

E. M. BARNES.
VACUUM CREATOR.
APPLICATION FILED NOV. 4, 1912.

1,152,473.

Patented Sept. 7, 1915.

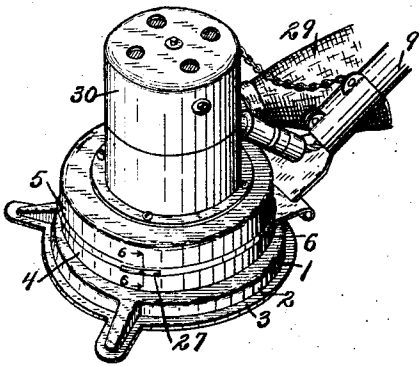


Fig. I.

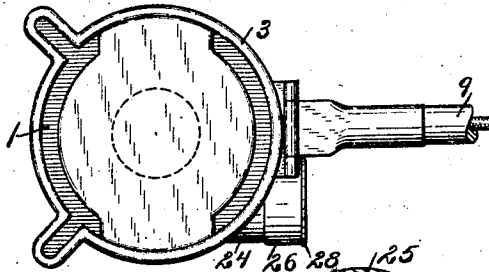


Fig. II.

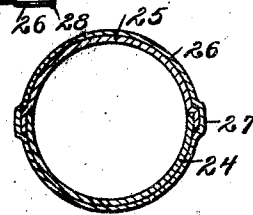


Fig. VII.

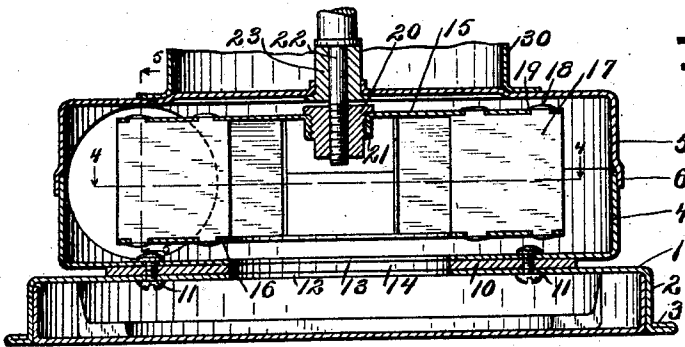


Fig. III.

Fig. VI.

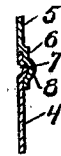
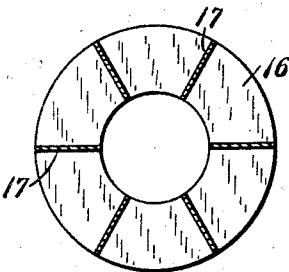


Fig. IV.

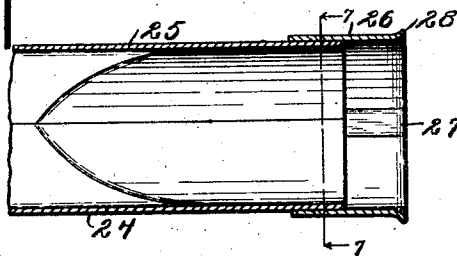


Fig. V.

Witnesses

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VACUUM-CREATOR.

1,152,473.

Specification of Letters Patent.

Patented Sept. 7, 1915.

Application filed November 4, 1912. Serial No. 729,240.

To all whom it may concern:

Be it known that I, EDWARD M. BARNES, a citizen of the United States, residing at Hastings, Michigan, have invented certain new and useful Improvements in Vacuum-Creators, of which the following is a specification.

This invention relates to improvements in vacuum-creators.

10 The main objects of this invention are, first, to provide in a vacuum creator, an improved casing in which the parts are sheet metal stampings and are simple in form and economical to produce and assemble, second, 15 to provide in a vacuum creator, an improved suction fan structure.

Further objects, and objects relating to structural details, will definitely appear from the detailed description to follow.

20 I accomplish the objects of my invention by the devices and means described in the following specification.

The invention is clearly defined and pointed out in the claims.

