

Mar. 6, 1923.

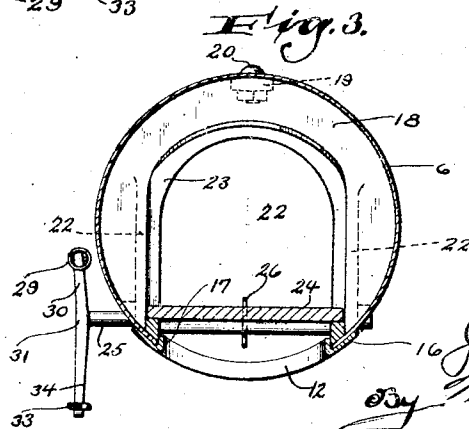
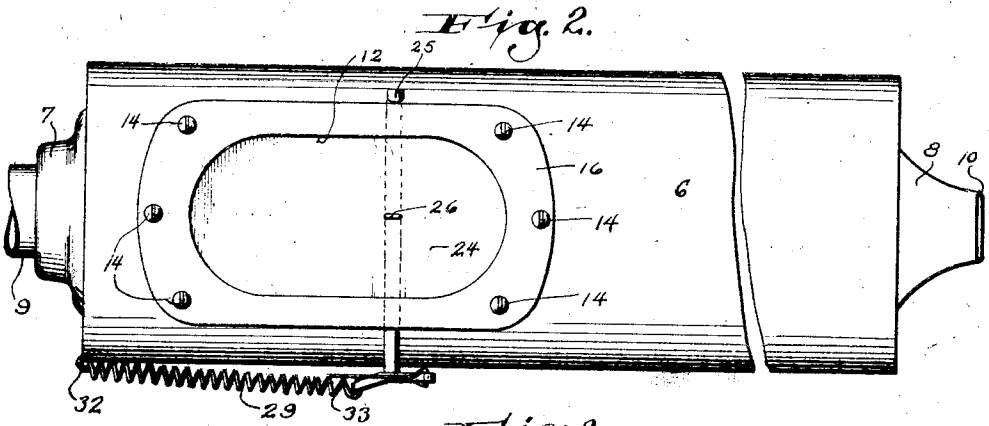
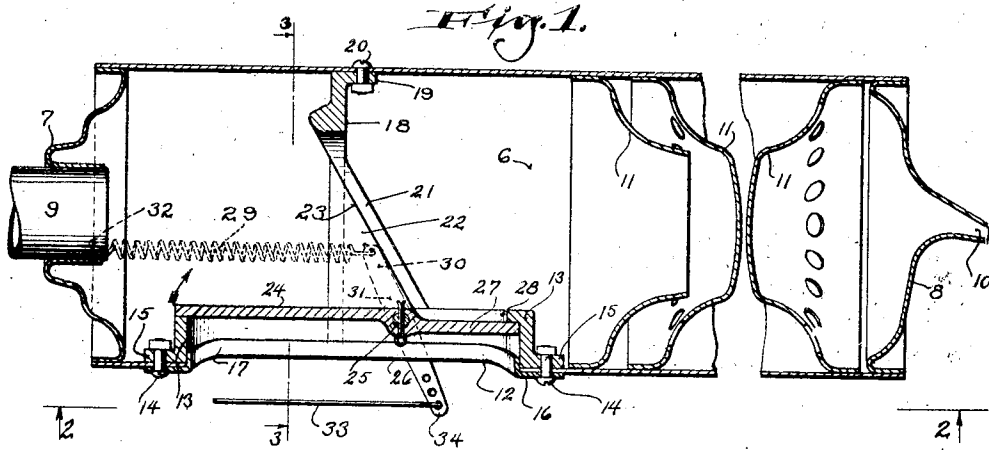
1,447,380

J. F. GOETZ

COMBINED MUFFLER AND CUT-OUT

Filed Oct. 8, 1920

2 sheets-sheet 1



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Fig. 4.

