

983,574.

F. B. SHAFER.
VACUUM SWEEPER.
APPLICATION FILED APR. 12, 1910.

Patented Feb. 7, 1911.

2 SHEETS—SHEET 1.

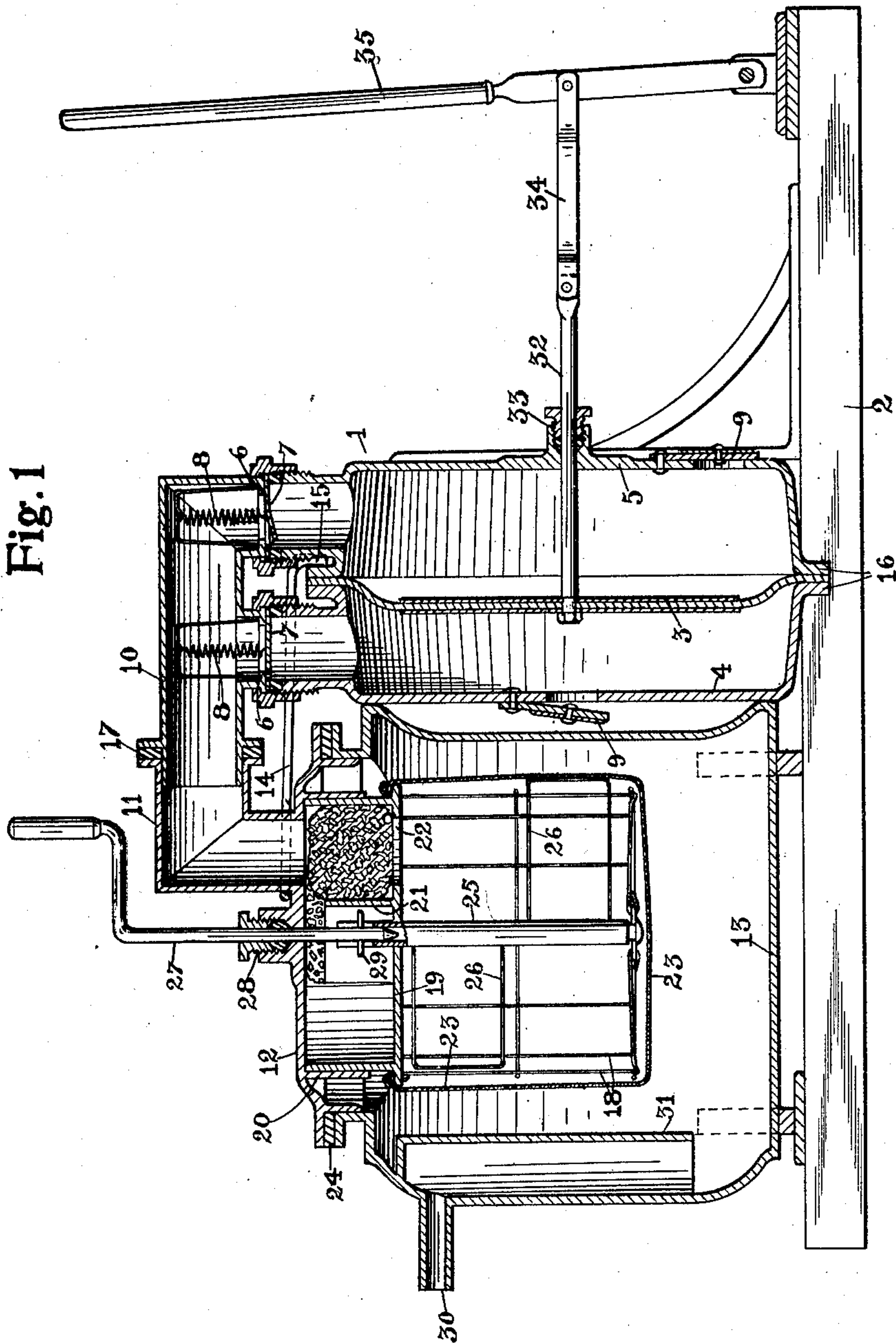


Fig. 1

Witnesses
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2 SHEETS—SHEET 2.

