

March 3, 1942.

H. B. WHITE

2,274,971

SUCTION CLEANER

Filed April 24, 1939

3 Sheets-Sheet 1

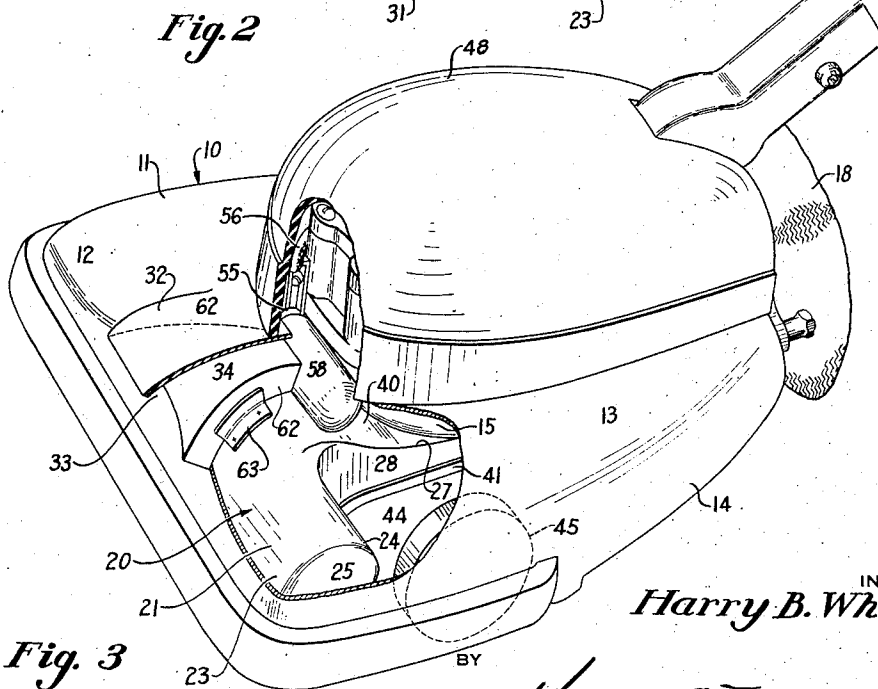
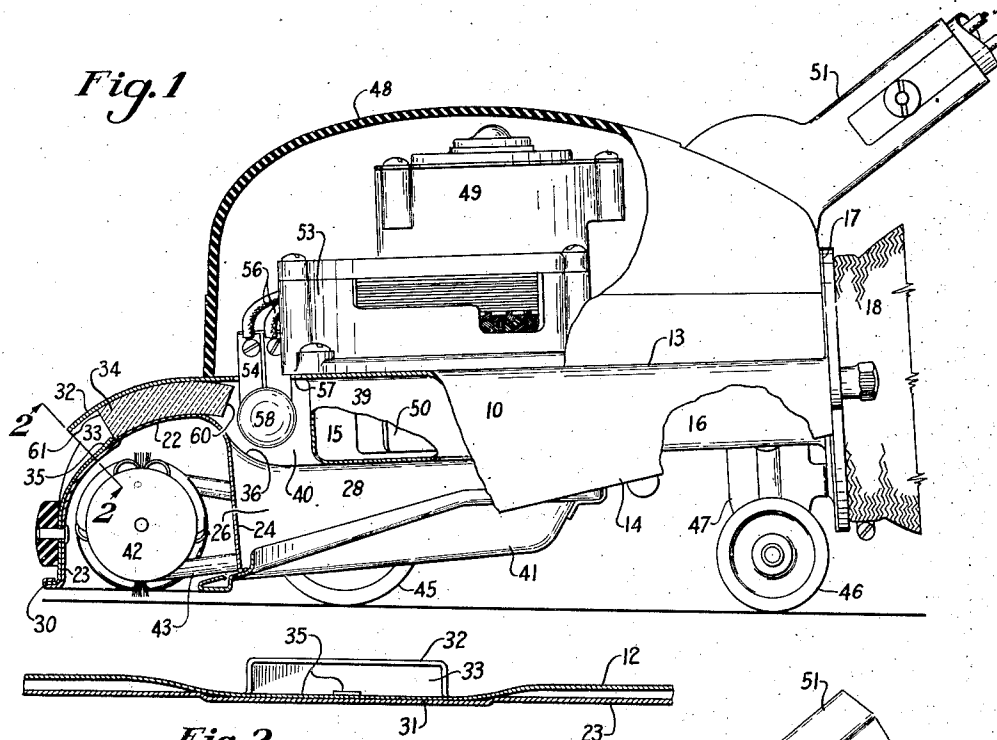
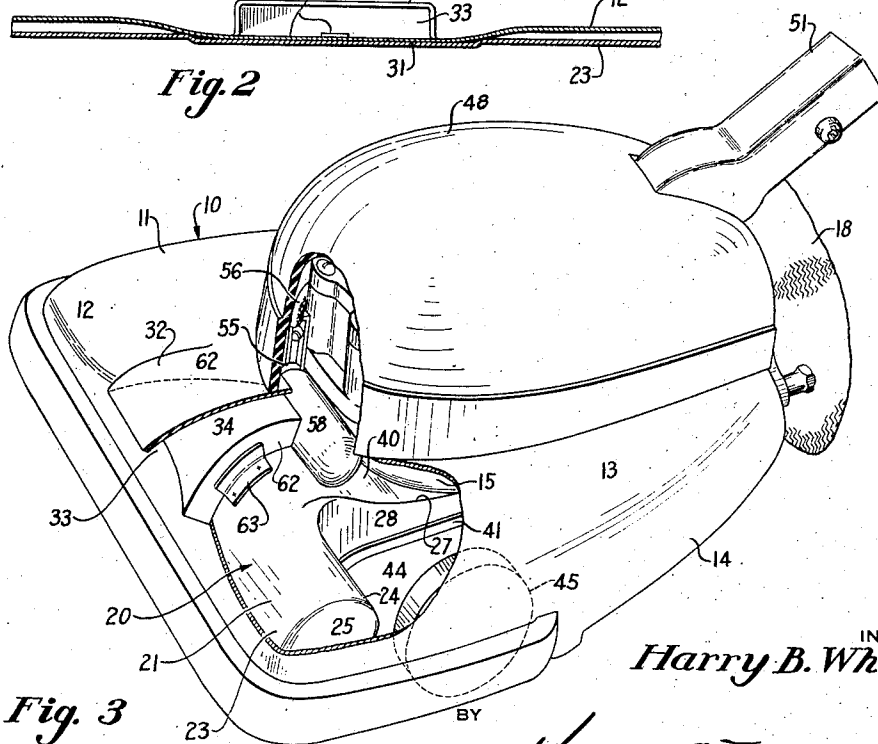


