E. J. BODEY.

SUCTION CLEANER.

APPLICATION FILED NOV. 11, 1912.

1,104,612.

Patented July 21, 1914.

2 SHEETS—SHEET 1.

Fig. 2.

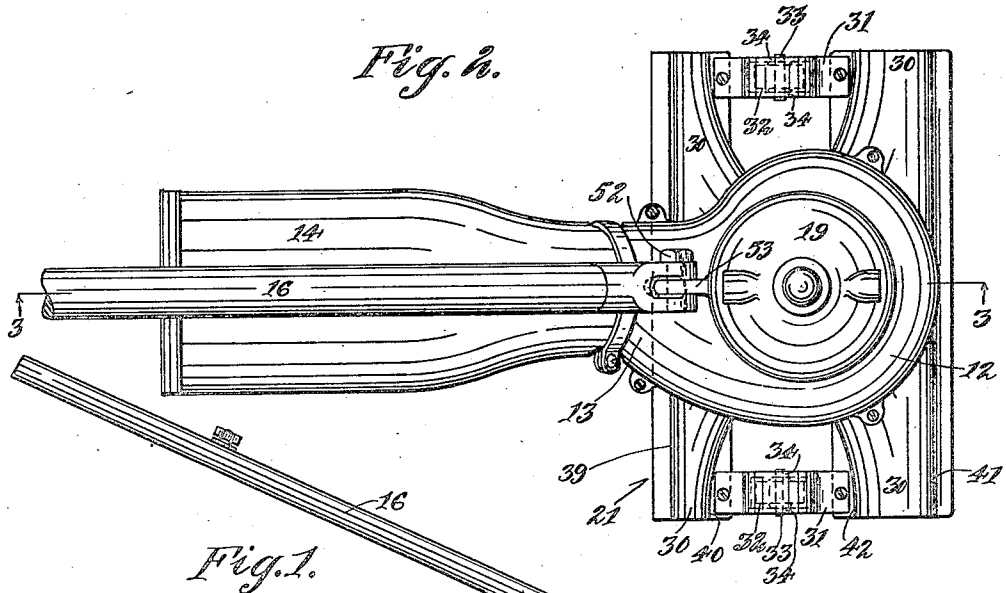


Fig. 1.

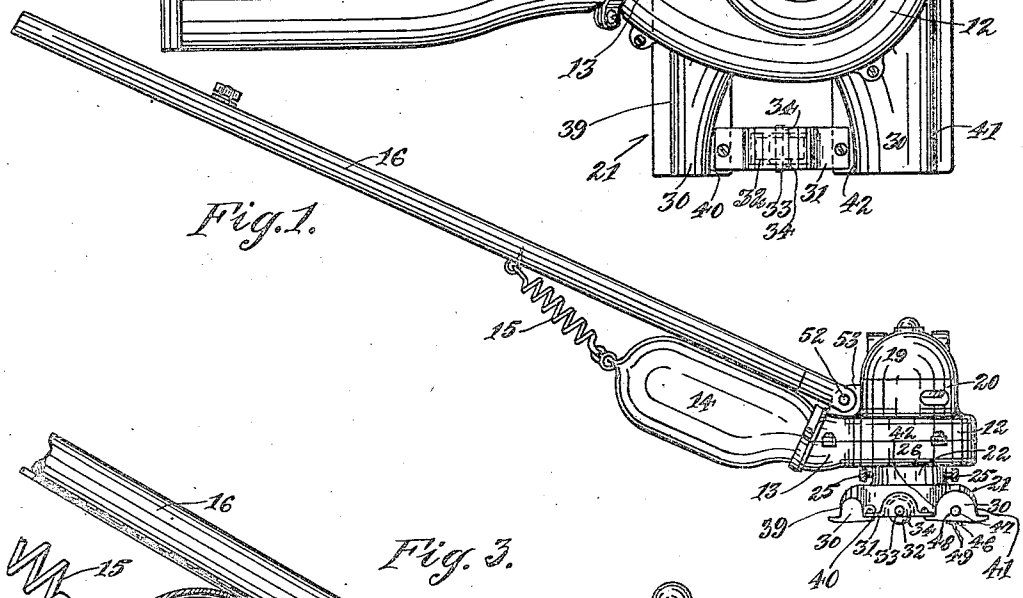
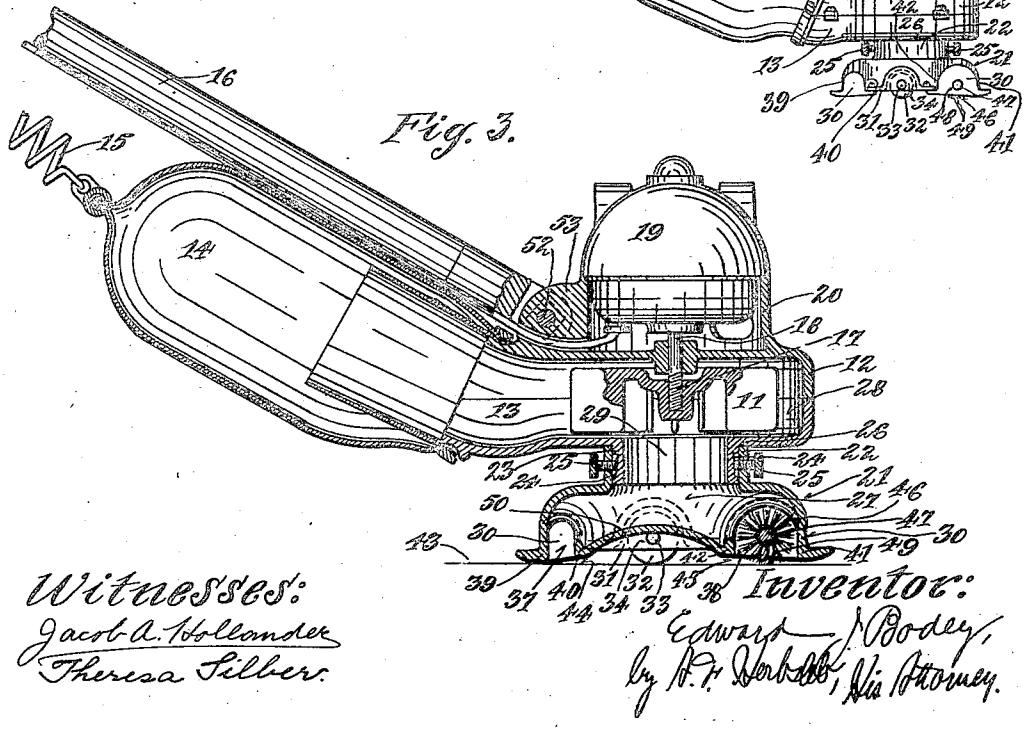


