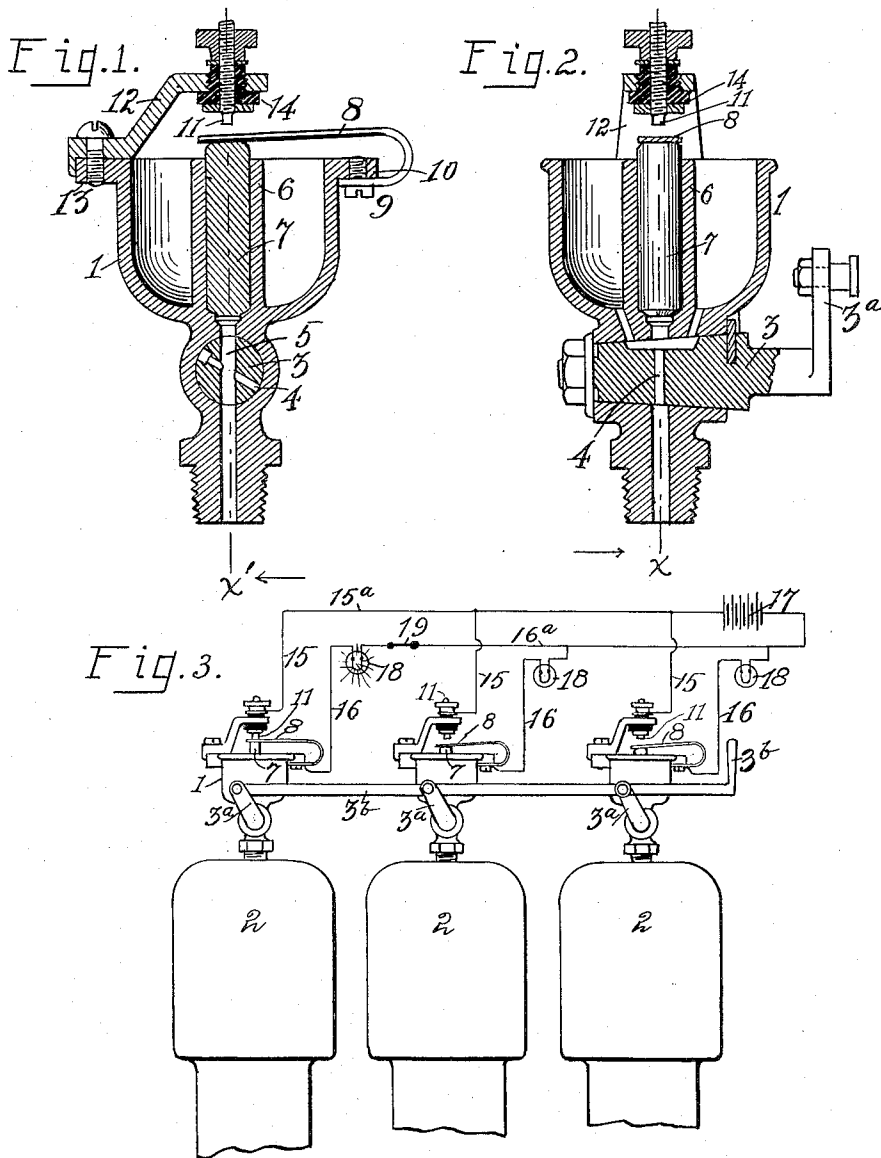


R. C. DEWEY.
ANNUNCIATOR FOR EXPLOSIVE ENGINES.
APPLICATION FILED APR. 1, 1908.

989,132.

Patented Apr. 11, 1911.



WITNESSES:
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UNITED STATES PATENT OFFICE.

RODNEY C. DEWEY, OF HOYTVILLE, OHIO.

ANNUNCIATOR FOR EXPLOSIVE-ENGINES.

989,132.

Specification of Letters Patent. Patented Apr. 11, 1911.

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To all whom it may concern:

Be it known that I, RODNEY C. DEWEY, a citizen of the United States, residing at Hoytville, in the county of Wood and State of Ohio, have invented certain new and useful Improvements in Annunciators for Explosive-Engines; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

In operating multiple cylinder explosive engines, especially in automobile practice, a familiar trouble encountered when one or more of the cylinders misses fire is the difficulty of ascertaining which of the cylinders requires attention.

My invention is designed to obviate this objection, and, more particularly, to provide an indicator which, whenever desired, will instantly show which, if any, of the cylinders is not firing properly.

My invention is also designed to utilize the priming cups and relief-cocks as part of my device, thus avoiding multiplicity of parts and their attendant objections.

I attain these objects by means of the devices and arrangement of parts hereinafter described and shown, and illustrated in the accompanying drawings, in which,—

Figure 1 is a central vertical sectional elevation of a priming cup and relief-valve provided with the make-and-break mechanism,—hereinafter referred to,—which accompanies my indicator; Fig. 2, a like sectional elevation of the same taken at a right angle to the point of view in Fig. 1, Fig. 3, a diagrammatic view of my device as applied to a 3-cylinder explosive engine.

Like numerals of reference indicate corresponding parts throughout the drawings.

