J. T. MALSACK.

MUFFLER.

APPLICATION FILED OCT. 11, 1920.

1,403,614. Patented Jan. 17, 1922.

Fig. 1.

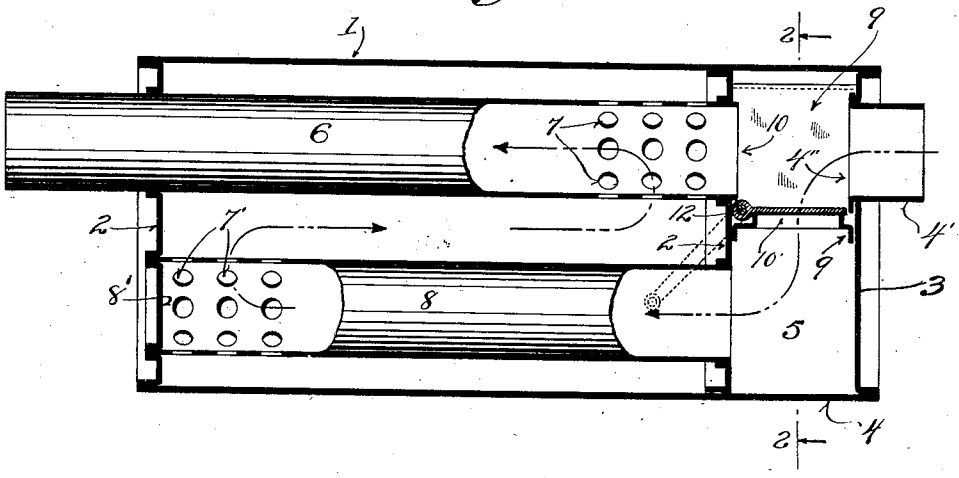
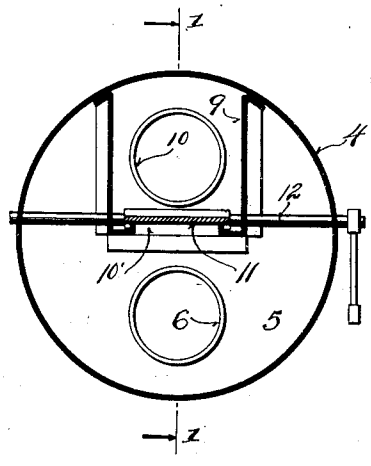


Fig. 2.



Witness:
Robert E. Weber

Inventor:
Jacob T. Malsack
Young & Young
Attorneys.

UNITED STATES PATENT OFFICE.

JACOB T. MALSACK, OF HARTFORD, WISCONSIN, ASSIGNOR OF ONE-HALF TO AUGUST W. RUEHL, OF BEAVER DAM, WISCONSIN.

MUFFLER.

1,403,614. Specification of Letters Patent. Patented Jan. 17, 1922.

Application filed October 11, 1920. Serial No. 416,044.

To all whom it may concern:

Be it known that I, JACOB T. MALSACK, a citizen of the United States, and resident of Hartford, in the county of Washington and State of Wisconsin, have invented certain new and useful Improvements in Mufflers; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention refers to mufflers and has for its object to provide a simple, economical and effective muffler combined with a cut-out mechanism, which is in the nature of a "built-in structure." Specific objects of my invention are:

To provide an expansion drum having radially disposed delivery and discharge pipes extending through the drum, and in communication with a receiving chamber at the front end of the drum, the pipes being adapted to direct the gases in a zig-zag course to the point of discharge and under-valve control, to produce a direct exhaust, this construction being particularly adapted to eliminate back pressure, due to the peculiar alternate expansion and contraction of the gases.

To provide a structure which is absolutely tight and which will resist bursting under explosion conditions.

To provide a valve mechanism or "cut-out" which is capable of regulating the discharge, whereby the muffling effect may be produced or the gases may be discharged directly.

To arrange the discharge pipe in such manner that the gases are exhausted in a direct line parallel to the drum to thus avoid dust.

To provide the valve mechanism or cut-out as a "built-in proposition" and so encased as to be protected against mud and dust.

