W. H. RAKESTRAW.

VACUUM CLEANER.

APPLICATION FILED MAR. 31, 1910.

971,215.

Patented Sept. 27, 1910.

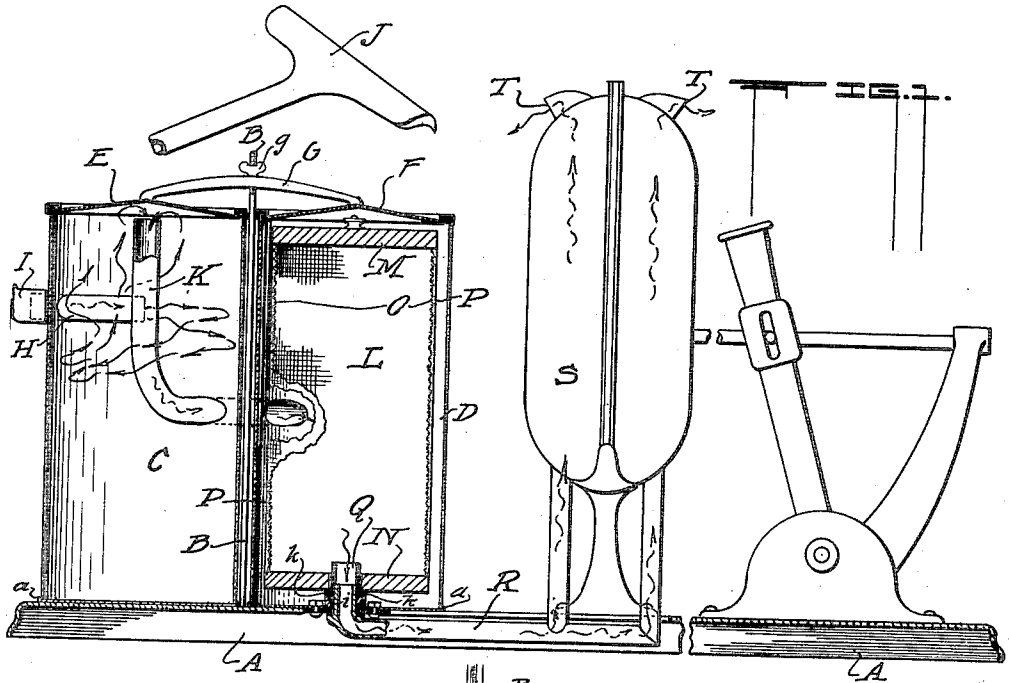

FIG. 1.

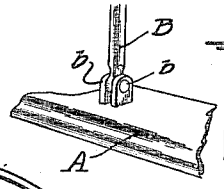

FIG. 3.

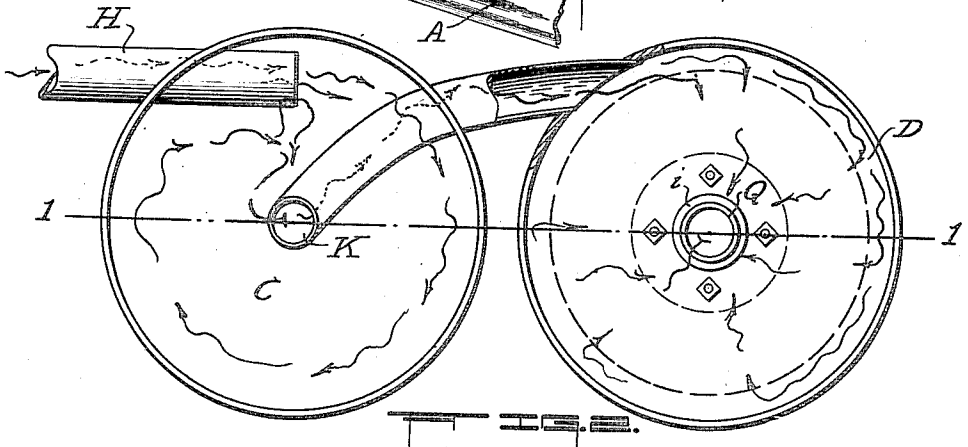

FIG. 2.

WITNESSES

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UNITED STATES PATENT OFFICE.

WILLIAM H. RAKESTRAW, OF BLOOMINGTON, ILLINOIS.

