

J. M. SPANGLER.
CARPET SWEEPER AND CLEANER.
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935,558.

Patented Sept. 28, 1909.

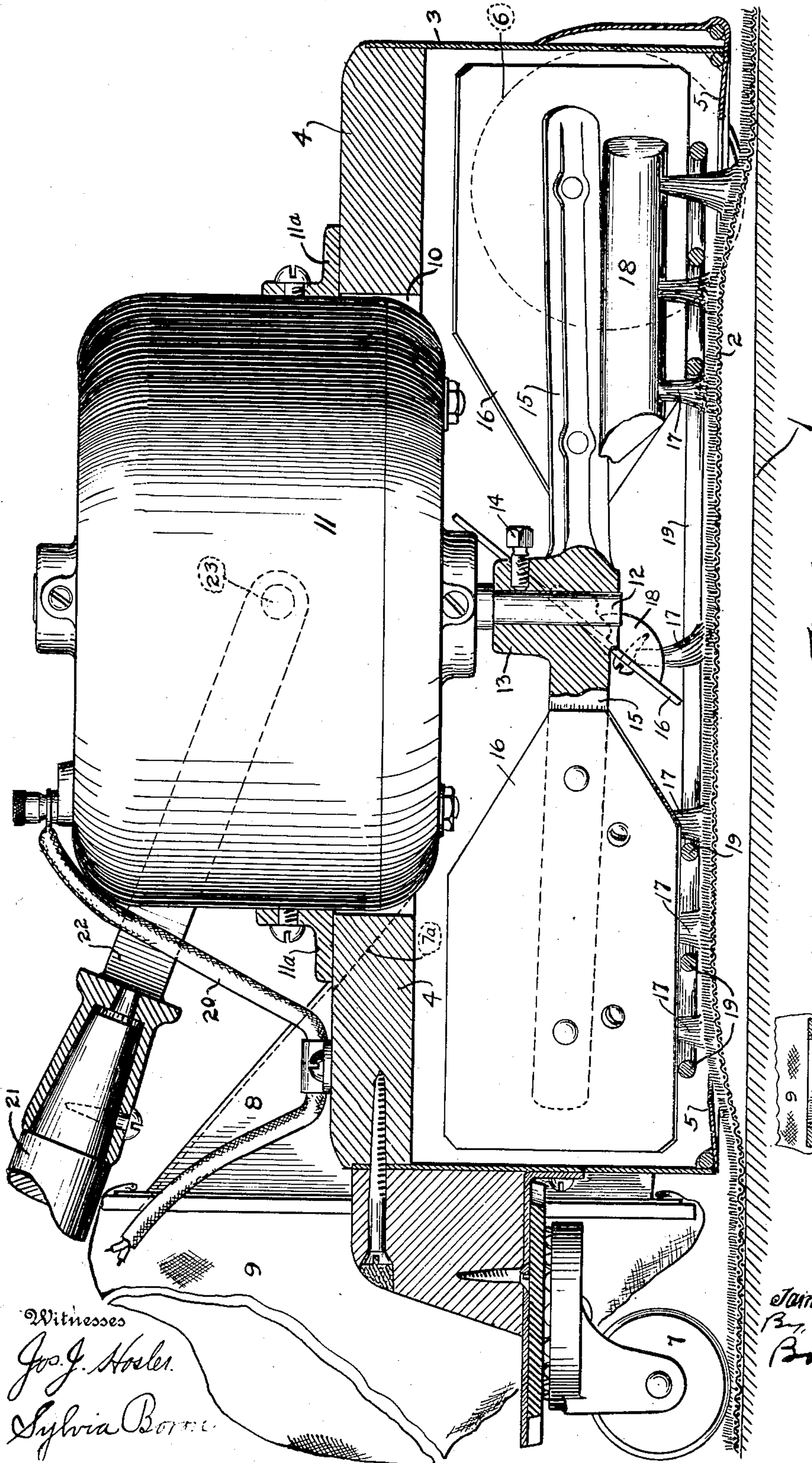
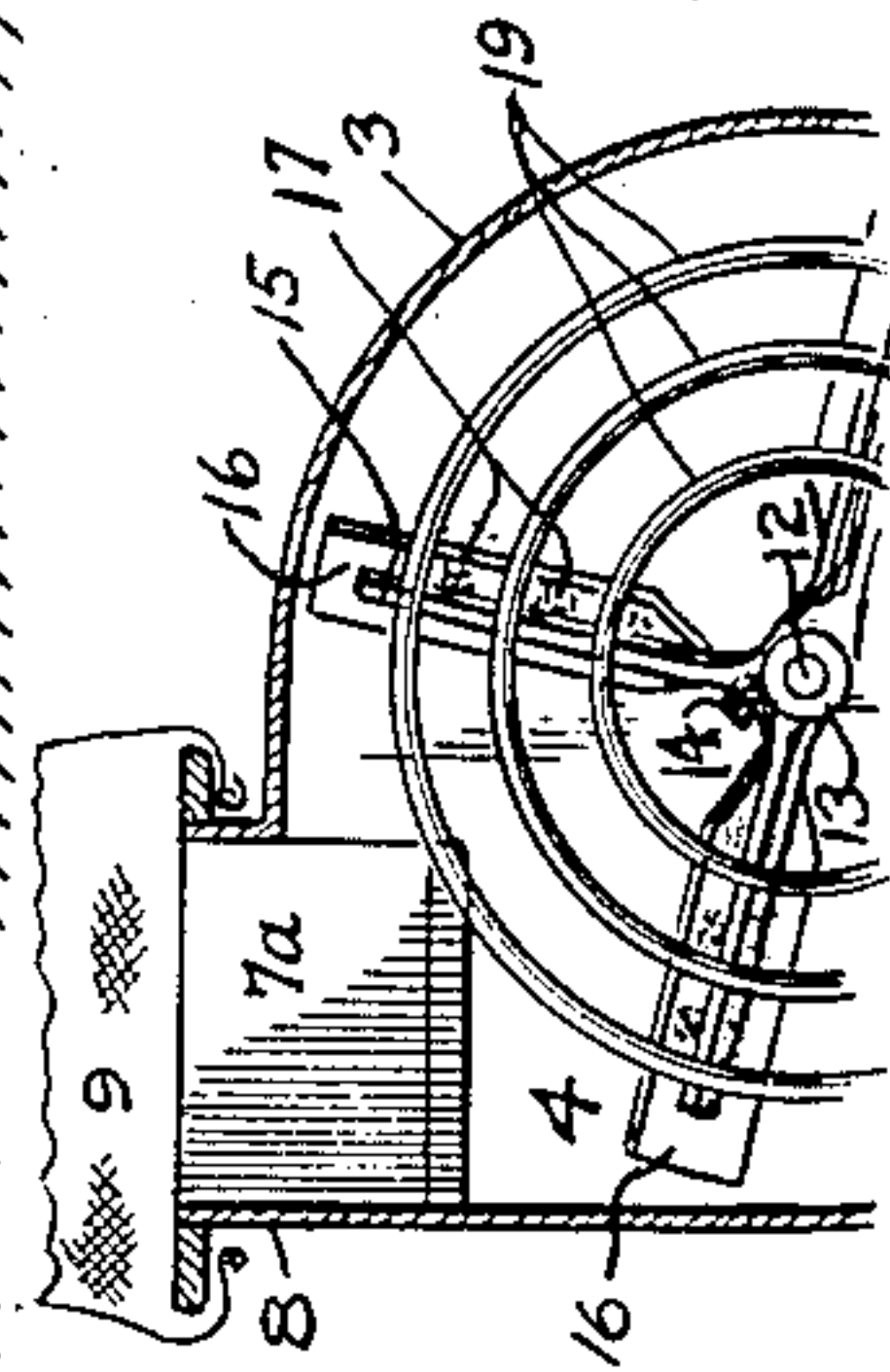


Fig. 1.

