I. H. SPENCER.

PNEUMATIC DUST SEPARATOR.

APPLICATION FILED JAN. 29, 1907.

999,269. Patented Aug. 1, 1911.

Fig. 1.

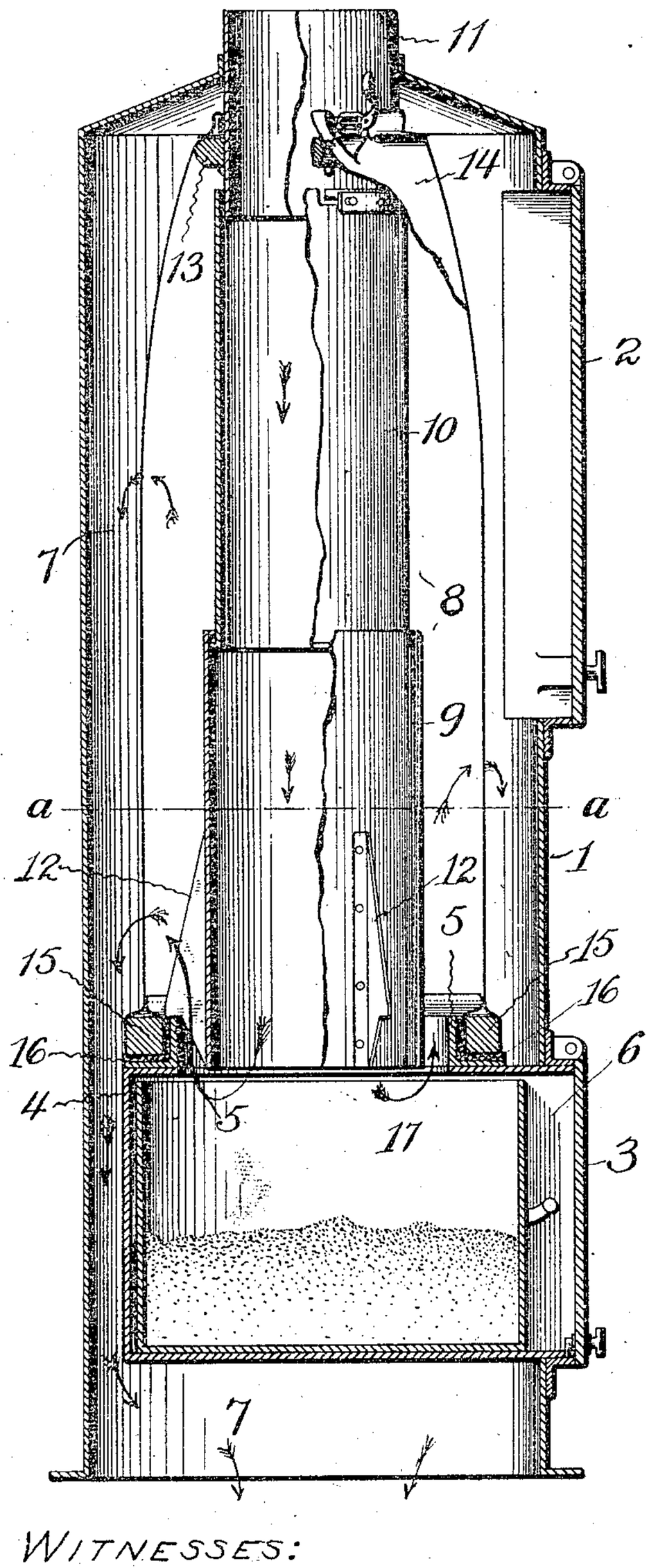

Fig. 2.