In the drawings, 1 is a priming-cup having a threaded hollow stem adapted to be screwed into a hole tapped through into the explosion chamber of an explosion engine 2. In the stem of and immediately below the cup is a two-way cock or valve 3 one of its passages 4 being adapted to connect the cavity of the priming-cup with the explosion-chamber of the engine, as illustrated in Fig. 2, and serving also as a relief-valve for use in starting the engine, as will be under-

stood without further explanation. The other passage 5 of the cock or valve is designed and adapted to place in communication the explosion-chamber of the engine and the bottom of a hollow cylinder 6 secured to or formed integral with the cup and projecting upwardly from the center of the bottom of the cup. The ports 4 and 5 are in such relation to each other that less than a quarter turn of the cock will serve to throw either of the ports into operative position. In the bore of the cylinder 6 is a plunger 7 held normally seated upon the bottom of the bore by a spring 8 one end of which presses upon the top of the plunger, the other end of the spring being secured, as at 9, to a lug 10 formed upon the margin of the cup 1. Immediately above and in the path of the free end of the spring 8 is a contact piece 11 carried by a bracket 12 secured, as at 13, to a lug formed upon the margin of the cup 1. The contact-piece 11 is suitably insulated from the bracket by insulating sleeve 14. The bolts and nuts which secure the parts 8 and 11 in place also serve as binding posts for branch-wires 15 connected with the line 15^a, and branch-wires 16 connected with line 16^a, these lines being connected with opposite poles of battery 17. This battery may consist of a single dry cell, which is found sufficient for the purpose, or the terminals may be connected with one of the cells of the battery provided for the sparking apparatus. In one of the branch-wires is a small incandescent electric lamp 18. The circuit is provided with a switch 19 by which the lamp may be thrown into or out of circuit.

Thus far I have described a single make-and-break device connected with the battery and having a lamp adapted to be thrown into circuit, but it should be understood that each cylinder is provided with one of the apparatuses illustrated in Figs. 1 and 2 and that there is a lamp 18 for each cylinder, each connected by its wires 15—16 with the battery. It should also be understood that the lamps are very small and that the series are assembled side by side in a frame or upon a base,—as in an “annunciator,”—where they may be readily seen,—for instance, as upon the dash-board of an automobile. Each of the cocks 3 has a handle 3^a. These handles are connected by a rod 3^b, placed within convenient reach of the operator, by means of which all the cocks may

be operated simultaneously and by means of which all the cocks may be simultaneously thrown into either of the positions illustrated in Figs. 1 and 2, or into closed position.

The operation of my device is as follows: The switch 19 being closed, the several cocks 3 being placed, as above described, in the position shown in Fig. 1 and the engine being started, now, at each explosion of each of the engines the pressure beneath the lower end of each of the plungers 7 will be sufficient to raise the plungers and to lift the springs 8 into contact with the lower ends of the contact-pieces 11 thus closing the circuit through the several lamps 18 and causing the lamps to glow. If, for any reason, either of the engines should fail to explode, its plunger will fail to rise, the circuit through its lamp will remain open and the lamp will remain dark, thus indicating which engine-cylinder is at fault, as illustrated in Fig. 3 in which the left hand cylinder is operating properly while the other two cylinders do not explode. It will be understood that the quick succession of explosions in the cylinders which are working properly and the short intervals of open circuit will cause in the lamps a practically continuous glow.

Having described my invention, what I claim and desire to secure by Letters Patent, is,—

1. In a device of the described character, an engine having a plurality of explosive chambers, an annunciator which includes for indicating visually the explosions in each of the explosion-chambers, and means controlled by the explosions in the respective chambers for actuating the appropriate indicator in the annunciator.

2. In a device of the described character, an engine having a plurality of explosive chambers, an electric lamp for each chamber, and means controlled by the explosions

in the respective chambers for lighting their respective lamps.

3. In a device of the described character, a multiple cylinder explosive engine, a piston for the explosion chamber of each cylinder disposed in a piston chamber connected by a suitable duct with such explosion chamber and arranged to be actuated by the explosion in such explosion chamber, a spring for each of said pistons, each spring being tensioned in opposition to the explosion pressure, and means controlled by the movement of the respective pistons for indicating visually the explosions in the respective explosion chambers.

4. In a device of the described character, an explosion engine, a priming-cup for the engine, a make-and-break device supported upon the cup which device is actuated by the explosions of the engine, a valve between the cup and the explosion-chamber of the engine which valve is common to the cup and the make-and-break device, and an electric lamp adapted to be lighted by the action of the make-and-break device.

5. A device of the described character comprising an engine having a series of explosion-chambers, for each explosion-chamber a piston disposed in a piston-chamber connected by a suitable duct with its explosion-chamber and adapted to be actuated by the explosions in such chamber, a cock in each of said ducts, means for manually and simultaneously actuating said cocks, for each explosion-chamber an electric lamp suitably connected with a source of electric energy, and for each lamp a make-and-break device disposed in operative relation to its appropriate piston.

In testimony whereof I affix my signature in presence of two witnesses.

RODNEY C. DEWEY.

Witnesses:

CLEM V. WAGNER,
ADA E. CAMERON.

Correction in Letters Patent No. 989,132.

It is hereby certified that in Letters Patent No. 989,132, granted April 11, 1911, upon the application of Rodney C. Dewey, of Hoytville, Ohio, for an improvement in "Annunciators for Explosive-Engines," an error appears in the printed specification requiring correction as follows: Page 2, line 36, after the word "includes" the word *means* should be inserted; 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 9th day of May, A. D., 1911.

[SEAL.]

C. C. BILLINGS,
Acting Commissioner of Patents.