25 A structure which is a preferred embodiment of my invention is clearly illustrated in the accompanying drawing forming a part of this specification, in which:

30 Figure I is a perspective view of a structure embodying the features of my invention, a portion of the handle being broken away. Fig. II is an inverted view of the structure appearing in Fig. I, the dust bag being omitted. Fig. III is a detail vertical 35 central transverse section. Fig. IV is a horizontal section through the fan, on a plane corresponding to line 4—4 of Fig. III. Fig. V is a detail section through the delivery nipple of the fan casing, on a plane corresponding to line 5—5 of Fig. III. Fig. VI 40 is a detail section on a plane corresponding to line 6—6 of Fig. I. Fig. VII is a detail section on a plane corresponding to line 7—7 of Fig. V.

45 In the drawings, similar reference characters refer to similar parts throughout the several views, and the sectional views are taken looking in the direction of the little arrows at the ends of the section lines.

50 Referring to the drawing, the base or shoe 1 is preferably cylindrical as shown and comprises a circular plate provided with a downwardly projecting flange 2 at its edges.

The lower edge of the flange 2 is turned outwardly and thence back upon itself to 55 provide a tread 3. This shoe is described in detail and claimed in my application for Letters Patent filed June 17, 1911, Serial Number 633,642, for vacuum cleaners.

Mounted upon the shoe or base 1 is a fan 60 casing comprising a pair of pan-like section 4 and 5, the upper section being inverted upon the lower. The bottom section 4 is secured to the shoe 1.

To secure a good joint between the sec- 65 tions and rigidly support the parts, the top section 5 is offset at 6 to receive the edge of the bottom section 4. The section 4 is provided with lugs 7 which are struck therefrom,—see Fig. VI—while the offsets 6 of 70 the sections 5 are provided with seats 8 for the lugs. As the sections are forced together, the lugs 7 snap into their seats. If desired, in order to insure an air tight joint between the sections 4 and 5, some sealing 75 material may be used in the joint as will be readily understood.

To afford an effective means of attaching the handle 9 and to reinforce the parts and connect the shoe 1 with the fan casing, I 80 interpose a plate 10 between the base and the fan casing. See Fig. III.

The shoe plate and the bottom section 4 of the fan casing are connected by bolts 11. 85 The shoe and the bottom member of the fan casing and the plate 10 are provided with registering central openings 12, 13 and 14 respectively which connect the suction chamber of the shoe with the fan casing. This reinforcing and handle attaching plate fea- 90 ture is also claimed in my said application. The fan is mounted centrally above this connecting opening and consists of the top plate 15, the bottom plate 16 having radially disposed blades 17 between them. These 95 blades are formed of metal plates provided with integral rivet lugs or rivet projections 18 arranged through and riveted in openings 19 in the plates. This provides a very light fan structure and at the same time, one 100 which is strong and rigid. The upper plate 15 is provided with a nut 20 which is threaded into the internal threaded flange 21 formed in the top plate. The shaft 22 is arranged through a bearing 23 mounted on the 105 top section 5 of the fan casing.

The fan thus constructed, is not likely to become clogged and should a string or thread become entangled therein it is easily disengaged. Further, the fan is very light and at the same time is of large capacity.

5 The fan casing sections 4 and 5 are provided with integral nipple extensions 24 and 25 joined together in the manner described, that is, the joint offsets 6 of the upper section are extended into the nipple extension 10 25 to receive the edges of the lower extension. A ferrule or sleeve 26 is slipped over these nipple extensions, the ferrule being provided with channels 27 on its sides adapted to receive the seams formed by the 15 joints of the sections. This ferrule serves as a lock for the fan casing sections and further is provided with a flange 28 at its outer end over which the mouth of the dust bag 29 is arranged.

The shaft 22 is driven by a suitable electric motor arranged in the casing 30. I preferably use the motor structure described in Patent, #1,034,408, dated Aug. 6, 1912.