VACUUM-CLEANER.

971,215. Specification of Letters Patent. Patented Sept. 27, 1910.

Original application filed January 21, 1909, Serial No. 473,487. Divided and this application filed March 31, 1910. Serial No. 552,733.

To all whom it may concern:

Be it known that I, WILLIAM H. RAKESTRAW, a citizen of the United States, residing at Bloomington, in the county of McLean and State of Illinois, have invented certain new and useful Improvements in Vacuum-Cleaners, of which the following is a specification.

My invention relates to certain new and useful improvements in vacuum cleaners, the same being a division of my application filed January 21, 1909, and bearing Serial No. 473,487.

In the drawings, Figure 1 is a side elevation of my device with certain receptacles shown in vertical section on the line 1—1 of Fig. 2 and showing certain portions broken away to illustrate detail parts; Fig. 2 is a top view of the collector receptacles with the top of the receptacles removed and with a portion of a connecting pipe and the wall of one of the receptacles broken away; and Fig. 3 is a detail view showing the manner of pivoting a rod to the base adapted to carry a clamp at its top portion to secure dust collector receptacles upon the base, and to secure covers to receptacles.

In the drawings, A represents a base support for the dust collecting receptacles and the pump, there being provided upon the upper surface of the base circular ribs as *a* within which collector receptacles are adapted to be seated.

B is a rod pivoted to the lugs *b* secured to the base A as best shown in Fig. 3.

C and D are cylindrical receptacles provided with removable lids or covers as E F.

G is a yoke or clamp adapted to be carried upon the rod B and the outer ends thereof to engage the lids E and F, and *g* is a thumb nut carried upon the upper threaded end of rod B and is adapted to be screwed up and down upon the rod for the purpose of securing the lids in place or for the purpose of releasing engagement by yoke G of said lids, and permitting the rod to swing freely to one side so that the lids may be released and the receptacles removed from their seat upon base A.

H is an air inlet duct entering the receptacle C angularly with reference to the wall thereof.

I is a portion of a hose which is adapted to be connected with head J but as the head and its connection with the collector receptacles does not form a part of this invention, it is deemed unnecessary to particularly describe its construction and connection.

K is an outlet duct from receptacle C adapted to communicate with receptacle D, said duct being suitably secured to the walls of each receptacle in such a manner as to unite them. The duct K extends upwardly within receptacle C to a point nearly at its top and is designed to be located so that the opening therein will be at substantially the vertical center of receptacle C. The duct K enters receptacle D at about the vertical center of its wall and is adapted to discharge air thereinto tangentially with reference to the interior circumference of the receptacle D.

L is a cylindrical screen frame structure comprising a head or top portion M and a bottom portion N, and a screen O is adapted to connect the head and bottom portions and to form a cylindrical body, and P is a cloth covering extending entirely around the body of the frame structure L, which is designed in practice to be of a material having rather a heavy nap, as such a fabric is best suited for the purpose designed in connection with the operation of the device as a vacuum cleaner.

Q is a flanged tubular casting adapted to have a central opening and is adapted to enter an opening in the bottom of receptacle D and to be bolted to the bottom of the receptacle in the manner shown in the drawings so as to make a complete closure. The flanged tubular casting Q is formed with an offset therein as at *i*, shown in Fig. 2, reducing the size of the upper portion thereof and upon the offset or shoulder *i* there is adapted to be placed a rubber washer or suitable gasket as *k*. The bottom N of the frame structure L is provided with an opening *m* at the center thereof which is adapted to be seated upon the offset or the rubber washer *k* thereon in such a relation as to be readily detached or separated from its support.

R is a pipe or duct communicating with the flanged tubular casting Q and with the pump S. As the pump referred to forms no part of my invention, it is deemed unnecessary to enter into detail description of the same.

In the use of the device, it is designed that

when the parts are in the positions substantially as shown in Fig. 1, and through the operation of the pump, suction is created, it will operate, through the suction from the pump, to draw the air through the shoe and hose connection into receptacle C, and as the inlet duct H enters angularly with reference to the wall of the receptacle, a circular motion will be given to the air, inducing centrifugal action, which will act to separate the major portions of the dust or dirt from the air and cause it to be lodged in the bottom of receptacle C, and the lighter and purer air tending to the center will rise and pass out through outlet duct K and be discharged tangentially with reference to the interior walls of receptacle D and because of the manner of the discharge of the air into the receptacle, it will be given a circular motion, causing the air to travel around and over substantially the entire surface P of the screen frame structure L, thereby distributing the screening function of the screen frame L. The air passing through the cloth and wire screen covering of the screen frame L will pass out through the opening in the flanged tubular casting Q and thence through pipe R into pump S and will escape from the pump through the outlet ducts T T. It is designed in practice that the pump shall be operated by hand power by substantially the means shown in the drawings, or that it may be operated by electric or other suitable power.

