Oct. 9, 1956 W. G. CRITES 2,766,345

SAFETY DEVICE TO BE USED ON MOVING AUTOMOTIVE MACHINERY AND PLANES, ETC

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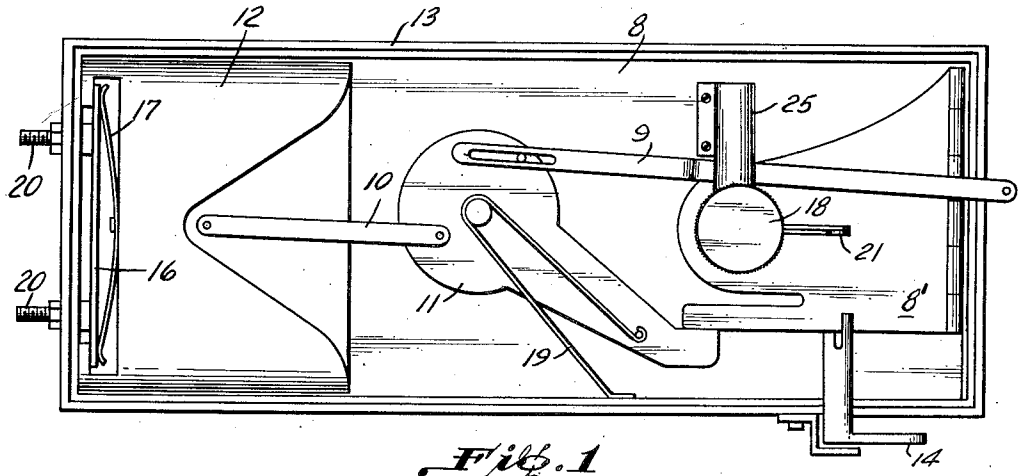


Fig. 1

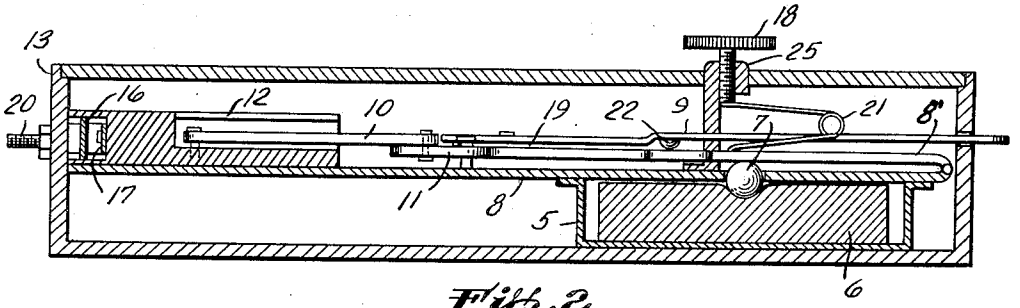


Fig. 2

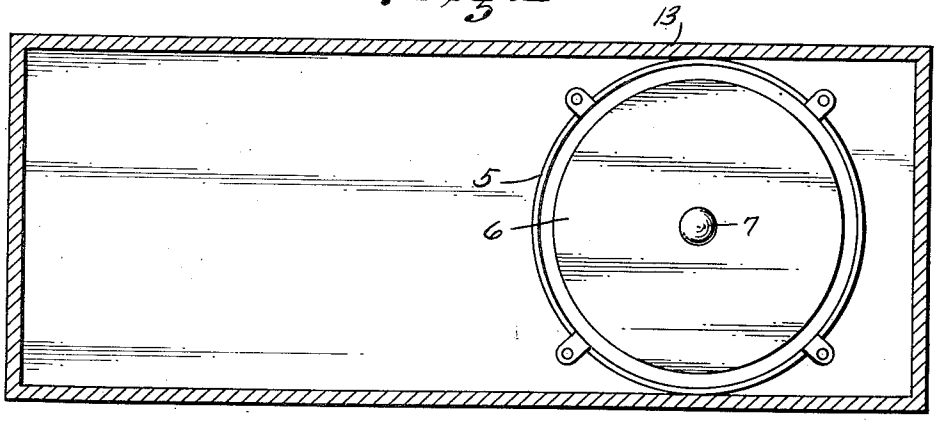


Fig. 3

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SAFETY DEVICE TO BE USED ON MOVING AUTOMOTIVE MACHINERY AND PLANES, ETC.

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4 Claims. (Cl. 200—61.45)

This invention relates to a new and useful safety device for motor vehicles and the like.

