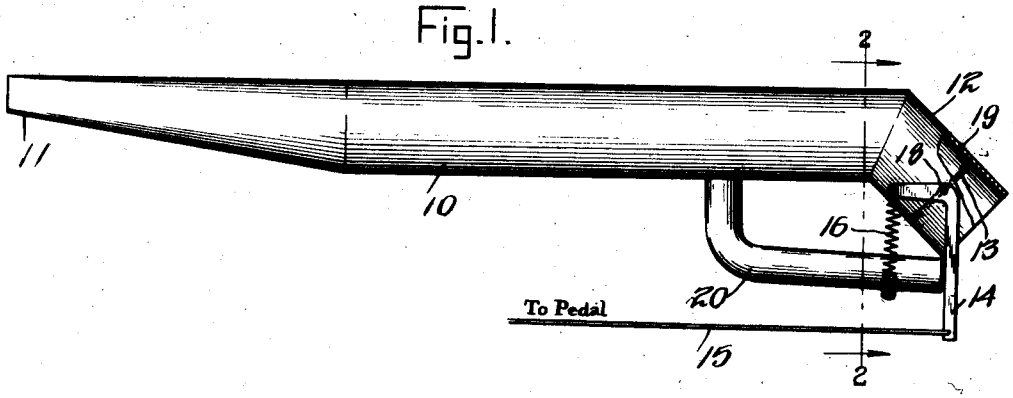
Jan. 18, 1927. 1,615,147

R. M. TAYLOR

COMBINED MUFFLER AND CUT-OUT

Original Filed August 29, 1924

Fig. 1.



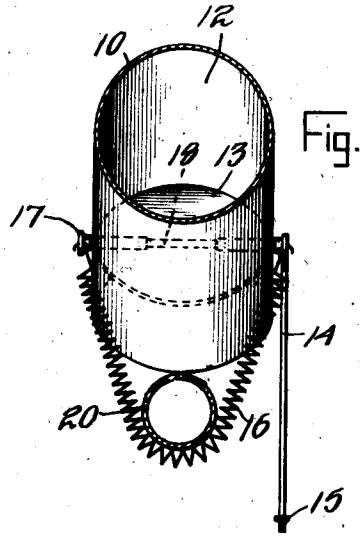


Fig. 2.

Inventor

Raymond M. Taylor

By

Attorney

Patented Jan. 18, 1927. 1,615,147

UNITED STATES PATENT OFFICE.

RAYMOND M. TAYLOR, OF INDIANAPOLIS, INDIANA.

COMBINED MUFFLER AND CUT-OUT.

Application filed August 29, 1924, Serial No. 734,993. Renewed November 26, 1926.

My said invention relates to a combined muffler and cut-out for use in automobiles and it is an object of the same to provide a device of this character of simple design which shall increase the efficiency of the motor at such times as it may be desirable to do this.

Referring to the accompanying drawings which are made a part hereof and on which similar reference characters indicate similar parts,

Figure 1 is a side elevation of my device, and

Figure 2, a section on line 2—2 of Figure 1.

In the drawings reference character 10 indicates the body of the device which is a hollow tube reduced at one end as indicated at 11 for connection to the exhaust manifold. At the other end it is bent downward at an angle of about 45°, as shown at 12, this being to direct the hot gases away from the spare tire or whatever accessories or impedimenta may be attached to the rear of the car.

Normally the tube is closed by a butterfly valve 13 which is operated by a bent lever 14 having one arm connected by a rod or wire 15 to a pedal or manually operated device according to the custom of the trade.

A spring 16 is connected at one end to the other end of the lever 14 (preferably the shorter end) which spring is connected at its other end to another arm 17 on the shaft 18 of the valve 13, the length of this spring being so regulated that it tends to close the butterfly valve by pulling it against a stop indicated at 19.

The spring 16 passes underneath a branch pipe 20 leading out of the pipe 10 and having an open end beneath the downwardly inclined portion 12. Normally the valve 13 is closed and the exhaust gases after expanding in the muffler body 10 pass out with a uniform flow quietly through the pipe 20.

It is well known to those skilled in the art that mufflers of ordinary type have a serious drawback in that they cause back pressure on the engine whereby the engine loses power. For this reason automobile engines and the like are often provided with cut-outs which can be used on hills or elsewhere when extra power is desired. Internal combustion engines employed by agencies of the Government are ordinarily not supplied with mufflers because of the loss of power due to back pressure. In the muffler of my invention the part 11 of the large pipe expands gradually to the larger diameter of the part 10 and this form has been adopted because of the fact that it permits the gas to expand gradually and quietly and after it has reached the largest expansion permitted by the dimensions of the muffler it can exhaust quietly through the small pipe 20 without causing any appreciable back pressure on the engine. The use of a muffler of the type illustrated with the butterfly valve closed substantially obviates back pressure and when the butterfly valve is opened back pressure is completely obviated.

It will be obvious to those skilled in the art that my device may be changed in numerous particulars without departing from the spirit of the invention and therefore I do not limit myself to what is shown in the drawings and described in the specification but only as indicated in the appended claim. For example, the spring 16 may have one end connected to a fixed part of the machine.

Having thus fully described my said invention what I claim as new and desire to secure by Letters Patent is:

A combined muffler and cut-out for internal combustion engines comprising a relatively large pipe for connection to the exhaust manifold, a portion of said pipe gradually increasing in diameter rearwardly from the exhaust manifold, a valve for normally closing said pipe, and a relatively small pipe with a normally open outlet and connected directly with said large pipe, substantially as set forth.

In witness whereof, I have hereunto set my hand and seal at Indianapolis, Indiana, this 27th day of August, A. D. nineteen hundred and twenty-four.

RAYMOND M. TAYLOR. [L. S.]