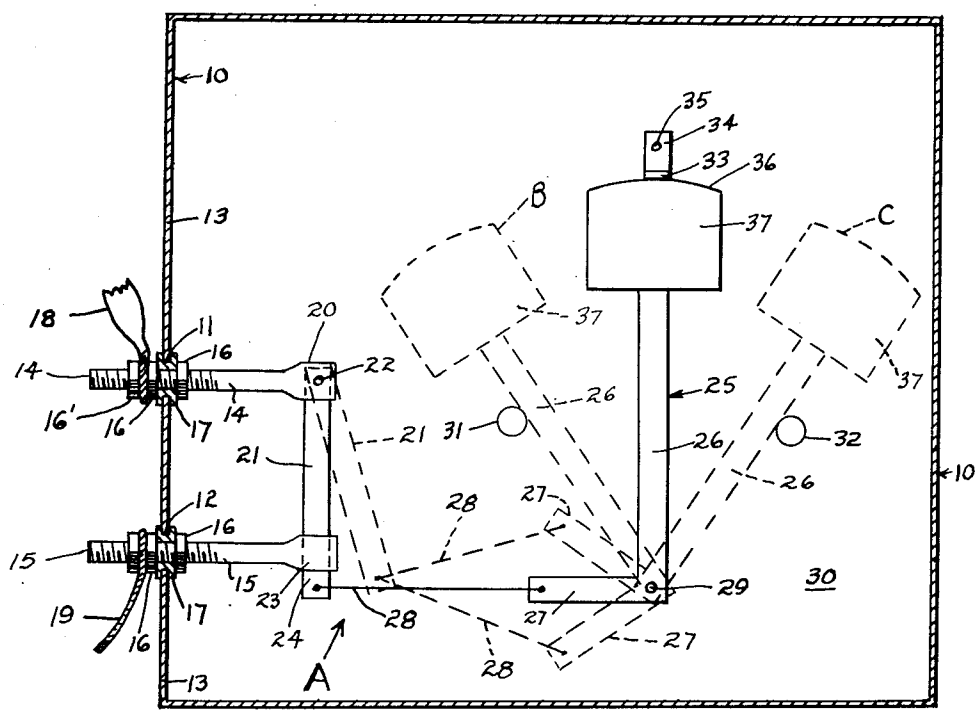
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AUTOMATIC CIRCUIT BREAKER FOR VEHICLES

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AUTOMATIC CIRCUIT BREAKER FOR VEHICLES

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My invention relates to an improvement in a circuit breaker and more particularly to a circuit breaker automatically operative for de-energizing the electrical system of an automobile in the event of collision or overturning and thereby preventing fire from spilled gasoline, for example.

It is an object of my invention to provide a safety circuit breaker for automobiles having means responsive to a sudden stopping or jolting of the automobile.

It is also an object to provide a circuit breaker having manual means to break the circuit so that the operator may set the same to prevent theft of the vehicle or a short circuit while the vehicle is standing unattended.

It is a further object to provide a circuit breaker having means for adjusting the same as to what degree of movement of the vehicle is necessary to automatically operate the device.

I shall not here attempt to set forth and indicate all of the various objects and advantages incident to my invention, but other objects and advantages will be referred to in or else will become apparent from that which follows.

The invention will appear more clearly from the following detailed description when taken in connection with the accompanying drawings, showing by way of example a preferred embodiment of the inventive idea.

In the drawings forming part of this application:

The single figure is a longitudinal side view of my circuit breaker with the supporting housing in section and the pivoted arm shown in broken lines in the alternative "off" position.

My circuit breaker A includes the outer box-like housing **10**. The numerals **11** and **12** indicate spaced apart openings formed in the wall **13** of the housing **10** and through which the threaded horizontal supports **14** and **15** extend. The supports **14** and **15** are held in position in the openings **11** and **12** respectively by means of the nuts **16** which are screwed up against the insulating washers **17** positioned on the supports **14** and in the holes **11** and **12**.

The battery cable **18** is connected to the support **14** by placing the same on the support and then drawing up the nut **16'**. The numeral **19** indicates the cable which connects to the starter of the vehicle. The upper support **14** has formed on the inner end thereof a bifurcated end portion **20**. The switch bar **21** is pivotally mounted in the bifurcated end **20** of the support **14** by means of the pin **22**.

The inner end of the lower horizontal support **15** is formed with a bifurcated portion **23** as in a knife switch which is adapted to frictionally engage the lower end **24** of the switch bar **21**.

I further provide the L-shaped arm member **25** which includes the upright portion **26** which has formed on the lower end thereof the extension leg portion **27** extending at right angles to the portion **26**. A short cable or link **28** connects the end **24** of the bar **21** to the outer free end of the leg portion **27**. The arm member **25** is pivoted on the pin **29** which is secured to the wall **30** of the

housing support **10**. It will be seen that the right angular leg **27** allows withdrawal of the end **24** of the arm **21** from the end **23** whether the weight **37** pivots right or left.

