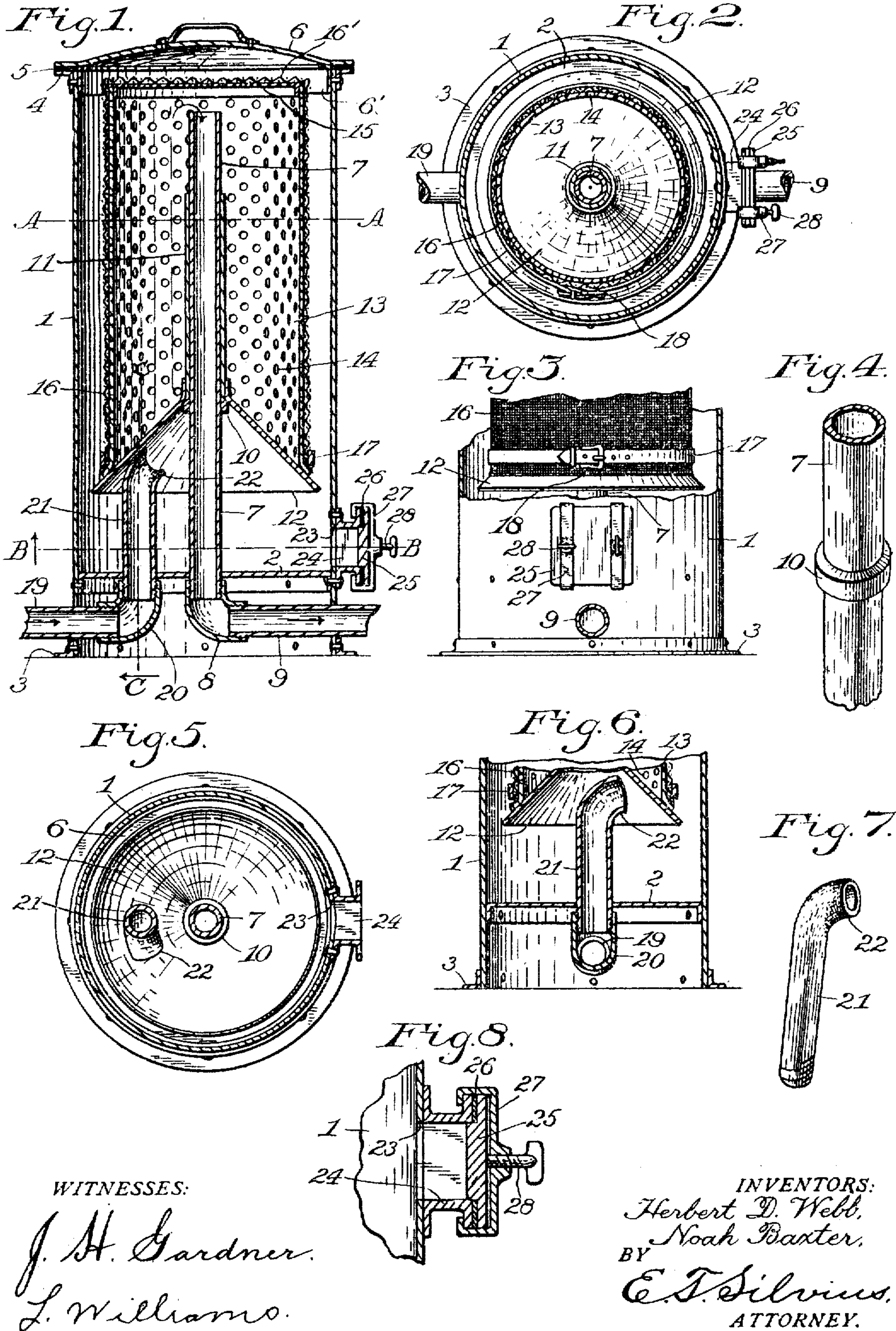


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DUST SEPARATOR.
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Patented Jan. 4, 1910.



WITNESSES:

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UNITED STATES PATENT OFFICE.

HERBERT D. WEBB AND NOAH BAXTER, OF ANDERSON, INDIANA.

DUST-SEPARATOR.

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To all whom it may concern:

Be it known that we, HERBERT D. WEBB and NOAH BAXTER, citizens of the United States, residing at Anderson, in the county of Madison and State of Indiana, have invented certain new and useful Improvements in Dust-Separators; and we do declare the following to be a full, clear, and exact description of the invention, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

This invention relates to apparatus comprising parts of vacuum-cleaning apparatus of the class that is employed for removing dust from carpets on floors, or for cleaning various articles; the invention having reference particularly to apparatus whereby the dust may be separated from the air that is utilized for removing the dust from the articles.

The object of the invention is to provide an improved dust-separator of the above mentioned character that will be adapted to be constructed cheaply and be durable and economical in use; a further object being to provide a dust-separator that will thoroughly separate the dust from the air and be adapted to be readily cleansed as occasion may require; a still further object being to provide a dust-separator that will operate effectively without the use of water and which will be free from delicate parts that would be liable to become deranged.

With the above mentioned and minor objects in view the invention consists in the novel parts, and combinations and arrangements of parts, as hereinafter particularly described and then defined in the accompanying claims.

Referring to the drawings, Figure 1 is a vertical central sectional view of the dust-separator as preferably constructed; Fig. 2, a horizontal sectional view approximately on the line A—A in Fig. 1; Fig. 3, a fragmentary front elevation partially broken away; Fig. 4, a fragmentary perspective view of the suction-pipe of the apparatus; Fig. 5, a horizontal section on the line B—B in Fig. 1 looking upward; Fig. 6, a fragmentary section on line C—C in Fig. 1; Fig. 7, a perspective view of a part of the inlet pipe of the apparatus; and Fig. 8, a fragmentary sectional detail of the cleaning-hole door of the receptacle.

