

Feb. 19, 1929.

H. D. WETHLING

ELECTROMAGNET CONTROLLING MEANS

Filed Sept. 14, 1927

1,703,077

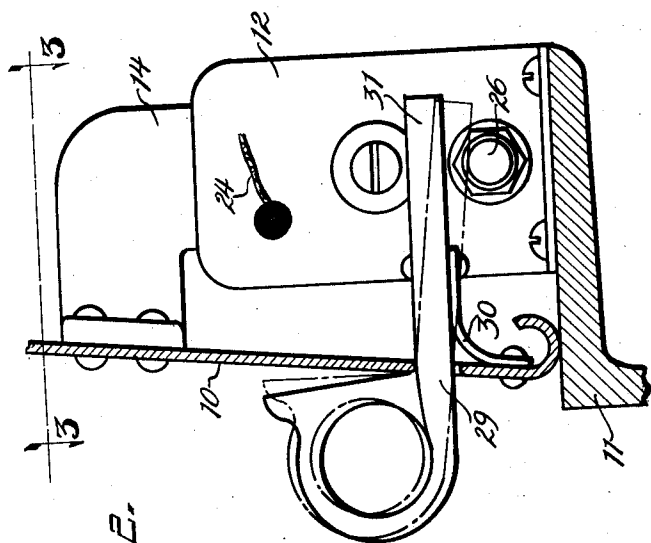


Fig. 2.

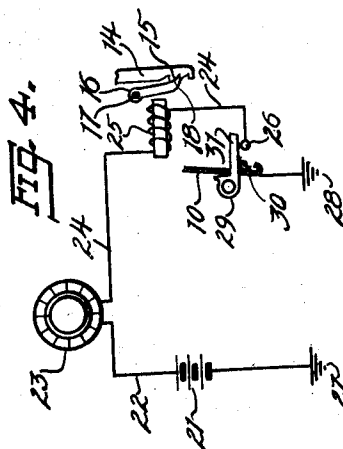


Fig. 4.

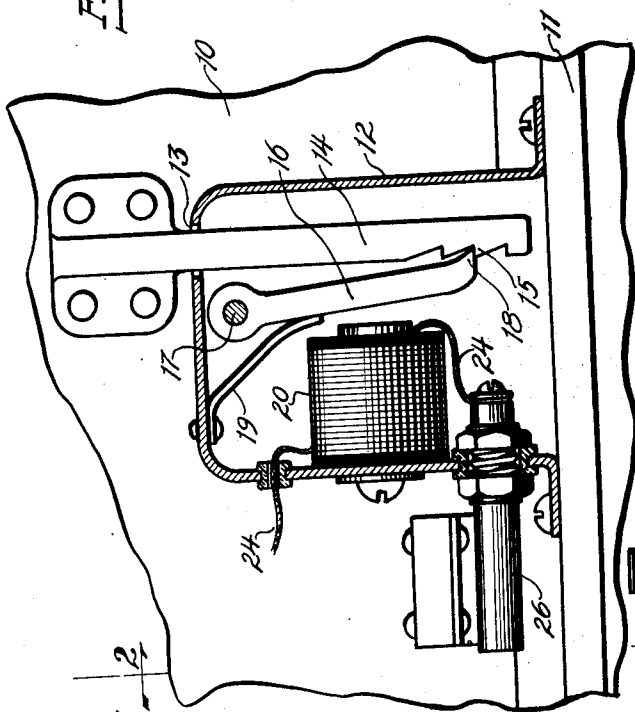


Fig. 1. 2

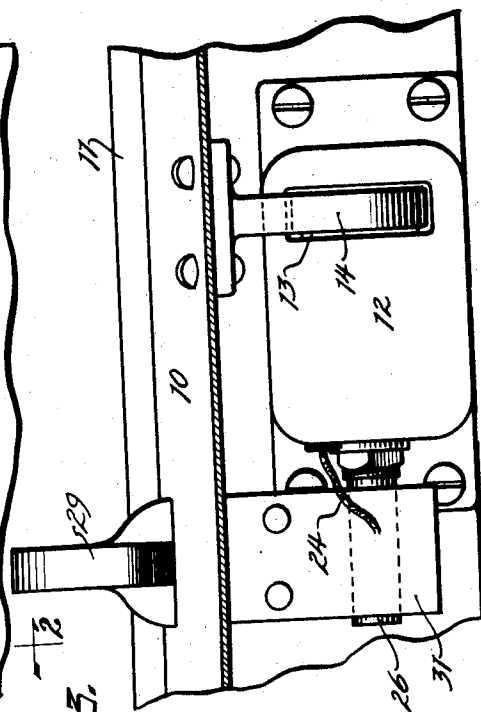


Fig. 5.

WITNESSES

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Patented Feb. 19, 1929.

1,703,077

UNITED STATES PATENT OFFICE.

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ELECTROMAGNET-CONTROLLING MEANS.

Application filed September 14, 1927. Serial No. 219,513.

This invention relates to circuit-closing means and has particular reference to a circuit-closing means for circuits including electromagnets, especially where said electromagnets are employed for releasing spring latches.

It is a well-known fact that the life of an electromagnet is limited and that if current is permitted to continuously flow through the same, its length of life or usefulness is materially decreased. It therefore follows that if means be provided for instantly or temporarily closing the circuit including the magnet and then opening the circuit as soon as the function of the magnet is performed, a saving in current will not only be effected but deterioration of the magnet will be prevented.

