

April 9, 1935.

H. D. SEVISON

1,996,836

AUTOMATIC CIRCUIT BREAKER FOR AUTOMOBILES

Filed Dec. 18, 1933

Fig. 1

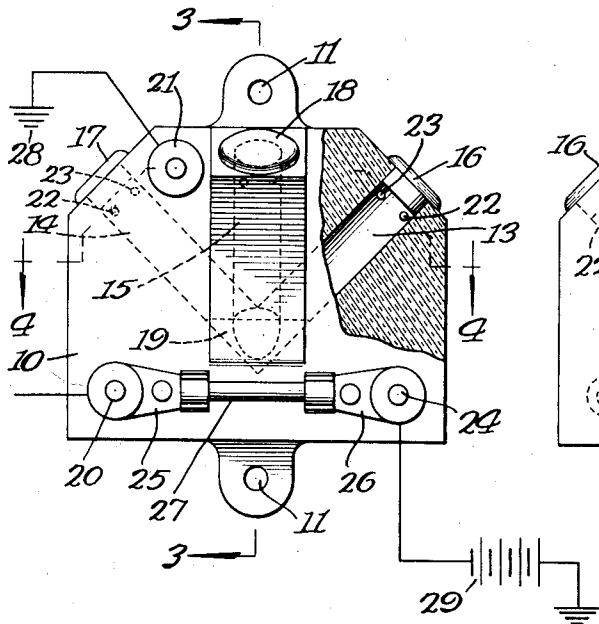


Fig. 2

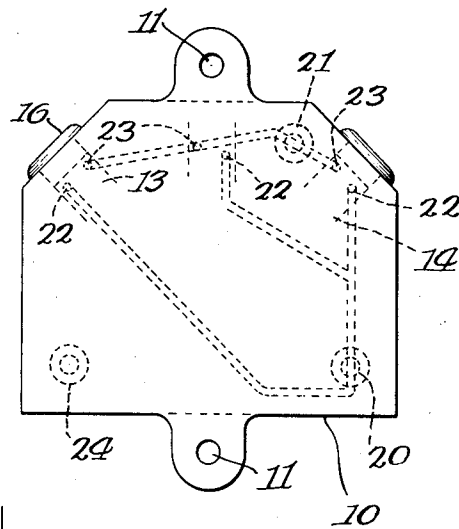


Fig. 3

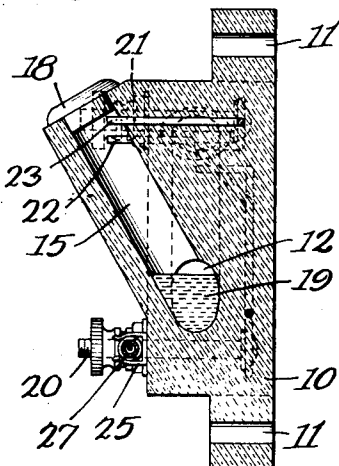
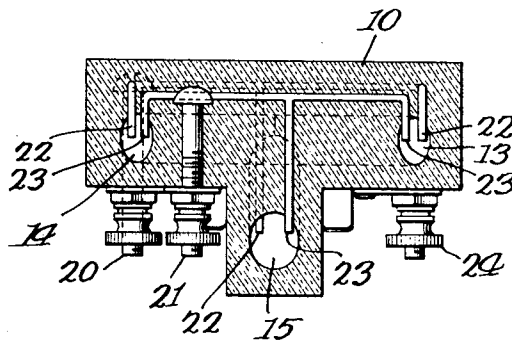


Fig. 4



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UNITED STATES PATENT OFFICE

1,996,836

AUTOMATIC CIRCUIT BREAKER FOR
AUTOMOBILESHarry D. Sevison, Elkhart, Ind., assignor to The
Adlake Company, a corporation of Illinois

Application December 18, 1933, Serial No. 702,851

5 Claims. (Cl. 200—52)

When, in the operation of an automobile equipped with an electrically ignited internal combustion engine, a serious accident occurs, such as the overturning of the vehicle, or a head-on collision, it is highly important that the engine be immediately stopped in order to avoid danger of a conflagration,—instantaneous action being necessary and yet apt to be rendered impossible by the nature of the accident. It is, therefore, highly desirable that the vehicle be equipped with means for automatically effecting the opening of the circuit and which will be brought into action by the accident itself.

The invention consists in a form of mercury switch such as hereinafter described and illustrated in the accompanying drawing, in which, by the overturning of the vehicle or its abrupt stoppage by a head-on collision, a grounded branch circuit is closed by the flowing of the mercury over a pair of terminals, effecting, by reason of the increase in current flow, the opening of the main circuit by the blowing of a fuse or by the action of other suitable automatic cut-out device incorporated into it.

A feature of especial importance is the capacity of the parts of the device to be mounted in or on a block or equivalent support of small compass constituting a compact, inexpensive, saleable article of manufacture which may be readily mounted on a motor vehicle and attached to the electrical agencies thereof by persons having but little mechanical or electrical ability.

Another important feature of the invention is that it provides means for acting in case of overturn or collision of the vehicle to open the usual electrical circuits and render the customary battery or other source of electric energy isolated therefrom permanently or until a fuse or the like is replaced. In this respect the invention differs from various prior devices which are effective to open the circuits momentarily only, or while the vehicle remains tilted or upset, permitting the circuits to close as soon as the vehicle reassumes upright position. The advantages of this feature of the invention are believed to be obvious.

