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AUTOMATIC IGNITION CUT-OUT SWITCH FOR AEROPLANES.

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1,267,962.

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Fig. 1.

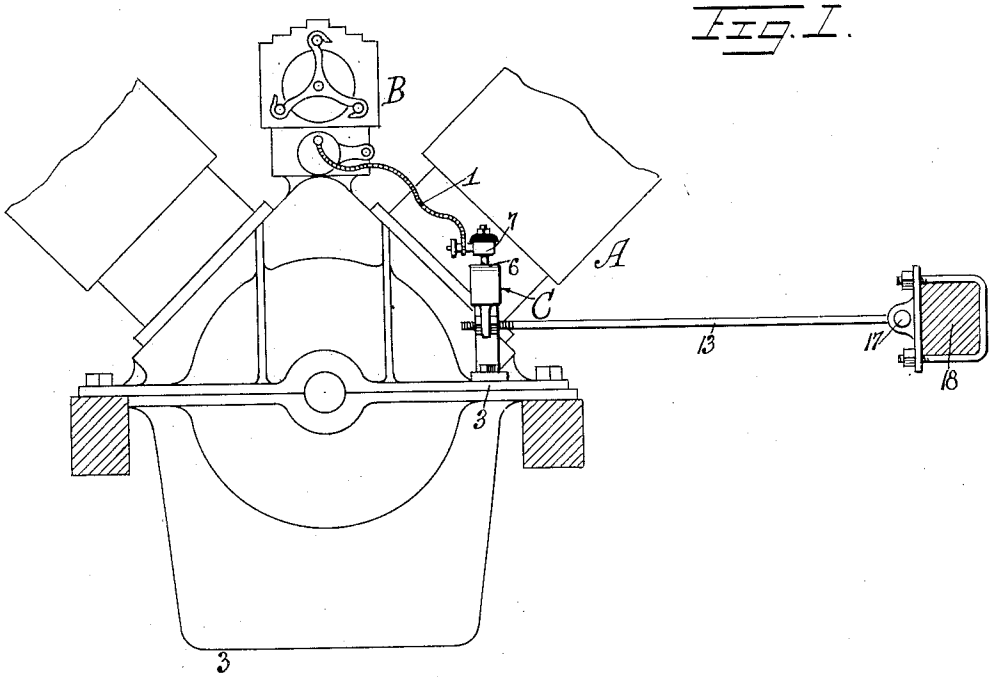


Fig. 2.

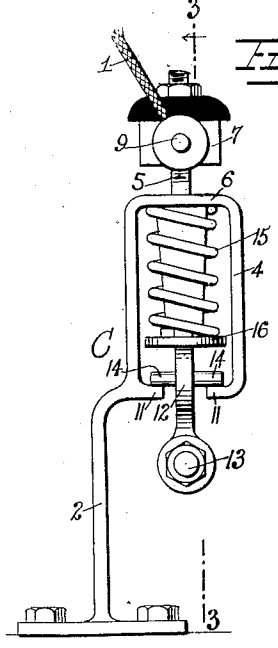
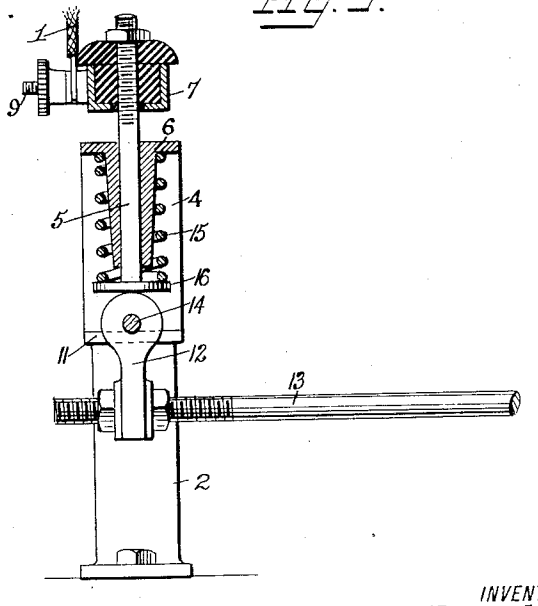


Fig. 3.



WITNESSES

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AUTOMATIC IGNITION-CUT-OUT SWITCH FOR AEROPLANES.

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To all whom it may concern:

Be it known that I, JOSEPH S. BENNETT, a citizen of the United States, and a resident of Hammondsport, in the county of Steuben and State of New York, have invented a new and Improved Automatic Ignition-Cut-Out Switch for Aeroplanes, of which the following is a full, clear, and exact description.

