Aug. 11, 1931. E. SPROSTON 1,818,872

VACUUM CLEANER

Filed April 26, 1929 2 Sheets-Sheet 1

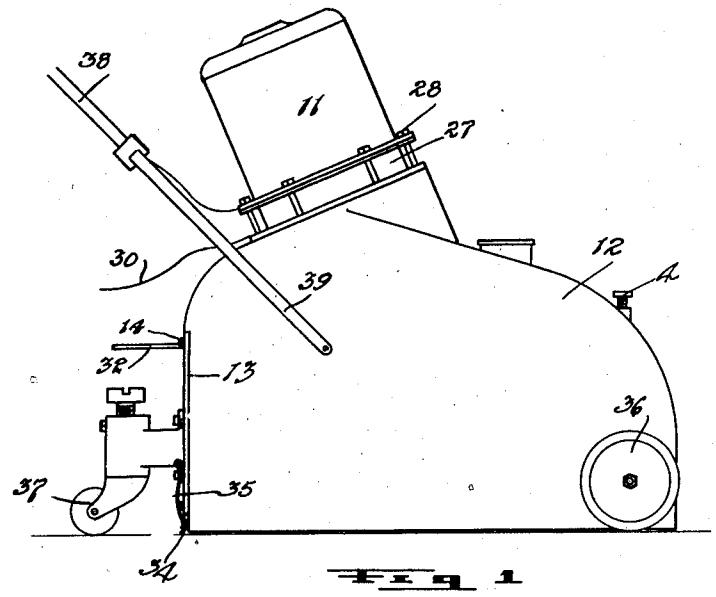


Fig 1

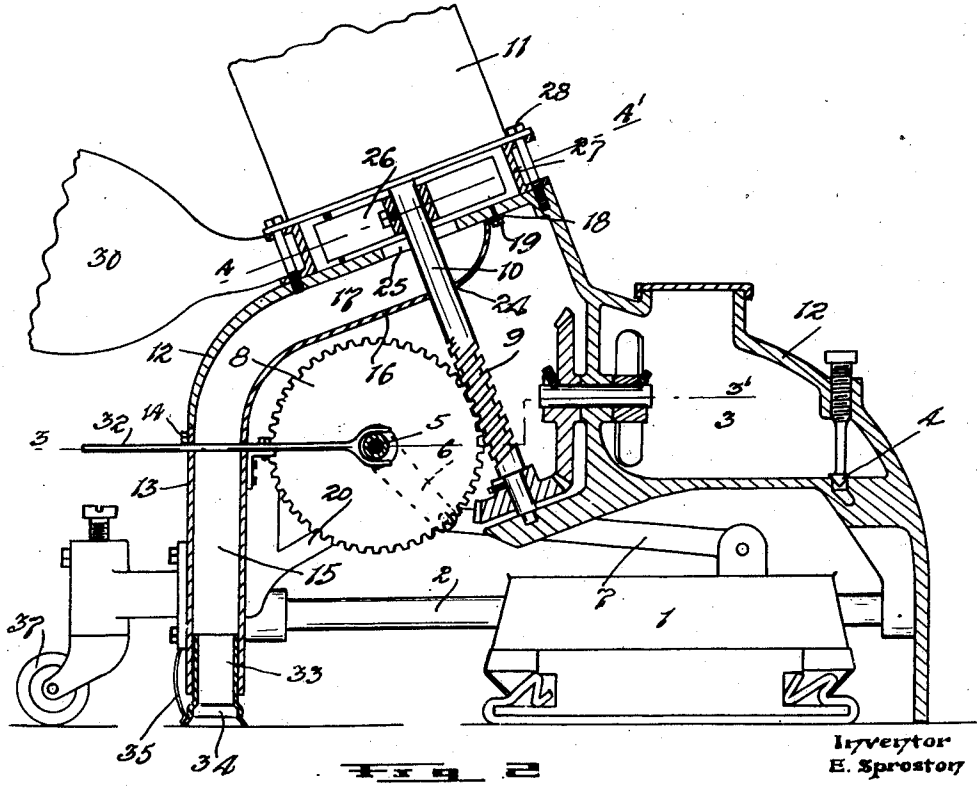


Fig 2

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By

Witness

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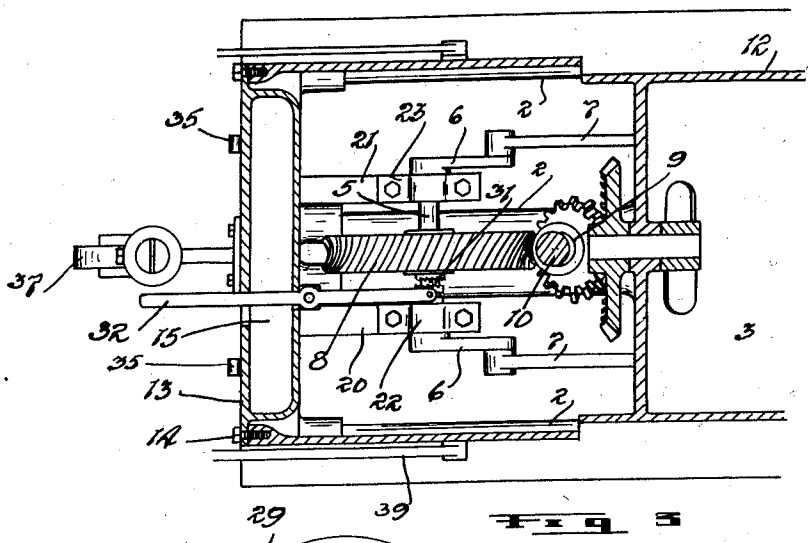


Fig 3