Fig. 3



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3 Sheets-Sheet 2

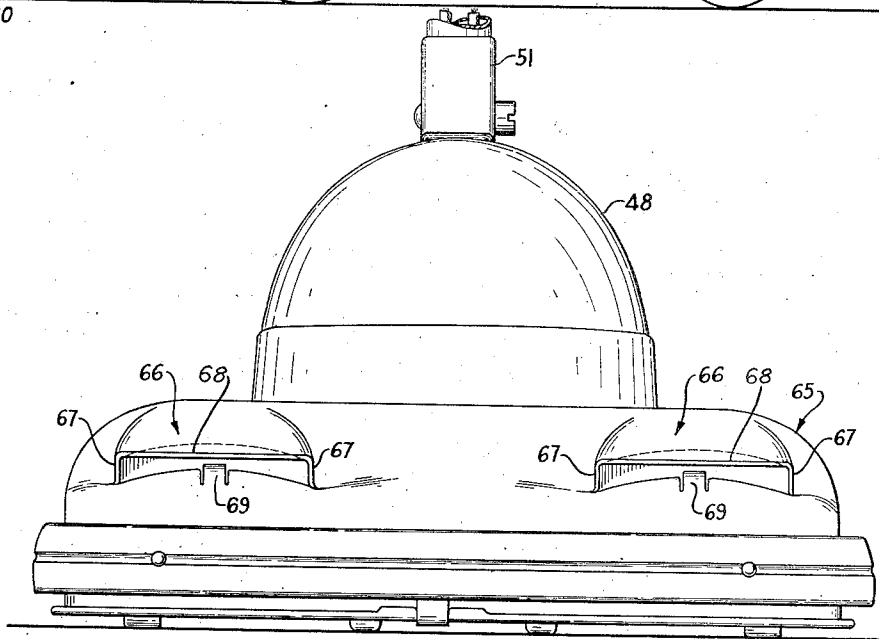
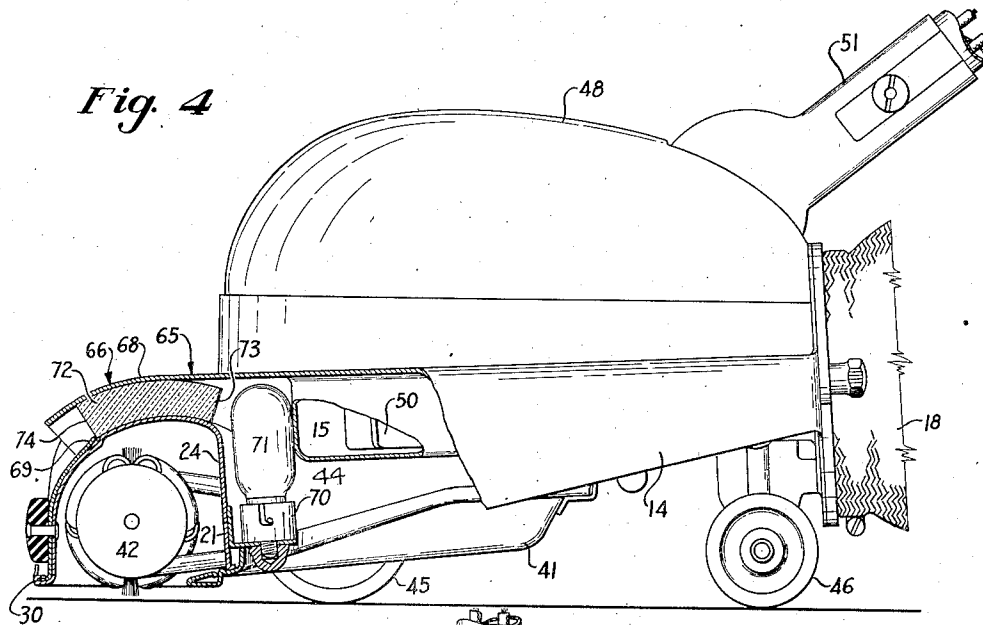