Fig. 2

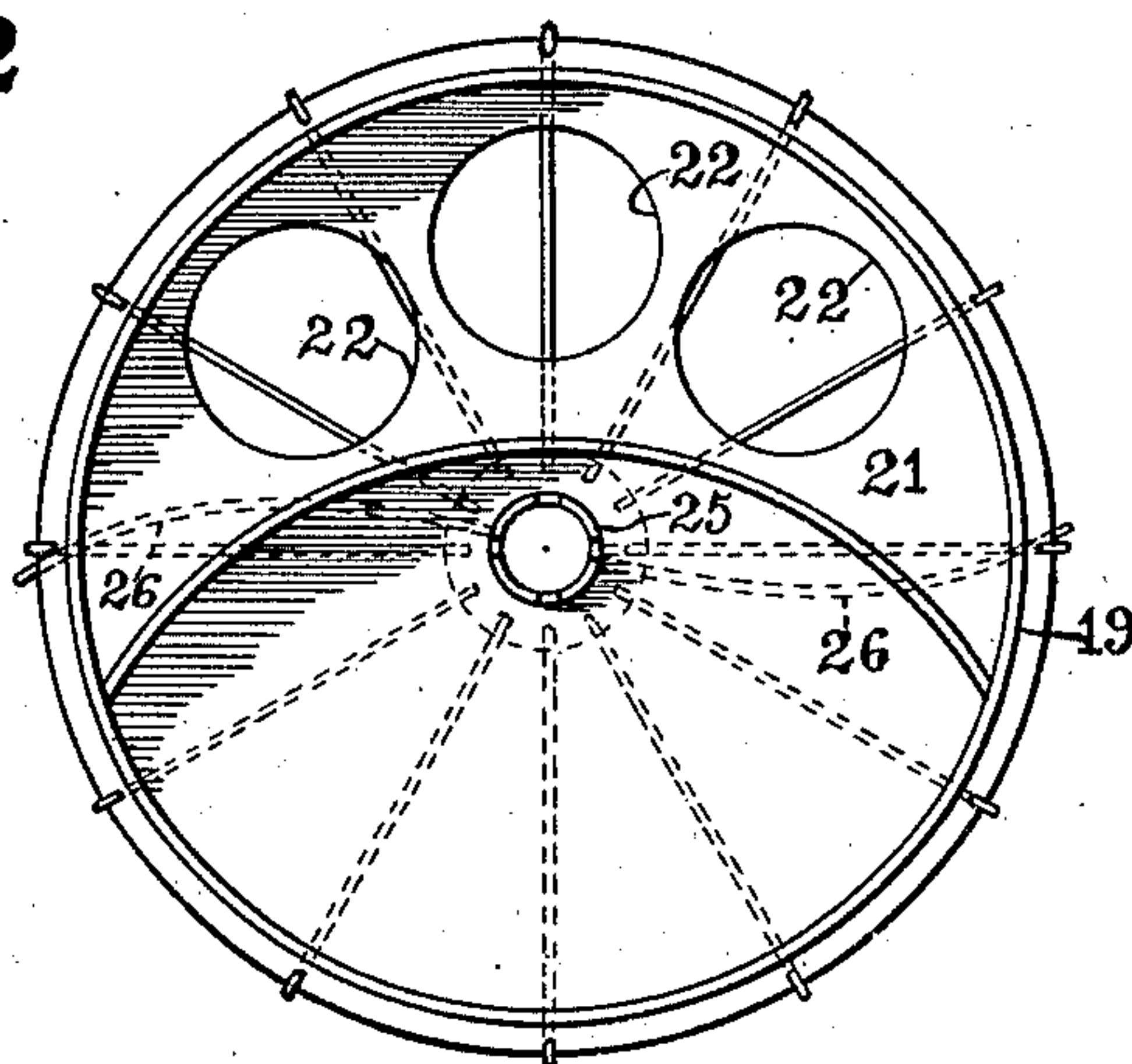