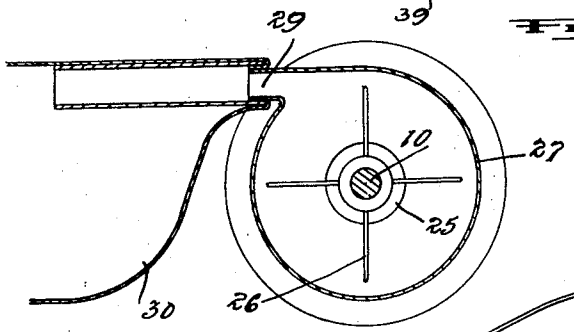


Fig 4

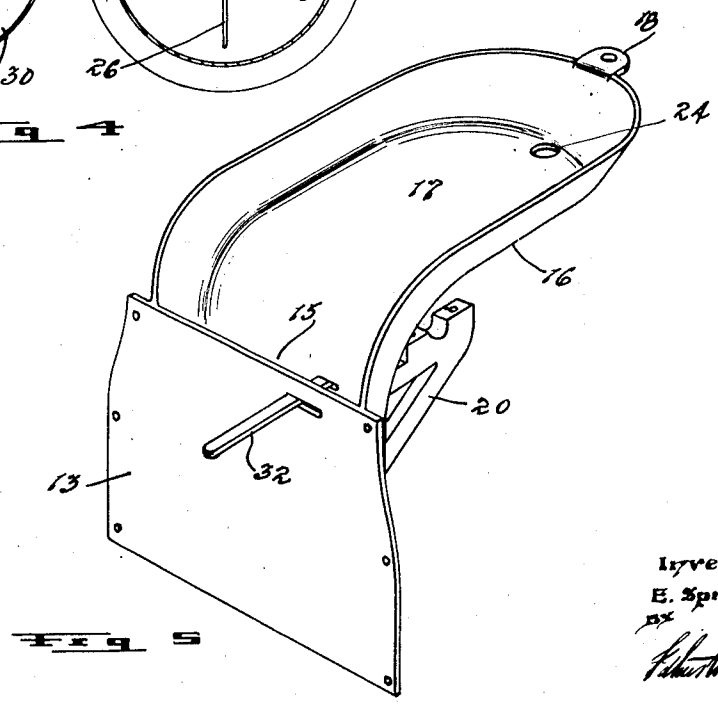


Fig 5

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Patented Aug. 11, 1931 1,818,872

UNITED STATES PATENT OFFICE

EDMUND SPROSTON, OF WINNIPEG, MANITOBA, CANADA

VACUUM CLEANER

Application filed April 26, 1929, Serial No. 358,380, and in Canada April 23, 1929.

