

Patented Feb. 16, 1915.

2 SHEETS—SHEET 1.

1,128,510.

Fig. 1

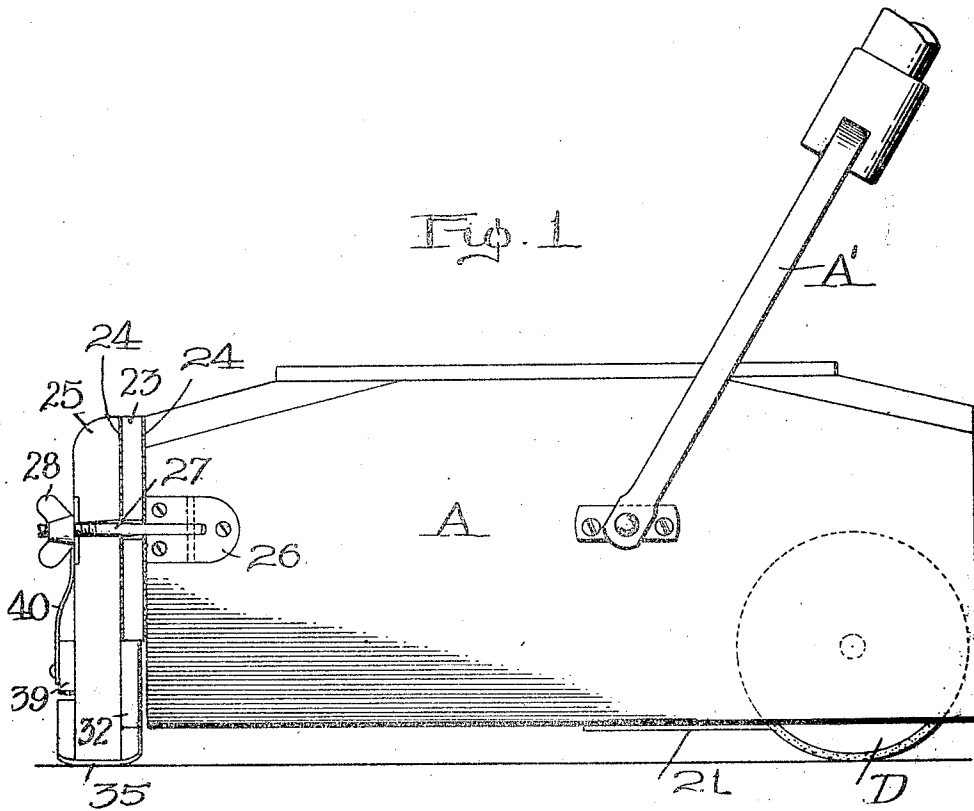
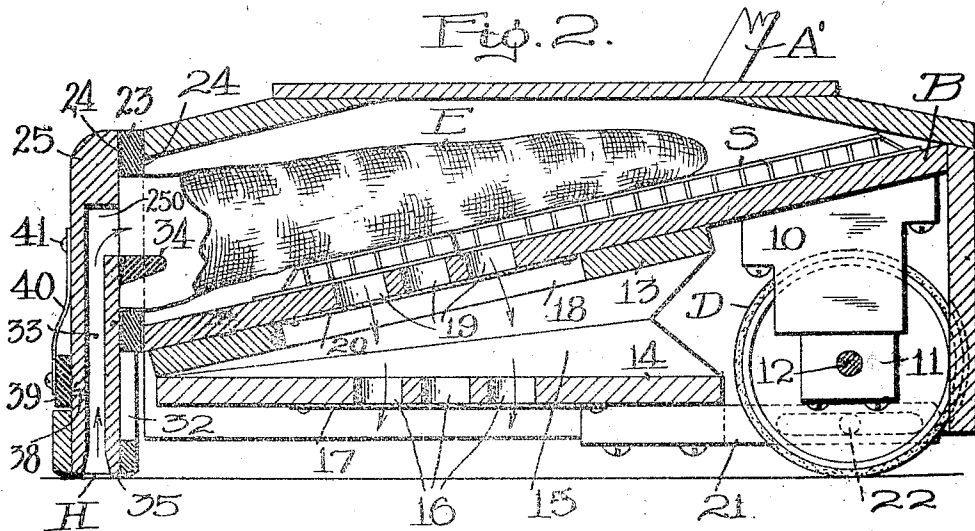


Fig. 2.