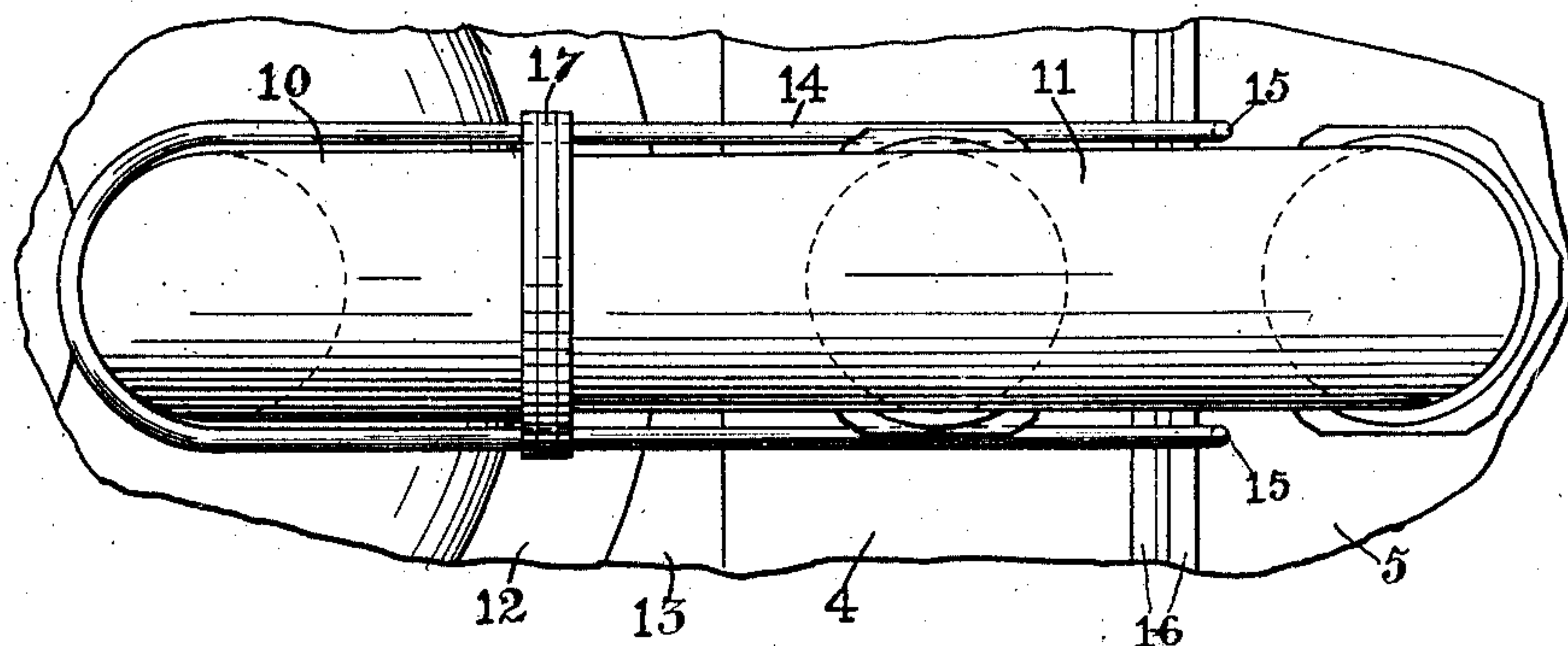


