May 16, 1944. F. K. BATCHELOR ET AL 2,348,706

MUFFLER

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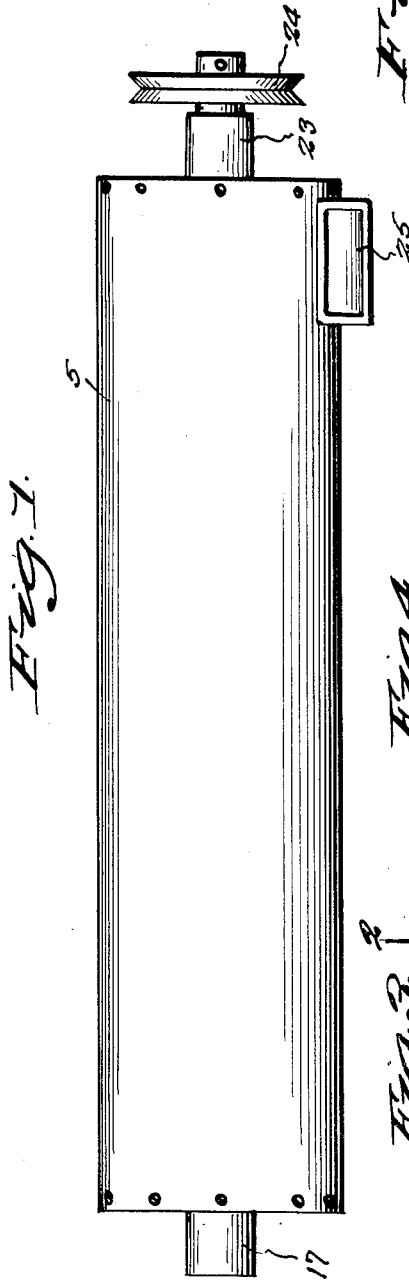


Fig. 1.

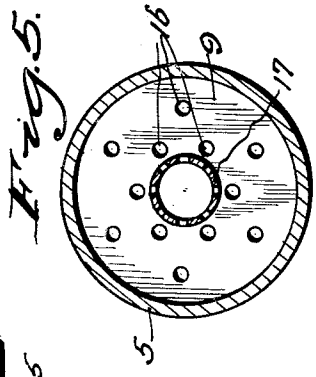


Fig. 5.

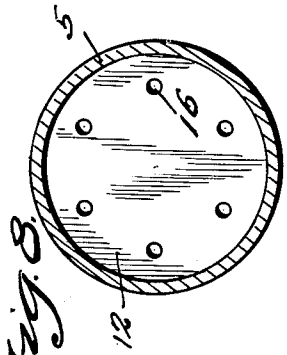


Fig. 8.

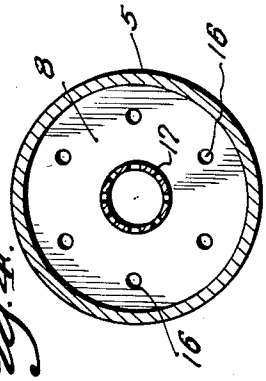


Fig. 4.

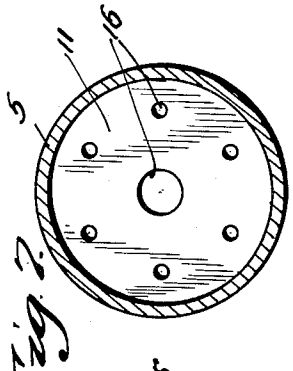


Fig. 7.

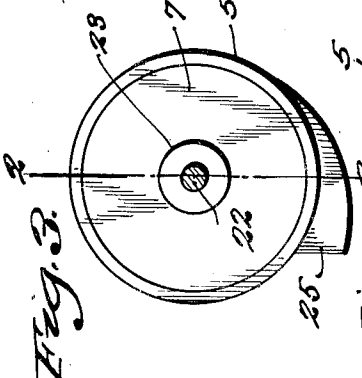


Fig. 3.

