Jan. 2, 1923.

1,440,759.

M. S. WRIGHT.

VACUUM CLEANER.

FILED AUG. 28. 1916.

2 SHEETS—SHEET 1.

Fig. 1.

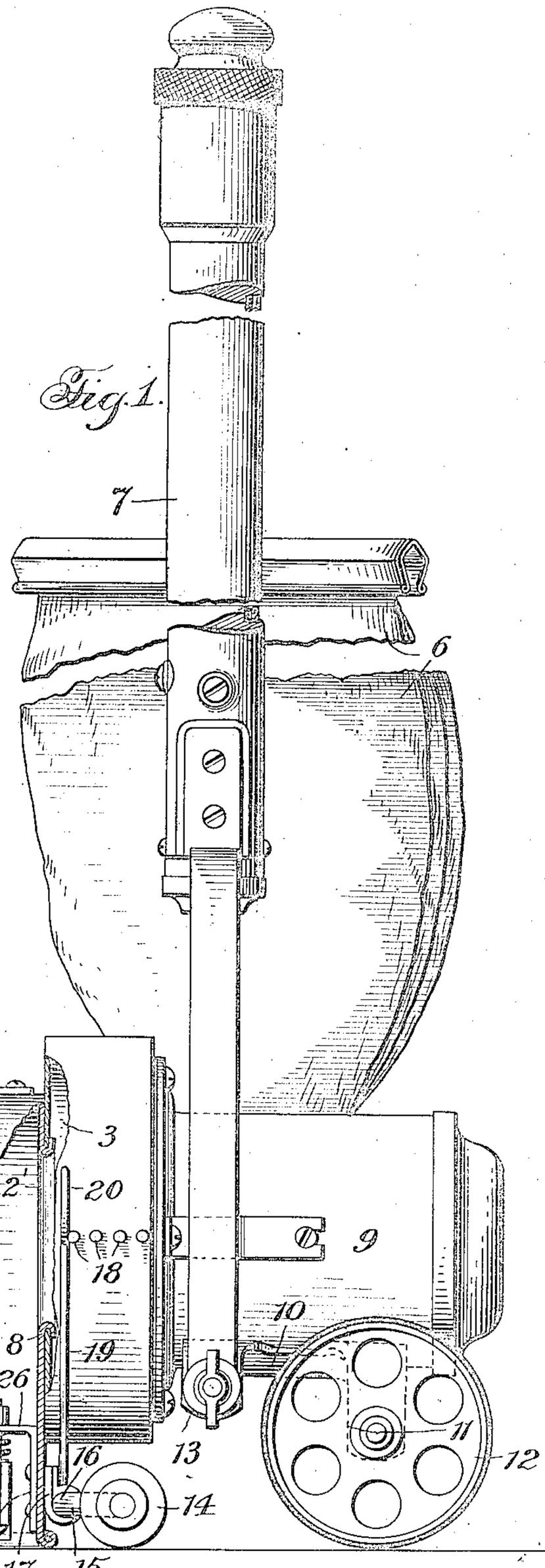
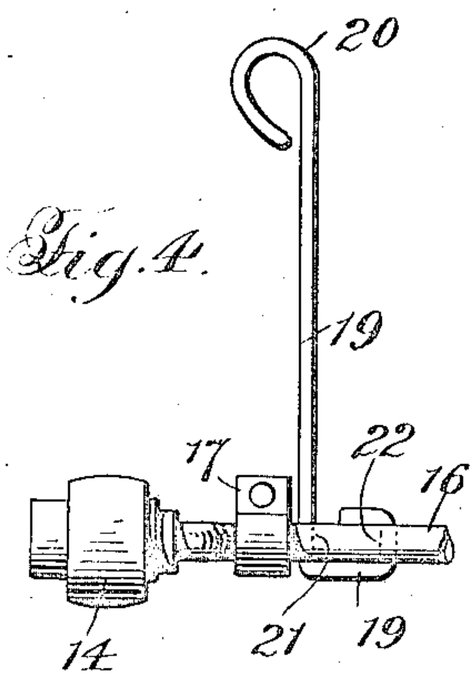


Fig. 4.



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2 SHEETS—SHEET 2.