Fig. 3



Witnesses

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UNITED STATES PATENT OFFICE.

FRANK B. SHAFER, OF NORTHVILLE, MICHIGAN, ASSIGNOR OF ONE-THIRD TO JAMES A. DUBUAR AND ONE-THIRD TO WILLIAM G. YERKES, OF NORTHVILLE, MICHIGAN.

VACUUM-SWEEPER.

983,574.

Specification of Letters Patent.

Patented Feb. 7, 1911.

Application filed April 12, 1910. Serial No. 554,953.

To all whom it may concern:

Be it known that I, FRANK B. SHAFER, a citizen of the United States of America, residing at Northville, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Vacuum-Sweepers, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to a vacuum cleaner for removing dust or dirt from carpets, walls and the like, and more particularly to an arrangement thereof that effectually arrests all dust drawn into the apparatus and at the same time prevents the introduction of the dust into the valves and working parts of the apparatus.

The invention also includes means for cleaning the dust screen.

The invention consists in the matters hereinafter set forth and more particularly pointed out in the appended claims.

Referring to the drawings, Figure 1 is a view in longitudinal section through a machine involving features of the invention; Fig. 2 is a view in detail of a dust screen and cleaner; and Fig. 3 is a view in detail of a clamp.

In the drawings a drum 1 is mounted in upright position on a suitable base 2 and is divided by a flexible diaphragm 3. Preferably the drum consists of two opposing sections 4 and 5 between whose margins the diaphragm is clamped. Valve seats 6 in each section are provided with closures 7 adapted to open inwardly, springs 8 or like means holding them normally in closed position. Relief valves 9 control outlet openings in the drum sections. A suction pipe 10 on the drum covering the valve closures 7 has telescopic engagement with the end of a pipe 11 that extends over the upper part from the cover 12 of an upright cylindrical dust chamber 13 resting on the base 2. A U-shaped clamp 14 embracing the pipe 11 has downturned ends 15 which hook over the flanges 16 of the drum sections 4 and 5, and detachably secure the dust chamber 13 in place, a gasket 17 sealing the joint between the pipes 10 and 11.

A wire cage 18 depends from the bottom of a circular casing 19 that is held in telescopic engagement with an annular flange 20 depending from the cover 12. The casing 21 is divided by a transverse partition 21 into

two compartments one of which is provided with openings 22 to allow the passage of air upwardly into the pipe 11, a sponge or other suitable dust arrester filling the space above the openings 22. A dust screen 23 of bolt- ing cloth or like suitable material envelops the cage 18. A gasket 24 seals the joint between the cover 12 and the dust chamber 13.

A spindle 25 is journaled centrally in the cage and carries spring beater arms which snap past the upright bars of the cage 18 when the spindle is rotated and agitate the screen cloth 23. The shaft may be rotated by any suitable means, as, for example, a crank shaft 27 journaled in a suitable bearing or stuffing box 28 in the cover 12 with its lower end adapted to non-rotatably interlock with the upper end of the shaft 25, as through the medium of a cross pin 29 engaging longitudinal slots in the axially apertured end of the spindle.

An intake nipple 30 in the end of the dust chamber, preferably near its top, leads into a duct formed by a suitably disposed wall 31, the discharge end of the duct being close to and directed against the base of the dust chamber.

The diaphragm 3 is reciprocated by any suitable means, as, for example, a stem 32 passing through a suitable bearing or stuffing box 33 in the outer section 5 of the drum, that is coupled by a link 34 with a lever 35 whose lower end is pivoted to the base 2.

In operation, reciprocation of the diaphragm draws dust into the dust chamber through the nipple where it is arrested by the screen and prevented from passing to the valves or into the drum. Rotation of the beater shaft dislodges any dust collecting on the screen cloth and the apparatus may be readily taken apart and manipulated without the use of tools.

Obviously, changes in the details of construction may be made without departing from the spirit of the invention and I do not care to limit myself to any particular form or arrangement of parts.

What I claim as my invention is:—

1. In a vacuum cleaner, a dust chamber, an inlet nipple discharging toward the bottom of the chamber, a cover detachably secured in the chamber, an outlet pipe extending from the cover, a depending flange on the cover around the pipe inlet, a dust ar-

- resting casing detachably engaging the flange and covering the pipe inlet, a cage depending from the casing and inclosing inlet openings to the casing, a screening fabric enveloping the cage, and means for exhausting the chamber through the pipe inlet, the casing and cage forming a unit structure bodily removable from the chamber.
- 10 2. In a vacuum cleaner, a dust chamber having an inlet and outlet, a cage supported removably in the chamber around the outlet, a screening fabric enveloping the cage, a spindle rotatable in the cage, spring beater arms on the shaft adapted to sweep the cage members and snap past against the fabric when rotated, and means for rotating the spindle.
- 15 3. In a vacuum cleaner, a dust chamber having an inlet and outlet, a cage supported removably in the chamber around the outlet, a screening fabric enveloping the cage, a spindle rotatable in the cage, spring beater arms on the shaft adapted to sweep the cage members and snap past against the fabric when rotated, means for rotating the
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- 25

spindle, an exhausting drum operatively connected to the chamber outlet, and means for operating the drum.

4. In a vacuum cleaner, a dust chamber, an inlet nipple discharging toward the bottom of the chamber, a cover detachably secured in the chamber, an outlet pipe extending from the cover, a depending flange on the cover around the pipe inlet, a dust resting casing detachably engaging the flange and covering the pipe inlet, a cage depending from the casing and inclosing inlet openings to the casing, a screening fabric enveloping the cage, an exhausting drum with an inlet pipe adapted to telescopically engage the outlet pipe, and a clamp adapted to hold the chamber and drum together with the inlet pipe and chamber outlet pipe in engagement.
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In testimony whereof I affix my signature in presence of two witnesses.

FRANK B. SHAFER.

Witnesses:

C. R. STICKNEY,
OTTO F. BARTHEL.