A. W. PORTER.

EXHAUST MUFFLER.

APPLICATION FILED APR. 6, 1911.

1,004,195.

Patented Sept. 26, 1911.

2 SHEETS—SHEET 1.

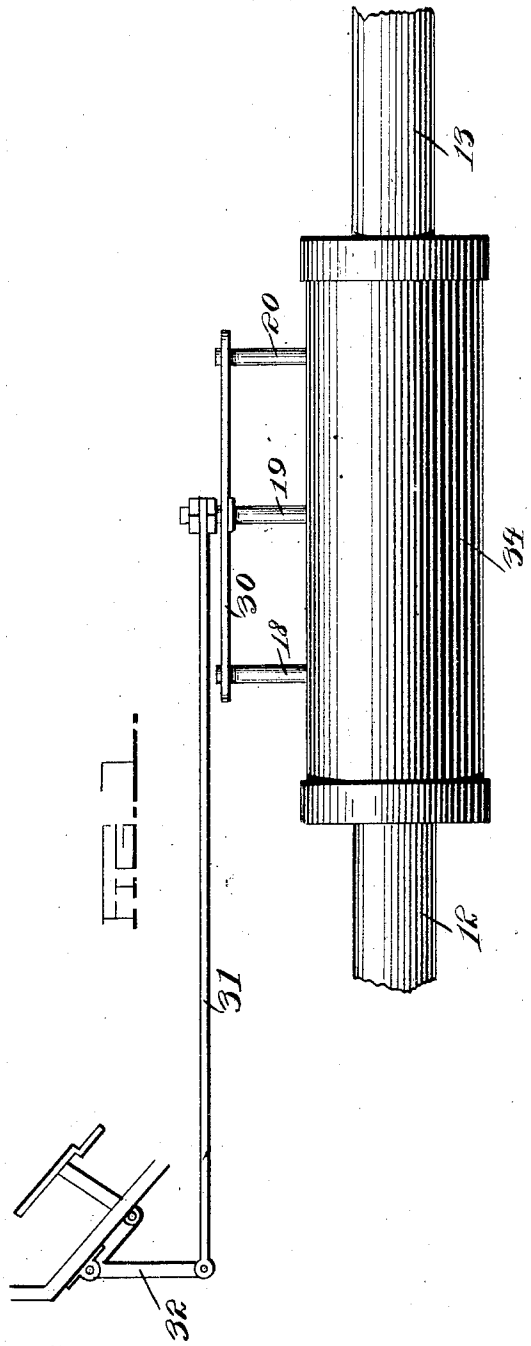

FIG. 1.

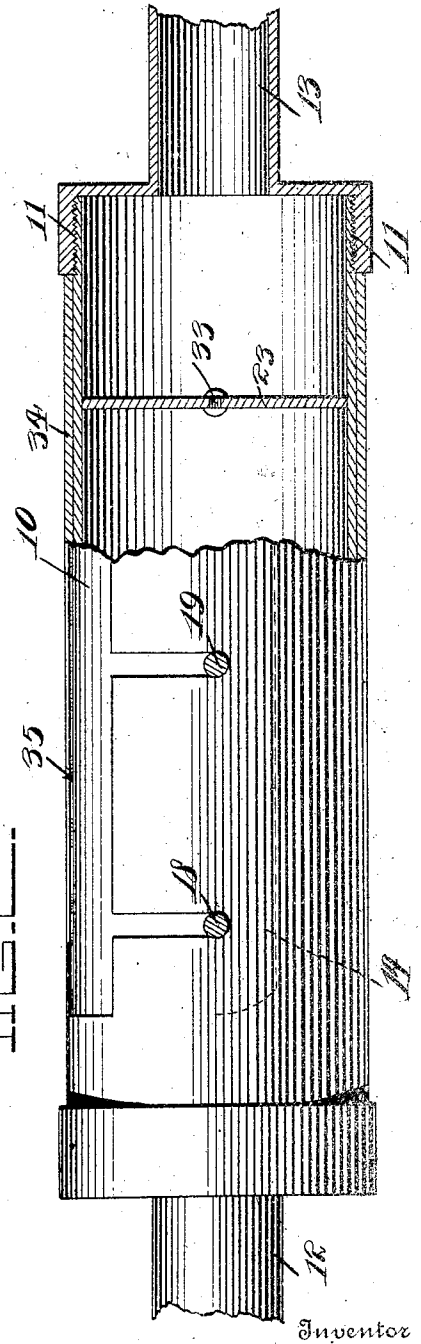

FIG. 2.

Witnesses

F. W. Taylor

Henry T. Bright

Inventor

Alden W. Porter.

By

Attorney

A. W. PORTER.

EXHAUST MUFFLER.

APPLICATION FILED APR. 6, 1911.

1,004,195.

Patented Sept. 26, 1911.

