Aug. 8, 1944. E. L. SNYDER 2,355,183

SUCTION CLEANER

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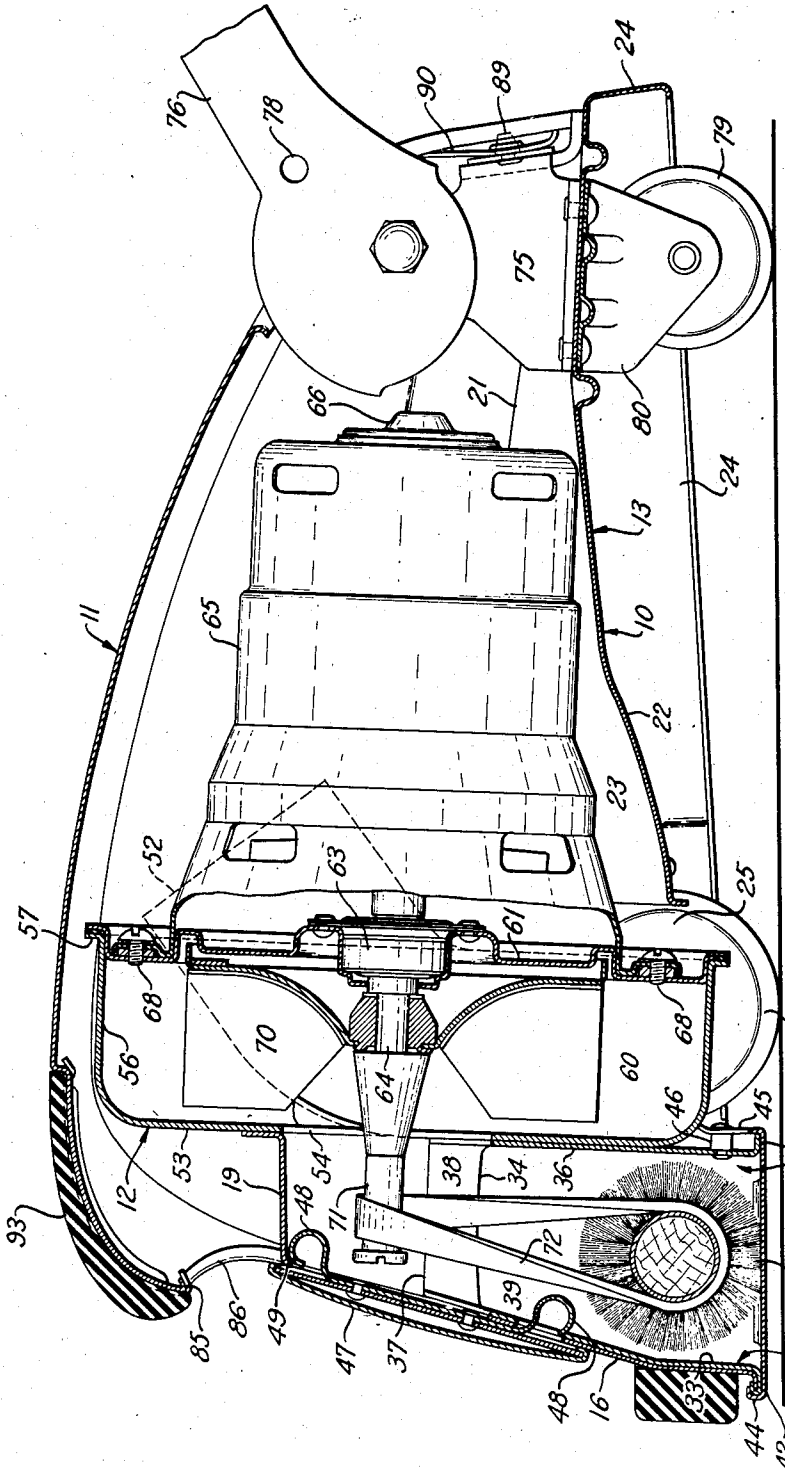

