

No. 881,723.

PATENTED MAR. 10, 1908.

R. SCHEIBE.
SEPARATOR.

APPLICATION FILED MAY 29, 1906.

2 SHEETS—SHEET 1.

Fig. 1.

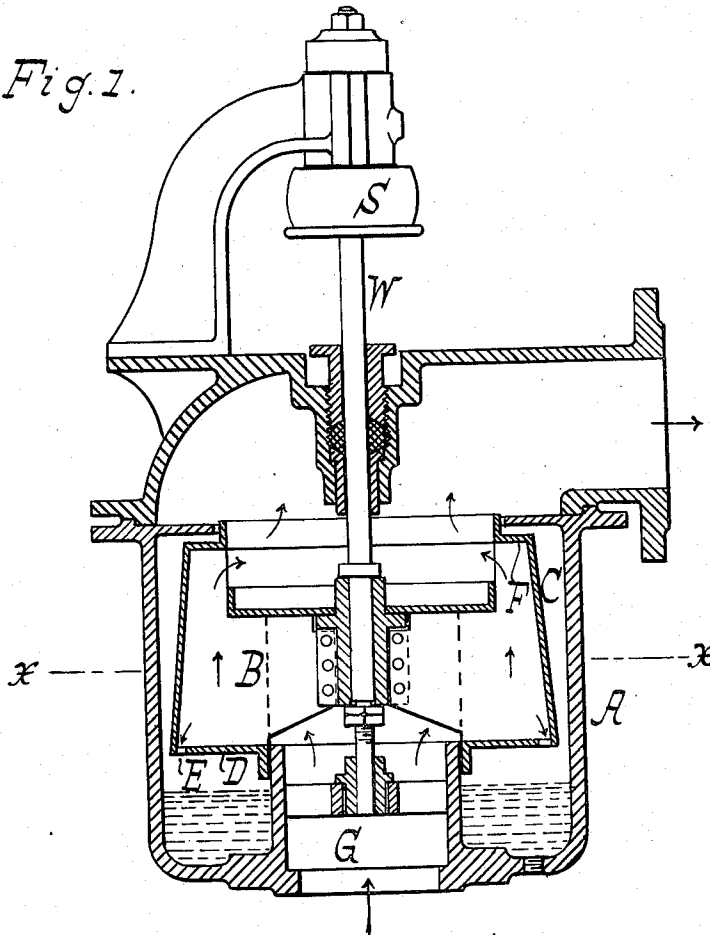
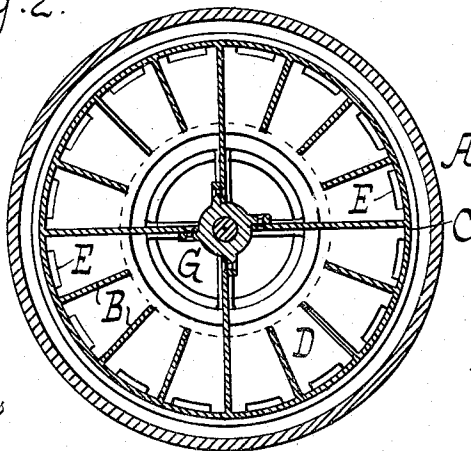


Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 3.

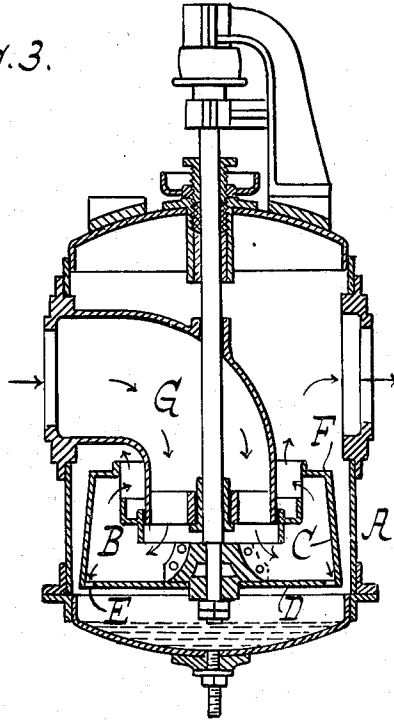
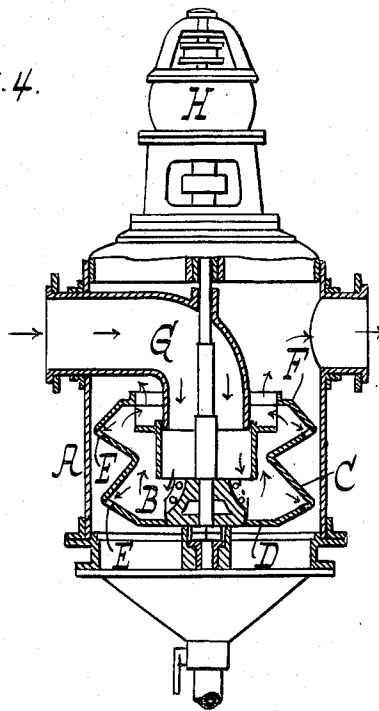


Fig. 4.



