

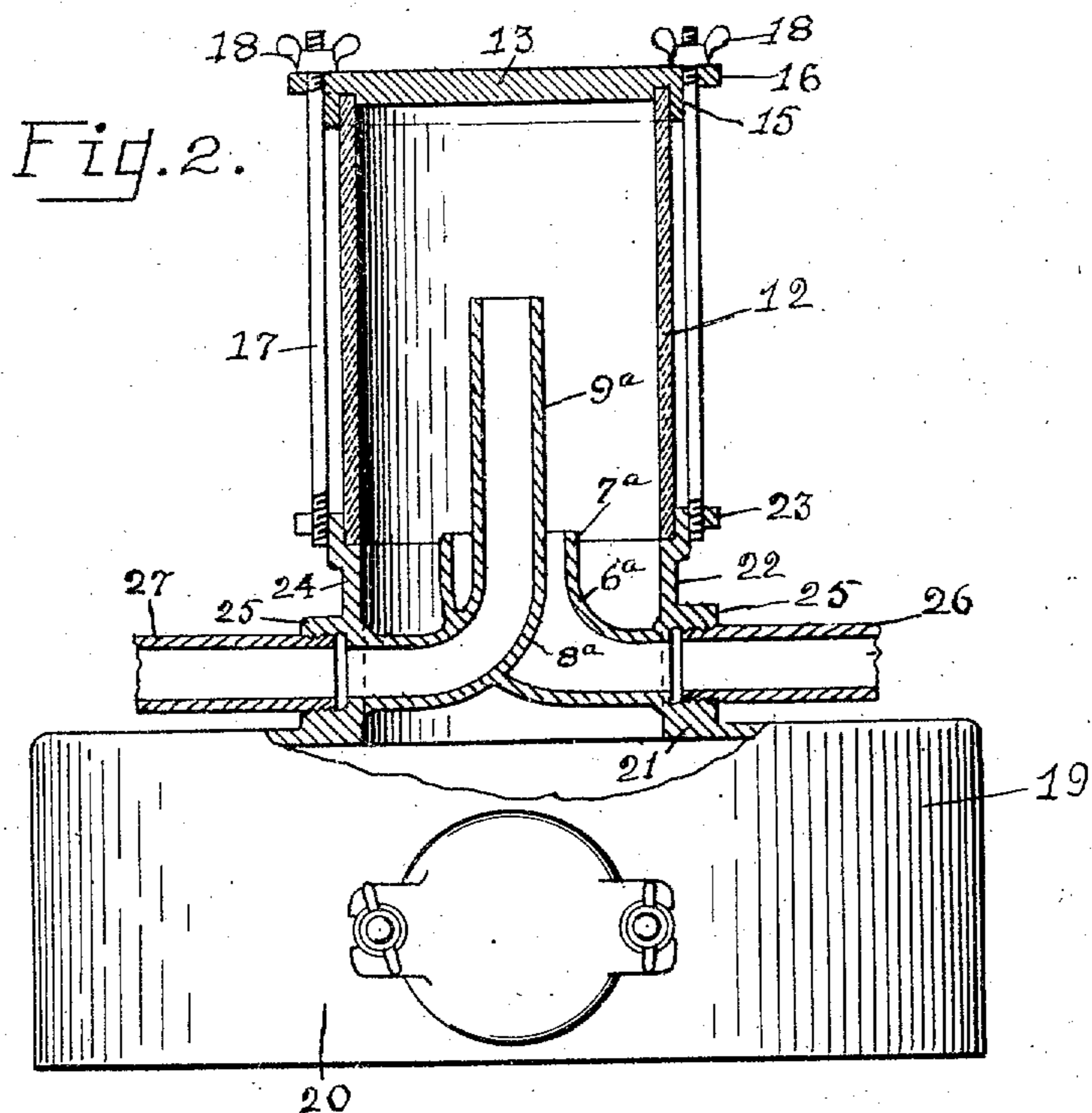
