

940,141.

D. FOGARTY.
DUST SEPARATING TANK.
APPLICATION FILED JULY 11, 1908.

Patented Nov. 16, 1909.

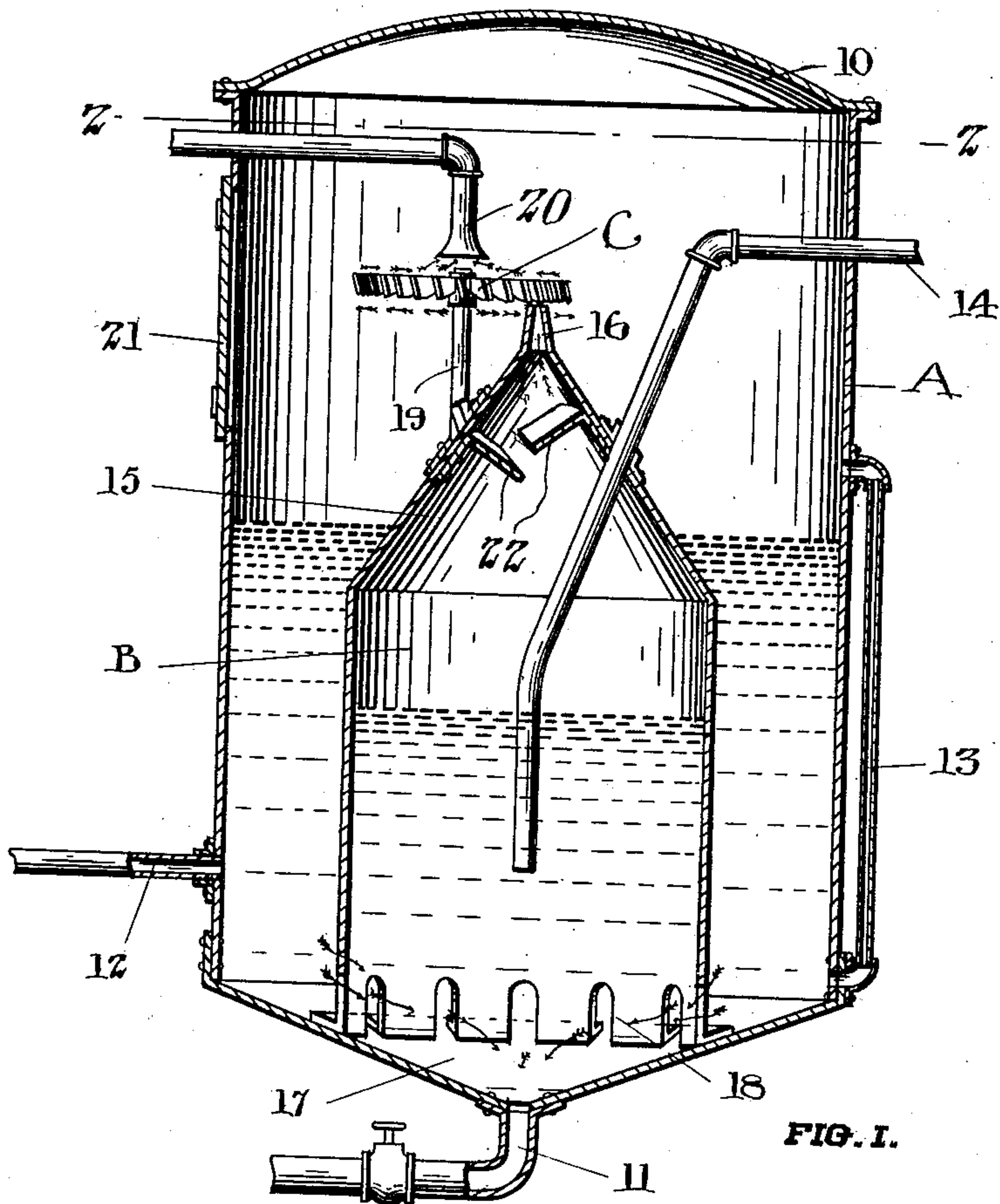


FIG. 1.