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No. 881,723.

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To all whom it may concern:

Be it known that I, ROBERT SCHEIBE, a subject of the Emperor of Germany, residing at Leipzig, in the Kingdom of Saxony and German Empire, have invented new and useful Improvements in Separators, of which the following is a specification.

According to this invention foreign matters such for example as dust, water, oil, heavy hydrocarbons, smoke, heavy gases and the like are to be removed or separated from gaseous bodies or vapors by means of a blast between the point of origin and the delivery or point of consumption.

The invention is specially adapted to removing foreign or heavy matter from steam in steam engines.

This invention is set forth in the following specification and claim illustrated in the annexed drawing, in which:

Figure 1 shows a vertical section of a separating device embodying this invention. Fig. 2 is a section along $x-x$ Fig. 1. Figs. 3 and 4 show modifications.

Heavy mixtures of fluids are separated by centrifugal action. This result according to this invention, is to be effected in like manner by a blast applied to gaseous bodies.

The separation of fluid, solid or gaseous particles from gaseous bodies by passing the same through a blade separator whose rotary blades throw the mixture against a stationary housing is well known. This arrangement however has a disadvantage since the separated heavier particles are easily carried forward again by the current of gas.

By allowing the housing to likewise rotate it is true that the velocity in the direction of the gas current of the separated particles adhering to and rubbing against the inner housing surface can be more or less diminished. But to separate these particles from the gas current as rapidly and simply as possible, the rotary housing at its circumference or edge is more or less perforated and these openings are to lead to a closed space outside the gas current. This space is closed toward the outside so that no gas can escape nor air enter into the conduit.

To prevent the purified gas as it leaves the drum from carrying with it the separated particles, the exit side of the drum at its circumference has a ring shaped cover F. Hence the gas before it leaves the housing or drum is made to approach the axis of rota-

tion. Furthermore if a layer of separated particles accumulates in the drum such layer will add to the centrifugal pressure of the separated particles nearest to the outlet opening in the drum and hasten the outflow.

In the apparatuses hitherto known for this purpose and having a rotating drum the manner of leading off the separated particles is unsatisfactory. In these prior apparatuses it is hardly possible to remove the glairy substances without aid of a rinsing fluid and dry dusty components cannot be removed by dry process in these apparatuses. To avoid this objection the present invention has the drum formed conically and the openings in the same at the points of greatest distance from the axis of rotation. In this manner the separated foreign matter as thrown to the drum wall, are caused to slide by centrifugal force along the wall of the drum to the outlet openings.

According to the nature of the separated particles the inner wall face of the drum is more or less tapered and according to the velocity of the passing vapor the drum is of more or less length. Thus according to circumstances the generating line of the inner face of the drum is given varying forms, either straight lined, broken or zig zag or a desired curve or other forms.

According to the construction Figs. 1 and 2 a blade or paddle wheel B is connected to a surrounding mantle C. This mantle or ring C flares toward its lower part or toward the bottom D. Between the bottom and the mantle C are openings E. At its upper part the blades B are partly covered by a ring F. The collecting reservoir A forms part of the conducting tubes or rests. The blades have shaft W rotated by pulley S. The entry for the gas is at G and such gas or vapor with foreign matter moves in the direction of the arrows through between the rapidly rotating blades. Being thus hurled by centrifugal force against the inner face of mantle C the foreign matter or heavier particles cling to the inner face of the mantle and the accumulation flowing down escapes through openings E to the bottom of reservoir A. The flaring mantle C facilitates the separation. The annular cover F deflects the flow and under such cover can rest a layer of gas or vapor.

In the modification Fig. 3 the gas enters and leaves laterally instead of vertically.

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In Fig. 4 the wall C instead of being straight is broken or zig zag to give the required flares.

In Figs. 3 and 4 the entrance and exit of the vapor take place on the same or upper side of the mantle C. Rotation can be given by a pulley or by a motor H or by other means.

What I claim as my invention and desire to secure by Letters Patent, is:—

1. A separator for removing foreign elements from gaseous bodies, comprising a blade ventilator and a mantle having a common axis of rotation said mantle being centrally open at its top and bottom and suitably open or perforated at its circumference or front, and an exteriorly closed chamber with conduit into which said circumferential perforations are made to lead.

2. A separator for removing foreign elements from a current of gaseous bodies, comprising a blade ventilator and a flaring mantle rotated about a common axis by said

current, said mantle being centrally open at its top and bottom and open at its circumference and an exteriorly closed chamber communicating with said circumferential mantle opening.

3. A separator for removing foreign elements from a current of gaseous bodies, comprising a blade ventilator and a flaring mantle rotated about a common axis by said current, said mantle being centrally open at its top and bottom and open at its circumference at the points furthest from the axis of rotation and an exteriorly closed chamber communicating with said circumferential mantle opening.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

ROBERT SCHEIBE.

Witnesses:

RUDOLPH FRICKE,
ARTHUR DORNAÜ.