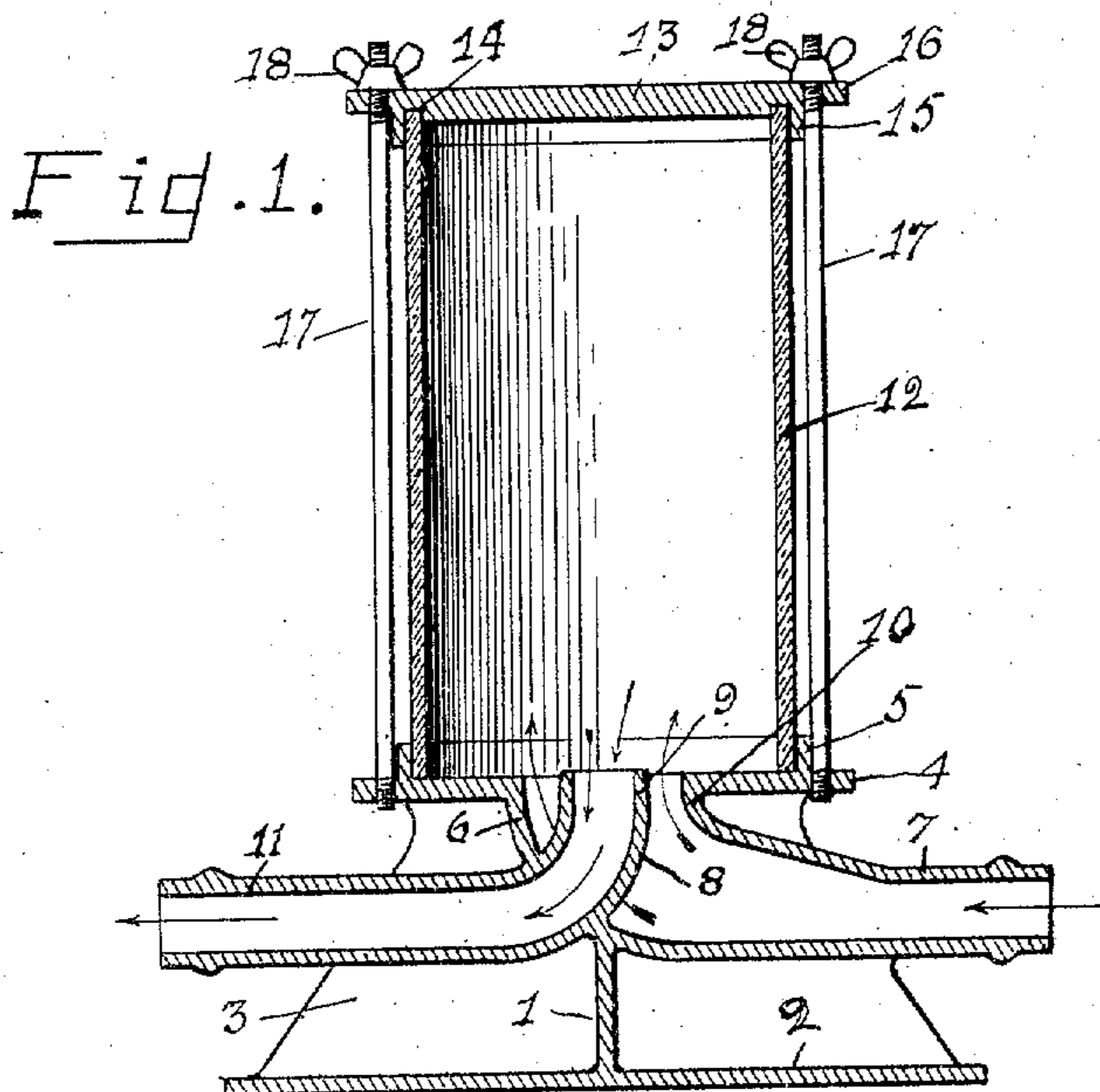
No. 881,195.