2 SHEETS—SHEET 2.

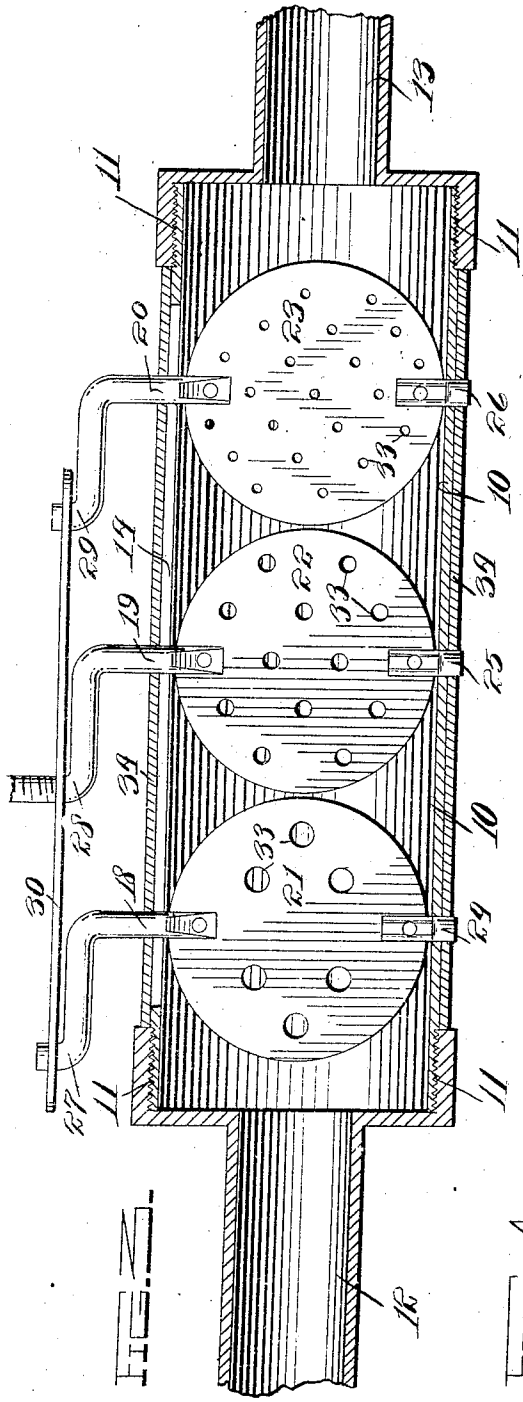

FIG. 3.

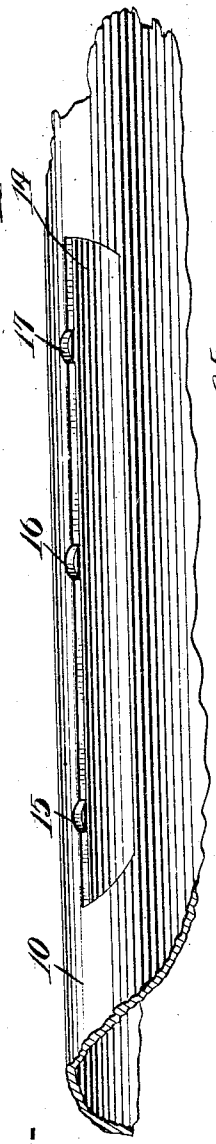

FIG. 4.

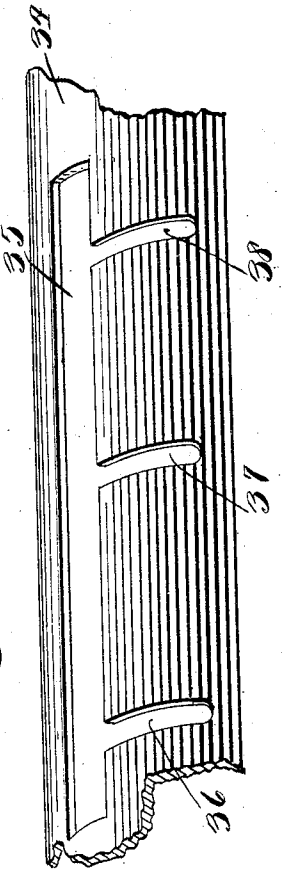

FIG. 5.

Witnesses

F. D. Taylor

Henry T. Bright

Inventor

Alden W. Porter.

By Pierce & Pierce

Attorneys

UNITED STATES PATENT OFFICE.

ALDEN WALTER PORTER, OF TICONDEROGA, NEW YORK.

EXHAUST-MUFFLER.

1,004,195. Specification of Letters Patent. Patented Sept. 26, 1911.

Application filed April 6, 1911. Serial No. 619,399.

To all whom it may concern:

Be it known that I, ALDEN W. PORTER, a citizen of the United States, residing at Ticonderoga, in the county of Essex, State of New York, have invented certain new and useful Improvements in Exhaust-Mufflers; and I do hereby 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.

This invention relates to exhaust mufflers and particularly that type adapted for use in connection with explosive engines.