Fig. 2.

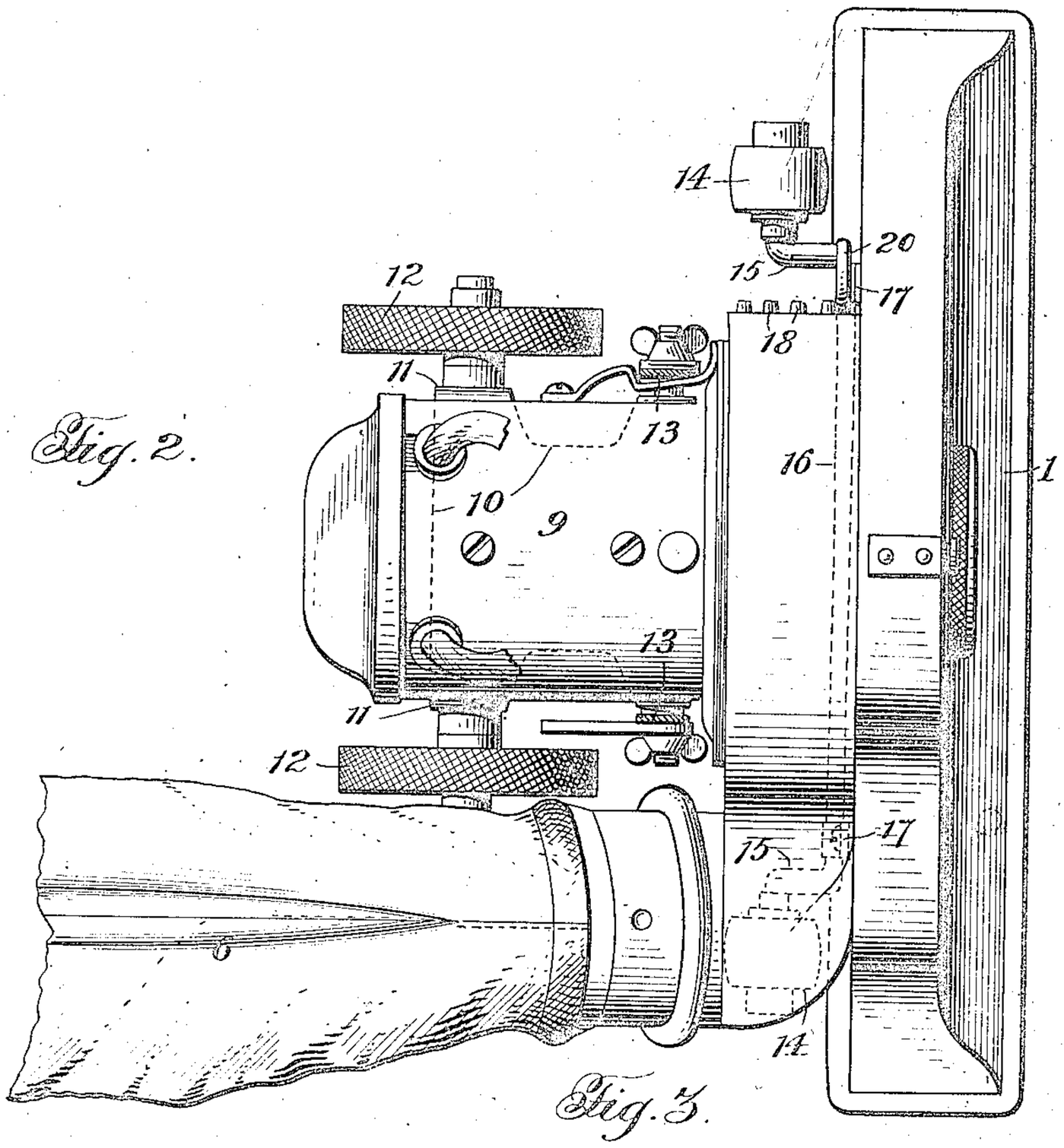