Fig. 5

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3 Sheets-Sheet 3

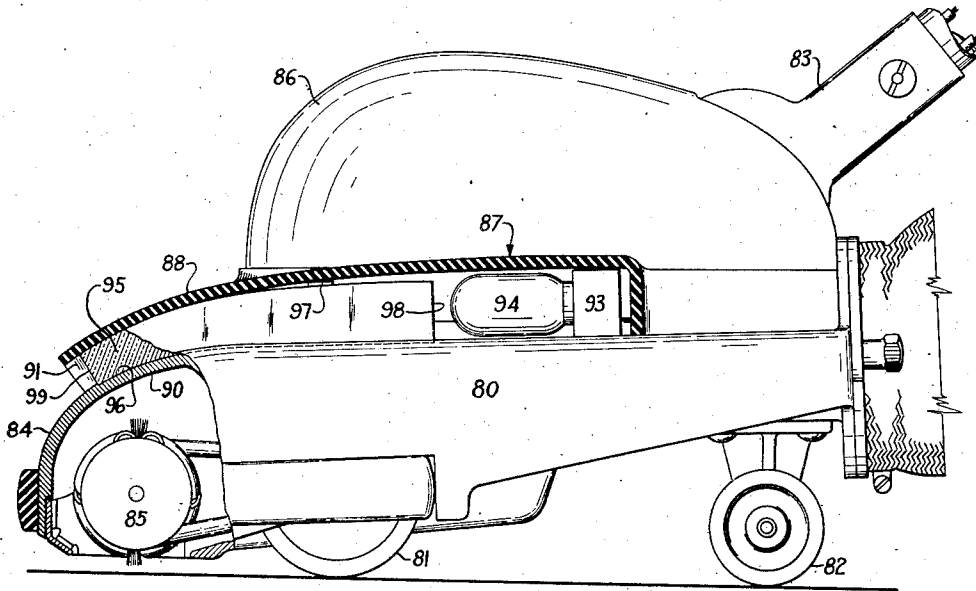


Fig. 6

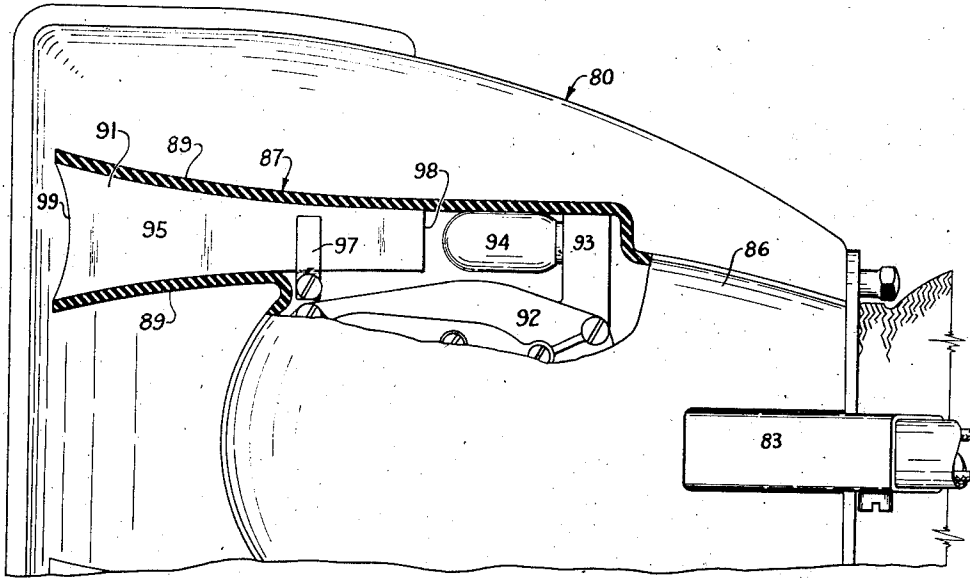


Fig. 7

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2,274,971

SUCTION CLEANER

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Application April 24, 1939, Serial No. 269,624

1 Claim. (Cl. 240—2)

The present invention relates to suction cleaners in general and particularly to a new and novel suction cleaner construction embodying floor-illuminating means. More specifically the invention comprises an improved construction in which the light source is positioned and carried in a new and novel manner.

It is an object of the present invention to provide a new and improved suction cleaner. It is another object to provide a new and improved suction cleaner casing embodying floor-illuminating means. A further object is to provide means in the casing for supporting a light source remotely from the suction cleaner nozzle, and means to transmit the light rays emitted from the light source toward the surface covering undergoing cleaning immediately forward of the suction cleaner nozzle. Further objects and advantages of the invention will be apparent from the specification and claim and drawings; wherein:

Figure 1 is a side elevation of a suction cleaner partly in section showing the light source mounted in a recess rearwardly of the suction cleaner nozzle and below the top thereof;

Figure 2 is a section along the line 2—2 of Figure 1;

Figure 3 is a perspective view with parts broken away of the embodiment shown in Figure 1;

Figure 4 is a side elevation of a suction cleaner partly in section showing another embodiment of the invention, the light source being mounted in the front wheel pockets of the cleaner casing;

Figure 5 is a front elevation of Figure 4;

Figure 6 is a side elevation of another embodiment of the invention showing the light source mounted towards the rear of the machine along-side the motor housing and;

Figure 7 is a horizontal sectional view of Figure 6.