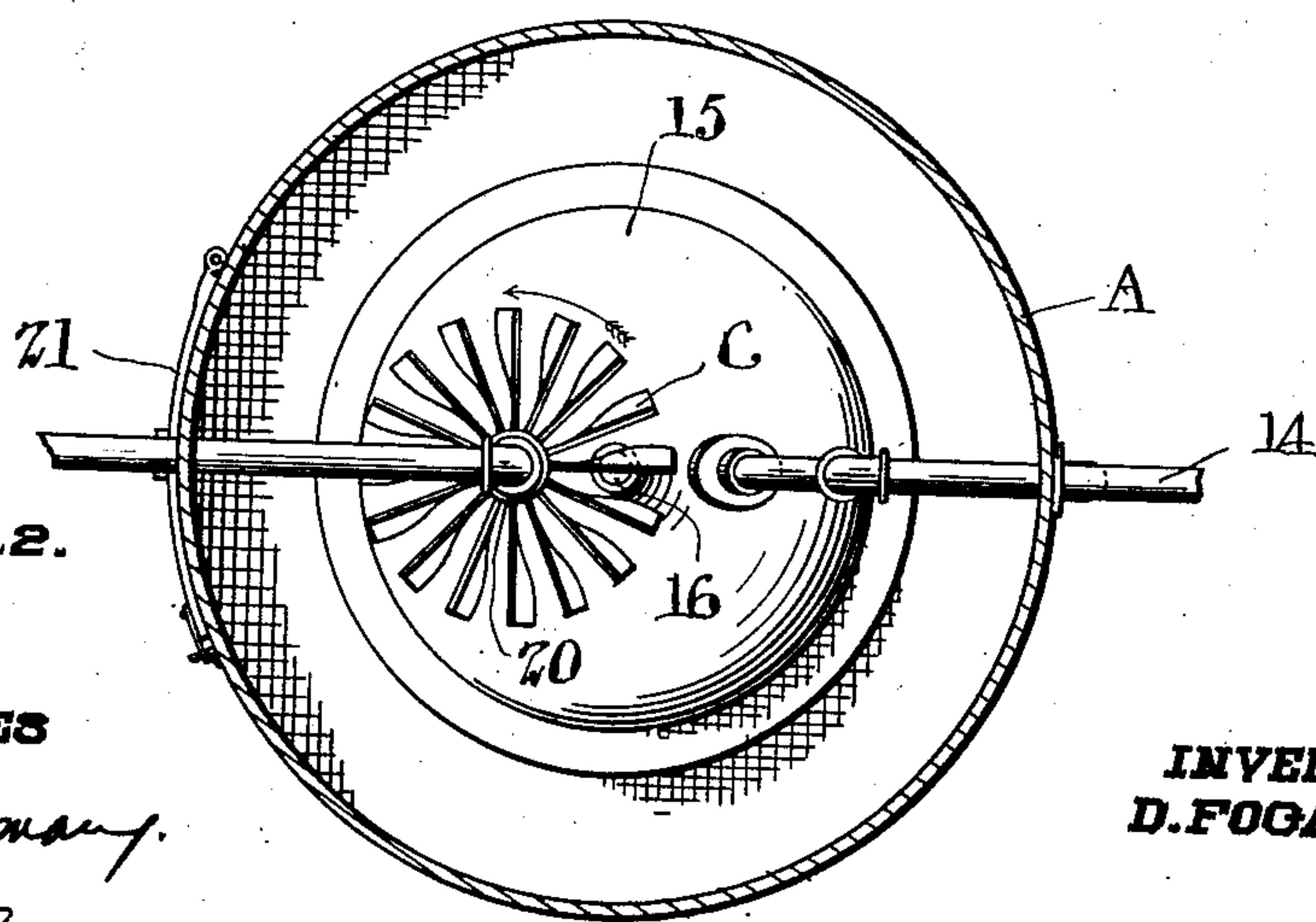


FIG. 2.

WITNESSES

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DANIEL FOGARTY, OF OTTAWA, ONTARIO, CANADA.

DUST-SEPARATING TANK.

940,141.

Specification of Letters Patent.

Patented Nov. 16, 1909.

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To all whom it may concern:

Be it known that I, DANIEL FOGARTY, of the city of Ottawa, in the county of Carleton, Province of Ontario, Dominion of Canada, have invented certain new and useful Improvements in Dust-Separating Tanks, of which the following is a specification.

My invention relates to dust separating tanks, of the type in which the dust-laden air is passed through a liquid; and its objects are to provide effectual means for freeing the air which is passed through the liquid from any remaining dust particles and from the liquid itself, whereby the difficulty hitherto experienced of the water and dust being drawn into the exhausting pump may be eliminated.