PATENTED MAR. 10, 1908.

W. F. MOUGHLER.

SIGHT GLASS AND SEPARATOR FOR PNEUMATIC RENOVATORS.

APPLICATION FILED MAR. 2, 1907.



WITNESSES:

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UNITED STATES PATENT OFFICE.

WILLIAM F. MOUGHLER, OF TOLEDO, OHIO, ASSIGNOR TO THE VACUUM AND COMPRESSOR COMPANY, OF WAUSEON, OHIO, INCORPORATED.

SIGHT-GLASS AND SEPARATOR FOR PNEUMATIC RENOVATORS.

No. 881,195.

Specification of Letters Patent.

Patented March 10, 1908.

Original application filed January 11, 1906, Serial No. 295,547. Divided and this application filed March 2, 1907. Serial No. 360,243.

To all whom it may concern:

Be it known that I, WILLIAM F. MOUGHLER, a citizen of the United States, residing at Toledo, in the county of Lucas and State of Ohio, have invented a new and useful Improvement in Sight-Glasses and Separators for Pneumatic Renovators, of which the following is a specification.

My invention relates to a sight glass and separator for pneumatic dust renovators, and has for its object to provide a device of the kind that is adapted to be coupled into the pipe connection to a suction tool used for the extraction of dust from surfaces or material, whereby the dust laden air as it is drawn through the connection is, by means of a vortex movement of the air produced in the glass, whirled around the inner periphery of the glass, and then drawn into the central axis of the vortex and through the continuation of the connection, and thereby rendering the condition of the air passing through the tool more readily observable.

A further object is to provide a sight glass of the kind described with a hollow base, adapted to receive and retain the heavier particles of the dust carried by the air into the glass and thereby permit only the finer and more impalpable particles to be carried through the continuation of the connection.

In a prior application, Serial No. 295,547, I have shown my invention as connected into a dust removing, separating and collecting system, but my invention is not therein claimed, and is now made the subject of this divisional application.

I accomplish the objects of my invention by the construction and combination of parts hereinafter described, and illustrated in the drawings, in which

Figure 1 is a vertical longitudinal section of a sight glass constructed in accordance with my invention, and Fig. 2 is a similar view of a modified form of my invention showing a sight glass mounted on a hollow base, and adapted to separate and retain the heavier portions of the dust.

In the drawings 1 is a stand, preferably formed of a single casting, and comprising the base 2, the side trunnions 3, integral with the base, the circular top 4 integral with the standards, having the annular seat flange 5,

and the central tubular elbow inlet 6, preferably integral with the top 4; and extending downward and outward between the standards parallel with the base, and having its outer end portion 7 fitted for coupling thereto, a suitable pipe connection with a suction tool (not shown), and having an outlet tubular elbow 8, preferably integral with the elbow 6, the inner end portion 9 of which is of reduced diameter and extends concentrically upward through the upper end portion 10 of the inlet elbow 6, and the outer portion 11 extending oppositely and in line with the outer end portion 7 of the intake elbow 6. The outer end portion 11 of the outlet elbow 8 is also fitted to be coupled to a suitable pipe connection to the intake of the suction pump or other means of producing a vacuum.

On the top of the stand is mounted a glass cylinder 12 of a diameter to telescopically fit into the seat flange 5, and to the top end of the cylinder is fitted a closure head 13, having an annular groove 14 of a diameter to receive the top end of the cylinder, and a flange 15 concentric to the groove to telescopically receive the cylinder. The top 4 is also provided with a periphery flange 16, perforated at intervals to receive the bolt rods 17 which extend downward to the top 4, of the stand, and have their lower end portions threaded and run into threaded orifices in the top 4, and upon threaded top end portions of the rods are run the thumb nuts 18 by which the head 13 is closely compressed upon the top end of the cylinder 12.

Thus constructed, and having the outer end of the elbow 6 coupled to the connection to the suction tool, and the outer end of the elbow 8 coupled to the connection to the suction pump, when the pump is operated, the air is exhausted from the glass cylinder, centrally in line with the opening to the elbow 8, forming a vacuum which produces a vortex movement of the air in the cylinder, similar to the vortex movement produced in a body of water by an open vertical spout, which vortex movement is maintained by the air drawn through the tool to supply the vacuum that is produced in the glass, and the tool being moved about over a dusty surface, the inrush of air carries through the tool and the connection to the stand, the dust that

is in the path of the air, and the dust laden air, when it reaches the sight glass is whirled about the inner periphery of the glass by the vortex movement of the air until it is finally
 5 drawn into the axis of the vortex, and through the elbow 8 and its connection.