Fig. 3.



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2 SHEETS—SHEET 2.

Fig. 4.

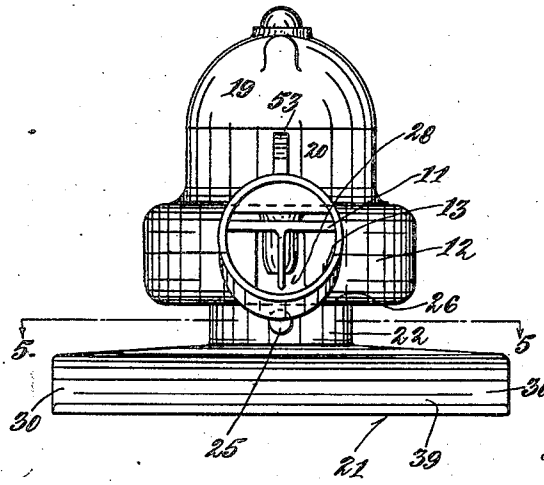
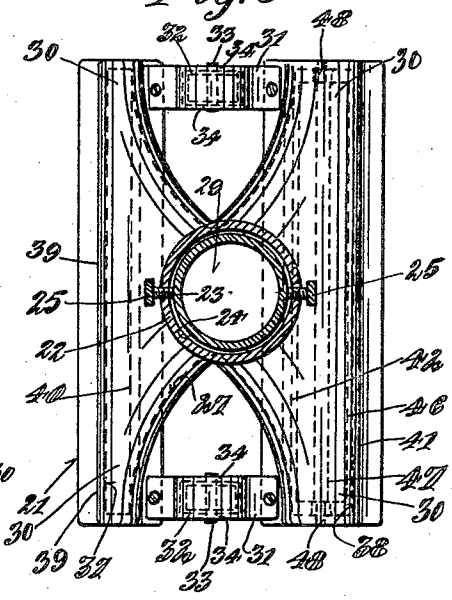


Fig. 5



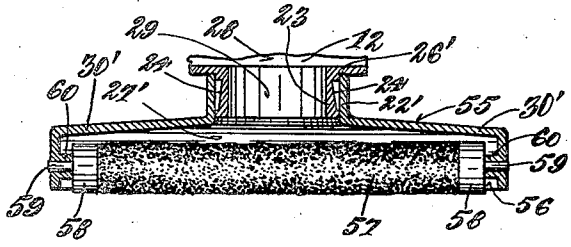


Fig. 7.

