 2

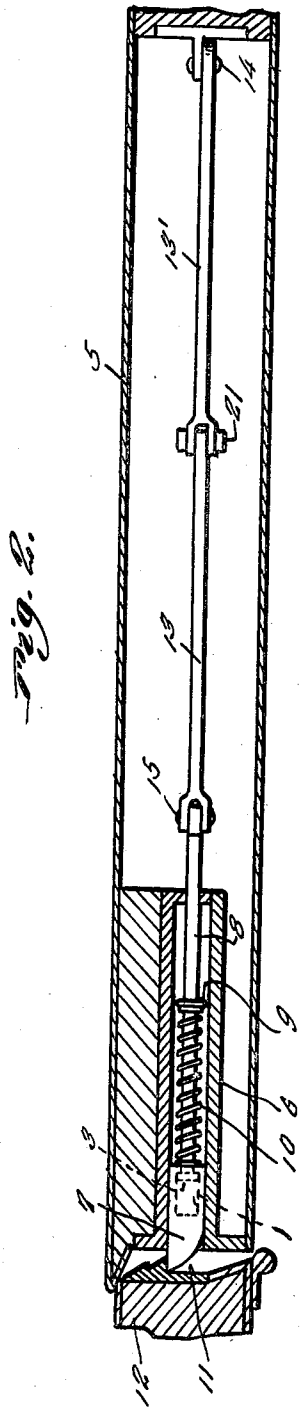


Fig. 2.

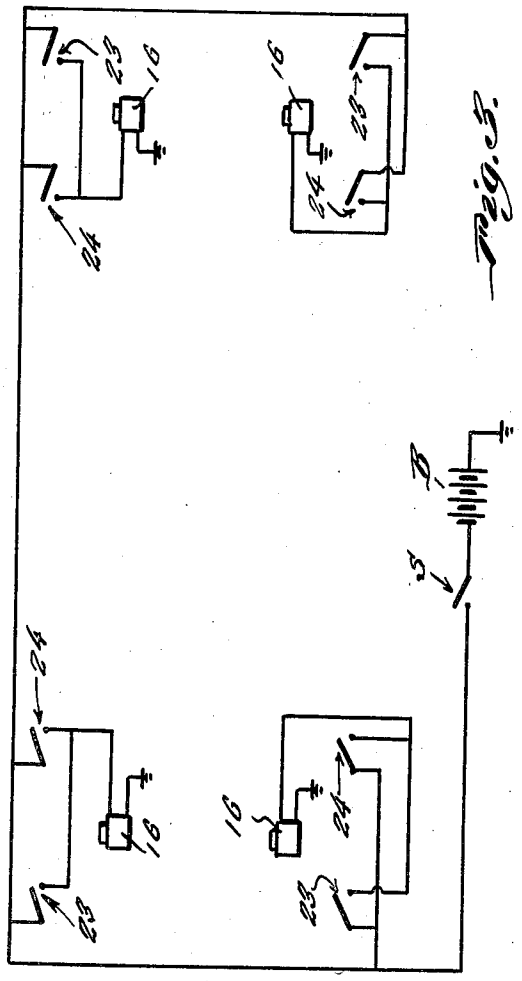


Fig. 3.

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ELECTRIC DOOR LOCK

Stephen Papp, Tonawanda, N. Y.

Application September 24, 1937, Serial No. 165,604

1 Claim. (Cl. 292—144)

The invention relates to electrically operated door locks or latches, and has particular reference to devices of this character used for locking the doors of conveyances such as automobiles and the like; and the invention together with its objects and advantages will be best understood from a study of the following description taken in connection with the accompanying drawings wherein:

Figure 1 is a detail elevational view illustrating the application of the invention to an automobile door and with parts of the door broken away and shown in sections.

Figure 2 is a transverse sectional view through the door illustrating the invention.

Figure 3 is a wiring diagram, and

Figure 4 is a perspective view of the locking bolt.

Referring to the drawings by reference numerals it will be seen that in accordance with the present invention each door 5 of the automobile or other conveyance is provided interiorly of the casing thereof with a lock casing 6 in which is mounted for sliding movement a bolt 7.

Bolt 7 is provided with a socket 1 and a restricted opening 2 whereby to accommodate one end of a shank 8 and a head 3 on said end of the shank 8 in a manner to permit sliding movement of the bolt 7 longitudinally of and relative to the shank 8.