The object of the invention resides in the provision of a muffler which will effectually perform the function desired by a device of this character and which is so constructed that access to the interior thereof may be readily had.

A further object of the invention resides in the provision of a muffler of the character named in which certain parts may be actuated to a position whereby the surfaces thereof are automatically cleansed by the passage of gas through the muffler.

With the above and other objects in view the invention consists in the details of construction and in the arrangement and combination of parts to be hereinafter more fully described and particularly pointed out in the appended claim.

In describing the invention in detail reference will be had to the accompanying drawings wherein like characters of reference denote corresponding parts in the several views, in which—

Figure 1 is a side elevation of the muffler showing same connected with a controlling lever and the parts in active position. Fig. 2 an enlarged plan view partly in section. Fig. 3 a section taken at right angles to that shown in Fig. 2 and with the parts of the muffler in inactive position. Fig. 4 a detail perspective view of a fragment of the sleeve which rotatably surrounds the muffler casing and serves to open and close the cleaning opening thereof. Fig. 5 a detail perspective view of a fragment of a muffler casing showing the cleaning opening.

Referring to the drawings the device is shown as comprising a tubular casing 10 provided at each end with exterior threads 11, whereby said casing may be readily attached at respective ends to inlet and outlet pipes 12 and 13. The casing 10 is provided with a longitudinal slot 14 and on one side of this slot are recesses 15, 16 and 17 which form parts of bearings for trunnions 18, 19 and 20 respectively, said trunnions having secured to their inner ends respectively disk valves 21, 22 and 23. These disks 21, 22 and 23 are provided at diametrically opposite points from the trunnions 18, 19 and 20 with trunnions 24, 25 and 26 having a bearing in the casing 10. The outer end of the trunnions 18, 19 and 20 are provided with crank arms 27, 28 and 29 respectively which latter are mutually connected by means of a bar 30 whereby the rotation of either of the trunnions 18, 19 and 20 will produce a corresponding rotation of the remainder. The crank arm 28 has secured thereto one end of a link 31 while the other end of the link is connected to an operating lever 32 mounted in a suitable location. By this construction it will be apparent that through the manipulation of the lever 32 the valves 21, 22 and 23 may be simultaneously operated from the position coincident with the longitudinal axis of the casing 10 to a position at right angles to said axis. Each of the valves 21, 22 and 23 is provided with perforations 33, the perforations of the valve 22 being smaller than the perforations of the valve 21 while the perforations of the valve 23 are smaller than the perforations of the valve 22, in other words the perforations in the valves decrease in size as the outlet end of the muffler is approached. Surrounding the casing 10 is a sleeve 34 which is provided with a longitudinal slot 35 corresponding in size to the slot 14 of a casing 10. This slot 35 has one side provided with recesses 36, 37 and 38 extending transversely to the sleeve 34 and disposed oppositely to the recess 15, 16 and 17 respectively of the casing 10. These recesses 36, 37 and 38 are of a sufficient size to receive the trunnions 18, 19 and 20 respectively and permit a limited rotation of the sleeve 34 on the casing 10 so as to bring the slot 35 into and out of registration with the slot 14. When the sleeve 34 has been rotated so as to position the trunnions 18, 19 and 20 at the inner ends of the recesses 36, 37 and 38 respectively, the inner walls of said recesses form a portion of the bearings of said trunnions, while the inner wall of the recesses 15, 16 and 17 constitute the remainder of said bearing. Again when the sleeve 34 is rotated so as to move the trun-

nions 18, 19 and 20 out of the recesses 36, 37 and 38 respectively the slot 35 will pass into registration with the slot 14 and permit ready removal of the valves 21, 22, and 23 for the purpose of cleaning.

It will be noted that when the valves 21, 22 and 23 are moved to the position shown in Fig. 3 both faces of said valve will be subjected to the influence of the gas passing through the casing 10 and the force exerted by the gas will result in cleaning accumulated deposits from both faces of the valve as will be apparent and thus enable the efficiency of the muffler to be maintained without frequently resorting to a manual cleaning of same.

What is claimed is:

A muffler comprising a tubular casing provided with means at its end for connection with inlet and outlet pipes respectively and having a longitudinal slot in its wall, said slot having a plurality of recesses in one side thereof, a sleeve rotatably mounted on said casing having a longitudinal slot therein adapted for registration with the slot in the casing, said longitudinal slot in the sleeve having one side thereof provided with recesses oppositely disposed to the recesses in the side of the slot in the casing respectively, a plurality of perforated disk valves rotatably mounted in the casing upon oppositely disposed trunnions respectively, the end walls of corresponding recesses in the sides of the slots in the sleeves and casing constituting bearings for a respective trunnion of each valve, whereby the rotation of said sleeve so as to bring the longitudinal slot thereof in registration with the longitudinal slot of the casing will permit the removal of the disk valves and their trunnions from the casing.

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

ALDEN WALTER PORTER.

Witnesses:
LEE LOCKWOOD,
B. B. LOCKE.