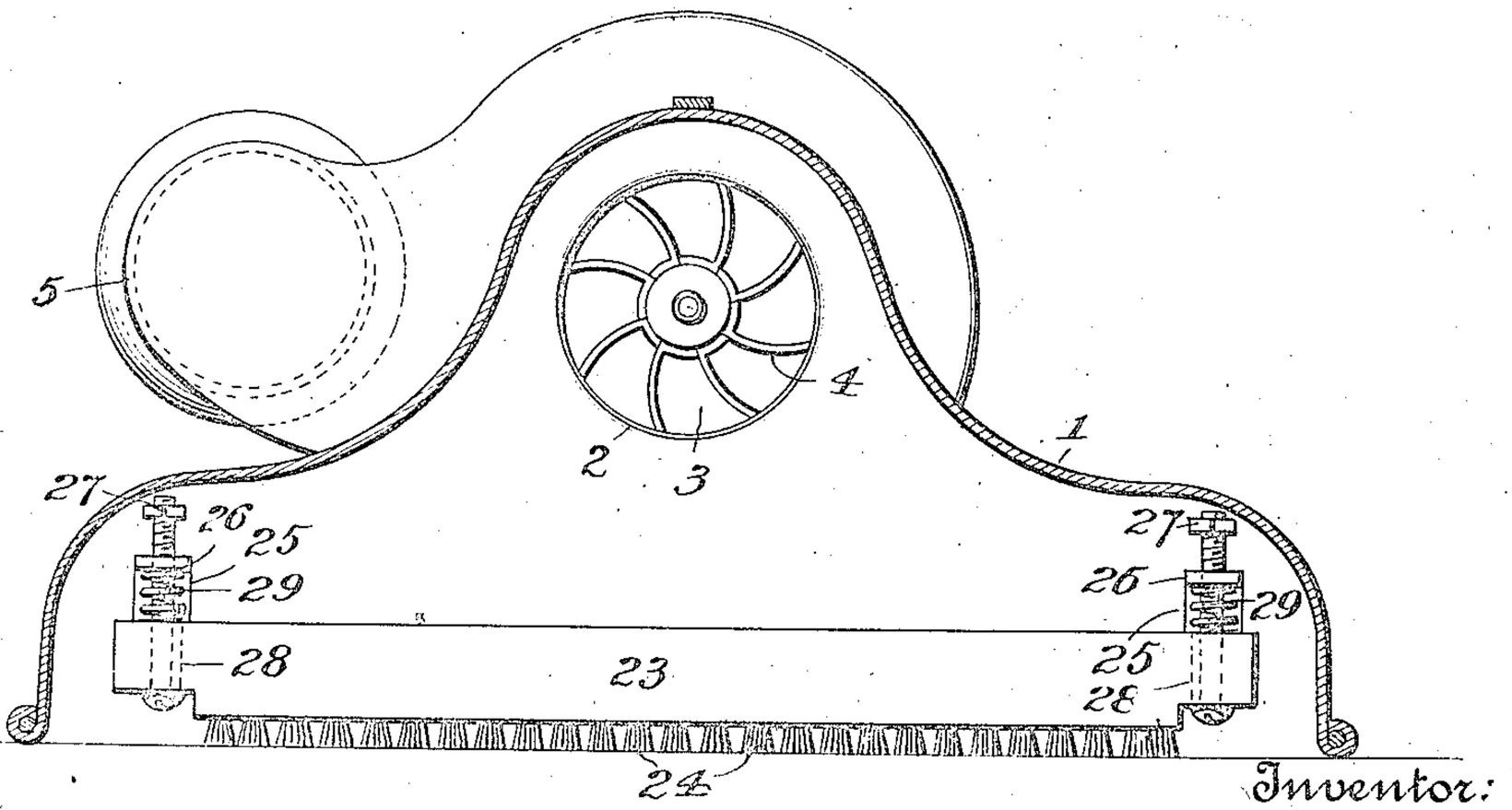