The bolt 7 is normally urged to a projected position relative to the shank 8 through the medium of a coil spring 10 disposed about the shank 8 and at one end impinging against the inner end of the bolt 7, and at a relatively opposite end impinging against a fixed collar 9 on the shank 8.

Spring 10 normally urges the bolt 7 to a projected position for engagement with the keeper 11 fixedly secured to the door casing 12, in any suitable manner. It will thus be seen that when the door is swung to a closed position bolt 7 will, against the action of spring 10, slide inwardly relative to the shank 8 to permit the door to move to a fully closed position whereupon spring 10 will then act on the bolt 7 to project the latter into engagement with the keeper 11 to thereby secure the door in closed position.

A toggle link 13, 13' is pivoted at one end thereof as at 14 within the casing of the door 5 and at a relatively opposite end thereof is pivotally connected with the free end of the shank 8 or bolt 7 as at 15.

Also suitably mounted with the casing of the door 5 is an electromagnet 16.

Working through a suitable guide 17 provided therefor and in substantial alignment with the magnet 16 is a rod 18 about which is disposed a coil spring 19, one end of which spring bears against the guide 17 and the other end of which spring impinges against a fixed collar 20 on the rod 18. At the upper end thereof the rod 18 is pivoted to the link 13, 13' as at pivot 21 of said toggle link.

On the lower end of the rod 18 and complemental to the magnet 16 is an armature 22.

From the above it will be seen that normally the bolt 7 is in a projected position. Manifestly when the magnet 16 is excited armature 22 thereof will be attracted by the magnet causing the rod 18 to move downwardly against the action of spring 19. This will result in a vertical downward swinging movement of the link 13, 13' so that the bolt 7 in opposition to spring 19 will be retracted, thus the door is unlocked and is held in such unlocked position as long as the magnet 16 is energized or excited.

Also for each door there is provided for controlling the circuit through the magnet 16 a push button or other suitable type of electric switch 23 accessible from the outer side of the door whereby the door may be unlocked from the outside of the vehicle. Also for unlocking from the interior of the vehicle there is provided an electrical switch 24 that is mounted on the inner side of the door and this switch 24 is also arranged in circuit with the magnet 16, switches 23, 24 and magnet 16 being arranged in a battery circuit as shown in Fig. 3, the battery, or source of electrical supply, being indicated by the letter B.

Also arranged in the circuit as shown in Fig. 3 is a master switch S which may be suitably mounted in the automobile at any suitable and convenient location, and manifestly switch S must be closed before the electrical feature of the lock will function.

It will be readily apparent that each of the several doors of the automobile or other conveyance may be similarly equipped, and with the doors so equipped, each door when locked may be unlocked independently of the other door, and from either the interior or exterior of the automobile.

It is thought that a clear understanding of the construction, utility and advantages of an invention of this characer will be had without a more detailed description.

What is claimed is:

An electric door lock comprising a casing

mounted within a door and opening outwardly of one edge of said door and adjacent to its keeper when the door occupies a closed position, a bolt slidable in said casing and having one end shaped to coact with the keeper to secure the door closed and provided in the opposite end thereof with a socket having a restricted mouth, a shank having one end positioned within the socket by way of the restricted mouth and freely slidable within the latter, a head on said end of the shank and lying in the socket and engageable with walls of the restricted mouth to prevent separation of the shank and the bolt and permitting the latter to have a limited sliding movement on the shank when moving over the keeper during the door moving into closed position, a coil spring on said shank and acting on the bolt to position the latter to bring the head in engagement with the walls of the restricted mouth, a toggle construction including pivotally connected link sections and one of said sections pivoted on the other end of the shank and the other link sections pivoted on the door, a depending rod having the upper end thereof pivotally connected on the pivotally connected ends of the link sections and slidably mounted on the door, an electric means acting on said rod to slide the latter downwardly for swinging the pivotally connected ends of the link sections downwardly and thereby slide the bolt away from the keeper, and a spring acting on said rod to urge the latter vertically for positioning the link sections into a plane common to both and thereby permitting the first-named spring to urge the bolt into position to engage with the keeper on the door moving into closed position.

STEPHEN PAPP.