When a vehicle or other automatic machine accidentally goes off the road into a ditch, or is hit in a collision, the ignition system or other electrical equipment thereon, is instantly switched off by means of this safety device.

The novel construction of this device is illustrated in the accompanying drawing, wherein;

Figure 1 shows a plan view of one form of the switch mechanism, with the cover removed to show the arrangement and relation of the operating parts.

Figure 2 is a vertical sectional view, and

Figure 3 is a sectional view taken below the horizontal partition of the casing of the mechanism, to show the operating parts therebelow.

It will be readily seen that this safety switch includes the switch terminals **20**, **20**, through which any electrical circuit on a motor vehicle or other automotive machine may be normally completed, and instantly broken by opening the switch in response to lateral impact or turning over of the machine in which this device is mounted which causes inertia or gravity forces on the weight **6** to move from its normally centered position in its housing **5**.

Weight **6** may be a circular disc slidably mounted in the cylindrical housing **5** which may be fixed to the under surface of the partition **8** in casing **13**. The housing **5** is suitably larger in diameter than the disc **6** to permit slidable displacement thereof laterally in any direction from its normal central position in which it is resiliently held by ball **7** being urged downwardly into a centrally sloping depression in the top disc **6**, the ball **7** being guided by and freely movable in a bore through the partition **8**.

A cam trigger plate **8'** is hinged at one end to the partition **8**, its other end resting over the ball **7**. A spring **21** provides a downward bias on plate **8** to press ball **7** into the bottom of the depression in disc **6**, thus normally urging the disc into its central position.

When the ball is in the bottom of the depression, plate **8'** is permitted to swing to its lowermost position into the plane of the lever **11**, which is pivoted on partition **8** and biased by spring **19** to open the switch through the connecting rod **10** and reciprocable switch element **12**, which holds the contact plate **16**. Leaf spring **17** in the holder element **12** ensures good contact of the plate **16** with both terminal contacts when the switch is closed.

In the closed position of the switch, the trigger plate may be pushed down into the plane of the lever **11** the outer end of which may thus be latched in switch closed position, as shown in Figure 1. Pushing of the plate **8'** into this lowermost position obviously will center the disc **6** by pressing the ball **7** into the bottom of its depression.

Upon sufficient impact such as might be occasioned by a collision of the machine with some object, or upon overturning of the machine, the inertia or gravity respectively, will move the disc **6** off center against the centering bias provided by spring **21**, and the ball **7** will roll up the slope of the depression sufficiently to raise the trigger plate out of the way of the outer end of lever **11**. The lever **11** being thus released will instantly pull the switch element **12** to the open switch position, and the electrical circuit will be immediately broken, thus preventing fire hazard or other damage due to continued operation of the equipment after an accident.

The trigger spring **21** is adjustable by thumb screw **18** to provide the required bias for resisting operation of the device in response to impacts of insufficient intensity to cause serious damage or which may be normally encountered in the operation of the machine.

A rod **9**, having a pin and slot connection to the lever **11**, as shown, is used for cocking the device. After the device has been actuated to open the switch, in order to reset it, the rod **9** is pulled to move the lever **11** against the bias of spring **19** to the switch closed position. The lug **22** at this time rides over the top of plate **8'** and forces the ball **7** to move disc **6** into its central position, if the pressure of spring **21** is not sufficient to do this of its own accord as soon as the end of lever **11** is moved out from under the plate **8'**. The rod **9** may be connected by means of a flexible wire cable for operation from the dash or any other convenient point on the machine.

A control rod and lever **14** may further be also connected similarly for operation from a remote point. This lever is for disabling the safety switch when desired by locking the plate **8'** against release. The shaft of this lever has an eccentric projection which may be turned down against the top plate **8'** to lock it against release.

Many obvious modifications in the form and detail arrangement of the several parts may be made without departing from the spirit and scope of the present invention, as defined in the appended claims.

I claim:

1. A safety switch unit for motor vehicles and the like, including a switch, a normally latched element holding the switch closed, means urging the element in a switch opening direction, and impact responsive means to unlatch said element, said means comprising a housing, a weight freely shiftable therein having a depression in its top, a ball normally resting in said depression and being vertically guided in an aperture in the top wall of said housing, and means for unlatching said element in response to a rise of the ball in said aperture caused by shifting of said weight.

2. A unit as in claim 1, in which said unlatching means include a trigger for said element resting on top of said ball, and a spring urging said trigger against said ball.

3. A unit as claimed in claim 2, in which said spring is adjustable to determine the minimum shock required to operate said trigger for unlatching said element.

4. A unit as claimed in claim 3, and manual means for latching said element.

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