

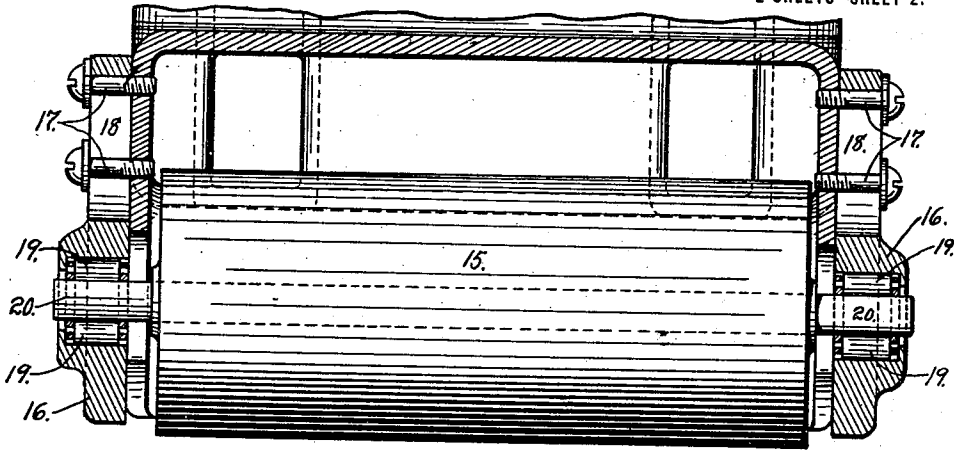
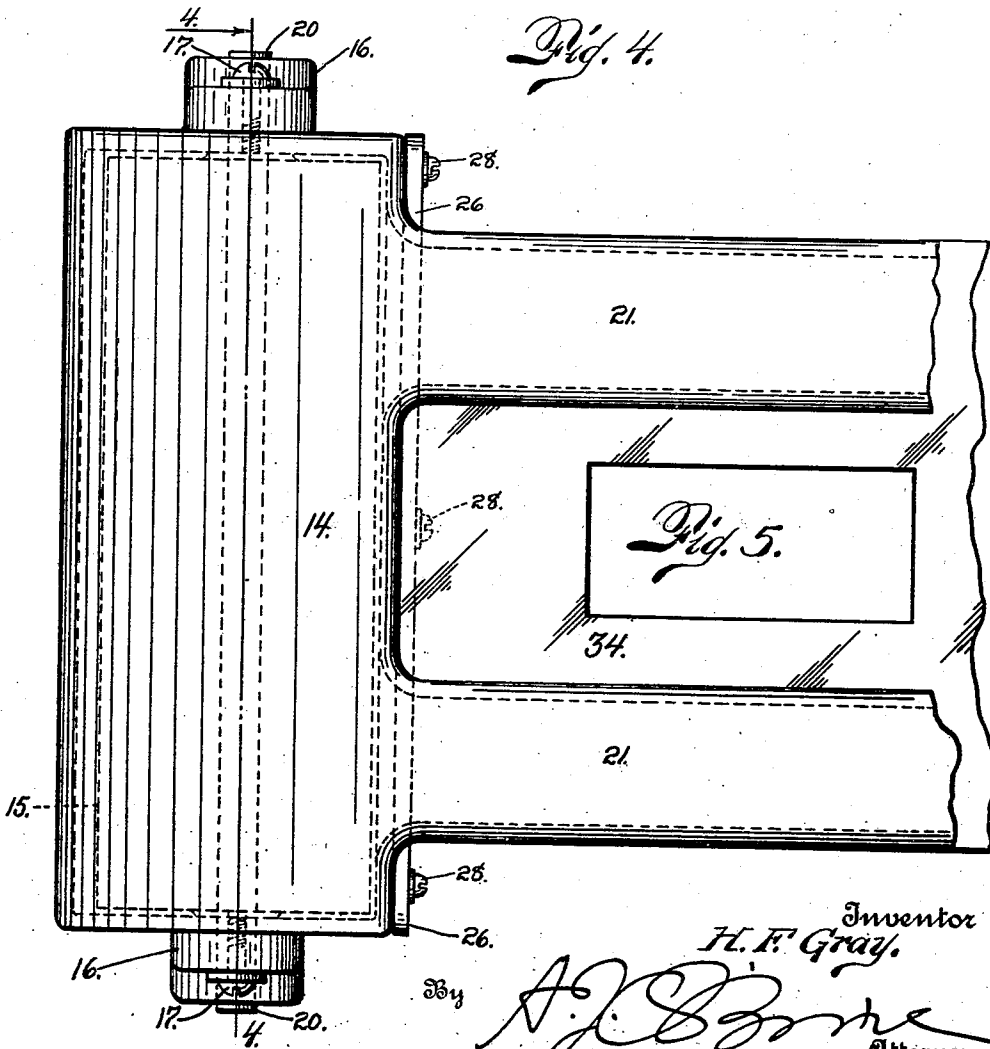


