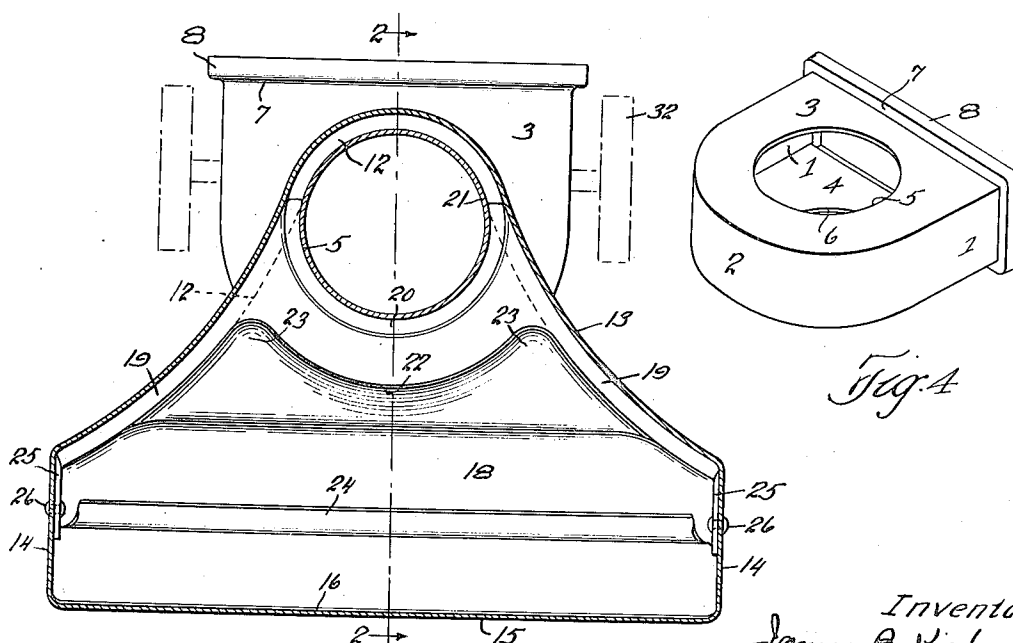
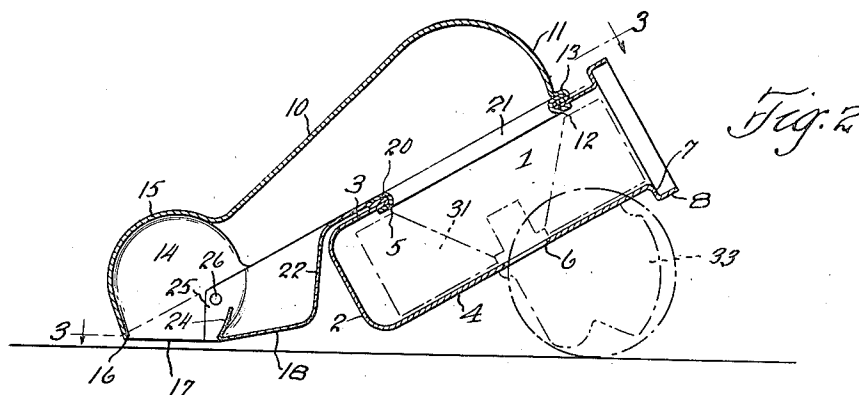
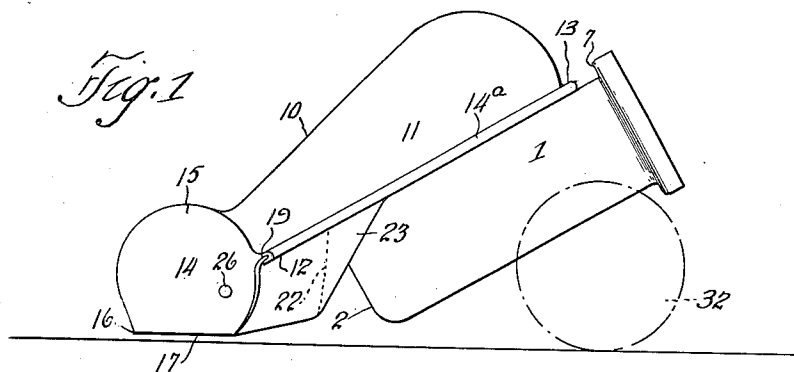


Mar. 6, 1923.

J. B. KIRBY,
CLEANER CASING.
ORIGINAL FILED APR. 12, 1919.

1,447,419.



Inventor
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UNITED STATES PATENT OFFICE.

JAMES B. KIRBY, OF CLEVELAND, OHIO.

CLEANER CASING.

