

E. B. REESE.
MECHANICALLY OPERATED ELECTRICAL SWITCH.
APPLICATION FILED NOV. 8, 1915.

1,293,547.

Patented Feb. 4, 1919.

Fig. 1.

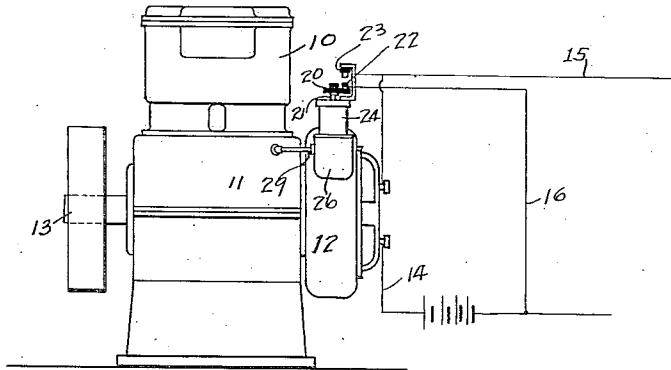
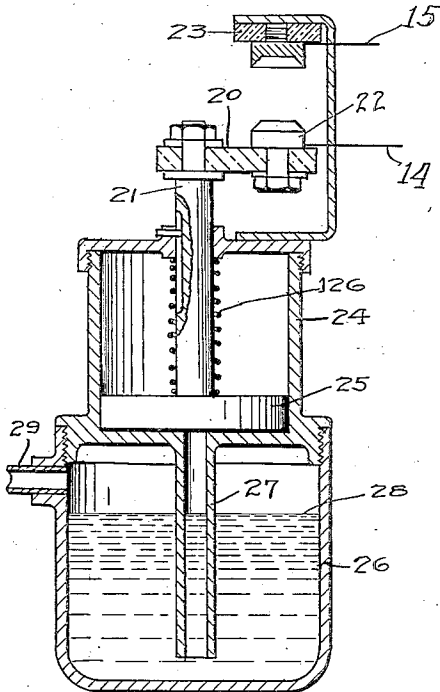


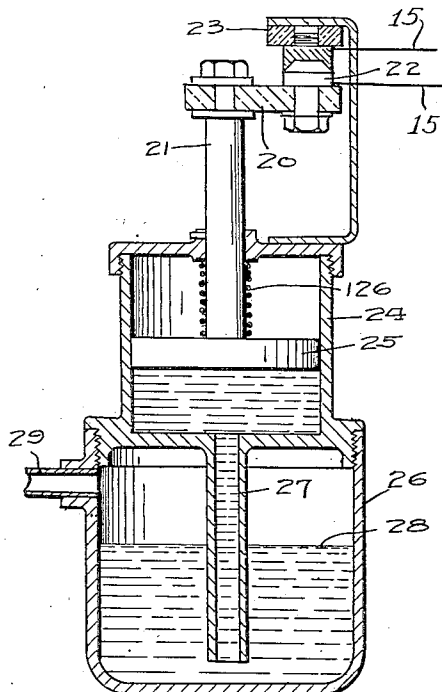
Fig. 2.



WITNESSES:

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Fig. 3.



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MECHANICALLY-OPERATED ELECTRICAL SWITCH.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, EDWARD B. REESE, a citizen of the United States, and a resident of Indianapolis, county of Marion, and State of Indiana, have invented a certain new and useful Mechanically-Operated Electrical Switch; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which like letters refer to like parts.

The object of this invention is the utilization of the fluid pressure in an internal combustion engine to operate an electrical switch. The invention has been made with particular reference to its use in connection with an electrical apparatus, such as a generator, driven by the internal combustion engine with the switch for controlling the circuit being automatically operated and controlled by the fluid pressure in the engine. However, the invention is not limited to any particular use for which the switch may be devoted, although it is of particular importance chiefly in association with electrical apparatus driven by an internal combustion engine.