Fig. 4.



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SUCTION-NOZZLE FOR CARPET-WASHING MACHINES.

1,283,499.

Specification of Letters Patent.

Patented Nov. 5, 1918.

Application filed June 25, 1917. Serial No. 176,671.

To all whom it may concern:

Be it known that I, HALLA F. GRAY, a citizen of the United States, residing at the city and county of Denver and State of Colorado, have invented certain new and useful Improvements in Suction- Nozzles for Carpet-Washing Machines; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the characters of reference marked thereon, which form a part of this specification.

My invention relates generally speaking to machines for washing carpets, rugs, etc., which are provided with a nap or pile. The complete machine with which I prefer to employ the nozzle to which this application will be more particularly directed, is equipped with a fountain scrubber which travels in front of the nozzle and serves to loosen the dirt in the nap of the carpet or rug, and mix the same with a sort of lather formed by the action of the brush which is supplied with the necessary soapy liquid. As the brush moves on, the nozzle follows and through the medium of a squeegee roller mounted in the nozzle, the soapy, dirty liquid is brought up out of the nap to the top, where it is acted on by the suction of the nozzle, the suction being developed by a centrifugal pump or fan, the top of which is connected with a receptacle mounted on the machine, into which the dirty, soapy liquid is discharged. The nozzle is also equipped with a device for combing the nap of a carpet or rug so that after the machine has passed over it, the nap all lies in one direction, thus giving the surface of the carpet a uniform appearance throughout the area cleaned.

This application is for the most part a continuation of my prior application, Serial #145,351, filed January 30, 1917, entitled Improvements in carpet washing and rinsing machines, patented September 18, 1917, No. 1,240,799.

Having briefly outlined my improvement I will proceed to describe the same in detail reference being made to the accompanying drawing, in which is illustrated an embodiment thereof. In this drawing:

Figure 1 is a side elevation, partly in sec-

tion, of a carpet washing machine equipped with my improved nozzle mechanism.

Fig. 2 is a section taken on the line 2—2, Fig. 1 looking downwardly.

Fig. 3 is an end view on a larger scale illustrating the nozzle in detail.

Fig. 4 is a vertical, longitudinal section of the nozzle taken on the line 4—4, Fig. 5, looking toward the right, the squeegee roller being shown in elevation.

Fig. 5 is a plan view of the nozzle and the conduits communicating therewith.

The same reference characters indicate the same parts in all the views.