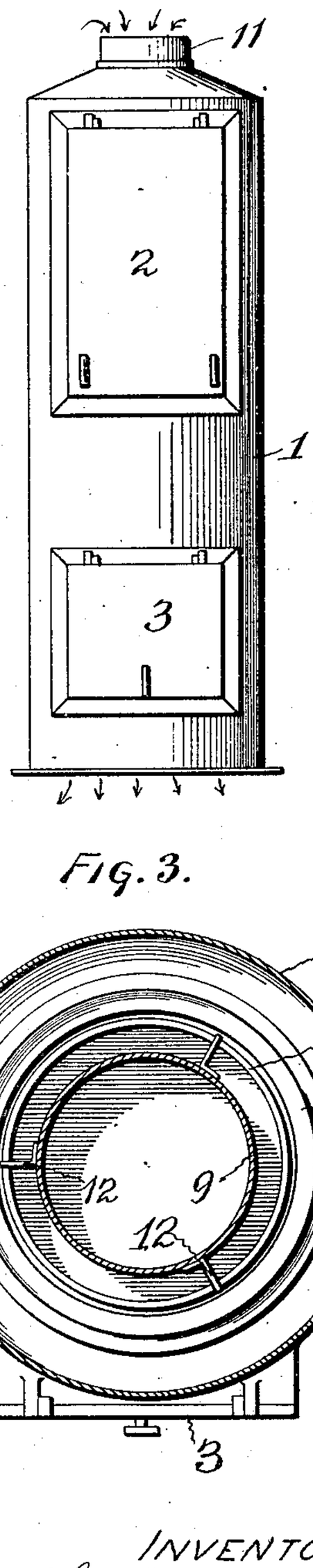

Fig. 3.

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PNEUMATIC DUST-SEPARATOR.

999,269. Specification of Letters Patent. **Patented Aug. 1, 1911.**

Application filed January 29, 1907. Serial No. 354,602.

To all whom it may concern:

Be it known that I, IRA H. SPENCER, a citizen of the United States, and a resident of Hartford, in the county of Hartford and State of Connecticut, (whose post-office address is Hartford, Connecticut,) have invented certain new and usefu Improvements in Pneumatic Dust-Separators, of which the following is a full, clear, and exact description, whereby any one skilled in the art may make and use the same.

The invention relates to separators or dust collectors and is particularly designed to be operated in conjunction with a source of pneumatic power.

The object of the invention is to provide a dust collector or separator which will collect not only heavy particles but those of the finest form.

A further object is to provide a device, the parts of which will not become ruptured by excessive and varying pressures.

A still further object is to secure easy accessibility for cleaning and adjusting the various parts.

Another object is to provide a safety device actuated upon excessive suctions to prevent rupture of the separator screen.

Referring to the drawings:—Figure 1 is a vertical sectional view of the device with parts broken away to better show the construction. Fig. 2 is a view in elevation of the device shown in reduced scale as compared with Fig. 1. Fig. 3 is a cross-sectional view on the line *a*—*a* of Fig. 1.

Generally speaking the device comprises a receiving chamber and an exhaust chamber with means intermediate the two for freeing the air passed through the device from all dust and dirt.

Referring to the drawings, the numeral 1 denotes the outer casing provided with a hinged door 2, giving access to the main parts of the apparatus, and a hinged door 3 giving access to the receptacle in which the dirt and dust is collected.

The casing 1 which is preferably of cylindrical form, has, suitably supported near its bottom, a casing 4 provided with a tubular neck 5 which divides the interior of the casing into two chambers, one a receiving chamber 6, the other a suction chamber 7.

Centrally arranged with reference to the casing is a telescoping tube 8, having sections 9, 10 and 11; the latter projecting through the upper end of the casing and closely fitted therein. The lower section 9 is provided with wings 12 which form feet or supports for the telescoping tube. These wings rest upon the edge of the tubular neck 5, which neck is somewhat larger in diameter than the diameter of the tube section 9.

Secured to the uppermost tube section 11, is a ring 13, and over this is hung a bag or separating screen 14. This is secured in place by binding its upper end about the tube section 11 over the ring 13, as by a drawing-string, strap or other suitable device. The lower end of the bag or screen 14 is wrapped about a comparatively heavy ring 15 which is seated upon a felt bushing 16 upon the upper side of the casing 4.