Fig. 3.



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Patented Jan. 2, 1923. 1,440,759

UNITED STATES PATENT OFFICE.

MORRIS S. WRIGHT, OF WORCESTER, MASSACHUSETTS, ASSIGNOR TO M. S. WRIGHT COMPANY, OF WORCESTER, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

VACUUM CLEANER.

Application filed August 28, 1916. Serial No. 117,378.

To all whom it may concern:

Be it known that MORRIS S. WRIGHT, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, has invented certain new and useful Improvements in Vacuum Cleaners, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to vacuum cleaners, and more particularly to portable cleaners adapted to move back and forth over a floor surface through the medium of a suitable handle attachment.

While the invention in the accompanying illustrative embodiment thereof is shown in connection with a cleaner of the character just stated having mounted thereon a suitable electric motor and fan which constitute the vacuum creating means, it is to be understood that the present improvements are applicable to portable machines generally which employ a suction inlet nozzle, vacuum creating means, and an anti-friction support for the rear end of the machine.

One of the primary objects of the invention is to provide novel and improved means for elevating or lowering the nozzle at will with respect to the surface to be cleansed, and associated means for retaining the nozzle in adjusted position.

Another feature of the invention resides in the provision of novel and improved means for elevating and maintaining in raised position the nozzle, in combination with surface brushing instrumentalities operatively connected with the nozzle, said instrumentalities being of a character to maintain engagement with the surface after the nozzle has been elevated above the surface.

It is also contemplated by the invention to provide an operative association with the nozzle adapted to engage the surface, roller bearings to simultaneously engage the surface at a point adjacent the nozzle, and means whereby said rollers may be adjusted in a novel manner with respect to the nozzle, to space the inlet slot of the nozzle variable distances above the surface.

More particularly, the invention includes certain attachments for vacuum cleaning machines of improved construction, simple and inexpensive to produce, and readily applicable to machines as at present constructed, all with a view to increasing the efficiency of machines of this character.

Various minor improvements and novel details in the construction and arrangement of the parts of the invention will be understood from the description to follow, which for a clear understanding of the invention, is to be considered in connection with the accompanying drawings, forming a part hereof, and wherein is disclosed, for the purpose of illustration, a convenient and satisfactory embodiment of the invention.

In the drawings:—

Figure 1 is a side elevation of my invention parts being shown broken away and in section.

Figure 2 a plan view of the same.

Figure 3 a longitudinal sectional view through the nozzle; and

Figure 4 a detail view of the adjusting lever for the nozzle and its operative connection with the roller support at the front end of the machine.

With more particular reference to the drawings wherein like reference numerals refer to corresponding parts through the views, 1 is a nozzle member having an inlet slot extending substantially from end to end at the lower edge thereof and an outlet opening 2 in the rear wall thereof adapted to communicate with a similar opening 2′ in the front wall of the suction chamber 3. This chamber 3 preferably takes the form of a fan casing, in that a fan 4 in the embodiment of the invention illustrated constitutes the suction creating medium, the fan casing having an outlet opening 5 whereby the dust laden air as taken up from the nozzle and expelled from the fan casing is received into a dust bag or receptacle 6 supported upon the handle 7 in any desired manner. The nozzle 1 and fan casing 3 are preferably of sheet metal construction, drawn or stamped to the desired shape and secured to one another as by an interlocking seam 8. 9 is a suitable electric motor conveniently mounted upon a platform 10 or truck having suitable shaft bearings 11 adapted to receive a shaft which supports wheels or rollers 12 constituting an anti-friction support for the rear end of the machine. The handle 7 is pivotally mounted at its lower end to suitable lugs 13 adjacent the forward end of

the truck, whereby the machine is moved back and forth over the surface to be cleansed.