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DUST COLLECTOR.

APPLICATION FILED OCT. 4, 1911.

Patented Feb. 16, 1915.

2 SHEETS-SHEET 2.

1,128,510.

Fig. 3.

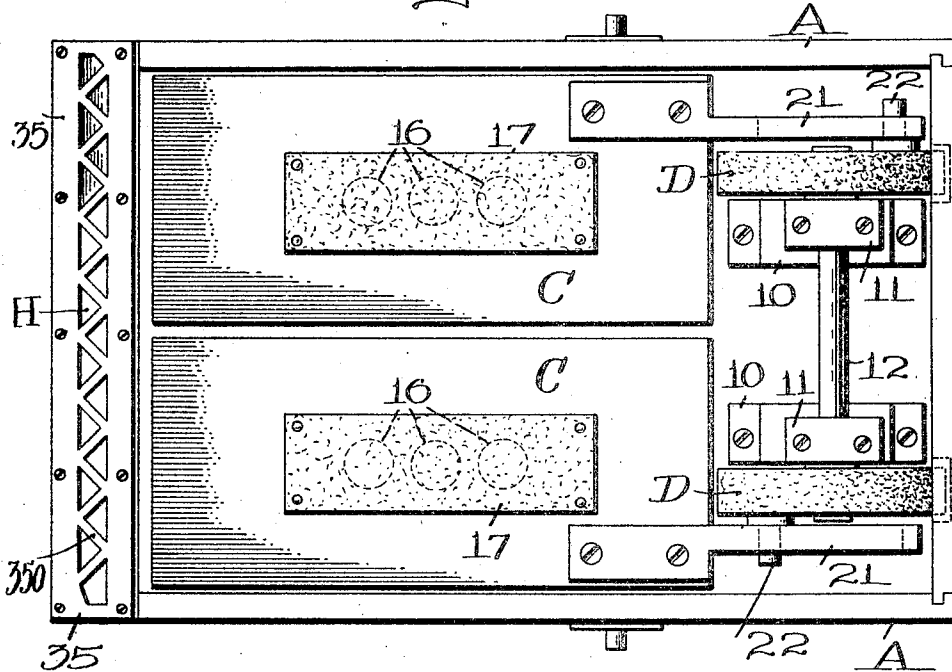


Fig. 4.

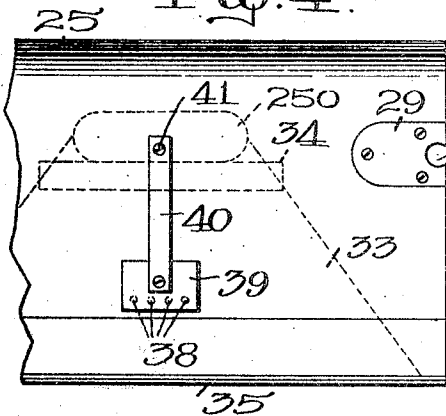


Fig. 5.

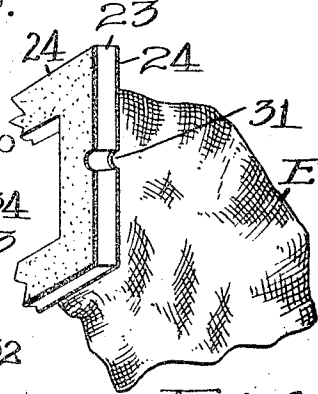
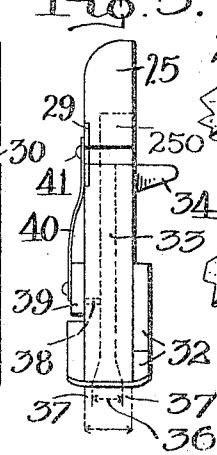
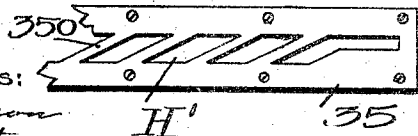


Fig. 6.

Fig. 7.