Fig. 1

INVENTOR
Eugene L. Snyder
BY
Harry S. Edwards
ATTORNEY

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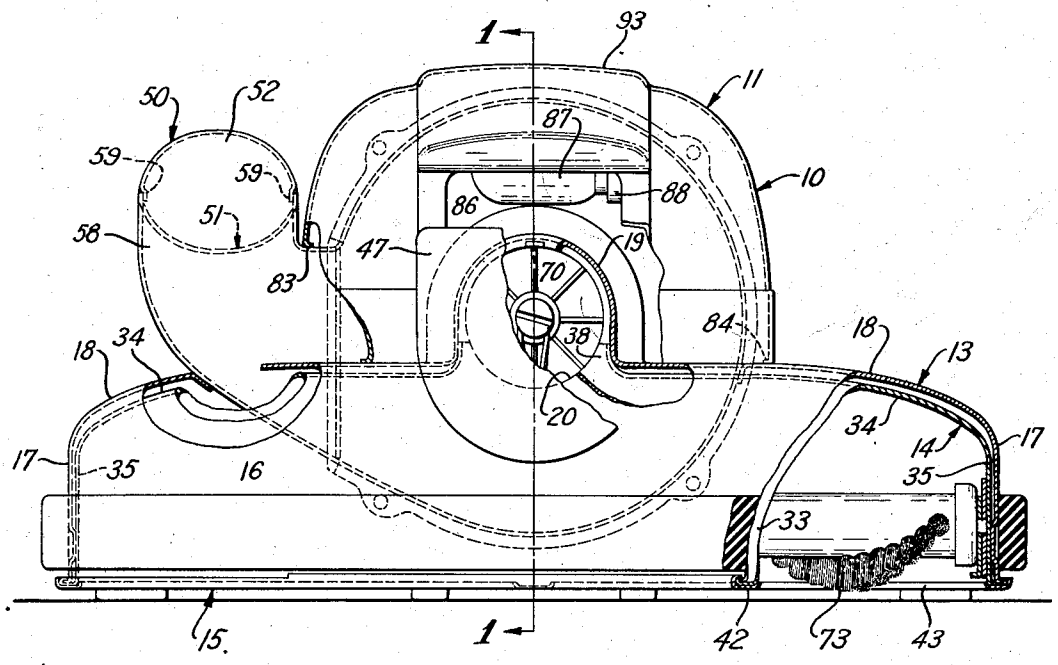