The invention relates to improvements in vacuum cleaners and more particularly to a vacuum attachment particularly adapted for use on the floor treating machine for which I have already obtained United States Patent No. 1,661,510 dated the 6th of March, 1928 and an object of the invention is to provide a vacuum cleaning attachment which can be readily introduced in the aforesaid floor treating machine and without materially altering the existing structure thereof and which can be used in conjunction with the reciprocating carriages of the floor treating machine disclosed in the patent or can be operated independently while the carriages are inert as occasion demands.

A further object of the invention is to construct the vacuum cleaner so that it can be readily dismounted from the machine for repair or replacement purposes and such that the lower end of the vacuum tube can be readily adjusted in respect to the floor.

With the above more important and other minor objects in view which will become more apparent as the description proceeds, the invention consists essentially in the arrangement and construction of parts hereinafter more particularly described, reference being had to the accompanying drawings, in which:—

Fig. 1 is a side view of the machine.

Fig. 2 is an enlarged detailed vertical sectional view centrally through the machine.

Fig. 3 is a horizontal sectional view at 3—3′ Figure 2.

Fig. 4 is a horizontal sectional view at 4—4′ Figure 2.

Fig. 5 is a perspective view of the parts forming the vacuum tube.

In the drawings like characters of reference indicate corresponding parts in the several figures.

The machine for the greater part is of the same construction as fully described and shown in the patent above mentioned and in such machine I had similar reciprocating carriages 1 slidably carried by pairs of guide tubes 2, the carriages being designed to receive various types of floor working attachments such as floor polishing cloths, floor scrubbing cloths, sand paper and so forth, depending on the nature of the work to be done. The machine embodies a liquid compartment 3 from which the liquid is fed through the tubes 2 to the interior of the carriages and so distributed onto the floor cloth but the details of the structure provided are not herein described.

When sand paper was used on the machine, the controlling valve 4 was closed to prevent the flow of liquid to the carriages.

The carriages in this and the former machine are reciprocated by a driven counter shaft 5 suspended in the rear part of the machine, the counter shaft carrying cranks 6 connected by links 7 to the carriages. The counter shaft is provided with a worm wheel 8 driven by an engaging worm 9 located at the lower end of a driving shaft 10 extending from an electric motor 11 of the conventional type.

In my prior patent, the rear end of the machine frame 12 was closed by a removable back plate detachably fastened by screws or the like to the casing and this back plate carried brackets supporting the counter shaft. In the present instance, the back plate 13 is fastened by screws 14 to the rear end of the machine frame and the plate is utilized also to form the rear wall of an elongated tube 15 which is provided at the upper end with a curved dished extension 16, the extension having the rear edge thereof shaped to fit the contour of the inner wall of the casing and form with the inner wall of the casing, an extension tube 17 continuous with the tube 15. The plate, tube and extension are best shown in Figure 5 and are integrally formed and the arrangement is such that the said parts can be readily put in working position and as occupied in Figure 2.

The upper end of the extension tube is closed and is provided with a lug 18 suitably fastened by a screw 19 to the upper part of the machine frame. The inner side of the tube 15 carries a pair of spaced inwardly extending brackets 20 and 21 and these brackets carry bearings 22 and 23 which rotatably support the counter shaft, the cranks 6 being located at the outer sides of the brackets.