Let the numeral 5 designate a suitable framework, upon the forward portion of which is mounted a fountain scrubber, which is supplied with a soapy liquid from a tank 7, the brush being operated from a motor 8 through the medium of a worm gear mechanism 9, which has a crank arm connection with a yoke 10, connected in operative relation with the scrubber 6. This scrubber acts upon the soapy liquid to form a lather in the nap or pile of the carpet or rug 12, the dirt in the nap being loosened and mixed with this soapy liquid. The machine travels over the surface to be cleaned in the direction indicated by the arrow *a*, Fig. 1. Hence, the nozzle 13, whose function is the removal of the dirty, soapy liquid, is arranged upon the machine in the rear of the scrubber. This nozzle consists of a housing 14 which is of any desired length for cleaning an area of the carpet or rug over which the machine travels. As shown in the drawings, the extremities of the nozzle extend a short distance beyond the opposite sides of the frame work of the machine, the nozzle being of the same length approximately as the scrubber with which it coöperates. The nozzle is closed except at the bottom where it is sufficiently open to allow enough air to enter to remove the dirty, soapy liquid, which is brought to the top by the squeegee roller 15. This roller may be journaled at the opposite ends of the nozzle in any suitable manner. As shown in the drawing, a plate 16 is connected with each end of the nozzle by means of screws 17 which pass through a slot 18 and enter threaded openings in the end of the nozzle. The lower portion of the plate is provided with a roller bearing 19, which the journal 20 of the roller engages, thus

mounting the roller in such a manner that it rotates easily in the performance of its function. It is important that the roller be thus journaled, since it performs a very important function, and in fact, forms the support for the front part of the machine which rests on this roller. The roller squeegee is exceedingly important in a construction of this character, since it performs the necessary function of squeezing the dirty, soapy liquid out of the nap of the carpet or rug, and bringing it to the surface where it may be advantageously acted on by the suction, while at the same time it does not injure or wear the nap or pile, as would be the case if a scraper squeegee were employed. It should be explained in this connection that the problem of washing carpets and rugs is very different from that involved in washing floors, since the nap or pile of the carpet or rug is delicate and would be ruined by the action of a scraper squeegee. Furthermore, a machine of this character equipped with a scraper squeegee located as illustrated in the drawing, could only be operated with great difficulty on account of the friction. While the roller bearing mechanism is illustrated and described, it must be understood that the roller squeegee may be journaled in the ends of the nozzle in any other suitable or practicable manner.

The nozzle, as illustrated in the drawing, is provided with two rearwardly extending conduits 21, whose forward extremities are in communication with the body portion of the nozzle while the rear extremities communicate with the casing of the centrifugal pump 22, which is mounted on the rear extremity of the frame and communicates with a receptacle 23 through the medium of a short pipe 24. In the construction of the apparatus the two conduits 21 are preferably cast integral with the bottom plate 24 of the machine, though it must be understood that the invention is not limited to this specific construction.

To the rear portion of the nozzle is secured a nap-combing brush 25, which as illustrated consists of a head-piece 26 extending the entire length of the nozzle and

carrying the necessary bristles 27, the head-piece being secured to the nozzle by suitable fastening devices, as screws 28. The bristle portion of the nap-combing device engages the nap or pile of the carpet or rug just in the rear of the nozzle, and, therefore, is the last part of the machine that acts upon the nap, and, hence, leaves the latter all lying in one direction, the nap being inclined toward the direction of the travel of the machine during the cleaning operation. When the machine is in use it is moved over the carpet or rug 12 by a person who grasps a handle 29, which is connected with the front part of the machine in any suitable manner and which is suitably equipped for controlling the passage of the liquid from the tank 7 to the fountain scribbler 6. After the scrubber has performed its function, as heretofore explained, the squeegee roller acts to remove the dirty, soapy liquid from the nap of the carpet and brings the same to the top where it is acted on through the medium of the nozzle by the suction developed in the centrifugal pump 22, which also serves to force the dirty liquid into the receptacle 23 carried by the machine as heretofore explained.

Having thus described my invention, 80 what I claim is:

1. A suction nozzle for carpet washing machines having front and rear depending walls, a roller squeegee mounted in said nozzle and extending below the walls thereof, there being a space between the squeegee and the front wall through which the suction force is adapted to operate, the roller being mounted closely adjacent the rear wall. 90

2. A suction nozzle for carpet washing machines having front and rear depending walls, a roller squeegee mounted in said nozzle and extending below the walls thereof, there being a space between the squeegee and the front wall through which the suction force is adapted to operate, the roller being mounted closely adjacent the rear wall, and a nap combing device mounted in the rear of the squeegee. 95 100

In testimony whereof I affix my signature.
HALLA F. GRAY.