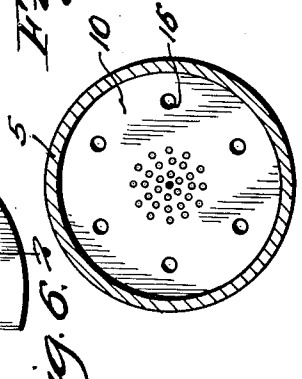


Fig. 6.

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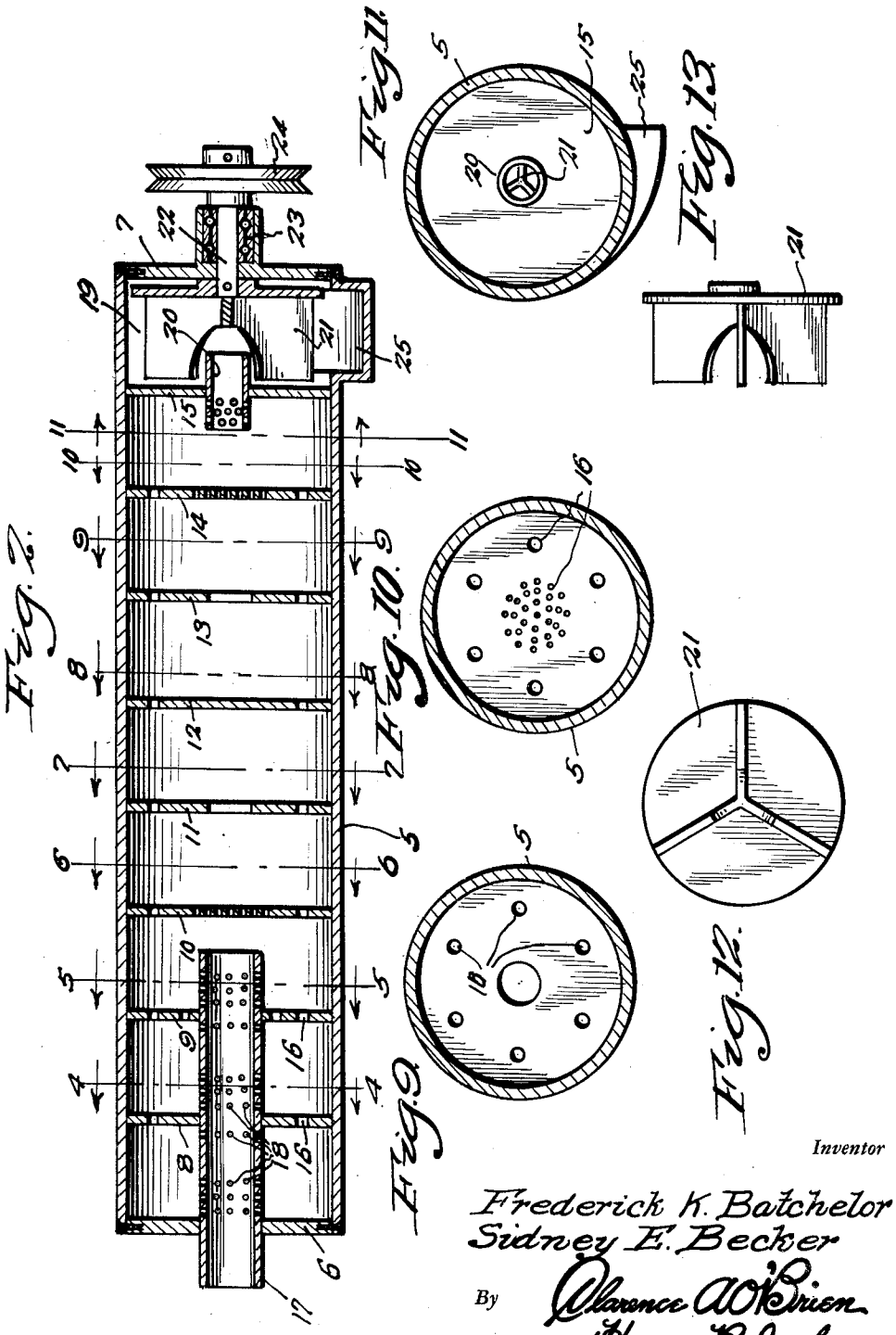


Fig. 1.

Fig. 11.

Fig. 13.

Fig. 10.