In the drawing:

Fig. 1 is a front elevation of the device, a portion being broken away to show internal construction;

Fig. 2 is a rear elevation of the device; and Figs. 3 and 4 are sectional views thereof, respectively, on the lines 3—3 and 4—4 of Fig. 1.

The automatic grounding switch of the invention may be conveniently incorporated in a block of bakelite, or other non-conducting and non-

porous material, adapted to be attached to a vertical wall of the vehicle, such as the dashboard, apertures, as shown at 11, 11, being provided in the block to accommodate attaching screws. A small closed chamber 12 is formed in the body of the block, having arms, such as 13, 14 and 15, extending obliquely upward. Two of these arms, as 13, 14, are parallel with the rear face of the block, and the third one, 15, extends forwardly, as shown in Fig. 3. Caps, as 16, 17 and 18, are permanently secured within the upper ends of these several arms of the chamber after there has been introduced thereinto a small quantity of mercury, as indicated at 19.

Provided on the block are a supply terminal or binding post 20, to and from which the electric circuit of the vehicle extends, and a binding post 21 for connection with a suitable ground 22.

Located within the upper end of each of the arms 13, 14, 15, of the chamber is a pair of electric terminals 22, 23, one of each pair being connected with the binding post 20, as plainly indicated in Fig. 2, the other being connected with the binding post 21. So long as the vehicle is operating normally the mercury remains at the bottom of the chamber. Should it be overturned, either to the right or left, or suddenly checked while running at considerable speed, as by a head-on collision, the mercury will be thrown to the upper end of one of the arms of the chamber, by gravity in the case of overturning, or by its own momentum in the case of a collision, thus submerging and connecting the terminals at the upper end of that arm and grounding the circuit.

It is the usual practice to provide in the circuit of an automobile some form of automatic cut-out device actuated by overload, a fuse plug being commonly employed. The circuit-grounding device of this application should be incorporated into the line of the vehicle circuit at the remote side of the circuit opening device, relatively to the battery 24. To insure a proper placing in the circuit of the grounding device it is provided with a binding post 24, as indicated in Fig. 1, for the attachment of the line leading from the battery or other source of electrical energy, and each of the binding posts 20, 24, carries a clasp element 25, 26, for holding a tubular fuse 27.

The inclination of the arms 13, 14 and 15 may be such as the judgement of the designer of the vehicle may dictate. By inclining them sharply upward, action of the switch will occur only in the event of a major accident, the opening of the

circuit when not actually necessary being avoided.

I claim as my invention—

1. In a device of the kind described, in combination, a block having a rear face for attachment to a part of a motor vehicle, a chamber in the block having substantially straight, diagonally upwardly extending branches, two of the branches lying in a plane parallel to that of the rear face and one branch extending forwardly at an angle to the rear face, a quantity of conductive liquid in the chamber, a terminal in the upper portion of each branch, and other means in the upper portion of each branch adapted to be electrically connected with said terminal upon movement of the quantity of liquid to the upper portion of said branch.
2. In a device of the kind described, in combination, a block of non-conducting material having a rear face for attachment to a part of a motor vehicle, a chamber in the block having substantially straight, diagonally upwardly extending branches, two of the branches lying in a plane parallel to that of the rear face and one branch extending forwardly at an angle to the rear face, a quantity of conductive liquid in the chamber, and spaced terminals in the upper portion of each branch, adapted to be electrically connected upon movement of the quality of liquid to the upper portion of said branch.
3. As an article of manufacture, a block of non-conducting material adapted for attachment to a vehicle wall and having a V-shaped chamber a quantity of conductive liquid normally occupying the apex of the chamber, a pair of binding posts mounted on the block, a pair of cooperating holders for a fuse plug, one mounted with each of the named posts, a third binding post, a pair

of terminals in the upper end of each arm of the chamber, a connection between one terminal of each of said pairs and one of the first-named posts, and a connection between the other terminal of each pair and the third binding post.

4. As an article of manufacture, a safety device for automobiles and similar motor vehicles, comprising a block having a terminal adapted to be connected to a source of electrical energy, a ground terminal and a supply terminal adapted to be connected to an electric circuit of the vehicle, means for replaceably mounting a fuse in series between the source and supply terminals, and means associated with the block for joining the ground and supply terminals whenever the vehicle is tilted to one side beyond a predetermined angle, said tilting action being adapted to cause the fuse to blow out whereby the electrical circuit is permanently opened and remains open until said fuse is replaced.

5. As an article of manufacture, a safety device for automobiles and similar motor vehicles, comprising a block having a terminal adapted to be connected to a source of electrical energy, a ground terminal and a supply terminal adapted to be connected to an electric circuit of the vehicle, means for replaceably mounting a fuse in series between the source and supply terminals, and means associated with the block for joining the ground and supply terminals whenever the vehicle is tilted to one side beyond a predetermined angle or decelerates at more than a predetermined rate, such action being adapted to cause the fuse to blow out whereby the electrical circuit is permanently opened and remains open until said fuse is replaced.

HARRY D. SEVISON.

CERTIFICATE OF CORRECTION.

Patent No. 1,996,836.

April 9, 1935.

HARRY D. SEVISON.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 2, first column, line 28, claim 2, for "quality" read quantity; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 21st day of May, A. D. 1935.

Leslie Frazer

Acting Commissioner of Patents.

(Seal)

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