

J. F. FERNOCH & R. L. BAKER.
CENTRIFUGAL SEPARATOR FOR DUST COLLECTING SYSTEMS.
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1,116,403.

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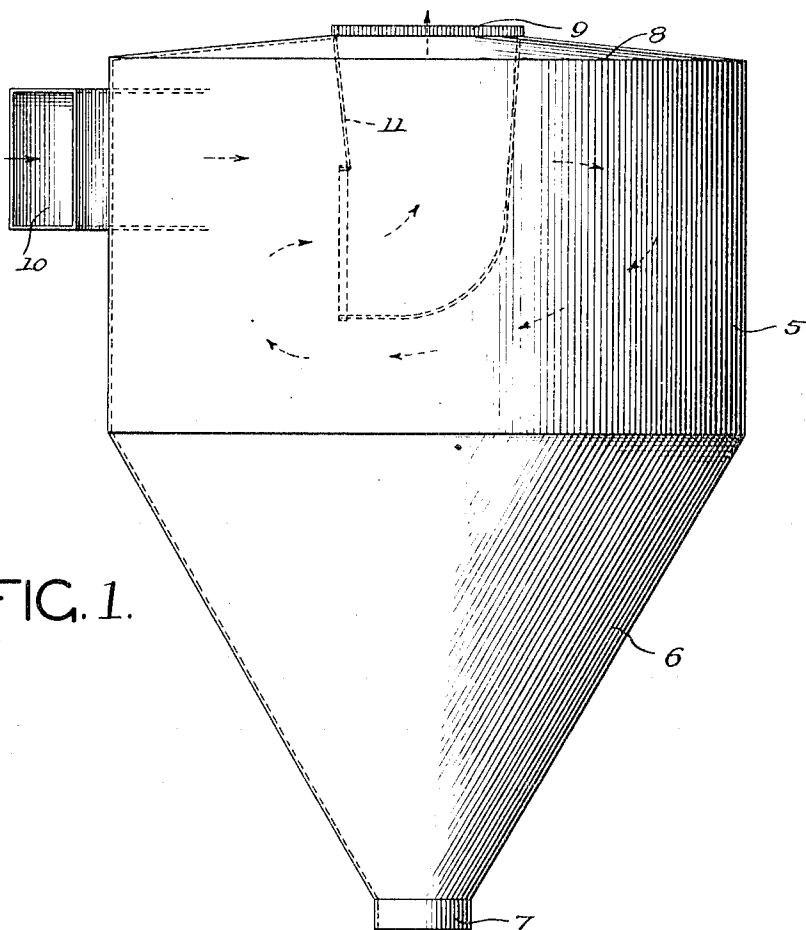


FIG. 1.

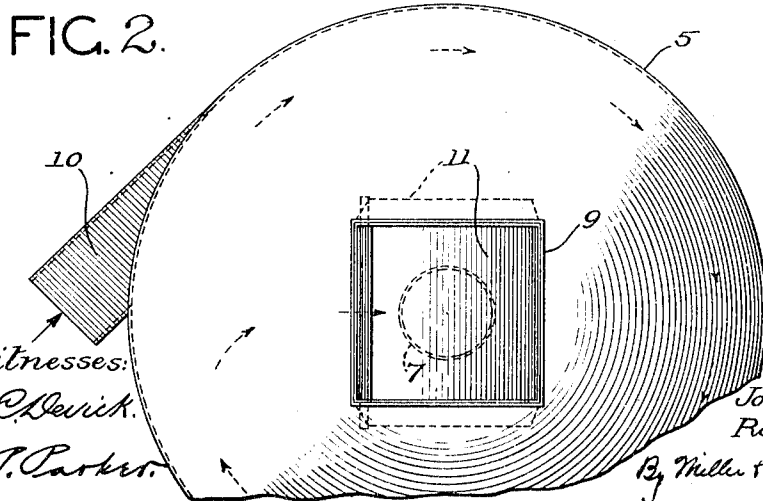


FIG. 2.

Witnesses:
J. C. Devick.
C. T. Parker.

Inventors:
Joseph F. Fernoch,
Ralph L. Baker,
By Miller & Christensen
Attys.

UNITED STATES PATENT OFFICE.

JOSEPH F. FERNOCH AND RALPH L. BAKER, OF CHICAGO, ILLINOIS, ASSIGNORS TO
U. S. STEEL TANK & PIPE COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF
ILLINOIS.

CENTRIFUGAL SEPARATOR FOR DUST-COLLECTING SYSTEMS.

1,116,403.

