Oct. 27, 1925.

1,559,153

O. BRINTZENHOFE

VACUUM CLEANER

Filed Aug. 7, 1922

Fig. 1.

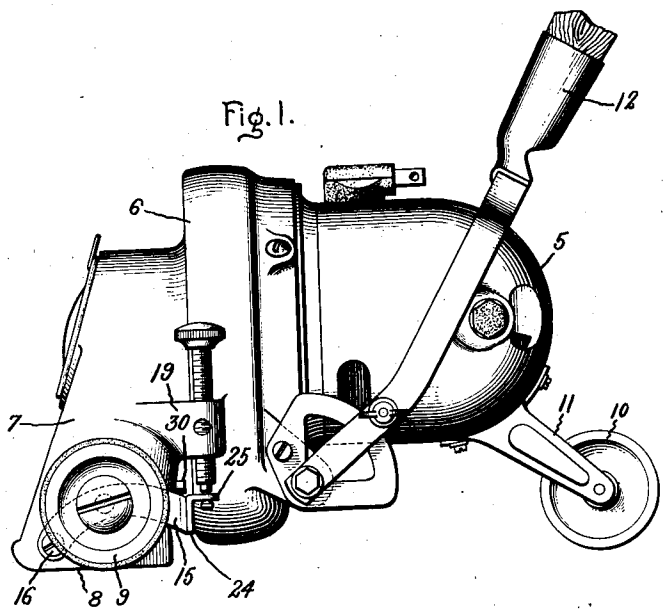


Fig. 2.

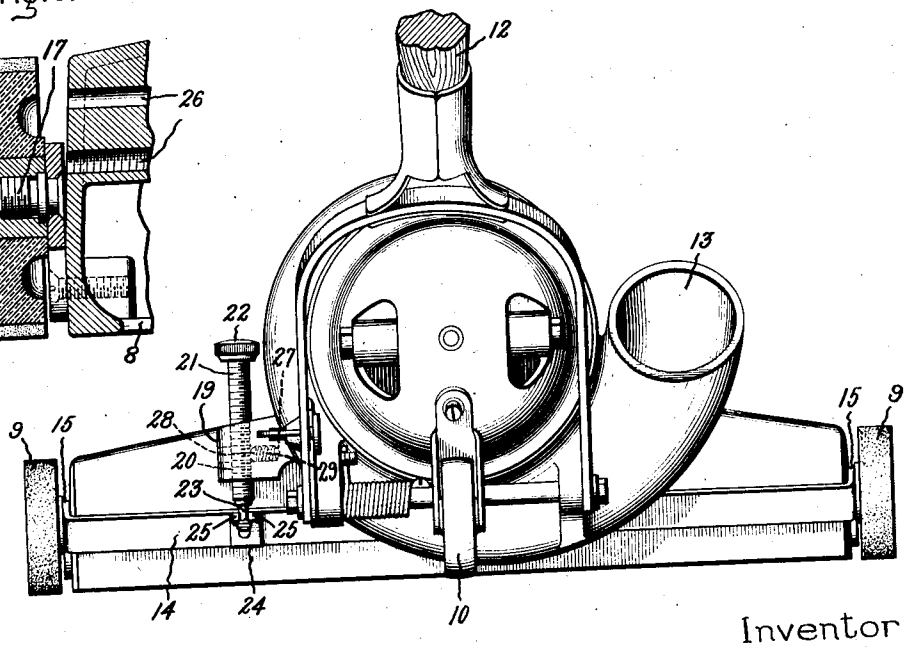
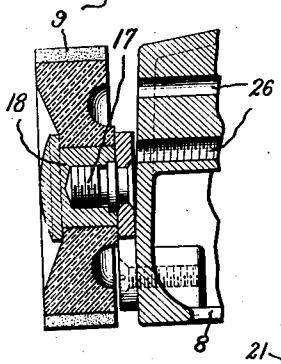


Fig. 3.



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UNITED STATES PATENT OFFICE.

OTTO BRINTZENHOFE, OF CLEVELAND, OHIO, ASSIGNOR TO ELECTRIC VACUUM CLEANER COMPANY, INC., A CORPORATION OF NEW YORK.

VACUUM CLEANER.

Application filed August 7, 1922. Serial No. 579,977.

To all whom it may concern:

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

The present invention relates to vacuum cleaners of the portable type wherein the cleaner is carried on forward rollers arranged at the ends of the nozzle and one or more rear rollers, and has for its object to provide an improved arrangement for mounting the forward rollers whereby they may be adjusted to raise and lower the vacuum cleaner nozzle relatively to the wheels to vary the distance between the nozzle and the floor.

For a consideration of what I believe to be novel and my invention, attention is directed to the accompanying description and the claim appended thereto.

In the drawing, Fig. 1 is a side elevation of a vacuum cleaner embodying my invention; Fig. 2 is a rear view thereof, and Fig. 3 is a detail sectional view of certain parts.