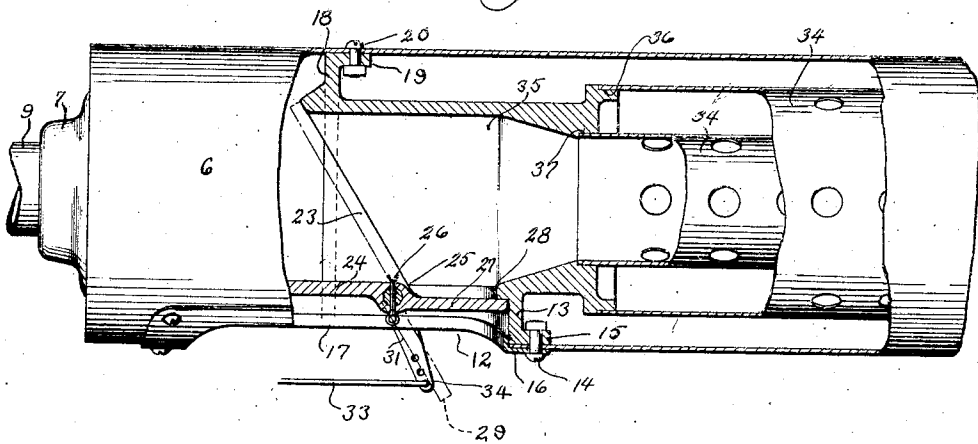
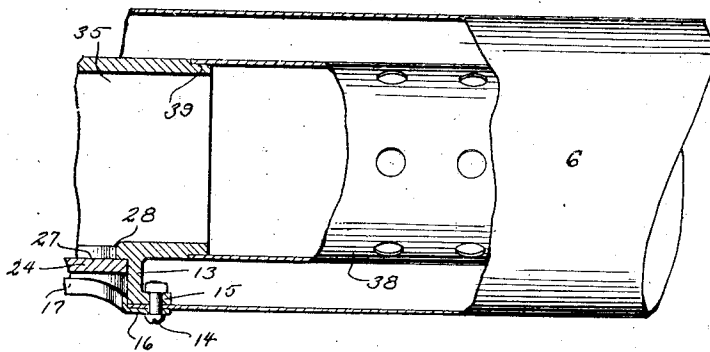


Fig. 5.



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UNITED STATES PATENT OFFICE.

JULIUS F. GOETZ, OF HARTFORD, WISCONSIN.

COMBINED MUFFLER AND CUT-OUT.

Application filed October 8, 1920. Serial No. 415,599.

To all whom it may concern:

Be it known that I, JULIUS F. GOETZ, a citizen of the United States, and resident of Hartford, in the county of Washington and State of Wisconsin, have invented new and useful Improvements in Combined Mufflers and Cut-Outs, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

This invention relates to certain new and useful improvements in exhaust mufflers and has for one of its objects to provide a combined muffler and cut-out.

Another object of this invention is to provide an exhaust cut-out adapted to be made a part of the exhaust muffler proper whereby to form a combined cut-out and exhaust muffler.

A further object of this invention is to provide an exhaust cut-out positioned within the muffler proper having a common valve member for closing the cut-out and for opening the cut-out and shutting off the muffling means to direct the exhaust gases directly into the atmosphere instead of passing through the muffler means.

A still further object of this invention is to provide a device of the class described capable of being applied to mufflers, of various construction, now in use, or to mufflers at the time of their manufacture.

With the above and other objects in view which will appear as the description proceeds, my invention resides in the novel construction, combination and arrangement of parts substantially as hereinafter described and more particularly defined by the appended claim, it being understood that such changes in the precise embodiment of the herein disclosed invention may be made as come within the scope of the claim.

In the accompanying drawings, I have illustrated one complete example, and several modifications, of the physical embodiment of my invention constructed according to the best mode I have so far devised for the practical application of the principles thereof, and in which:

Figure 1 is a sectional view taken longitudinally through an exhaust muffler equipped with my invention, parts of the muffler proper being broken away;

Figure 2 is a view looking at the bottom of my improved combined muffler and cut-

out, said view being taken on the plane of line 2—2 of Figure 1;

Figure 3 is a transverse sectional view taken through the muffler on the line 3—3 of Figure 1;

Figure 4 is a fragmentary view, part in longitudinal section and part in elevation, illustrating my invention as applied to another form of exhaust muffler; and

Figure 5 is a fragmentary view, part in section and part in elevation, illustrating the manner of applying my invention to still another form of exhaust muffler.

Referring now more particularly to the drawings, in Figures 1 to 3, I have illustrated my invention as applied to that type of muffler comprising a housing or a casing 6 having the ends thereof closed by end plates 7 and 8, the plate 7 having an inlet opening therein for receiving the end 9 of an exhaust pipe, and the plate 8 being provided with an exhaust outlet 10. Positioned within the housing or casing 6, intermediate the inlet and outlet, are a plurality of baffle or muffling plates 11 provided with offset openings to cause exhaust gases entering the housing at the inlet to have a tortuous interrupted passage through the housing and thus muffle the same. The muffler may be of any conventional form and the present invention resides in the combining of an exhaust cut-out with the muffler proper intermediate the inlet and the muffling means thereof.