25 By forming the parts as I have illustrated and described, they may be produced by drawn or die work and each is so formed that the structure is very compact and light in weight. Each section of the casing is, 30 owing to its shape, reinforced so that while light material is used, the casing is very strong and rigid. The pan-like shape of the fan casing sections 4 and 5 and their joints render these parts very rigid.

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

1. In a structure of the class described, the combination of a fan casing chamber 40 consisting of a pair of sheet metal pan-like sections, the upper section being inverted upon the lower, said sections being provided with integrally formed registering delivery nipple members at one side, the lower section 45 being provided with joint lugs, the edge of the upper section being shouldered downwardly to receive the edge of the lower and being provided with seats for said lugs; and a ferrule sleeved upon said delivery nipple 50 members of said fan casing sections, said ferrule having opposed grooves adapted to receive the shouldered portions of said upper section, said ferrule and lugs and their coacting seats coacting to secure the said casing 55 sections together.

2. In a structure of the class described, the combination of a fan casing chamber consisting of a pair of sheet metal pan-like sections, the upper section being inverted 60 upon the lower, said sections being provided with integrally formed registering delivery nipple members at one side, the edge of the upper section being shouldered downwardly to receive the edge of the lower; and a 65 ferrule sleeved upon said delivery nipple

members of said fan casing sections, said ferrule having opposed grooves adapted to receive the shouldered portions of said upper section.

3. In a structure of the class described, 70 the combination of a fan casing chamber, consisting of a pair of sheet metal pan-like sections, the upper section being inverted upon the lower, said sections being provided with integrally formed registering delivery 75 nipple members at one side, the lower section being provided with joint lugs, the edge of the upper section being shouldered downwardly to receive the edge of the lower and being provided with seats for said lugs. 80

4. In a structure of the class described, the combination of a pair of sheet metal pan-like sections, the upper section being inverted upon the lower, said sections being provided with integrally formed projecting 85 delivery nipple members at one side; and a ferrule sleeved upon said delivery nipple members of said fan casing sections and constituting a member for securing said sections together, said ferrule being adapted 90 to receive the neck of a dust bag.

5. In a structure of the class described, the combination of a cylindrical fan casing chamber comprising a pair of sheet metal facing pan-like sections having telescoping 95 engagement, said sections being provided with integrally formed tangentially disposed registering delivery nipple members, one of said sections being provided with lugs and the other with seats for said lugs; and a ferrule sleeved upon said delivery nipple 100 members of said fan casing sections, said ferrule and lugs and their coacting seats coacting to secure the said casing sections together. 105

6. In a structure of the class described, the combination of a cylindrical fan casing chamber comprising a pair of sheet metal facing pan-like sections having telescoping 110 engagement, said sections being provided with integrally formed tangentially disposed registering delivery nipple members, one of said sections being provided with lugs and the other with seats for said lugs, coacting 115 to secure the parts together.

7. A structure of the class described, comprising a fan casing having a discharge opening at one side and a central inlet opening in its bottom; a fan consisting of an upper 120 and a lower plate, the lower plate being provided with a central opening; plate-like blades arranged between said plates and having rivet projections on their edges arranged through holes provided therefor in 125 said plates and riveted therein, said blades constituting the only connection for said plates, there being a space between the inner edges of the blades; a vertically disposed shaft; and a nut carried by said top plate threaded upon said shaft; whereby said fan 130

is supported with the opening in said bottom plate thereof above and in close proximity to the inlet opening of said fan casing.

8. A structure of the class described,
5 comprising a fan casing having a discharge opening at one side and a central inlet opening in its bottom; a fan consisting of an upper and a lower plate, the lower plate being provided with a central opening;
10 plate-like blades arranged between said plates, there being a space between the inner edges of the blades; a vertically disposed

shaft; and a nut carried by said top plate threaded upon said shaft, whereby said fan is supported with the opening in said bottom plate thereof above and in close proximity to the inlet opening of said fan casing. 15

In witness whereof, I have hereunto set my hand and seal in the presence of two witnesses.

EDWARD M. BARNES. [L. S.]

Witnesses:

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