Specification of Letters Patent.

Patented Nov. 10, 1914.

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To all whom it may concern:

Be it known that we, JOSEPH F. FERNOCH and RALPH L. BAKER, citizens of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Centrifugal Separators for Dust-Collecting Systems, of which the following is a specification.

10 This invention relates to centrifugal separators of the general type commonly employed in dust collecting systems for separating the dust, shavings, or other foreign matter from the current of air. In such
15 separators the dust-laden air is introduced tangentially into the circular chamber of the separator, the foreign matter carried by the air being forced by centrifugal action to the outer side of the chamber and then
20 descending through an outlet in the lower end of the chamber, while the purified air escapes through a central outlet at the upper side of the chamber.

It is the object of our invention to provide novel and improved means located centrally of the separator casing and adapted to break up the gyratory current of air at the center of the vortex and cause the air to pass in a steady stream out through the exit
30 opening. In this way we eliminate the danger of the outgoing air current carrying with it any of the foreign matter brought into the casing, and we also insure that the outflowing current shall occupy the entire
35 cross section of the exit passage, so as to prevent any in-rush of air to cause back pressure upon the fan. We accomplish this result by providing a tubular conduit depending from the exit opening at the top of the
40 separator, said conduit being elbow-shaped, or in other words, being closed at its lower end and having an inlet opening in one side thereof adjacent to the lower end. This elbow-shaped conduit insures the proper
45 exit of the air as will be more fully later described.

In the accompanying drawings Figure 1 is a side elevation of a centrifugal separator embodying the features of our invention.
50 Fig. 2 is a top plan view thereof with parts broken away.

The separator may be of any suitable form, being herein shown as consisting of a cylindrical body 5, having a subjacent

conical portion 6 provided with a dust outlet 7 at the lower end or apex of the cone. The upper end of the cylindrical body 5 is closed by a top wall 8 which is also preferably conical in form but of low pitch. At the center of this top wall 8 is an outlet 9
55 through which the purified air escapes from the casing 5.

The dust-laden air is introduced into the separator casing through an inlet pipe 10 disposed tangentially with respect to the
65 cylindrical body 5. As the air enters the casing it passes in a gyratory path about the wall thereof and under the action of centrifugal force the dust and other foreign matter carried by the air will be thrown against
70 the wall of the casing and will descend by gravity, and pass into the conical portion 6 and escape through the outlet 7.

Our improved means for controlling the action of the air in passing through the outlet 9 comprises a conduit 11, which depends
75 from the top wall 8 and is secured thereto adjacent to the periphery of the outlet 9. This conduit is in the shape of an elbow, the inlet opening thereto being at one side of the
80 conduit and the opposite side and the lower end thereof being preferably merged in a curve as clearly shown in Fig. 1. In its preferred form the conduit 11 is rectangular
85 in shape, which assists in obstructing whirling motion of the air. After the dust-laden air current has deposited its foreign matter it works inwardly toward the center of the casing 5 and upon striking the conduit 11, the gyratory current is broken up to some
90 extent and is further broken up when the air passes into the inlet opening of the conduit 11, and flows upwardly therein. In passing out of the casing 5 the air current is obliged to make several turns, by reason of
95 which its gyratory action will be effectively stopped and the air will pass up through the conduit 11 and out the opening 9 in a steady stream filling said conduit.

We claim as our invention:

1. A centrifugal dust separator comprising a casing having a central outlet, and an elbow-shaped conduit communicating with said outlet and projecting centrally into said casing.
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2. A centrifugal dust separator comprising a cylindrical casing having an outlet in its upper wall, and a conduit depending
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from said outlet centrally within the casing, said conduit being closed at its lower end and having an inlet opening at one side.

3. A centrifugal dust separator comprising a cylindrical casing having an outlet therein, a conduit communicating with said outlet and positioned centrally within said casing, said conduit being rectangular in shape, having its inner end closed, and having an outlet opening thereinto in one of its sides.

4. A centrifugal dust separator comprising a cylindrical casing, an inlet pipe communicating tangentially therewith, said casing having an outlet centrally in its upper

wall, and having a dust outlet in its lower end, and a conduit positioned centrally within said casing and having its upper end secured to said upper wall about the periphery of said air outlet, the lower end of said conduit being closed and said conduit having an opening for the air in one of its sides.

In testimony whereof we hereunto set our hands in the presence of two witnesses.

JOSEPH F. FERNOCH.
RALPH L. BAKER.

In the presence of--

I. W. FOWLER,
O. E. ZUTTERMEISTER.