The chief feature of the invention consists in arranging the plunger operated switch with the cylinder in which the plunger operates in proper communication with the crank case, cylinder or other chamber of the internal combustion engine, wherein there is gaseous fluid under pressure so that the pressure of said fluid as soon as it arises upon the starting of the engine, will operate to move the switch into a circuit closing position and will maintain it in such position until the engine ceases to operate. Since the actuation of the switch is substantially mechanical in character, it is absolutely positive and certain in operation and has none of the uncertainties and unreliability of an electrically operated switch.

The full nature of the invention will be understood from the accompanying drawings and the following description and claims:

In the drawings, Figure 1 is an elevation of the engine, switch and electric generator, and a circuit in diagram. Fig. 2 is a central vertical section through the switch mechanism. Fig. 3 is a similar section to Fig. 2, showing the switch actuated.

There is shown in the drawings herein an internal combustion engine having cylinders 10, a crank case 11, an electric generator 12 driven by the engine shaft 13, an electric line 14 from the generator to the switch mechanism, a line 15 from the switch to the work, and a line 16 from the work back to the generator.

The switch mechanism, which in detail is shown in Figs. 2 and 3, includes a switch arm 20 secured on the upper end of a plunger rod 21 and said arm has a contact member 22 thereon adapted to engage a contact member 23 when the switch is actuated or elevated, as shown in Fig. 3, and close the circuit from the generator to its work. However, the details of the construction of the switch and contacts or its position and relative arrangement with the electric lines is immaterial to this invention as they may be arranged in any desired manner.

The switch plunger rod 21 extends into a cylinder 24 having a plunger 25 connected with the rod 21, and a spiral spring 126 around said rod 21 and within the cylinder for depressing the plunger and returning it to idle position. The cylinder 24 is mounted on the upper end of a liquid chamber 26 and a tube 27 extends from said cylinder down into the chamber 26 near the bottom thereof. The chamber contains fluid 28. A pipe 29 leads to the upper part of the chamber 26 from the crank case 11 of the engine, or, if desired, it may extend from any other part of the engine so as to bring the chamber 26 into communication with any portion of the engine containing gaseous fluid under pressure, said pressure being caused by the operation of the engine. However, the invention is not necessarily limited to the association of the chamber 26 with an internal combustion engine, as it may be associated with any other device or chamber containing fluid under pressure.

In operation, as soon as the engine is started or the fluid under pressure is released so as to enter the chamber 26, the fluid in said chamber 26 rises through the tube 27 and actuates the plunger 25 and thereby the switch. As soon as the engine ceases to operate so that there is no pressure in the crank case, the switch will return under the influence of the spring 126 to its inoperative position.

The invention claimed is:

1. The combination with an internal combustion engine, of a chamber in communication with some portion of the engine so as to receive fluid pressure therefrom when the engine is operated, fluid in said chamber, said chamber being adapted to receive and hold fluid, a cylinder upon said chamber with a supply tube extending from the lower part of said cylinder into the lower part of said chamber whereby the gas under pressure from the engine will force a portion of the fluid out of said chamber through said tube into said cylinder, a plunger in said cylinder adapted to be operated by the fluid entering said cylinder, and an electric switch in position to be operated by said plunger.

2. The combination with an internal combustion engine, of a chamber in communica-

tion with some portion of the engine so as to receive fluid pressure therefrom when the engine is operated, fluid in said chamber, said chamber being adapted to receive and hold fluid, a cylinder upon said chamber with a passage extending from the lower part of said cylinder into the lower part of said chamber, whereby fluid pressure from the engine will force a portion of the fluid out of said chamber through said passage up into said cylinder, a plunger in said cylinder adapted to be operated by the fluid entering said cylinder, an electric switch in position to be operated by said plunger, and means for returning said plunger to its idle position.

In witness whereof, I have hereunto affixed my signature.

EDWARD B. REESE.