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UNITED STATES PATENT OFFICE.

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DUST-COLLECTOR.

1,128,510.

Specification of Letters Patent.

Patented Feb. 16, 1915.

Original application filed July 21, 1911, Serial No. 639,744. Divided and this application filed October 4, 1911. Serial No. 652,800.

To all whom it may concern:

Be it known that I, FRANK J. QUIST, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Dust-Collector, of which the following is a specification.

This application for patent is filed in pursuance of a requirement of the Patent Office and is a division of my original application for patent filed July 21, 1911, Serial No. 639,744.

The invention relates particularly to the construction of a dust collector particularly adapted for use in carpet sweepers.

Referring to the accompanying two sheets of drawings forming part of this application for patent, Figure 1 is a side elevation of the improved structure; Fig. 2 is a sectional elevation thereof; Fig. 3 is a bottom plan view thereof; Fig. 4 is a partial front elevation of the front end piece which carries the suction nozzle; Fig. 5 is a side elevation thereof; Fig. 6 is a partial perspective view illustrating the connection of the dust collecting bag; and Fig. 7 is a partial plan view of a modified form of nozzle.

Referring to the drawings and in detail A designates a box having an open under side and front end. A yoked handle A' is pivoted to this box as usual in carpet sweepers, so that the same can be moved forward and backward. The box is separated into upper and lower compartments by a diagonal partition B. Secured to the bottom of the upper end of this partition are blocks 10—10, which carry bearings 11—11 in which is journaled a shaft 12, secured on the ends of which are friction wheels D which are preferably coated with rubber. These wheels extend slightly below the bottom of the box so as to support the rear of the same, and so that said wheels will be revolved as the cleaner is moved back and forth.

C—C designate two air exhausting pneumatics, each having a fixed board 13 and a movable board 14, the movable board being hinged to the front end of the fixed board, and the two boards being connected by a yielding membrane or diaphragm 15. The lower board 14 of each pneumatic is pro-

vided with a series of holes 16, covering which is a suitable membrane valve 17 arranged on the lower side of the movable board 14. The upper board 13 of each pneumatic is secured to the diagonal partition B, and is provided with a hole 18 set to register with a number of orifices 19 cut through the partition B. * A membrane valve 20 is secured to the bottom of the partition B to cover each series of openings 19. A slotted yoke 21 is connected to the movable board 14 of each pneumatic and engaging the same is a crank pin 22 secured to the friction wheels D. The crank pins 22—22 on the two friction wheels D—D are preferably set at 180 degrees to each other so as to provide a practically continuous operation. Covering the holes formed in the partition B is a screen S, the top surface of which is elevated above the partition B.

E designates the dust collecting bag which is disposed in the upper compartment of the cleaner, and which has its body resting on the screen S.

By elevating the screen in the manner shown practically all the surface of the dust collecting bag is subjected to the induced vacuum. This is an important point in practice because the dirt accumulates on the bottom side of the dust bag and by allowing the induced vacuum to operate on practically all the surface of the dust bag, the surfaces of the bag which are not covered by dust are so arranged that they will perform the function of separation. By this arrangement, very little dust can go through the dust bag and the bag can be used until it is practically filled. The dust bag E is secured at its mouth or open end to a rectangular partition 23 which preferably is provided with leather faces 24—24.

25 designates the front frame or end piece of the cleaner. Brackets 26 are secured to the sides of the box near its front end and pivoted to the same are screws 27 on which are threaded thumb-nuts 28. Secured to the front face of the end piece 25 are bearing pieces 29 which have slots or holes 30 cut therein. Slots or holes 31 also are formed in the sides of the rectangular frame 23. The rectangular frame 23 and front end

piece 25 are secured to the front of the box by turning the screws 29 to engage said slots 30 and 31, and by tightening up the thumb-screw 28. By loosening the thumb-screws 28 and turning said screws 27 the front end piece 25 and the dust bag E can be removed from the cleaner.