Fig. 2.



Witnesses
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UNITED STATES PATENT OFFICE.

JAMES M. SPANGLER, OF CANTON, OHIO, ASSIGNOR TO THE ELECTRIC SUCTION SWEEPER COMPANY, OF NEW BERLIN, OHIO, A CORPORATION OF OHIO.

CARPET SWEEPER AND CLEANER.

935,558.

Specification of Letters Patent.

Patented Sept. 28, 1909.

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To all whom it may concern:

Be it known that I, JAMES M. SPANGLER, a citizen of the United States, residing at Canton, in the county of Stark and State of Ohio, have invented a new and useful Carpet Sweeper and Cleaner, wherein means are provided for brushing and loosening dust and dirt from carpets, rugs, floors, &c., wherein provision is made for pneumatically lifting said dust and dirt and depositing the same in an appropriate receptacle, and wherein means are provided for preventing the suction of said sweeper from lifting the said carpet, rug, or other floor-covering into engagement with the mechanism not intended for engagement with said floor covering.

The object of my improvement is to provide a carpet sweeper and cleaner of simplified form and of great efficiency and this, together with other objects readily apparent to those skilled in the art, I attain by the construction illustrated in the accompanying drawing, in which—

Figure 1 is a vertical section of the casing, said section being taken on a diametrical plane and illustrating the electric motor and its connection. Fig. 2 is a bottom or underside view of the fan casing showing the fan and its parts in proper relative position but on a reduced scale.

In the drawing similar numerals of reference indicate similar parts.

The numeral 1 indicates the floor.

2, is the carpet or floor covering.

The fan casing 3 is partially of circular form and provided with the top 4, and the lower inwardly extending annular flange 5. The said casing is mounted upon suitable wheels or casters 6 and 7 for the purpose of facilitating the movement of the sweeper over the floor. In the casing and top an opening 7^a (shown partially in dotted lines) is provided, which leads through a discharge passage in the portion 8 and communicates with the dust bag or receptacle 9 attached thereto.

The top 4 is provided with an aperture, 10, within which is closely fitted the casing 11 of an electric motor. The said motor is firmly attached to the said top by means of appropriate fastening devices, 11^a. The shaft 12 of the motor extends into the fan casing 3 and is arranged concentric with the axis of said fan casing. Upon the said shaft 12

is arranged the hub 13 which is held in fixed adjustment upon said shaft by the set screw 14 or its equivalent. The hub 13 is provided with a plurality of radially disposed arms, 15, to which the fan blades 16 are attached at an obtuse angle with the shaft 12. The said angle of the fan blades is such that when the electric motor is operated the said blades will be carried on the arms 15 in the direction to cause an upward movement of the air in the casing 3. The air thus lifted and condensed will escape through the passage in the portion 8 and into the bag or receptacle 9. The lifting of the air in the casing 3 will produce a vacuum at the bottom of the casing which is open, except for the annular flange 5 heretofore described. In accordance with the well known principle, air will rush into the said casing through the said bottom opening carrying with it whatever dust and dirt has been loosened from the floor or floor covering.

For the purpose of loosening the dust and dirt from the said floor and floor covering the brushes 17 are provided, which brushes are mounted in the brush holders 18 attached to the various blades of the fan. It will be understood that the said brushes may be otherwise attached to the shaft of the motor.

For the purpose of preventing the suction from lifting the floor covering into engagement with the fan blades, concentrically arranged rings, 19, are attached to the fan blades by solder or other appropriate means of connection. It is evident that while the suction produced by the vacuum will have a tendency to lift the floor covering into thorough engagement with the brushes 17, the rings 19 will prevent the said covering from coming into contact with the fan blades 16, thus permitting both the brushes and fan to accomplish their different functions with the greatest degree of efficiency. A flexible electric cord 20, is electrically connected to the motor and should be connected to an appropriate source of electric current. The handle 21 is provided with the yoke portion 22 which is pivoted at diametrically opposite points, 23, to the casing of the motor.