I have illustrated a vacuum cleaner comprising an electric motor 5 which drives a suitable fan enclosed in a fan casing 6. Projecting forwardly and laterally of the fan casing is the suction nozzle 7 which defines the usual elongated inlet or suction mouth 8. The cleaner is carried on two forward wheels 9 arranged at the ends of nozzle 7 and a rear wheel 10 carried by a bracket 11 fixed to the motor casing and is propelled over a floor by handle 12. The discharge opening from the fan casing is indicated at 13. The parts so far described may be taken as typical of any suitable type of portable vacuum cleaner.

Now, according to my invention I mount the forward wheels 9 on a frame comprising a transverse or side member 14 and end members 15. The transverse or side member 14 extends along the outer rear surface of nozzle 7 and the end members 15 extend forwardly and at a right angle from it along the outer surfaces of the end walls of nozzle 7. At their extremities end members 15 are pivoted to the end walls of nozzle 7 and adjacent their forward edges as indicated at 16. The frame is formed preferably from an integral strip of material having its two ends bent at a right angle to form end members 15. End members 15 are curved upwardly so as to bring the centers of wheels 9 the required distance above the suction mouth of the nozzle. The wheels may be pivoted to the frame ends in any suitable manner. In the present instance threaded studs 17 are riveted to end members 15 and on these are threaded fixed hubs 18 on which wheels 9 turn.

On the rear wall of nozzle 7 is a boss 19 provided with a tapped opening 20 in which is mounted a frame adjusting bolt 21 having a knurled head 22 at one end and a groove 23 at the other end. Riveted to frame member 14 is an angle piece 24 having a slot which forms furcations 25 which lie in groove 23 to fasten bolt 21 to the frame. This arrangement serves to pivotally connect bolt 21 to the frame and it will be clear that when the bolt is turned the rear end of the frame will be raised or lowered, turning on pivots 16, thereby raising or lowering wheels 9. When wheels 9 are lowered the suction mouth of nozzle 7 is raised or moved away from the floor and when wheels 9 are raised the suction mouth is lowered or moved toward the floor. In Fig. 3 the holes 26 are those in which bearings for a brush (not shown) are mounted, the brush being rotatably mounted in the suction nozzle 7.

In order to prevent adjusting bolt 21 from turning too easily I provide a socket 27 in which is located a button 28 which is pressed against bolt 21 by a spring 29, the button thus serving as a sort of brake. At 30 is a pin which forms a stop for limiting the adjustment of the nozzle toward the floor, the pin being preferably so set that the nozzle can not be lowered beyond the bottoms of the wheels.

With the above described arrangement, the frame is located at the rear of the nozzle where it is out of the way and does not detract from the appearance of the front of the cleaner. The end members 15 are pivoted well toward the front edge of the nozzle to provide a leverage sufficiently great to give the desired range of adjustment for the wheels. Since the frame is outside the nozzle it does not in any way interfere with the passage of the dust laden air through the nozzle or with the operation of the brush which is usually provided in the

nozzle; also the wheel bearing being out of the path of the dust laden air will not become clogged with dirt. The adjusting means is simple to operate and since it adjusts both wheels simultaneously and by exactly the same amount, the nozzle will always stand parallel to the floor.

In accordance with the provisions of the patent statutes, I have described the principle of operation of my invention, together with the apparatus which I now consider to represent the best embodiment thereof, but I desire to have it understood that the apparatus shown is only illustrative and that the invention may be carried out by other means.

What I claim as new and desire to secure by Letters Patent of the United States, is:—

1. The combination with a vacuum cleaner having a suction nozzle with front, rear and end walls, of means for supporting the nozzle in adjustable spaced relation to a surface over which said nozzle is operated, said means being located exteriorly of the nozzle and comprising a frame member having a transverse portion which extends along and closely adjacent the rear wall of the nozzle and end portions which extend forwardly along and closely adjacent the end walls of the nozzle, said frame being pivoted at its ends to the end walls of the nozzle adjacent the front edges of said walls, a traction wheel at each end of the nozzle rotatably mounted on the frame end portions in coaxial relation to each other, a lug integral with and projecting rearwardly of the nozzle above the frame, and an adjusting bolt carried by said lug and pivotally connected to the frame.

2. The combination with a vacuum cleaner having a suction nozzle with front, rear and end walls, of a U-shaped frame closely embracing the nozzle from the rear end and pivotally movable about its ends, said ends of the frame being pivoted to the end walls of the nozzle adjacent the front edges of said end walls, traction wheels mounted on the frame in alignment with the nozzle at each end thereof, said traction wheels being movable with the frame whereby they are adjusted by moving the frame, a lug integral with and projecting rearwardly of the nozzle above the frame, an adjusting bolt for moving the frame and holding the same in adjustment carried by said lug and pivotally connected with the frame, and automatic means for holding the bolt from movement when the frame is adjusted.

In witness whereof I have hereunto set my hand this first day of August, 1922.

OTTO BRINTZENHOFE.