Fig.2

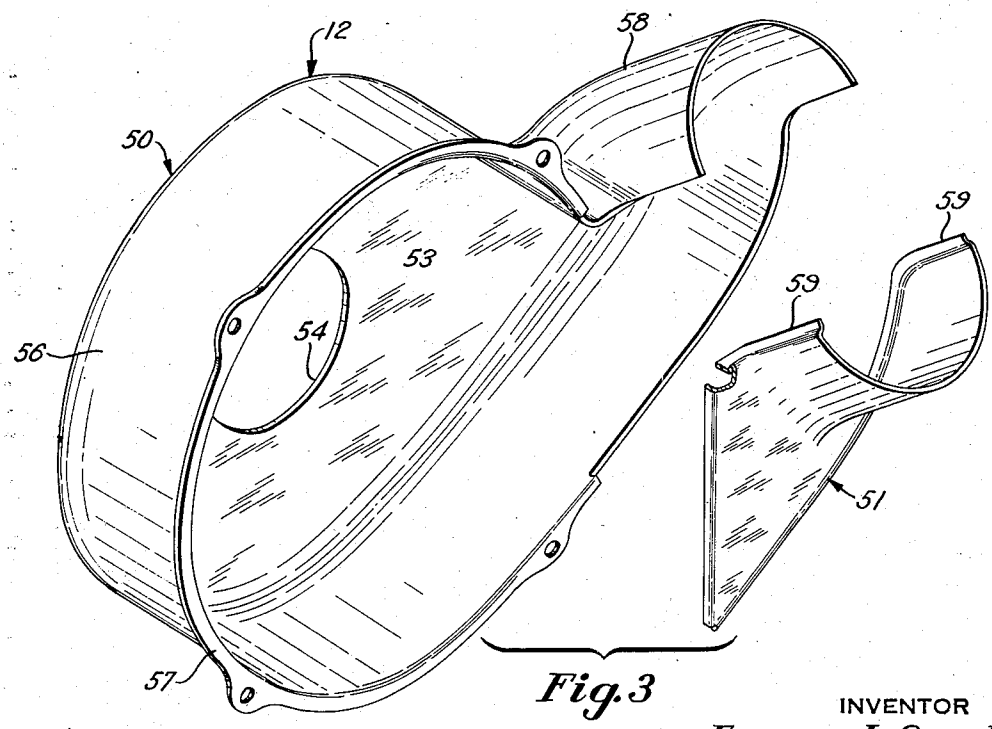

Fig.3

INVENTOR
Eugene L. Snyder
BY
Harry S. Bucarre
ATTORNEY

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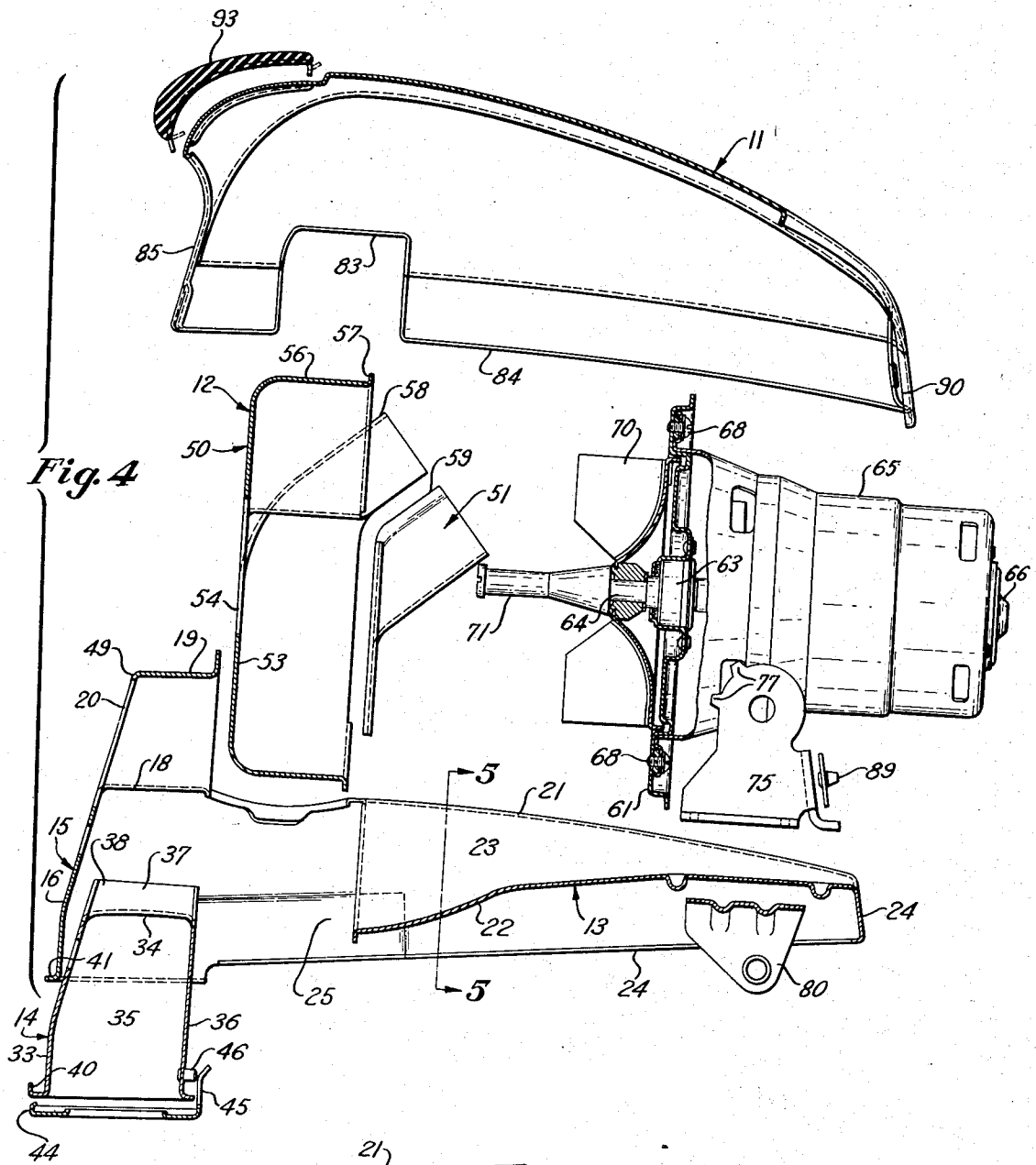
Fig. 4



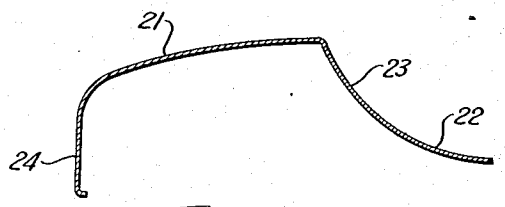


Fig. 5

INVENTOR
Eugene L. Snyder
BY
Harry S. Duncan
ATTORNEY

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UNITED STATES PATENT OFFICE

2,355,183

SUCTION CLEANER

Eugene L. Snyder, Canton, Ohio, assignor to The Hoover Company, North Canton, Ohio, a corporation of Ohio

Application April 15, 1942, Serial No. 439,052

5 Claims. (Cl. 15—16)

The present invention relates to suction cleaners and more particularly to a new and novel suction cleaner casing construction.