The side wall of the housing 6 has an opening 12 cut therein intermediate the muffling means and the inlet, and secured to the wall of the housing, and having an opening in register with the opening 12, is a plate 13. The plate 13 is fixed to the housing 6 by a plurality of bolts or other fastening means 14 which pass through lugs or ears 15 formed integral therewith, the adjacent wall portion of the housing 6 and a plate 16 secured to the outer face of the housing wall surrounding the opening 12. The plate 16 is also provided with an opening corresponding with opening 12 and has its inner peripheral edge struck inwardly, as at 17, to provide a flange covering any rough or uneven edge formed by cutting through the muffler housing wall.

The plate 13 has an intermediate up-standing partition 18, the periphery of which is shaped to conform with that of the

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inner periphery of the casing or housing 6, and one or more ears or lugs 19 are formed on the partition 18 for connection with the housing by fastening means 20. The partition 18 is provided with a central opening or passageway 21 which is partly defined by side partitions 22 inclined downwardly and rearwardly from the top of said opening, and a flange which surrounds the opening to form a seat 23 for a valve member 24.

The valve member 24 is mounted upon a pin or rod 25 journaled on the sides of the plate 13, and is rigidly secured thereto by a removable cotter pin 26. The valve member 24 has the portion thereof forward of the pin 25 arranged to seat either upon the top of the plate 13 or upon the valve seat 23 formed by the flange surrounding the opening 21 of the partition, and the portion 27 of said valve rearwardly of the pin 25, seats against an inwardly flange or rib 28 carried by the upper portion of plate 13 rearwardly of the pin 25.

With this construction, when valve member 24 is in the position depicted in Figure 1, the forward major portion thereof is seated upon the top of the plate 13 and the rear portion 27 thereof seated upon the under face of the rib 28, completely shutting off the interior of the housing 6 from the atmosphere and causing the exhaust gases entering through pipe 9 to pass through the muffling means and out the outlet 10. The valve member is normally yieldingly urged to this position by a spring 29 having one end secured to the arm 30 of a lever 31 carried by the shaft 25 and its other end connected, as at 32, to the muffler housing or any other suitable object.

When it is desired to render the muffler inoperative and permit the exhaust gases to enter directly into the atmosphere, a foot pedal or the like (not shown) is depressed causing the control wire 33 connected with the arm 34 of the lever 31 to rotate the shaft and move the valve member in the direction of the arrow of Figure 1, causing the major portion of the valve plate 24 to seat against the flange 23 and completely shut off the muffling means from the inlet.

In Figure 4, I have illustrated the construction preferably used when the muffler

is of that type employing a plurality of concentric perforated sleeves 34, in which construction, the partition 18 has a rearwardly extending tubular portion 35 provided with two concentric portions 36 and 37 with which the sleeves 34 are connected. As the principle and operation of the cut-out is the same with this construction as that depicted in Figures 1, 2, and 3, a further description is thought unnecessary.

In Figure 5, is illustrated the use of my invention in connection with a muffler employing a single perforated tube or sleeve 38 in which the portion 35 has a reduced portion 39 for receiving the tube 38. The portion of the cut-out, in this form of my invention, is also identical with that depicted in Figures 1, 2 and 3 and therefore further description is deemed unnecessary.

From the foregoing description taken in connection with the accompanying drawings, it will be readily apparent to those skilled in the art to which an invention of this character appertains, that with this construction means are provided for removing carbon deposits that may accumulate within the muffler, that the device may be produced at a comparatively low cost and that the valve member may be readily removed by withdrawing the cotter pin 26.

What I claim as my invention is:

A device of the class described, comprising in combination, a housing having a passageway and an inlet and an outlet at the respective ends thereof, muffling means in said passageway, said housing intermediate said inlet and said muffling means being provided with a cut-out opening leading from said passageway, a casting secured to said housing and formed so as to provide an apertured partition extending across said passageway and a valve seat surrounding said cut-out opening, a rock shaft associated with said casting, a valve mounted on said shaft, said valve when in its normal position bearing on said seat and closing said cut-out opening and when in another position covering the aperture in said partition, and a spring adapted to maintain said valve in its normal position, for the purpose specified.

In testimony whereof, I affix my signature.

JULIUS F. GOETZ.