Original application filed April 12, 1919, Serial No. 289,617. Divided and this application filed March 24, 1920. Serial No. 368,249.

To all whom it may concern:

Be it known that I, JAMES B. KIRBY, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Cleaner Casings, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

This invention relates to suction sweepers and especially to a sweeper of the type shown in my Patent No. 1,157,288, issued February 21, 1918, and in my application filed April 12, 1919, Serial No. 289,617, of which the present case is a division. The objects of the invention are the provision of a new, improved, and simplified device of this character which may be made from sheet metal and from a minimum number of parts; the provision of a suction sweeper casing of strong and rigid construction which is susceptible of cheap and rapid manufacture; while further objects and advantages will become apparent as this description proceeds.

In the drawings accompanying and forming a part of this application, I have shown one embodiment of my invention in which Fig. 1 is a side elevation and Fig. 2 a central sectional view of my improved casing (the carrying and operating means being shown phanton); Fig. 3 is a sectional view corresponding to the broken line 3—3 of Fig. 2; and Fig. 4 is a perspective view of the fan casing alone prior to assembly;

In its preferred form my improved casing consists of three parts which I denominate the fan chamber, nozzle, and dust pan. The fan chamber is made from a flat sheet of metal by drawing the same into pocket form, and in its preferred construction has a U-shaped side wall comprising a pair of straight portions 1—1 connected together by a curved portion 2, the margins of the side wall being connected by flat walls 3 and 4 respectively. This forms a pocket-shaped chamber having its square end open as shown in Figs. 3 and 5, in addition to which the sides 3' and 4' are formed with circular openings 5 and 6 respectively. The open end of said chamber is formed with an outturned shoulder 7 surrounded by a rim 8, thus producing a rectangular recess which surrounds the entire device.

The collecting nozzle overlaps the top

of said chamber and is preferably of a flaring or fan shape, its narrowest part surrounding and enclosing the opening 5, and its body broadening with increased distance from said opening to its forward extremity where it projects beyond the limits of said fan chamber. This nozzle has a body portion 10 and side walls 11—11 which meet the top 3 of the fan chamber substantially perpendicularly, said walls having at their lower margin an inturned lip 12 which extends in an unbroken plane entirely around the aperture 5 from one end of the flared portion to the end of the opposite flared portion. In the present embodiment the lower margin of the wall is first turned outwardly as shown at 13 and then folded inwardly to produce the lip 12, the whole producing a rounded bead 14^a as shown in Fig. 1. Beyond this flared portion the top of the nozzle is bent to form a cylindrical segment 15, whose end walls are bent downwardly to constitute ears 14—14 which extend beyond the plane defined by the lip 12.

The cylindrical segment 15 terminates in a straight depending lip 16 which constitutes one side of the inlet mouth, while the ears 14, 14 terminate flush therewith as shown at 17, 17 to form the ends of said mouth.

The dust pan consists of a single, approximately triangular sheet of metal having the portion adjacent to one of its edges depressed to form a receiving ledge 18 and the other two edges left in the same plane as shown at 19 to interlock with the bead 14^a. The apex of the angle defined between the two last mentioned sides is cut away upon the arc of a circle as shown at 20 so as to register with the aperture 5, the dust pan and nozzle being fitted together in such wise that the portion 20 of the one and the lip 12 of the other constitute substantially a circle of the same diameter as that aperture. A sheet metal neck-piece 21 passes through this aperture and is flanged outwardly at each end so as to clamp the three parts together.

The depressed portion of the dust pan is connected with the undeflected portions by inclines whose slope varies at different points, being greatest at the middle point 22 where the distance between the ledge and the fan chamber is smallest and least at the points 23, 23 where this distance is greatest. The forward margin of this ledge portion is

turned upwardly to form a flange 24 which is parallel to the lip 16 and constitutes one side of the inlet mouth, while the ends of the ledge portion are formed with integral upturned ears 25, 25 which fit inside and are secured to the ends 14, 14 by rivets 26.

It will thus be seen that the entire casing is made from three pieces of sheet metal stamped or drawn to the requisite form, and secured together by the seam 14, neck 20 and rivets 26—26. The portion of the nozzle defined by the cylindrical segment 15 which constitutes a brush chamber, and the brushing mechanism may be of any suitable or desired type as also may the operating mechanism. The latter preferably comprises a suitable fan 31 mounted in the fan chamber and driven from the carrying wheels 32 through the instrumentality of suitable gearing located inside a housing 33 secured to the bottom of the fan chamber, said wheels serving to support the fan chamber, at an oblique angle to the horizontal with its open end elevated, all as described and claimed in my patents and applications hereinbefore identified.

It will be understood that many changes in shape and detail of construction can be made within the scope of my invention which is defined in the claims hereto annexed.

