O. DRAKE.

VACUUM CLEANING MACHINE.

APPLICATION FILED AUG. 4, 1913.

1,126,732.

Patented Feb. 2, 1915.

2 SHEETS—SHEET 1.

Fig. 1

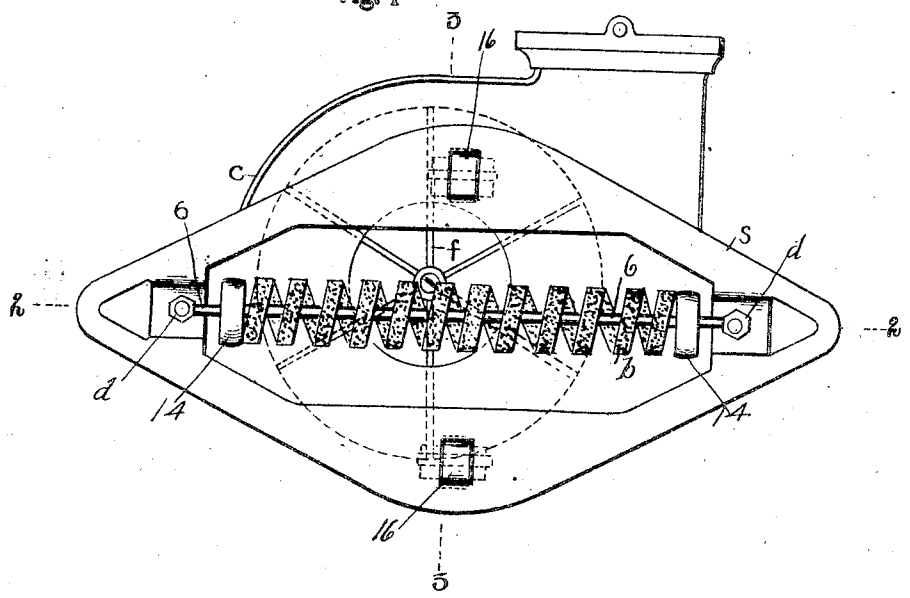
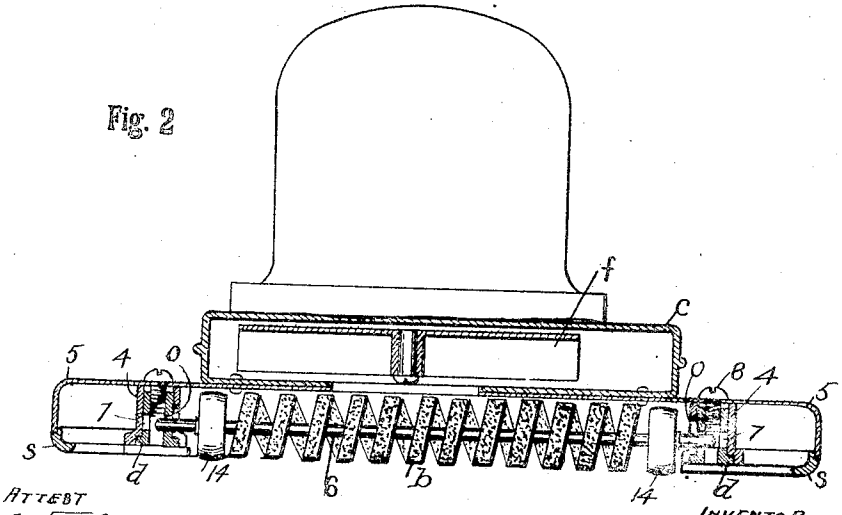


Fig. 2



ATTEST

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Fig. 3

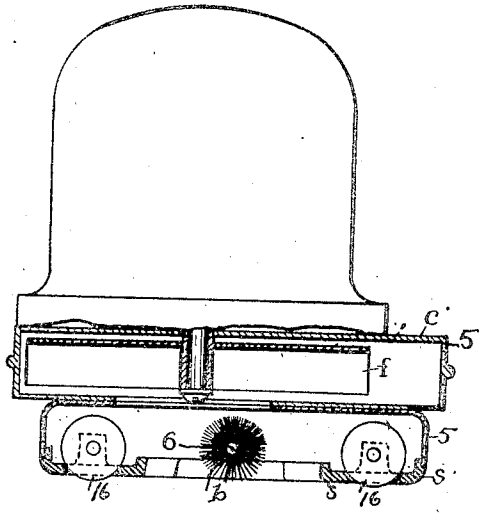


Fig. 4

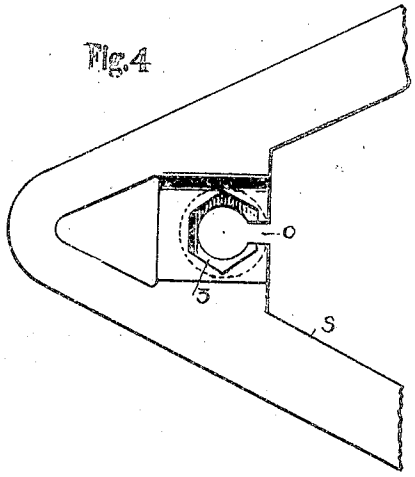


Fig. 5

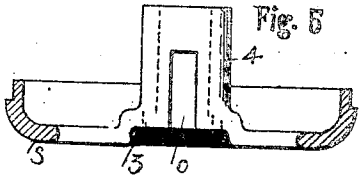
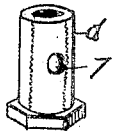


Fig. 6



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UNITED STATES PATENT OFFICE.