A carpet sweeper and cleaner of the character described having been provided, the operation of the same is as follows. Appropriate electrical connection is made by means of the cord 20 and the circuit completed through the motor thus putting the shaft 12

in rapid rotation. The radially disposed arms 15 together with the blades 16 and brushes 17 thereto attached will be rotated with said shaft. The fan will produce a partial
 5 vacuum in the bottom of the fan casing while the brushes will be moved in a circular pathway over the surface of the floor or floor covering. The dust and dirt thereon will thus be thoroughly loosened and lifted by
 10 the inrush of air under the annular flange 5 and will be carried through the exhaust opening and deposited in the bag or receptacle 9. The rings 19 will prevent the floor covering from being lifted too far into
 15 the interior of the fan casing and the operator by means of the handle 21 may move the sweeper and cleaner back and forth across the floor, thus subjecting the entire surface thereof to the sweeping and cleaning
 20 action of the device.

It will be understood that the front wheels or casters 6 are to be located in such position that they will be entirely outside of the fan casing, or at least out of reach of the moving
 25 parts of the device, including the fan blades and brushes.

I claim:—

1. In a carpet sweeper and cleaner, a casing open at the bottom and having a discharge opening in the side, an electric motor mounted on said casing, said electric motor provided with a shaft, said shaft vertically disposed within said casing, fan blades attached to said shaft, said fan blades adapted,
 30 by the rotation, to discharge the air through said discharge outlet, and brushes carried by said fan blades and adapted for contact with the floor.

2. In a device of the character described,
 40 a casing open at the bottom and provided with a discharge opening, an electric motor mounted in said casing, said electric motor provided with a shaft, said shaft being vertically disposed within said casing, spaced
 45 rings disposed across the bottom opening in said casing and brushes fixedly attached to said shaft and adapted for contact with the floor between said rings.

3. In a device of the character described,
 50 a casing provided with an opening in the bottom and with a discharge opening, air exhausting means located in said casing and adapted to exhaust the air from said casing through said discharge outlet, a motor
 55 mounted upon said casing and provided with a vertically disposed shaft, brushes mounted

upon said shaft and adapted for contact with the floor through the opening in the bottom of the casing, and spaced concentric rings mounted upon said shaft and adapted to
 60 rotate therewith and to prevent the floor covering from being drawn within said casing.

4. The herein described carpet sweeper and cleaner comprising a casing open at the bottom and having a discharge opening in
 65 the side thereof, a fan mounted within said casing and adapted to lift the air in said casing from the bottom thereof and to expel said air through said discharge opening, spaced concentric rings disposed in a plane
 70 across the bottom opening in said casing and brushes adapted for rotary motion in a horizontal plane between adjacent rings, said brushes being also adapted for contact with the floor.
 75

5. In a device of the character described, a casing open at the bottom and provided with a discharge opening, spaced guards arranged in a plane across the bottom opening means for expelling the air from said casing
 80 through said discharge opening and rotatable brushes adapted to travel in a horizontal plane and adapted for contact with the floor between said spaced guards.

6. In a carpet sweeper and cleaner, the
 85 combination of a casing open at the bottom and having a discharge opening in the side thereof, an electric motor mounted on said casing, said electric motor provided with a shaft, said shaft being vertically disposed
 90 within said casing, radially disposed horizontal arms fixedly attached to said shaft, fan blades mounted upon said radially disposed arms, said fan blades arranged at an obtuse angle to the said vertically disposed
 95 shaft and adapted to lift the air in said casing by their rotation and discharge the air through said discharge outlet brushes attached to said radially disposed arms and adapted for contact with the floor covering,
 100 said brushes extending through the opening in the bottom of the casing and spaced concentric rings mounted upon said fan blades for preventing contact of said blades with the floor covering.
 105

In testimony that I claim the above, I have hereunto subscribed my name in the presence of two witnesses.

JAMES M. SPANGLER.

Witnesses:

JOHN H. SPONSELLY,
 F. W. BOND.