In carrying out the invention, the dust-laden air is passed into the liquid by a downwardly directed pipe and after passage through the liquid is given a definite direction by means of a nozzle member. A rotary member is disposed in front of the current of air passing through the nozzle, adapted to be turned thereby, thereby imparting a centrifugal movement to the air which separates the moisture and dust particles therefrom. The exhaust nozzle is located at substantially the center of this rotary member and above the same, whereby the direction of the exhausting air will be different from that of the dust-laden air, all as hereinafter more fully set forth and described in the accompanying specification and drawings.

In the drawings,—Figure 1 is a vertical section through the apparatus. Fig. 2 is a section along the line 2—2, Fig. 1.

In the drawings like letters and figures of reference indicate corresponding parts in each figure.

Referring to the drawings, A represents the casing of any suitable construction, preferably with a removable cover 10 and a valved sludge outlet pipe 11. A suitable inlet pipe 12 may be provided for the separating liquid, together with a gage pipe 13 on the side to determine the height of the liquid.

14 represents the pipe which leads from the vacuum separating apparatus, and through which the dust-laden air passes. This extends through the casing and is then turned downwardly and discharges beneath the surface of the separating liquid, which is preferably water. The discharge end of this pipe is surrounded by an air directing

member B formed with an upper conical portion 15 and discharge nozzle 16 adapted to give a definite direction to the air which passes out the end of the pipe 14 and bubbles upward through the liquid. This member is somewhat less in diameter than the casing and is supported on the inclined bottom 17 thereof.

To enable the sludge to pass through the outlet pipe, apertures 18 are formed in the bottom of the member B and to guard against the upward splashing of the water, baffle plates 22 may be provided near the top of the interior.

Immediately above the nozzle 16, a rotary fan member C is provided, adapted to be rotated by the air discharging from the nozzle 16 which impinges on the ends of the blades thereof. This member may be supported in a suitable manner, as from the shaft 19 on the member B. Immediately above the center of this member, the opening of the outlet pipe 20 is provided which leads to the exhausting pump.

For convenience in repairing or adjusting the fan member C, a door 21 may be provided in the side of the casing.

In operation, the air is exhausted through the pipe 20. This sucks the dust-laden air through the pipe 14 and it bubbles upwardly through the water, the greater portion of the dust being separated in so doing. Passing upward through the member B and nozzle 16 it is formed into a definite current and rotates the fan member C by impinging on the blade, and the rotation of this fan member creates a centrifugal movement in the air current causing the moisture carried by the air and any remaining dust particles to be thrown on the outside of the casing, whence it will drop downwardly into the liquid again. At the same time, the air is drawn into the pipe 20 above the center of the fan member, and thus it results that the dust-laden and moist air is being driven in one direction by the fan while the dry and clean air is being sucked into the exhaust pipe 20 in another direction.

As many changes could be made in the above construction, and many apparently widely different embodiments of my invention could be made without departing from the spirit or scope thereof, it is intended that all matter contained in this specification and drawings shall be interpreted as illustrative and not in a limiting sense. It is

also to be understood that the language of the following claims is intended to cover such generic and specific features of the invention herein described which, as a matter of language might be said to be included thereby.

It will be observed that my mode of separating by the rotary member does away with the necessity of all screens which have hitherto been used in this type of apparatus, and which are exceedingly difficult to keep in working condition owing to the clogging action of the dust particles.

What I claim as my invention is:

15 1. A dust separating tank, including means for passing the dust-laden air through a liquid, means for giving direction to the current after passage through the liquid, a rotary member interposed in the path of
20 said current adapted to be turned solely by the same, and being adapted to impart a

centrifugal movement to the particles of the current, and an exhaust nozzle above the center of the rotary member adapted to create an exhausting current in alinement with the axis of the rotary member. 25

2. A dust separating tank including a liquid containing casing, a downwardly discharging pipe for the dust-laden air, a member surrounding the same having a discharge nozzle adapted to give direction to the air which bubbles through the liquid, a fan supported with the end of the blades extending in the path of the air discharged from the nozzle and an exhaust nozzle above the center of the fan. 30 35

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

DANIEL FOGARTY.

Witnesses:

RUSSEL D. SMART,
CARMEL W. CAMERON.