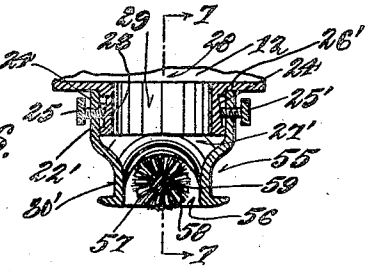


Fig. 6.

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UNITED STATES PATENT OFFICE.

EDWARD J. BODEY, OF CINCINNATI, OHIO, ASSIGNOR TO THE ECLIPSE FOLDING MACHINE COMPANY, OF SIDNEY, OHIO, A CORPORATION OF OHIO.

SUCTION-CLEANER.

1,104,612. Specification of Letters Patent. Patented July 21, 1914.

Application filed November 11, 1912. Serial No. 730,663.

To all whom it may concern:

Be it known that I, EDWARD J. BODEY, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Suction-Cleaners, of which the following is a specification.

My invention relates to suction cleaners, and has for its object the provision of a suction cleaner of novel construction, provided with a nozzle having a plurality of longitudinal suction-openings of different widths which are spaced apart crosswise of said openings, the said nozzle forming a base which supports a fan and motor-case in upright relation; further the provision of a suction cleaner in which the nozzle forms a support for the motor and fan-case and in which the motor-case, fan-case and suction-nozzle have substantially coincident upright axes; and further, the provision of a suction cleaner of novel and compact construction; and the invention will be further readily understood from the following description and claims, and from the drawings, in which latter:

Figure 1 is a side elevation of my improved device. Fig. 2 is a plan view of the same with the handle partly broken away. Fig. 3 is a vertical section of the same on the line 3—3 of Fig. 2. Fig. 4 is a rear elevation of the same with the handle and separating bag removed. Fig. 5 is a horizontal section of the same on the line 5—5 of Fig. 4. Fig. 6 is a vertical section on a line similar to the line 3—3 of Fig. 2, showing a substitute cleaning tool attached to the fan-case; and, Fig. 7 is a vertical section of the same on the line 7—7 of Fig. 6

The suction in my improved device is instanced as created by a fan 11, which rotates in a fan-case 12, having an exit-passage 13, which communicates with a suitable bag 14, serving as a dust separating device. The free end of the bag is supported by a coil spring 15 from the handle 16. The fan is shown secured to an extension 17 of an armature-shaft 18 of a suitable electric motor 19 supported in a motor-case 20, the motor-case being shown supported on the fan-case and instanced as in part surrounded by a sleeve integral with the fan-case.

21 is a nozzle or suction-head having a sleeve 22 received about a sleeve 23 provided with inclined faces 24 against which the ends of screws 25, threaded into the sleeve 22 are received, the construction being such that when the screws are screwed against said inclined faces the sleeve 23 will be urged lengthwise of the sleeve 22 for forming a tight joint 26 between the nozzle and fan-case. The nozzle has a chamber 27 therein which communicates with the chamber 28 in the fan-case by means of the passage 29 through said sleeves, the center of longitudinal projection of said chamber in the nozzle and said passage being preferably coincident with the axes of rotation of the armature-shaft and fan. I prefer to provide the nozzle with a lateral extension 30 at each corner thereof for forming supports for the nozzle and the superposed fan-case and motor-case, in such manner that the parts will stand alone and not tip, whereby the nozzle and superposed parts may be readily moved across the surface to be cleaned with a minimum of exertion. The outer ends of said extensions at each side of the nozzle are connected by a bar 31 in which a roller 32 is journaled on a pin 33 located in bearings 34 in said bar. I prefer to provide the suction-nozzle with a plurality of longitudinally extending suction-openings or slots 37, 38, each coincident with a pair of said extensions 30, these suction-openings being spaced apart crosswise of said openings, that is, side by side, and one of the openings being of greater width than the other. The suction-opening 37 has an outer longitudinal wall 39 and an inner longitudinal wall 40. The suction-opening 38 has an outer longitudinal wall 41 and an inner longitudinal wall 42. The lower end of one of the longitudinal walls of each of said suction-openings, when the suction-nozzle is in operative relation with the surface 43 to be cleaned, is higher than the lower end of the other of the walls of said openings, instanced in this case as the lower ends of the inner walls 40 and 42, which are shown higher than the lower ends of the outer walls 39 and 41, whereby inlet spaces 44, 45, into the chamber 27 through said re-