Similar reference characters in the different figures of the drawings indicate corresponding elements of features of construction referred to herein.

As preferably constructed the invention comprises an upright cylindrical shell, numeral 1, in the lower portion of which is secured a bottom 2, a portion of the shell extending below the bottom to serve as a base which, however, may be otherwise provided if preferred, the lower end of the base portion being provided with a base-ring 3. The upper end of the shell of the receptacle is provided with a joint-seat 4 on which is a packing-ring 5, a lid 6 having a flange 6' being seated removably on the packing-ring, the flange extending into the shell. The lid therefore will be held tightly on its seat when a partial vacuum is formed in the receptacle. A suction-pipe 7 extends through the bottom 2 and upward in the receptacle centrally and terminates with an open end near the lid 6, the pipe being secured tightly to the bottom and having an elbow 8 connected thereto below the bottom, a horizontal pipe 9 being connected to the elbow and extending out through the base part of the receptacle shell, to be connected with any suitable apparatus for producing vacuum or partial vacuum. The pipe 7 has a collar 10 thereon at a suitable distance above the bottom of the receptacle. A guide sleeve 11 has a conical-shaped deflector 12 attached to the bottom thereof and is placed removably on the pipe 7, and normally rests on the collar 10, the deflector being annular and extending nearly to the shell 1 or body of the receptacle. A tubular screen 13 having perforations 14 therein has one end secured on the top of the deflector 12 and extends upward beyond the plane of the upper end of the pipe 7, the upper end of the screen being provided with a cap or closure 15 that is seated removably thereon. A strainer 16 composed of suitable fabric is sleeve-shaped and is placed over the screen 13 and has a top 16' that rests on the cap 15, the lower end of the strainer being secured to the screen 13 at the lower end thereof by a band 17 provided with a buckle 18, so that the strainer may be readily removed from the screen in order to clean it or replace it by a new strainer.

An inlet pipe 19 extends through the base portion of the shell 1 below the bottom 2 and has an elbow 20 connected to its inner end,

a vertical pipe 21 extending through the bottom 2 and being connected to the elbow, the pipe 21 having a curved terminal portion 22 that opens under the deflector 12, the terminal end being curved slightly toward the horizontal and also so as to discharge toward the axis of the receptacle to produce whirling currents under the deflector in order to distribute the dust over the bottom 2 as much as may be. The pipe 19 may be connected to any suitable suction-pipe system or with a suction tool or implement for removing dust from carpets or the like.

The shell 1 of the receptacle preferably has a doorway 23 therein near the bottom 2 and provided with a door-frame 24 suitably flanged, a door 25 being fitted to the door-frame and provided with a joint-packing 26, the door being removable and normally held in its place by clamps 27 and set-screws 28; or the door may be otherwise mounted on the door-frame if desired.

In practical use partial vacuum will be maintained in the suction-pipe 7 and consequently throughout the receptacle and within the screen by a suitable exhaustor, so that suction will be induced in the pipe 21 through which air and dust will enter the receptacle and be deflected downward by the deflector 12, the air and lighter particles of dust passing around the deflector and upward to be separated by the strainer and screen, so that only the air will pass into the suction-pipe 7 and out to the exhaustor, while the dust will gravitate toward the bottom of the receptacle.

When the apparatus is not in use the lid 6 may be removed and then the strainer and deflector may be removed from the suction-pipe and taken out of the receptacle to be cleansed, and after removing the strainer from the screen the cap 15 may be removed in order to cleanse the interior of the screen if required. The dust, of course, may be removed through the doorway 23, or in small portable sizes of apparatus the receptacle may be inverted so as to remove the dust from its open top.

Having thus described the invention what is claimed as new, is—

1. A dust-separator including an upright closed receptacle, a suction-pipe extending vertically in the receptacle and provided with a collar, an annular deflector provided with a guide-sleeve and seated removably

on the collar, the guide-sleeve extending about the suction-pipe, a screen attached to the top of the deflector and having a cap thereon, a strainer extending about the screen, and an inlet-pipe extending into the receptacle and terminating under the deflector.

2. A dust-separator including an upright receptacle, a lid seated removably on the receptacle, a suction-pipe extending vertically in the receptacle from the exterior thereof and provided with a collar, an annular conically-shaped deflector provided with a guide-sleeve and seated removably on the collar, the guide-sleeve extending about the suction-pipe, a screen attached to the top of the deflector and extending about the suction-pipe, a cap seated removably on the top of the screen, a strainer on the screen and having a top seated on the cap, a band securing the strainer to the screen, and an inlet-pipe extending into the receptacle and terminating under the deflector.

3. A dust-separator including an upright receptacle having a bottom and having also a doorway in the side thereof near the bottom, a door normally closing the doorway, a packing-ring on the top of the wall of the receptacle, a lid seated on the packing-ring, a suction-pipe extending through the bottom and vertically upward into the receptacle and nearly to the lid and having a collar thereon, an annular conically-shaped deflector extending about the suction-pipe and seated on the collar, a guide-sleeve attached to the deflector and extending upward about the suction-pipe, a tubular screen attached to the top of the deflector and extending about the suction-pipe and upward above the plane of the top thereof, a cap on the top of the screen, a sleeve-shaped strainer extending about the screen and having a top that extends over the cap, a band securing the lower end of the strainer to the lower end of the screen, and an inlet-pipe extending through the bottom of the receptacle and having a curved terminal end extending under the deflector.

In testimony whereof, we affix our signatures in presence of two witnesses.

HERBERT D. WEBB.
NOAH BAXTER.

Witnesses:

LOUIS E. KIMBERLIN,
FRANK MATTHEWS.