One embodiment of the invention is shown in Figures 1 to 3 and comprises a suction cleaner having a main casing 10 formed of an outer casing 11 provided with a nozzle 12 from which rearwardly extends a substantially flat top wall 13 and contoured side skirts 14. The outer casing 11 is a stamping of sheet metal which has its central portion pressed downwardly to form a fan chamber 15 and a rearwardly extending exhaust passageway 16. A bag flange 17 is formed at the rear end of the outer casing 11 and to which a dust bag 18 is removably attached.

Cooperating with the outer casing part 11 to form the main casing of the cleaner is an inner casing 20 which also comprises a metallic stamp-

ing having a downwardly facing nozzle portion 21 formed with a top wall 22, front wall 23, rear wall 24 and end walls 25, the nozzle 21 opening to a rearwardly extending passageway 26 communicating with the fan chamber and having a top wall 27 and side walls 28. The nozzle portion 21 is of such size as to fit within the outer nozzle casing 12 and is secured to the latter by a flange folded over the lower extremity of the nozzle portion 12 of the outer casing 11 as indicated at 30.

The bottom wall of the air passageway 26 is formed by a removable cover plate 41 which conforms to the lower edges of the side walls 28 of the inner casing 20. An agitator 42 is mounted in the nozzle and is connected by means of a belt 43 to an unshown motor driven pulley. The side walls 28 of the air passageway 26 are spaced from the skirt 14 of the outer casing 11 rearwardly of the nozzle 21 to form wheel pockets 44 adapted to house the front wheels 45 which are mounted on the outer casing 11. Rear wheels 46 are supported on a bracket 47 which is mounted on the rear end of the outer casing 11.

The forward wall 23 of the inner nozzle lies against the forward wall of the outer nozzle portion 12 as indicated at 31, and the outer casing 11 is so stamped as to provide a wall portion 32 which is spaced from the inner casing nozzle 21 to form an opening 33 for accommodating a lens 34. The metal 35 which remains after forming the projecting wall 32 is bent inwardly of the opening 33 to lie snugly against the inner nozzle 21. The top wall 27 of the air passageway 26 is recessed or curved downwardly at 36 from the top wall 22 of the inner nozzle 21 and extends under and in contact with the bottom wall of the fan chamber 15, and the surfaces are welded together. The top wall 27 of the suction passageway 26 and the top wall 13 of the outer casing 11 cooperate with the side wall 39 of the fan chamber to define a lamp housing 40 rearwardly of the nozzle 12 and below the top wall 13 of the outer casing 11.

A housing 48 encloses a motor 49 mounted on the outer casing 11 and the motor drives a suction fan 50 and an unshown motor pulley to rotate the agitator 42. Rotation of the fan 50 creates suction to draw dirt-laden air through the nozzle 12 and air passageway 26 into the fan chamber 15 and discharges the dirt-laden air through the exhaust passageway 16 into the bag 18. A handle 51 is mounted on the outer casing 11 to manipulate the cleaner over the surface being cleaned.

Mounted on the motor frame 53 is a bracket 54 which extends downwardly through an elongated opening 57 in the outer casing 11 into the lamp housing 40. Mounted on the bracket 54 is a lamp socket 55 and a pair of contacts which are connected to a pair of current conducting leads 56 connected to a suitable source of current. Supported in the socket 55 is an electrical lamp 58 which is positioned in the lamp housing 40 rearwardly of the cleaner nozzle and below the top wall thereof, so that the nozzle interferes with the straight line light rays emitted by the lamp to prevent the light rays from striking the floor covering forwardly of the cleaner nozzle. The elongated slot 57 is of such size the lamp 58 can be removed with the motor 49 as a unit from the cleaner casing.

Arranged in the lens housing 33 is the lens 34 provided with a light receiving surface 60 adjacent the lamp 58 and a light emitting surface 61 which is arranged above the lower end of the nozzle 12. The light emitting lens surface 61 extends throughout the width of the lamp housing 33 and has tapered side walls 62 extending rearwardly to the light receiving lens surface 60. The lens 34 is contoured to the outline of the nozzle and is held in position by the lip 35 on the outer casing 11 and brackets 63 welded to the inner casing and abutting the lens 34.