spective openings are insured. I prefer to provide a brush 46, shown as a rotary brush, in the wider of these suction-openings. The brush is on a shaft 47 located in bearings 48 in the end-walls of the suction-opening. The brush is provided with a flexible portion 49, preferably made of bristles. The rollers are located between the suction-openings and are so placed that the suction cleaner will normally ride upon said rollers and one of the walls of said suction-openings or said brush when passed over a hard surface. The rollers are preferably placed in the vertical plane of the center of gravity of the motor-case, fan-case and suction-head, so as to relieve the friction of the device on the surface being cleaned and the adhesion of the device to said surface caused by the suction, whether said surface be hard or of a soft or fabric nature. When the suction cleaner is supported on the surface being cleaned, the bristles will normally bend upon said surface. The brush is of such diameter and relation relative to the width of the suction-opening as to provide longitudinal spaces between the periphery of the brush and the walls of said opening. The lower wall of the chamber 27 is preferably arched as shown at 50 and located above the plane of the surface 43 being cleaned when the device is in operative relation for providing a substantial draft space, leading to the inlet-spaces 44, 45, into the suction-openings.

The handle 16 by means of which the cleaner-head is moved across the surface being cleaned, in its preferred form is pivoted or clamped to the case by means of a bolt 52 passing through the lower end of said handle and a lug 53 on the case.

The construction of the suction-cleaner is such as to permit the same to be moved across the surface to be cleaned without danger of tipping the same, thereby rendering the same easy in operation. The device is preferably so arranged that the opening having the brush in coaction therewith is at the forward portion of the device, the narrow suction-opening being in rear of the former whereby, in operation, in passing the apparatus across the surface to be cleaned, the said surface is first brushed for loosening the particles of dust that may be therein, the larger particles being swept and sucked into said forward opening, the latter being followed by the narrower opening for sucking up the final particles of dust and dirt and presenting an especially clean surface.

The suction-nozzle is shown removable, and if desired, other suction-tools may be sustituted in place thereof and secured in similar manner to the sleeve of the fan-case. I have shown such a tool in the form of a suction-nozzle 55 having a single opening 56 with a brush 57 therein, a roller 58 being located at each end of the brush. The rollers and brush are mounted on a rod 59 secured in bearings 60 in the suction-nozzle 55, other parts of the latter, similar to parts of the nozzle 21, being shown by similar but primed reference numerals.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. A portable suction cleaner comprising a suction-head having a plurality of suction-slots of relatively different widths, a longitudinally extending brush in the wider of said slots, and supporting rollers between said slots and extending below the face of said suction-head whereby said suction-head is rockingly supported.

2. A portable suction cleaner comprising a suction-head having a plurality of suction-slots spaced apart, a brush mounted in and projecting from one of said slots and supporting rollers located between said slots and projecting below the lower face of said suction-head.

3. A portable suction cleaner comprising a suction-head having a plurality of suction-slots provided with walls extending longitudinally at the sides of said respective slots, one of the walls of each of said slots being higher than the other of said walls thereof when said suction cleaner is supported upon the surface being cleaned, and rollers at the ends of said slots rockingly supporting the suction cleaner upon the surface being cleaned.

4. A portable suction cleaner comprising a suction-head having a pair of suction-slots at its bottom spaced apart and located side by side, each of said slots provided with walls extending longitudinally at the sides of said respective slots, the lower edges of the adjacent ones of said walls being higher than the lower edges of the farthest distanced ones of said walls when said suction-head is supported on the surface being cleaned, forming inlet-spaces for said slots presented toward each other, and an arched connection between said adjacent walls forming an arched draft-space between and communicating with said inlet-spaces, substantially as described.

5. A portable suction cleaner comprising a suction-head having a narrow suction slot and a wide suction slot, said suction-slots extending crosswise of the suction cleaner and located side by side and spaced apart, a suction-creating device communicating with said suction-slots, and a brush extending lengthwise in said wide suction-slot, whereby the particles to be sucked are agitated, said narrow suction-slot having unobstructed connection with said suction-creating device, for the purpose described.

6. A portable suction cleaner comprising a suction-head having a narrow suction-slot and a wide suction-slot, said suction-slots

extending crosswise of said suction cleaner and located side by side and spaced apart, a suction creating device communicating with said suction-slots, the lower edges of the adjacent ones of the walls of said slots being higher than the lower edges of the farthest distanced ones of said walls when said suction cleaner is supported on the surface being cleaned, forming inlet-spaces for said slots, a connection between said adjacent ones of said walls forming a draft-chamber under said suction cleaner communicating with said inlet-spaces, a brush in said wide suction-slot, and said narrow suction-slot having unobstructed connection with said suction-creating device, substantially as described.

In testimony whereof, I have hereunto signed my name in the presence of two subscribing witnesses.

EDWARD J. BODEY

Witnesses:
EDWARD SOUTHWORTH,
THERESA SILBER.