The rear surface of the front end piece 25 is provided with a molding 32 which comes under the rectangular frame 23 so that when the parts are secured in position the said molding will support the rectangular frame 23. The front end piece 25 is provided with a rearwardly extending opening 250 which is arranged in position to communicate with the interior of the rectangular frame 23 and thus with the dust collecting bag E. This opening 250 is extended down through the front end piece 25 by a passage or communication 33 so that said opening 250 will connect with the nozzle. The front end piece 25 is provided with a deflecting rib 34 arranged under the opening 250, which deflecting rib projects into the dust collecting bag E as shown in Fig. 2. This will form a trap under the opening 250 so that the dust or dirt collected in the bag will not shake out through the opening 250.

The nozzle is formed on the lower edge of the front end piece 25. This nozzle is preferably formed by a brass plate 35 secured to the lower edge of the front end piece. This nozzle has a flat or plane surface of a width indicated by the dimension 36 in Fig. 5. Cut in the brass plate are a series of inlet orifices or openings H. These orifices are cut so as to leave a number of straight diagonal ribs 350 between them. The orifices preferably comprise a series of triangular openings alternately disposed so as to be separated by said straight diagonal ribs. Said orifices are less in width than the plane surface 36 of the brass plate so as to leave flat bearing surfaces at the front and rear of said series of orifices, said bearing surfaces having a width designated by the dimensions 37—37 in Fig. 5. By this arrangement of straight diagonal ribs, the nap of the carpet will be spread apart as the nozzle is pushed over the same, and the close engagement of the surfaces 37—37 therewith in front of and behind the openings H will cause an effective rush of air through said separated nap to clean the carpet.

It is desirable in some cases to vary the tension or air suction on the nozzles. To this end an inlet is provided in the connection to the air nozzle, and means is provided for varying the area of the inlet. This inlet preferably consists of a series of holes 38 bored in the front of the front end piece 25. A valve or shutter 39 is secured on the end of a spring 40 which is pivoted at 41 to the

front end piece 25. By this arrangement the valve or shutter can be adjusted to open or close one or more of said openings and thereby vary the tension at the nozzle.

In Fig. 7 a modified form of nozzle is shown, in which the openings H' are shaped like parallelograms, leaving diagonal ribs 350.

In operation the cleaner is reciprocated back and forth over the carpet which it is desired to clean, and the valve or shutter 39 is adjusted so that the desired air tension or suction is obtained upon the carpet.

The device is exceedingly compact, easy to manufacture, and efficient in operation.

The details herein shown and described may be greatly varied by a skilled mechanic without departing from the scope of my invention as expressed in the claims.

Having thus fully described my invention, what I claim and desired to secure by Letters-Patent is:

1. In a vacuum cleaner, the combination of a box, an inclined partition therein, said box having an opening in a vertical side thereof above the lower end of said partition, an air-exhausting device below the partition, an elevated screen supported by the upper side of the partition, and a dust collecting bag extending along said screen with its open mouth surrounding said opening.

2. In a vacuum cleaner, the combination of a suction chamber having an inclined bottom and an inlet opening in a vertical wall adjacent to the lower end of said bottom, a dust bag lying along said inclined bottom and having its open mouth in said inlet opening, and a cap in position to cover the open mouth of the bag, said cap having an outlet spaced from the bottom of said inlet and having a horizontal rib projecting into the open mouth of the bag just below said outlet.

3. In a vacuum cleaner, the combination of a suction chamber having an inlet opening in a vertical wall adjacent to the bottom, a dust bag lying along said bottom and having its open mouth in said inlet opening, and a cap in position to cover the open mouth of the bag, said cap having an outlet spaced from the bottom of said inlet and having a horizontal rib projecting into the open mouth of the bag just below said outlet.

4. In a vacuum cleaner, the combination of a suction chamber having an inlet opening in a wall thereof, a dust bag having an open mouth surrounding said opening, and a flat rib projecting from said opening into the bag and providing a dust collecting trap under it, the opening above said rib being free.

5. In a vacuum cleaner, the combination of a box having an upright side provided

with an opening and a perforated bottom, a screen spaced from the bottom, and a dust collecting bag having an open mouth surrounding said opening, the body of the bag extending upwardly from said opening and resting on said screen.

my hand, in the presence of two subscribing witnesses.

FRANK J. QUIST.

Witnesses:

LOUIS W. SOUTHGATE,
C. FORREST WESSON.

In testimony whereof, I have hereunto set