The worm wheel 8 is mounted between the brackets and the upper end of the shaft 10 passes through a receiving opening 24 provided in the tube extension 16 and centrally through an air hole 25 provided in the top part of the casing.

To the shaft in a location between the motor base and the top of the casing, I secure a fan 26 of any approved type, the fan operating within a cylindrical casing 27 interposed between the base of the motor and the top of the casing. Bolts 28 fasten the base of the motor to the machine frame 12 and pass through the casing 27 as shown best in Figure 2. The fan casing is provided with a discharge spout 29 which communicates in the usual manner with the well known type of dust or dirt collecting bag 30 and the arrangement is such that when the motor is operating, the fan is driven in a direction that it will cause a suction in the pipe 15 with the result that dirt and dust will be drawn up through the pipe 15 and extension thereof and pass through the opening 25 and out the discharge spout 29 into the bag.

Provision is made for coupling the worm wheel 8 to the counter shaft, the clutch indicated generally by the reference numeral 31 being employed, the shiftable member of the clutch being controlled by a lever 32 pivoted to the pipe 15 and extending rearwardly of the machine. If it is desired to drive the fan 26 without operating the carriages 1, it is only necessary to disengage the clutch members which will result in the fan rotating and the worm wheel 8 turning idly on the counter shaft. On the other hand, if it is desired to operate the carriages simultaneously with the fan, one engages the clutch members at which time, the worm wheel drives the counter shaft.

The lower end of the pipe or tube 15 terminates a short distance above the floor and within the lower end of the tube, I slidably telescope a relatively short tube 33 which has the lower end thereof flared as indicated at 34 and adapted to pass into contact with the floor surface. The tube 34 is adjustably held in place by the flat springs 35 which have their lower ends permanently fastened to the tube and the upper ends riding the rear face of the plate 13.

The machine frame is supported on the floor by similar front carriage wheels 36 and a rear castor wheel 37 and it is provided rearwardly with a centrally located handle 38 connected by forked arms 39 pivotally to the ends of the casing.

If the machine is to be use for sand papering a floor, the dust resulting from the action of the sand paper carried by the carriages on the floor, will be sucked up by the vacuum cleaning attachment and will be delivered to the bag 30. If it is desired simply to use the machine as a vacuum cleaner, one will disengage the clutch members and will remove the floor working attachment from the carriage and will then pass the machine over the floor, carpet or the like in the usual manner. The dust and dirt will be sucked up through the tube and delivered to the bag.

What I claim as my invention is:—

1. In a floor treating machine, the combination with a closed casing provided rearwardly with a removable back plate, of a vertically extending main suction tube contained within the frame and totally carried by the back plate and provided with an extension forming with the rear wall of the casing an extension tube continuous with the main tube, said rear wall of the casing being provided with an air opening communicating with the upper end of the extension tube and a fan casing communicating through the opening with the extension tube.

2. In a floor treating machine, the combination with a closed casing provided rearwardly with a removable back plate, of a vertically extending main suction tube contained within the frame and totally carried by the back plate and extending substantially the full width of the interior of the frame and provided with an extension forming with the rear wall of the casing an extension tube continuous with the main tube, said rear wall of the casing being provided with an air opening communicating with the upper end of the extension tube, a fan casing communicating through the opening with the extension tube, a tube slidably telescoped in the lower end of the main tube and means adjustably supporting the latter tube from the plate.

3. In a floor treating machine, the combination with a closed casing provided rearwardly with a removable back plate, of a vertically extending main suction tube contained within the frame and totally carried by the back plate and extending substantially the full width of the interior of the frame and provided with an extension forming with the rear wall of the casing an extension tube continuous with the main tube, said rear wall of the casing being provided with an air opening communicating with the upper end of the extension tube, a fan casing communicating through the opening with the extension tube, a tube slidably telescoped in the lower end of the main tube and springs permanently secured to the latter tube and frictionally engaging the plate.

Signed at Winnipeg, this 30 day of January 1929.

EDMUND SPROSTON.