When a quantity of dust and dirt has accumulated in receptacles C and D and upon the surface of screen frame L, the receptacles may be readily removed by unscrewing the thumb nut *g* and swinging the bar B sidewise, then the tops E and F may be removed and the receptacles may be lifted together bodily from the base, then the screen frame may be lifted out of the receptacle D and the surface thereof dusted off and the dirt that has accumulated in receptacles C and D may be emptied out and the receptacles placed in the positions shown in Fig. 1, in readiness for operation.

What I claim and desire to secure by Letters Patent is:

1. In a device of the class described, the combination of a dust collecting receptacle provided with an opening in the bottom thereof, an inlet duct opening into said receptacle tangentially with relation to the interior surface thereof, a cylindrical screened body supported within the receptacle in a relation to provide an air circulating space entirely around and between the vertical walls of the receptacle and the screened body and provided with an opening in the bottom thereof, an outlet duct extending upwardly through the openings in the bottom of the receptacle and the screened body, and supporting the latter in a detachable relation, and a vacuum pump communicating with the outlet duct.

2. In a device of the class described, the combination of a vertically disposed, cylindrical dust collecting receptacle provided with an opening in the bottom thereof, an inlet duct opening into said receptacle at about the center of its vertical wall and in a direction tangential with relation to the interior surface thereof, a cylindrical screened body within said receptacle having an opening in the bottom thereof, an outlet duct extending upwardly through the openings in the bottom of the receptacle and the screened body and supporting the latter in a detachable relation, and a vacuum pump communicating with the outlet duct.

3. In a device of the class described, the combination of a vertically disposed, cylindrical dust collecting receptacle provided with an opening in the bottom thereof, an inlet duct opening into said receptacle at about the center of its vertical wall and tangentially with relation to the interior surface thereof, a cylindrical screened body within said receptacle provided with an opening in the bottom thereof, an outlet duct extending upwardly through the openings in the bottom of the receptacle and the screened body provided with an offset thereon, a gasket or washer upon said offset adapted to form a seat for the screened body.

4. In a device of the class described, the combination of a vertically disposed, cylindrical dust collecting receptacle provided with an outlet duct extending upwardly through the bottom thereof, an inlet duct opening into said receptacle at about the center of its vertical wall and in a tangential relation with the interior walls thereof, a cylindrical screened body within said receptacle supported in relation to provide air circulating space between the vertical walls of the receptacle and the screened body and supported upon the outlet duct in a detachable relation, and a vacuum pump operatively connected with the outlet stud.

5. A dust collector including an upright receptacle, a suction pipe extending vertically in the receptacle provided with an offset to form a shoulder thereon, a closed screened body sleeved upon the suction pipe, a removable strainer extended about the screened body and an inlet pipe opening into the receptacle, at about its vertical center and tangentially with reference to the interior surface thereof.

6. A dust collector including an upright receptacle, a suction pipe extending vertically into the receptacle from the exterior thereof provided with a reduced portion thereon to form a shoulder, a screened body removably seated on the suction pipe within

the receptacle, a strainer on the screened body and an inlet duct opening into the receptacle at about its vertical center and tangentially with reference to the interior surface thereof.

7. A dust collector including an upright receptacle, a lid therefor, a suction pipe extending through the bottom and vertically upwardly into the receptacle provided with a reduced portion and a shoulder thereon, a screened body within the receptacle removably seated upon the shoulder of the suction pipe, a cloth strainer extending about the screened body, an inlet pipe entering the receptacle at approximately its vertical center and discharging air into the receptacle tangentially with relation to the interior surface thereof.

In testimony whereof I have affixed my signature in presence of two witnesses.

WILLIAM H. RAKESTRAW.

Witnesses:

CALVIN RAYBURN,

CHARLES M. BUCK.