The lens is composed of a material, such as quartz which is adapted to bend light rays by reflection and thus operates to transmit the straight line light rays emitted by the lamp 58 around the nozzle to direct the light on the surface being cleaned immediately in front of the cleaner nozzle.

Referring now to Figures 4 and 5 a second preferred embodiment of the invention is disclosed. The general arrangement of the cleaner in this embodiment is identical to that of the first, the difference between the two embodiments lies in the means for supporting the light source, and the means in the outer casing for providing a housing for the lens. According to the present embodiment, the outer casing 65 is provided with a pair of spaced housings 66 which are formed by punching out a portion of the metal of the outer casing 65 to provide openings having side walls 67 and a top wall 68, the punched out metal being turned inwardly of the lens housing 66 to provide a lip 69 which functions to hold the lens in position.

Disposed in the two wheel pockets 44 at opposite ends of the nozzle are a pair of supporting brackets welded to the rear wall 24 of the inner nozzle 21 to support lamp sockets 70 connected to an unshown source of current. Arranged in each lamp socket is an electric lamp 71 which extends vertically in the wheel pockets and opposite the inner end of each lens housing so as to direct straight line light rays to the lens 72. The lenses 72 are curved to conform to the contour of the inner nozzle 21 and have their light receiving lens surfaces 73 arranged adjacent the lamps 71 below the top wall of the nozzle, and their light emitting lens surfaces 74 terminate at a point above the front nozzle lip so as to illuminate the surface immediately forwardly of the nozzle.

In the operation of this embodiment the straight line light rays emitted by the lamps 71 are directed on the lens receiving surfaces 73 and the lenses 72 bend the light rays by reflection around the nozzle onto the surface covering immediately in front of the nozzle.

Referring to Figures 6 and 7 another embodiment of the invention is disclosed and comprises a suction cleaner having a casing 80 movably supported on front and rear wheels 81 and 82 respectively, the cleaner being manipulated by means of a handle 83. The cleaner casing is provided with a nozzle 84 in which is rotatably supported an agitator 85 that is rotated by a motor 92 enclosed within a motor housing 86. Formed integrally with the motor housing along the opposite side walls thereof, is a pair of elongated lens housings 87 which extend from the opposite longitudinal sides of the housing 86 forwardly of the latter and terminate above the nozzle 84 at the front end of the cleaner. Each lens housing 87 is formed with a top wall 88 and two side walls 89 which cooperate with the top wall 90 of the cleaner casing 80 to form elongated chambers 91.

Mounted on each side of the motor 92 is a lamp socket 93 for accommodating an electric lamp 94 in the chamber 91, and supported in the latter between the lamp 94 and the front end of the lens housing is a light transmitting lens 95 which is supported in a recess 96 provided in the top wall of the cleaner casing. Brackets 97 are mounted on the cleaner casing to secure the lenses in position. In the operation of this embodiment the straight line light rays given off by the lamps 94 strike the light receiving lens surfaces 98, the lenses 95 bending the light rays by reflection throughout their longitudinal lengths until it is emitted from the lens emitting surfaces 99 so as to illuminate the surface covering immediately in front of the suction nozzle 84.

It is to be understood that the protection herein applied for is not confined to the particular combinations of features or elements set out in the following claim. Protection is herein applied for, for any one or more of the features or elements referred to in the following claim, or described in the foregoing specification or shown in the accompanying drawings, either independently or in combination.

I claim:

A suction cleaner comprising a motor housing and a main casing formed from cooperating casing sections defining a double-walled nozzle adapted to engage the surface to be cleaned, an electric lamp positioned rearwardly of the front of said nozzle and below the top thereof, the walls of said double-walled nozzle being spaced apart to define an open-ended passageway opening into said motor and extending from said lamp in said housing to a point adjacent the forward end of said nozzle, and a solid light-transmitting element of substantially the size of said passageway supported therein and having one end exposed to the light produced by said lamp and its other end extending between said spaced apart walls of said nozzle to illuminate the surface in front of said nozzle.

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