It is therefore an object of the present invention to provide in an electric circuit including an electromagnet, a circuit-closing means which includes a manually closable, normally open circuit breaker in addition to a switch arranged in series with said circuit breaker, whereby closing of the switch and subsequent manual closing of the circuit breaker temporarily completes the closing of the circuit to energize the magnet.

More specifically, the invention comprehends in combination with a device having a spring latch for locking the same in normal closed condition and an electromagnet for releasing the latch when the circuit is closed, a switch and a normally open circuit breaker arranged in series in the circuit, together with manual means for opening the device, which means is operable to close the circuit breaker simultaneously with the switch.

Still more specifically the invention contemplates in combination with a device having a spring latch for locking said device in normal closed condition and an electromagnet for releasing the latch when the circuit is closed, a permutation actuated switch arranged in series with a normally opened circuit breaker, manual means for holding the circuit breaker closed simultaneously with the setting of the switch in a closed condition to energize the electromagnet, thereby preventing a drain on the source of electrical supply and deterioration of the electromagnets by allowing the circuits to remain closed for any considerable period of time.

The invention furthermore comprehends a circuit closing means of the character set forth which is comparatively simple in its

construction and mode of operation, which is economical to produce and install and which is highly efficient in its purpose.

With the above recited and other objects in view, reference is had to the following description and accompanying drawings in which there is exhibited one example or embodiment of the invention, while the appended claims define the actual scope of the invention.

In the drawings—

Figure 1 is a sectional view of an automobile hood which is electromagnetically controlled and which constitutes one of the principal uses of the present invention;

Fig. 2 is a similar sectional view taken approximately on the line 2—2 of Fig. 1;

Fig. 3 is a sectional plan view taken approximately on the line indicated at 3—3 in Fig. 2;

Fig. 4 is a diagrammatic view of the device.

Referring to the drawings by characters of reference, 10 designates a portion of an automobile hood section, and 11 a portion of the chassis. The chassis 11 carries a housing 12 which is apertured at 13 to receive the depending bolt 14 carried by the hood section 10, the bolt 14 having its lower free terminal provided with ratchet teeth 15. A latch pawl 16 is pivotally mounted at 17 within the housing 12 and its nose or terminal 18 is normally swung by a spring 19 to a position to interengage with the ratchet teeth 15 and lock the bolt 14 of the hood section 10. Within the housing 12 an electromagnet 20 is mounted in juxtaposition to the latch pawl 16 so that energizing of said electromagnet will swing the pawl 16 to a released position. The electromagnet is arranged in a circuit which includes a source of supply 21 from one pole of which a circuit wire 22 leads to a suitable switch 23. A circuit wire 24 leads from the switch 23 to an electromagnet winding 25 and thence to a contact post 26. Preferably the contact post 26 is mounted upon the housing 12 and is insulated from the housing. The opposite pole of the source of supply 21 is grounded at 27. The hood section 10 is also grounded at 28 and said hood section carries adjacent the housing, a pivoted arm 29 which is normally urged by a spring 30 to a position which disposes its inwardly projected terminal 31 at a point out of contact or engagement with the contact post 26. It thus follows that the arm 29 and the contact post 26 constitute

a normally opened manually closable circuit breaker which when the switch 23 is properly manipulated to close the circuit at this point, is capable of completing the circuit to the

5 electromagnet when the arm 29 is grasped and swung to the dotted-line position in Fig.

2. It also follows that the circuit is closed to energize the electromagnet for releasing the latch only temporarily during the actual

10 manual initial lifting of the hood section. This economizes on the amount of current used in addition to preventing deterioration of the electromagnet.

What is claimed is:

15 1. The combination with a device having a lock for locking the same in a closed condition, a circuit including an electromagnet for releasing said lock and a switch for closing the circuit; of manual means for opening
20 said device and a normally opened circuit breaker in said circuit arranged in series with respect to the switch and operable by manipulation of the means for opening said device, whereby to complete the circuit to
25 energize the electromagnet.

2. The combination with a device having a spring latch for locking the same in normal closed condition, of a circuit including an electromagnet for releasing the latch when
30 the circuit is closed, said circuit including in series therein a switch and a normally opened circuit breaker, and manual means for opening the device, said manual means being operable to close the circuit breaker simultane-
35 ously with the switch.

3. In an electromagnetic switch including an electromagnet, a circuit closing means including a manual flexible, normally opened circuit breaker and a switch arranged in series therewith, whereby closing of the switch
40 and manual maintenance of the circuit breaker in closed condition, completes the temporary closing of the circuit to energize the electromagnet.

4. The combination with the hood section
45 of an automobile having a spring engaged locking means for locking the same in closed position, of a circuit including an electromagnet for releasing the locking means when the circuit is closed, the said circuit including in
50 series therein a switch and a normally opened circuit breaker and manual means for opening the hood operable to close the circuit breaker whereby when the switch is closed the circuit will be temporarily completed to
55 release the lock.

5. In a spring locked device, a circuit including an electromagnet for releasing the lock, a switch for closing the circuit at one point, a normally opened circuit breaker for
60 maintaining the circuit open at another point and manual means for opening the device when released operable to temporarily close the circuit breaker when the switch is in closed condition to render the electromagnet
65 active.

Signed at Orange in the county of Essex and State of New Jersey this 10th day of September A. D. 1927.

HARRY D. WETHLING.