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VACUUM CLEANING-MACHINE.

1,126,732. Specification of Letters Patent. Patented Feb. 2, 1915.

Application filed August 4, 1913. Serial No. 782,947.

To all whom it may concern:

Be it known that I, ORA DRAKE, citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Vacuum Cleaning-Machines, of which the following is a specification.

This invention relates to improvements in vacuum cleaning machines, all substantially as shown and described and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a bottom view of a machine embodying my improvement, and Fig. 2 is a sectional elevation thereof on line 2—2, Fig. 1. Fig. 3 is a transverse section on a line corresponding to 3—3, Fig. 1. Fig. 4 is a bottom view, enlarged, of one end of the shoe, both ends being alike. Fig. 5 is an elevation of the portion of the shoe shown in Fig. 4, looking in from the right. Fig. 6 is a detail of one of the bearing tubes or thimbles.

The invention herein lies more particularly in the shoe *s* and the novel means of support for the brush *b* therein. The said shoe, is diamond shaped and has an opening lengthwise thereof in its bottom approximately half the width of the bottom, or more, and nearly the full length thereof, while the fan *f* is located in the fan chamber *c* next above said shoe and adapted to be driven by an electric motor over or above said chamber, not shown. The said brush or sweeper *b* is mounted centrally lengthwise in the bottom of the shoe in the opening therein on bearing tubes *d* set from below into upright tubular posts 4 supported in bridge portions in the shoe near its extremities. The said tubes or tubular bearings have hexagonal or equivalent heads at their lower ends seated in correspondingly shaped recesses 3 in the bottom of the shoe immediately beneath or in the base of the said tubular posts to prevent turning, and said posts stand above said bottom of the shoe in position to serve as supports for the top or cover 5 upon the shoe, as seen in Fig. 5. The said posts or studs are provided at their inner or adjacent sides with vertical slots *o* open at their bottom through the bottom of the shoe and closed at their top some distance below the top of said posts, and the brush *b* has a shaft 6 extending through these slots into the bearing holes 7 in the said bearing tubes *d*. Short headed screws 8 seat on the top or cover of the shoe and engage the internal thread in the bearings *d* and serve to fix the said bearings removably in the shoe. Of course it follows in the service of a machine of this kind that the brush will require more or less frequent cleansing and hence removal from the machine. Removal is therefore provided for and easily effected by taking out one or the other screw 8, or both, and thus releasing the said bearings and permitting the parts to be taken out at the bottom. All the parts named are interchangeable and hence no mistake can be made in reassembling. The heads of the binding screws 8 rest upon the shell or top 5 which is supported upon and affixed to the base through the said posts and screws as hereinafter described.

The brush *b* has rollers or wheels 14 at its ends mounted on the shaft 6 and adapted to rotate the brush. These rollers afford all the traction the brush needs to drive it while the centrally disposed rollers or wheels 16 front and rear in the shoe *s* are balancing and carrying rollers for the machine. Of course the rollers 16 work in conjunction with the said rollers 14 in moving the machine over the floor, but the rollers 14 are more essentially driving rollers for the brush and serve incidentally for balancing purposes. Otherwise the shoe would tilt on the middle rollers and not work. The said bearings *d* and screws 8 serve also to hold the top and bottom members, 5 and *s* of the shoe together, and the said bottom can be removed with the brush when released and thus leave the top or cover connected with the fan chamber *c*.

In assembling the parts, the brush shaft is first inserted in the bearing holes 7 in the bearing tubes *d* and then said tubes are placed in the said tubular posts 4, the open slots *o* in the said posts facilitating this assembling of the parts. The middle portion of the bottom of the shoe being open the brush can be easily placed therein and is designed to run substantially on a level with the several rollers 14 and 16. The slots *o* in the posts 4 terminate near the tops of said posts and the outer or edge portion of the shoe about its bottom on which it contacts with the floor is rounded and smooth and intended to lie closely upon the surface traversed. Hence the several rollers cannot

be said to carry all the weight but they very greatly lighten the load when it comes to pushing the machine about and are material on this account. The rollers 14 must have such contact as to rotate the brush.

What I claim is:

1. In vacuum cleaning machines, a shoe of substantially diamond shape having tubular posts in its ends provided with open slots in their adjacent sides and tubular bearings in said posts having holes on their adjacent sides corresponding to said slots, in combination with a rotatable brush having spindles mounted in said holes and means to fasten said bearings in said posts.

2. A vacuum cleaning shoe having a bottom provided with upright tubular posts in its ends having vertically disposed slots in their adjacent sides open through said bottom, in combination with bearing tubes seated in the said bottom from beneath and provided with holes in their sides, a brush having spindles engaged in said holes and screws engaged in said bearing tubes through the top of said shoe.

3. A vacuum cleaning shoe having a bottom provided with tubular upright posts in its ends having slots in their adjacent sides extending through the bottom and to near the top thereof, bearing tubes seated from beneath in said posts and provided with heads locked in said bottom against rotation and screws through the top of the shoe fastening said tubes therein, in combination with a brush having spindles engaged in said bearing tubes through said slots and rollers on the ends of said brush adapted to rotate the brush.

4. A vacuum cleaning machine having a shoe of substantially diamond shape having rollers front and rear at its middle, in combination with a brush mounted in the said shoe and rollers on the ends thereof in the ends of the shoe serving as driving means for said brush and as end supports for said shoe.

In testimony whereof I affix my signature in presence of two witnesses.

ORA DRAKE.

Witnesses:
F. C. MUSSUN,
E. M. FISHER.