An object of the invention is to provide a new and improved suction cleaner. Another object is to provide a built-up cleaner casing of stamped metal parts which are of improved design and permit economy of manufacture and assembly. Further objects and advantages of the invention will be apparent from the following description and the attached drawings, wherein:

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

Fig. 2 is a front elevational view of the suction cleaner partly in section;

Figure 3 is an exploded perspective view of part of the fan casing section;

Figure 4 is an exploded view of the casing parts prior to assembly, and

Figure 5 is a section along the line 5—5 of Figure 4.

The embodiment of the invention herein disclosed comprises a suction cleaner having a body or casing 10 formed from a plurality of metal stampings identified generally as a shell 11, fan casing section 12, base 13 and brush roll housing 14. The base 13 is formed from a metal blank stamped to provide a nozzle 15 having a front wall 16, opposite end walls 17, 17 and a top wall 18, the latter being provided with an upwardly extending arcuate wall 19 to define with the front wall 16 a converter opening 20 along the longitudinal center line of the cleaner body. The top wall 18 extends rearwardly from the nozzle 15 to the rear end of the cleaner to form spaced aprons 21, 21 between which is a depressed wall 22 defining a recess 23 for a motor, the aprons 21, 21 and depressed wall 22 merging at the rear end of the base and terminating in a depending skirt 24 which extends from the rear of the cleaner body along both sides of the latter to the nozzle end walls 17, 17. An opening 25 is provided between the depressed wall 22 and the arcuate wall 19 for the accommodation of the fan casing section 12.

A brush roll housing 14 is also formed from a metal blank stamped to provide a front wall 33, top wall 34, end walls 35, 35 and a rear wall 36, such walls lying adjacent the nozzle walls of the base 13. An opening 37 is formed in the top wall 34 by a neck section 38 which extends a slight distance into the arcuate wall 19 and contacts the inner surfaces of the latter and the front wall 16 to form an air-tight seal therebetween and thus provide a suction air passageway 39. The housing 14 and base 13 may be spot welded together at available places and a marginal flange 40 at the nozzle mouth is bent over a cooperating marginal flange 41 on the base 13. The front and rear nozzle lips 42 and 43 on the suction nozzle mouth are formed by a stamped metal frame removably mounted on the housing 14 by means of a marginal flange 44 which seats about the crimped marginal edge of the housing 14, and a lip 45 is removably supported on a pin or pins 46 mounted on the rear wall 36 of the housing 14. A plate 47 covers the converter opening 20 and is removably secured to the cleaner body by means of spring clips 48, 48 one of which engages a flange 49 on the arcuate wall 19 and the other projects through an opening in the front walls 16 and 33.

A pair of metal stampings 50 and 51 cooperate to form the fan casing section 12 and an exhaust passageway 52. The stamping 50 includes a front wall 53 provided with a fan eye 54 and a peripheral wall 56 which terminates in a marginal flange 57, and a part 58 of the peripheral wall 56 extends tangentially rearwardly and is welded to the rabbeted edge 59 of the cooperating stamping 51 to form the exhaust passageway 52. When the fan casing section 12 is completed it is inserted in the opening 25 in the base 13 until it rests upon the edges of the opening 25 and thereafter it is spot welded to the base 13 and to the rear wall 36 of the housing 14. In order to complete the fan casing and provide a fan chamber 60, a stamped metal wall 61 is removably attached by nut and bolt connections to the marginal flange 57 of the fan casing section 12.

A bearing 63 is mounted in the fan casing wall 61 to support one end of an armature shaft 64 of a motor enclosed in a housing 65 which has a bearing 66 to support the other end of the armature shaft and the housing 65 is removably mounted on the fan casing wall 61 by screws 68. Supported on the armature shaft 64 is a fan 70 disposed in the fan chamber 60 and at the extreme forward end of the armature shaft is a pulley 71 disposed in the suction passageway 39. A belt 72 extends from the pulley 71 to a brush 73 rotatably mounted in the end walls 35, 35 of the housing 14 to rotate the brush into contact with the surface being cleaned.