To provide a light structure and to so standardize the parts that they may be interchangeable.

With the above and other objects in view, the invention consists in certain peculiarities of construction and combination of parts, as will hereinafter be set forth, with reference to the accompanying illustrations and subsequently claimed.

In the drawings,

Figure 1 represents a longitudinal sectional view of a muffler embodying the features of my invention, and

Figure 2 a cross section of the same through the receiving chamber of forward head portion, the section being indicated by line 2—2 of Figure 1.

Referring by characters to the drawings, 1 represents an expansion drum having closed end walls 2—3. The front end wall 3 is encased by a shell-like head 4, and has a nipple 4′ extending therefrom, which nipple constitutes an intake port. The head in connection with the wall 3 thus forms a receiving chamber 5 for the gases.

The drum is also provided with a discharge pipe 6 opening at its ends and extending longitudinally through the rear wall 2 of the discharge drum, with its open front end suitably secured to a corresponding aperture in the wall 3, to thereby form an intake opening. The discharge pipe is also provided with a series of radially disposed apertures 7 near its intake end.

A delivery pipe 8 is also mounted in the discharge drum, same being shown spaced from the discharge pipe. The rear end wall 8′ of this pipe is closed and the front end of the same is opened and suitably secured to the wall 3, whereby it is in communication with the receiving chamber 5. The rear portion of the pipe 8 is provided with a series of radially disposed vent apertures 7′ for the gases.

Fitted in the chamber 5 is a valve housing 9. This housing is provided with a port opening 4″, which communicates with the intake port 4′ and the diagrammatically opposite port 10 which communicates with the discharge pipe intake mouth. The valve housing is also provided with a bottom port 10′, which communicates with the receiving chamber 5. The ports 10 and 10′ of the housing are controlled by a flat valve 11, which valve is mounted upon a stem 12 that projects through the drum and has secured thereto a suitable actuating arm. Hence, it will be seen from the foregoing description that if the cut-out valve 11 is swung downwardly to close the port 10′, exhaust gases from the engine will be discharged directly through the pipe 6. Should the cut-out valve 11 be shifted so as to close the port 10, obviously as indicated by the arrows, the spent gases will pass into the receiving chamber 5 and expand. They will then enter the delivery pipe 8 and travel throughout its length, being discharged into the expansion drum in the rear end, whereby they

will expand and travel forwardly, at which point they will enter the discharge pipe 6 through the perforation 7 and from thence they may be exhausted in a direct line paralleling the drum through the open rear end of the aforesaid discharge pipe. Thus, it will be seen that a simple, inexpensive and effective muffler structure is provided, wherein it will perform all the necessary functions of such mufflers, without liability to become disarranged, or to create back pressure, all of the parts being enclosed.

While I have shown one exemplification of my invention in all of its details, it is understood that I may vary structural features within the scope of the claims.

I claim:

1. A muffler comprising a closed ended expansion drum having a forwardly disposed receiving chamber, provided with an intake port, a delivery pipe extending within the drum having an open front end and a closed rear end, the walls of said pipe near its rear end being perforated, a discharge pipe extending into the drum having open intake and discharge ends, said pipe being positioned parallel with relation to the first mentioned pipe and provided with perforated side walls near its intake end, a valve housing fitted into the receiving chamber having an inlet port in communication with the gas intake port of said chamber, and ports communicating respectively with the receiving chamber and intake end of the discharge pipe, and a flap valve for selectively closing the receiving chamber port and the inlet port communicating with the discharge pipe.

2. A muffler comprising a closed drum having a forwardly positioned receiving chamber provided with an intake port, a valve housing mounted therein, provided with a direct discharge port, and a second port in communication with the receiving chamber, a valve for controlling said ports selectively, a delivery pipe in communication with the chamber having its rear end in communication with the expansion drum, and a discharge pipe within the expansion drum, having its forward end in communication with the direct discharge port of the valve housing, the said forward end of the discharge pipe being in communication with the aforesaid drum.

In testimony that I claim the foregoing I have hereunto set my hand at Hartford, in the county of Washington and State of Wisconsin.

JACOB T. MALSACK.