It is often desirable to renew the screen or to remove it for purposes of cleansing. it will, therefore, be seen that the telescoping sections of the tube may be collapsed and the entire tube with its screen and other parts may be removed through the door 2. This tube forms the inlet to the apparatus and has its lower end arranged over the chamber 6 which contains a removable dirt box or receptacle 17, access to which may be had through the door 3. The exhaust side of the apparatus is from the chamber 7 through the bottom of the main casing. It will thus be seen that with a sufficient suction on the exhaust side, the air containing dirt and dust, will be drawn down through the tube 8; will make a short turn at the bottom of the tube, thus throwing off all heavy particles of dust, and will be finally cleaned of remaining particles as it is passed through the screen 14.

The particular object of securing the screen as above described, is to provide a sort of safety device to prevent ripping of the screen in case of excessive suction. Ordinarily, the suction would not be sufficient to disturb the screen and ring 15. However, should the receptacle 17 become so filled with dirt that the passage through the tube 8 was clogged, the suction, then acting upon the screen, would distend it and the weighted ring 15 would rise, thus preventing rupture of the screen.

Of course it is understood that the upper end of the telescoping tube is attached to

suitable dust collecting apparatus; while the lower end of the main casing is connected to a suitable pneumatic suction device.

Obviously various modifications might be made in the details of the apparatus without departing from the spirit or intent of the invention, and the chambers might be arranged in various other forms.

The invention herein shown and described, while similar to the device shown and described in a co-pending application for pneumatic dust separators, Serial No. 403,320, filed November 22, 1907, does not claim the improved details of said co-pending application, which has been filed as a division of this application.

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

1. In a device of the character described, a receiving chamber, an exhaust chamber, an inlet tube having solid walls leading into the receiving chamber, and a screen encircling and extending along said inlet tube and forming a tubular screening wall between the receiving chamber and the exhaust chamber about the solid walls of the inlet tube.

2. In combination in a device of the character described, a casing, a receiving chamber formed within the casing, an inlet tube having solid walls appurtenant to and extending within said receiving chamber and extending through the casing, a tubular screen appurtenant to the inlet tube and arranged intermediate the receiving chamber and exhaust chamber, and means appurtenant to the screen for preventing rupture of the screen.

3. In a device of the character described, an exhaust chamber, a receiving chamber arranged therein, a removable inlet tube operatively supported with reference to the receiving chamber, a screen surrounding said tube, and a weight adjacent to the lower end thereof.

4. In combination in a device of the character described, a casing provided with a suction chamber, a receiving chamber arranged therein and provided with a tubular neck, an imperforated inlet tube of less diameter than said neck, extending through said neck to the receiving chamber, and a tubular screen intermediate the receiving chamber and suction chamber and extending upwardly and embracing the tubular neck.

5. In combination in a device of the character described, a casing providing a suction chamber, a receiving chamber arranged therein, a telescoping inlet tube appurtenant to the receiving chamber and projecting beyond the casing, and a tubular screen encircling said tube and removably secured thereto and movably secured with reference to the receiving chamber.

6. In combination in a device of the character described, a casing, a receiving chamber arranged therein, an imperforated inlet tube projecting through the casing and extending to the receiving chamber, and a tube-like screen removably secured at one end to the tube and at its opposite end about the opening of the receiving chamber.

7. In a device of the character described, a casing a receiving chamber arranged in said casing and provided with an opening, an inlet tube having solid walls extending through the main casing and into the opening of the receiving chamber, the walls of said tube and said opening having an annular passage between them, and a tubular screen secured to said tube at its upper end and removably secured about said opening at its lower end and forming a screening wall between the receiving chamber and the walls of the casing and the exterior of the inlet tube.

8. In combination in a device of the character described, a main casing of tubular form, a removable casing of lesser diameter than the main casing intersecting said main casing transversely and forming a removable receiving chamber having an opening, an inlet pipe extending through the main casing and projecting into said opening, and a screen surrounding said inlet pipe and removably secured about said opening.

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Witnesses:
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