The numerals **31** and **32** indicate stop members which may be secured to the wall **30**, and the same limit the extent of travel or movement of the arm **25** when thrown off a neutral circuit-making position shown in full lines in Figure 1. I further provide the friction foot pad **33** which may be secured to the wall **30** of the housing **10** by means of the arm portion **34** and the bolt **35**. The foot **33** is so positioned that it engages the top arcuated edge **36** of the weight **37** which is secured to the upper end of the portion **26** of the arm **25**.

The housing **10** of the device A may be mounted on the battery support of a vehicle or the fire wall or bulkhead adjacent the battery and provided with an opening for access. In using the device A, the arm **25** is placed in the position shown in Figure 1 in full line, with the end **24** of the bar **21** in releasable engagement with the bifurcated end **23** of the support **15**. When the vehicle on which the device is mounted stops suddenly, the weight **37** moves to the position indicated in broken lines as B thereby lowering the end of the arm **27** which draws the end **24** from engagement with the end **23** of the support **15** thereby breaking the electrical circuit.

If the vehicle in which the device A is mounted is given a sudden jar from the rear, the weight **37** moves to the position indicated in broken lines as C thereby raising the end of the arm **27** and drawing the end **24** free of the end **23** of the support **15** to break the electrical circuit completely by breaking one side of the battery load.

The amount of jar or quick movement necessary to move the weight **37** is controlled by the amount of pressure exerted by the foot **33** on the surface **36** which may easily be adjusted by bending the foot **33** upwardly or downwardly.

I have thus disclosed a simple yet efficient circuit breaker automatically actuated by a sudden stopping or jarring of the vehicle in which it is mounted. With my construction a minimum number of parts are used, and the same is virtually foolproof. In addition, the weight **37** may be manually moved to either position B or C to prevent operation and theft of the vehicle.

The invention is not to be understood as restricted to the details set forth since these may be modified within the scope of the appended claims without departing from the spirit and scope of the invention.

Having thus described the invention, that which I claim as new and desire to secure by Letters Patent is:

1. An automatic circuit breaker for vehicles comprising a housing including front and side walls, a first substantially horizontal conductor, means for mounting said first conductor within said front wall and extending rearwardly within said housing and forwardly therethrough, means at the forward end of said conductor for connecting thereto the battery cable of the vehicle, a second substantially horizontal conductor, second means for mounting said second conductor within said front wall below and in vertically spaced relationship to said first conductor, said conductor extending rearwardly within said housing and forwardly therethrough, conducting means connecting the forward end of said second conductor with the starter of the vehicle, a conductor arm pivotally connected at its upper end to the rear end of said first horizontal conductor, said second horizontal conductor at its rear end being integrally formed with a bifurcated portion adapted to frictionally receive therewithin the lower end of said conductor arm when the circuit is closed, a substantially L-shaped arm having a vertical portion and a horizontal portion at the lower end of said vertical portion, means pivotally connecting the lower end of said

vertical portion of said L-shaped arm within said housing rearwardly of said first and second horizontal conductors and conductor arm with said horizontal portion being aligned longitudinally with the lower end of said conductor arm, link means connecting the forward end of the horizontal portion of said L-shaped arm to the lower end of said conductor arm whereby to move said conductor arm away from said bifurcated portion upon rotation of said L-shaped arm in either direction about its pivotal mounting within said housing, a weight secured to the upper end of the vertical portion of said L-shaped arm and having a convex upper surface, and a friction trip pad mounted within said housing and in frictional engagement with the concave upper surface of said weight whereby to resist the initial movement of said weight to a predetermined amount and whereby to break the circuit upon forward or rearward movement of said weight upon collision of the vehicle due to its inertia and to overcome the friction foot pad and to open the circuit.

2. An automatic circuit breaker for vehicles according to claim 1, said means for mounting said first and second horizontal conductors within said front wall comprising said front wall having vertically aligned, vertically spaced openings therethrough, each of said horizontal conductors being externally threaded at their forward ends and passing through said openings, a pair of nuts screwed onto the externally threaded portions of said first and second horizontal conductors in abutment with the outer and inner faces of said front wall, and an insulative washer on each of said horizontal conductors intermediate said nuts and positioned within the openings in said housing whereby to insulate said conductors from said housing, said means for connecting the battery cable to said first conductor comprising a third nut screwed onto the forward end of said first horizontal conductor to engage the cable intermediate said third nut and the nut in abutment with the front face of said front wall, and a third nut screwed onto the forward of said second conductor and mounting therebehind said conductor means in engagement with the nut in abutment with the font face of the front wall.

References Cited in the file of this patent

UNITED STATES PATENTS

1,493,556	McDannold	May 13, 1924
2,539,736	Fraser	Jan. 30, 1951

FOREIGN PATENTS

702,962	France	Feb. 2, 1931