Having thus described my invention, what I claim is:—

1. In a casing for suction sweepers, a collecting nozzle, a dust pan and a fan chamber, the nozzle and dust pan being each made of a single piece of approximately triangular sheet metal joined together at two of their edges, the remaining edges being bent one downwardly and the other upwardly and spaced apart to define an inlet mouth, the apices of the edges which are joined together being rounded in opposite directions to define an opening and said fan chamber having an opening registering therewith.

2. In a casing for suction sweepers, a collecting nozzle, a dust pan and fan chamber, the two first parts being made of sheet metal joined at their edges, one of which forms the bottom and is provided with an upturned lip while the other forms a top therefor, the margins of said pieces being formed at one point upon the arc of a circle to define an opening and said fan chamber having an opening registering therewith, and a neck piece interlocked with said openings.

3. In a casing for suction sweepers, a fan chamber having a flat side formed with an inlet opening and a collecting nozzle overlying said opening, said nozzle being made from sheet metal and having a flat arcuate edge which registers with the fan chamber opening, a dust pan made from a single sheet of metal having portions of its edge inter-

locked with the nozzle and also having a flat arcuate portion overlapping said fan chamber and registering with the opposite side of said opening, and a sheet metal eyelet traversing said opening and interlocked with said nozzle and dust pan.

4. In a casing for suction sweepers, a fan chamber having a flat side formed with an inlet opening, a collecting nozzle overlying said opening, said nozzle being made from sheet metal and having walls which meet the flat side of said fan chamber substantially perpendicularly, the margin of said wall being turned inwardly to form a flat lip which rests against said side, a dust pan having a flat portion which overlies said fan chamber inside the limits of said nozzle walls and is cut away so as to define with said lip an aperture which registers with said inlet opening, and a sheet metal eyelet traversing said opening and aperture and securing the parts together.

5. In a suction cleaner casing, a fan chamber of sheet metal drawn to pocket shape and having an aperture in one of its side walls, a nozzle member having a flaring body and a cylindrical brush chamber, a dust pan rigidly attached to the margins of said nozzle member, and means for attaching said nozzle member and dust pan to said fan chamber, said dust pan and nozzle member defining an aperture which registers with said first aperture.

6. In a suction cleaner casing, a fan chamber having an apertured side, in combination with a pair of flaring sheet metal members having two of their sides fastened together and forming, the one a nozzle top and the other a dust pan, said members being formed at their apex to define an opening which registers with the fan chamber opening and having their opposite margins spaced apart to define an inlet mouth, each of said members defining a part of said opening.

7. In a suction cleaner casing, a fan chamber of sheet metal having a flat apertured side, a nozzle member of sheet metal having a flaring body and a cylindrical brush chamber, and a sheet metal dust pan also having flaring sides rigidly attached to the flaring margins of said nozzle member, said nozzle member and dust pan having their apices formed to define an aperture which registers with said first aperture, and a neck member traversing said apertures and holding the parts together.

8. In a suction cleaner casing, a fan chamber having a circular inlet opening, a sheet metal nozzle member having an arcuate lip subtending a part of this opening and also having a body portion which flares away from said opening, a dust pan having its margins rigidly secured to the margins of said nozzle member and having an arcuate lip subtending the remainder of said inlet

opening, and a flexible metal neck overlapping said lips and traversing said opening and securing the parts together. 25

9. In a suction cleaner casing, a sheet metal member having a straight lip and also an arcuate flange at a distance from said lip, a second sheet metal member rigidly attached to the margins of said first member and having a straight lip spaced from and parallel to the first lip to define an inlet mouth and also having an arcuate flange cooperating with said first flange to produce a circular opening, a neck projecting through said opening and overlapping both flanges, and a fan chamber having a circular inlet opening in which said neck is secured. 30

10. In a suction cleaner casing, a pocket shaped fan chamber having a U-shaped wall, the margins of said U being connected by integral flat parallel walls each of which is formed with an aperture, the open end of said pocket-shaped chamber being formed with an outwardly opening rectangular recess adapted to receive the mouth of the dust bag. 35

11. In a suction cleaner casing, a nozzle member made of sheet metal and comprising a body of flaring shape having depending side walls which terminate in a continuous inturned flange which defines a single plane throughout its entire length, a sheet metal fan chamber having a flat side to which said nozzle is applied, said fan chamber having an aperture surrounded by said nozzle, and a dust pan portion having its edge interlocked with said flange and having its body portion conforming approximately to the shape of said fan chamber and having an edge registering with the edge of the fan chamber aperture, and a metal neck secured in said aperture and fastening all the parts together. 40

In testimony whereof, I hereunto affix my signature.

JAMES B. KIRBY.