Mounted on the depressed wall 22 rearwardly of the motor housing 65 is a handle bracket 75 which pivotally supports the handle 76. Formed on the handle bracket 75 is a toothed sector 77 which is adapted to engage an unshown hand- or foot-actuated pawl pivotally mounted at 78

in the handle 76 to hold the handle in adjusted positions. Rear wheels 79 are supported on a bracket 80 mounted on the underside of the depressed wall 22, and front wheels 81 are each mounted on an unshown bracket welded to the skirt 24 on the base 13.

The portions of the motor housing 65 and fan casing which project above the base 13 are enclosed by the stamped steel shell 11 which has a cut-off section 83 to span the exhaust passageway 52 and has its marginal edge 84 resting on the apron 21 and the top wall 18 of the base 13. The forward end 85 of the shell 11 is spaced from the arcuate wall 19 of the base 13 to provide an opening 86 for the escape of light rays from an electric lamp 87 mounted in a bracket 88 supported on the shell 11. The shell is removably mounted on the base 13 by means of pins 89 on the handle bracket 75 and which extend through openings in the rear wall 90 of the shell 11 while the front end of the shell is secured to the base 13 by means of unshown screws. A furniture guard 93 is removably mounted on the upper front wall of the shell 11.

In assembling the parts, the housing 14 is inserted in the nozzle section 15 of the base 13 and spot welded thereto and the marginal edge 40 crimped over the marginal edge 41 of the nozzle section 15. The fan casing section 12 is then placed in the opening 25 in the base 13 and spot welded to the latter and to the rear wall 36 of the housing 14. Thereafter the motor and the fan casing wall 61 are placed as a unit in the recess 25 and moved forwardly to place the motor pulley 71 and fan 70 in their proper positions and the fan casing wall 61 is then bolted to the marginal edge 57 of the fan casing section 12. The handle 76 is pivotally mounted on the bracket 75, and the shell 11 is attached by placing the end wall 90 over the pins 89 and then the forward end of the shell is moved downwardly into contact with the base 13 to which it is rigidly secured by unshown screws.

I claim:

1. A sectional casing for suction cleaners comprising a base forming in part walls of a nozzle and a suction air passageway, a complete converter opening in said base, a wall extending rearwardly from the nozzle and having a depressed wall area, an opening extending through said base between said nozzle and depressed wall area, a housing member cooperating with said base to complete said nozzle and suction air passageway, a fan casing section recessed in said opening and resting on said base and secured to said base and housing member and communicating with said suction air passageway, a motor unit removably recessed in said depressed wall area and including a fan casing wall removably attached to said fan casing section to complete a fan chamber, and a shell member enclosing the exposed portions of said motor and fan casing.

2. A sectional casing for suction cleaners comprising a base including means forming a nozzle and air passageway, a wall extending rearwardly from said nozzle and having a depressed area, an opening through said base between said nozzle and depressed area, a fan casing recessed in said opening and resting on the defining edge of said opening in said base and secured to the latter and communicating with said air passageway, a motor in said depressed area for operating a fan in said fan casing, and a shell removably attached to said base for enclosing the exposed portions of said fan casing and motor.

3. A sectional casing for suction cleaners comprising a base forming the exterior front and opposite end walls of a nozzle portion, a housing within said base and having walls contiguous with said exterior front and end walls of said base, said housing having a rear wall to complete the nozzle, an opening through said base rearwardly of said rear wall, a vertically arranged fan casing recessed in said opening and resting on the defining edge of said opening in said base with a wall contiguous said rear wall, said fan casing communicating with said nozzle, and a motor on said base for operating a fan in said fan casing.

4. A suction cleaner comprising a base having a nozzle at its forward end and a wall extending rearwardly from said nozzle to the rear end of said base, an opening through said base rearwardly of said nozzle, a vertical fan casing in said opening and projecting partially therebelow and resting on the defining edge of said opening, and a motor-fan unit recessed partially below the plane of the highest point of said rearwardly extending wall for alignment of said fan in said fan casing.

5. A suction cleaner comprising a base having a nozzle at its forward end, an opening through said base rearwardly of said nozzle, a depressed area in said base extending from said opening toward the rear end of said cleaner, a vertical fan casing in said opening and projecting partially therebelow and resting on the defining edge of said opening, and a motor-fan unit recessed in said depressed area, said fan being insertable into and aligned in said fan chamber by movement of said motor-fan unit forwardly in said depressed area.

EUGENE L. SNYDER.