When used as a sight glass alone, as shown in Fig. 1, all the dust is finally drawn through the elbow 8 and its connection. But, preferably, I use my sight glass in combination with a receiving base 19, in the modified form of my invention shown in Fig. 2, wherein there is substituted for the stand 1, the base 19, comprising the cylinder 20,
 15 having a top closure 21, provided with the central cylindrical sight glass base 22, having the flange 23 concentric to the top, and thickening the wall 24 of the base 22, which is counterbored to telescopically receive flush
 20 with the inner wall, the lower end of the sight glass cylinder 12.

The base 22 is provided with the tubular elbows 6^a and 8^a, the outer end portions of which are preferably integral with the base
 25 22, at opposite diametric points of the base 22, the elbow 8^a having an upper end portion 9^a concentric to the large upper end portion 7^a of the elbow 6^a, and curved downward through the elbow 6, and the wall of the
 30 base 22 is provided with outer enlargements or bosses 25, opposite the outer ends of the elbows, which are bored and counterbored and internally threaded for coupling thereto respectively the connection 26 to the suction
 35 tool, and the connection 27 to the suction pump or other means of producing a vacuum. The sight glass 12 is provided with a top closure 13, constructed as shown in Fig. 1, and secured by the rods 17 to the flange 23
 40 of the base 22. When the sight glass is thus mounted on a receiving base and connected as aforesaid, the centrifugal movement of the air in the glass throws the heavier particles of the dust drawn in with the air out-
 45 ward beyond the upward moving current through the elbow 6^a, and the indrawing influence of the vortex created by the elbow 8^a, and by reason thereof, and its greater weight, the heavier dust descends into the base
 50 cylinder 20, where it is retained and from which it may be removed as required by means of the door 28, closing a suitable opening formed in the side of the base.

What I claim to be new is—

1. In a sight glass for pneumatic renova- 55
 vators, a transparent cylinder having closed ends, a tube extending centrally into one end of the cylinder, and forming an inlet for the cylinder, a tube extending from the same end of the cylinder, and forming an outlet for the
 60 cylinder, the outlet tube having its inner end portion concentric to the inner end portion of the inlet tube, the outer end portions of the inlet and outlet tubes being adapted to be connected into and as parts of the passage 65
 for the transmission of air currents induced by a vacuum.

2. In a sight glass and separator for pneumatic renovators, the combination of a glass cylinder, a support for the cylinder adapted 70
 to inclose the lower end of the cylinder, a closure for the top end of the cylinder, a tubular inlet for the cylinder extending upward through the support axially into the lower end of the cylinder, and a tubular out- 75
 let for the cylinder extending downward through the support from the lower end of the cylinder, and having an open inner end concentric to the open inner end of the tubular inlet, the outer end portions of the tubular 80
 inlet and outlet being adapted for the connection of the inlet and outlet into and as a part of a pipe line used for transmission of dust laden air currents induced by a vacuum, substantially as set forth. 85

3. In a sight glass for pneumatic renovators, the combination with a stand top, of a glass cylinder mounted endwise on the stand top, a closure for the top end of the cylinder, a tubular inlet to the cylinder ex- 90
 tending through the stand top axial to the cylinder, and a tubular outlet from the cylinder having its inner end concentric to the open inner end of the tubular inlet, the outer ends of the tubular inlet and outlet being 95
 adapted for the connection of the inlet and outlet into and as a part of a pipe line used for the transmission of dust laden air currents induced by a vacuum.

In witness whereof, I have hereunto signed 100
 my name in the presence of two subscribing witnesses, this 27th day of February, 1907.

WILLIAM F. MOUGHLER.

In presence of—

WM. J. FRITSCHÉ,

WALTER J. TOEPFER.