Fig. 9.

Fig. 12.

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UNITED STATES PATENT OFFICE

2,348,706

MUFFLER

Frederick K. Batchelor and Sidney E. Becker,
Huntington Park, Calif.

Application June 9, 1943, Serial No. 490,216

2 Claims. (Cl. 181—64)

The present invention relates to new and useful improvements in mufflers for internal combustion engines or similar power plants and has for its primary object to provide suction means in the muffler adapted to overcome back pressure and improve the efficiency of the muffler as well as the motor.

A further object is to provide a device of this character of simple and practical construction, relatively inexpensive to manufacture and otherwise well adapted for the purposes for which the same is intended.

Other objects and advantages reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming part hereof, wherein like reference numerals refer to like parts throughout, and in which:

Figure 1 is a side elevational view.

Figure 2 is a longitudinal sectional view.

Figure 3 is an end elevational view.

Figures 4 to 11, inclusive, are transverse sectional views taken respectively on the lines 4—4; 5—5; 6—6; 7—7; 8—8; 9—9; 10—10; and 11—11 of Figure 2.

Figure 12 is an end elevational view of the suction fan, and

Figure 13 is a side elevational view thereof.

Referring now to the drawings in detail, the numeral 5 designates a cylindrical casing having one end closed by an end plate 6 and its other end closed by an end plate 7.

A plurality of baffle plates 8, 9, 10, 11, 12, 13 and 14, are secured in the casing in spaced relation, each plate having openings 16, most of which are staggered with respect to each other as shown in Figure 2.

A tube 17 is inserted through the end plate 6 and also projects through the adjacent baffle plates 8 and 9. The sides of the tube within the casing are perforated as shown at 18, and the outer end of the tube is adapted for attaching to the exhaust pipe of the engine in any suitable manner.

Adjacent the end plate 7 and spaced therefrom is an imperforate plate 15 forming a fan chamber or housing 19 in the casing, the plate 15 having a tube 20 extending therethrough and extending into the chamber 19. The front end of the tube 20 is also perforated in its side walls.

A suction fan 21 is operatively mounted in the chamber 19 by means of a shaft 22 journaled in the end plate 7 and also journaled in a bearing housing 23 projecting outwardly from the plate 7. A pulley or other suitable driven element 24 is secured on the outer end of the shaft 22 and adapted for operation from a suitable part of the engine.

A lateral discharge port 25 is connected to one side of the chamber 19, and curved circumferentially.

In the operation of the device the suction created in the casing by the fan pulls the exhaust gases through the baffle plates and facilitates its passage therethrough as well as preventing back pressure therein.

It is believed the details of construction, operation and manner of use of the device will be readily understood from the foregoing without further detailed explanation.

Having described the invention, what is claimed as new is:

1. A muffler comprising a cylindrical casing closed at each end, a plurality of perforated baffles arranged in spaced relation in the casing, an attaching tube projecting through one end of the casing for attaching to an engine exhaust pipe, said tube being open at each end and extending through at least one of the baffles and having perforated walls at its inner end behind the baffles, an imperforate plate secured in the casing adjacent its other end and forming a chamber having an outlet in one wall of the casing, a suction fan mounted in the chamber, means attached to the fan outwardly of the casing to form a drive connection for the fan, and a tube in the imperforate plate providing communication between the interior of the casing and the chamber.

2. A muffler comprising a cylindrical casing closed at each end, a plurality of perforated baffles arranged in spaced relation in the casing, an attaching tube projecting through one end of the casing for attaching to an engine exhaust pipe, said tube being open at each end and extending through at least one of the baffles and having perforated walls at its inner end behind the baffles, an imperforate plate secured in the casing adjacent its other end and forming a chamber therein, a paddle-wheel type suction fan mounted in the chamber, a circumferentially curved discharged port in one side of the chamber extending in the direction of travel of gases under the influence of the fan, a drive attachment for the fan, and a tube in the imperforate plate providing communication between the interior of the casing and the chamber, said fan having notches in the edges of its blades adjacent the imperforate plate to form a recess axially of the fan and said last-named tube projecting into said recess to discharge gases passing through the muffler at a point substantially midway of the side edges of the blades of the fan.

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