This invention relates to a cut-out switch for the ignition system of an aeroplane, whereby the ignition circuit will be opened to prevent the danger of an explosion of the gasolene when the machine falls and strikes the ground or to immediately stop ignition in case a propeller is broken or the engine otherwise thrown out of balance.

The invention has for its general object to provide an automatic cut-out switch which is comparatively simple and inexpensive to manufacture and install, thoroughly reliable and efficient in use, and so designed as to be operated by the displacement of the engine from its normal position, it being understood that the engine becomes displaced under the shock of the machine striking or when the propeller breaks, and consequently the opening of the ignition circuit prevents a fire when the machine strikes and the gasolene tank breaks open and scatters the gasolene.

A more specific object of the invention is the provision of a switch for grounding the ignition circuit, the switch including a movable element normally under spring tension and held in open-circuit position by means connected with the frame of the aeroplane and so related to the engine that when the latter is displaced the said means will shift relatively and permit the cut-out switch to ground the ignition circuit.

With such objects in view, and others which will appear as the description proceeds, the invention comprises various novel features of construction and arrangement of parts which will be set forth with particularity in the following description and claims appended hereto.

In the accompanying drawing, which illustrates one embodiment of the invention and wherein similar characters of reference indicate corresponding parts in all the views,

Figure 1 is a vertical section of a portion of an aeroplane showing the position of the engine magneto and the automatic ignition cut-out switch;

Fig. 2 is a side view of the switch; and

Fig. 3 is a sectional view on the line 3—3, Fig. 2.

Referring to the drawing, A designates the engine of an aeroplane, which is provided with a magneto B for the ignition system, and associated with the engine is the automatic ignition cut-out switch C which is so designed as to ground the ignition circuit through the ground wire 1, which is connected with the magneto and with the switch.

The switch C comprises a bracket 2 which is preferably mounted on the flange 3 of the engine, and this bracket is formed with a head 4 at its upper end in which is a vertically movable member or follower 5. The top 6 of the head constitutes a contact with which is engageable a contact 7 carried on the upper end of and insulated from the follower 5. The contact 7 is provided with a binding post 9 to which is connected the ground wire 1. The bottom of the head is formed with inwardly extending flanges or ledges 11 between which projects an upwardly extending arm 12 on a rod 13, and on this arm are oppositely projecting lugs 14 which slidably bear on the ledges 11. The lower end of the follower 5 normally rests on the arm 12, so that the latter will hold the follower in such position that the contact 7 will be disengaged from the contact or grounding face 6 of the switch. A spring 15 encircles the plunger or member 5, and the lower end of the spring bears on a shoulder 16 carried by the lower end of the plunger while the upper end of the spring bears against the under side of the top portion of the head 4. With this arrangement the switch will close when the rod 13 moves to the right or left, so as to disengage the lugs 14 from the ledges 11. The movement of the rod 13 depends upon the displacement of the engine A from its normal position, and consequently the rod 13 is connected at 17 with some part of the aeroplane frame, such as the member 18, Fig. 1. The rod 13 extends at right-angles to the engine shaft so that when the latter is displaced laterally in tearing away from its foundation when a propeller breaks or the aeroplane strikes the ground, the rod 13 will be disengaged from the bracket 2, so that the cut-out switch will be closed to ground the ignition circuit in

time to prevent a fire in case the gasolene tank should burst.

From the foregoing description taken in connection with the accompanying drawing, the advantages of the construction and method of operation will be readily understood by those skilled in the art to which the invention appertains, and while I have described the principle of operation, together with the device which I now consider to be the best embodiment thereof, I desire to have it understood that the device shown is merely illustrative and that such changes may be made when desired as fall within the scope of the appended claims.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. The combination of an aeroplane frame, an engine mounted thereon, an ignition system for the engine, a normally open cut-out switch for grounding the ignition system, and means dependent on the displacement of the engine in the frame for permitting the cut-out switch to close.

2. The combination of an aeroplane frame, a propelling engine therefor having an ignition system including a ground wire, a normally open cut-out switch for grounding the said wire, said switch including normally separated contacts, means for urging the contacts toward each other, and a device connected with the aeroplane frame and associated with the contacts, whereby the movement of the engine with respect to the frame causes the said device to permit the contacts to engage each other.

3. The combination of an aeroplane frame, an engine thereon, a magneto for the ignition system, a ground wire connected with the magneto, a cut-out switch for grounding the said wire, said switch including a movable contact and a fixed contact, a spring normally tending to move the movable contact into engagement with the fixed contact, a support for the contacts, a rod connected with the aeroplane frame, and a member on the rod and slidably engaging the support and normally holding the movable contact in open-circuit position, whereby the displacement of the engine causes the rod to shift the member to permit the movable contact to engage the fixed contact.

JOSEPH S. BENNETT.