While in certain uses of the machine it is desirable that the lower edge of the nozzle be maintained in contact with the surface to be cleansed, at the same time it is desirable to at times elevate this edge of the nozzle above the surface, and that the degree of elevation be variable as desired. With this idea primarily in view, suitable roller supports 14 are provided, the same being mounted upon offset terminals or cranks 15, at opposite ends of a shaft 16, which latter is loosely mounted for free rocking movement in suitable bearings or brackets 17 secured to the rear wall of the nozzle adjacent the lower edge of the latter. Projecting outwardly from the side wall of the fan casing are a series of lugs or pins 18 separated from one another and arranged in a line extending transversely across said side of the fan casing. 19 is a spring arm preferably formed of wire, adapted to engage intermediate its ends any one of the series of lugs 18 and terminating at its upper end in a return bend portion constituting a hand engaging part 20. The arm 19 is secured to the shaft in any desired manner, but preferably by forming apertures 21 and 22 therethrough, the lower end of the arm 19 being adapted to project through the aperture 21, and bent upon itself so as to project oppositely through the aperture 22, the terminal of the return bend portion being offset to overlie the top portion of the shaft 16. The tension of the spring arm 19 is such as to maintain the engaging portion thereof in contact with the side wall of the casing 3, with the result that the spring arm 19 will be maintained in any adjusted position. From the description thus far, it will be observed that in the normal position of the parts the nozzle, as well as the rollers 14 will be in engagement with the surface to be cleansed, when, as the device is moved over the floor or surface, the dust laden air will be sucked up into the machine and find escape into the dust receptacle 6. At this time, the spring arm 19 will be positioned forwardly of the foremost lug 18. Now, when it is desired to elevate the nozzle from the surface, the operator grasps the hand engaging part 20 and exerts outward pressure on the arm 19, thereby moving the same out of contact with the foremost lug, when the arm is free to move rearwardly, and when the desired adjustment has been made, the operator releases the arm 19 when the latter, by spring pressure, will be forced into seating position between any of the succeeding lugs. The rollers being eccentrically mounted relative to the axis of the body portion of the shaft 16, by moving the arm 19 which is fixed to said shaft, it will be appreciated that the rollers will be elevated or lowered according to whether the arm 19 is moved rearwardly or forwardly.

It is desirable at times not to maintain a closed contact between the nozzle and surface, but to at the same time, maintain a surface engagement of a sweeper or other brushing instrumentality regardless of the elevation of the nozzle, and with this in view, I preferably provide within the nozzle an elongated brush member 23 having suitable tufts or bristles 24 projecting from the lower edge thereof. Convenient means of attachment for the brush includes brackets 25 secured to the rear wall of the nozzle and having an angular extension 26 adapted to support suitable guide posts or pins adapted to loosely engage terminal slots 28 at the ends of the brush member 23. Suitable spiral springs 29 interposed between the upper edge of the brush member 23 and the undersurface of the angled extension 26 of the bracket members 25 serve to normally exert downward pressure on the member 23 whereby to maintain contact between the bristles 24 and the surface. The pintles 27 preferably have a threaded engagement with the angled extension 26 or other part fixed upon the bracket members 25 to the end that the lowering movement of the brush member 23 may be limited, and that this limitation may be adjusted at will.

It will be observed that because of the fact that the brush member 23 is constantly spring pressed downwardly, a brushing engagement with the surface will be maintained even though the nozzle itself is elevated out of contact with the surface through the medium of the roller members 14 in the manner previously described.

If desired, the rear-most lug 18 is so positioned that when the arm 19 has been adjusted rearwardly to its extreme position into engagement with said rear-most lug, the brush member 24 will at this time, be out of engagement with the surface. It is therefore appreciated that according to the adjustment of the rollers 14, the brush and nozzle may at one time simultaneously contact with the surface, the brush may at another time independently contact with the surface, whereas again, both the brush and nozzle may be maintained out of contact with such surface.

Certain features of invention herein disclosed and not specifically claimed are made the basis of claims in copending applications, and in this connection cross-reference is made to my application Serial No. 121,478, filed September 21, 1916, to my application Serial No. 121,479, filed September 21, 1916, and to my application Serial No. 193,209, filed September 25, 1917.

What I claim is:—

In a vacuum cleaning machine, the combi-

nation of vacuum creating means, a supporting wheel at the rear end of the machine, a nozzle at the front end of the machine, means for adjusting the nozzle vertically, brackets secured to the inner surface of the rear wall of the nozzle adjacent opposite ends thereof, said brackets having forwardly extending apertured lugs, a brush extending longitudinally of the nozzle, said brush including a supporting block having apertured ends, bolts projecting through the apertured ends of the brush block and said lugs, and springs interposed between the lugs and the upper surface of the brush block whereby to exert downward pressure on the brush to permit the latter to engage the surface after the nozzle is elevated.

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

MORRIS S. WRIGHT.

Witnesses:
WILLIAM B. TUNSTALL,
HENRY H. WRIGHT.