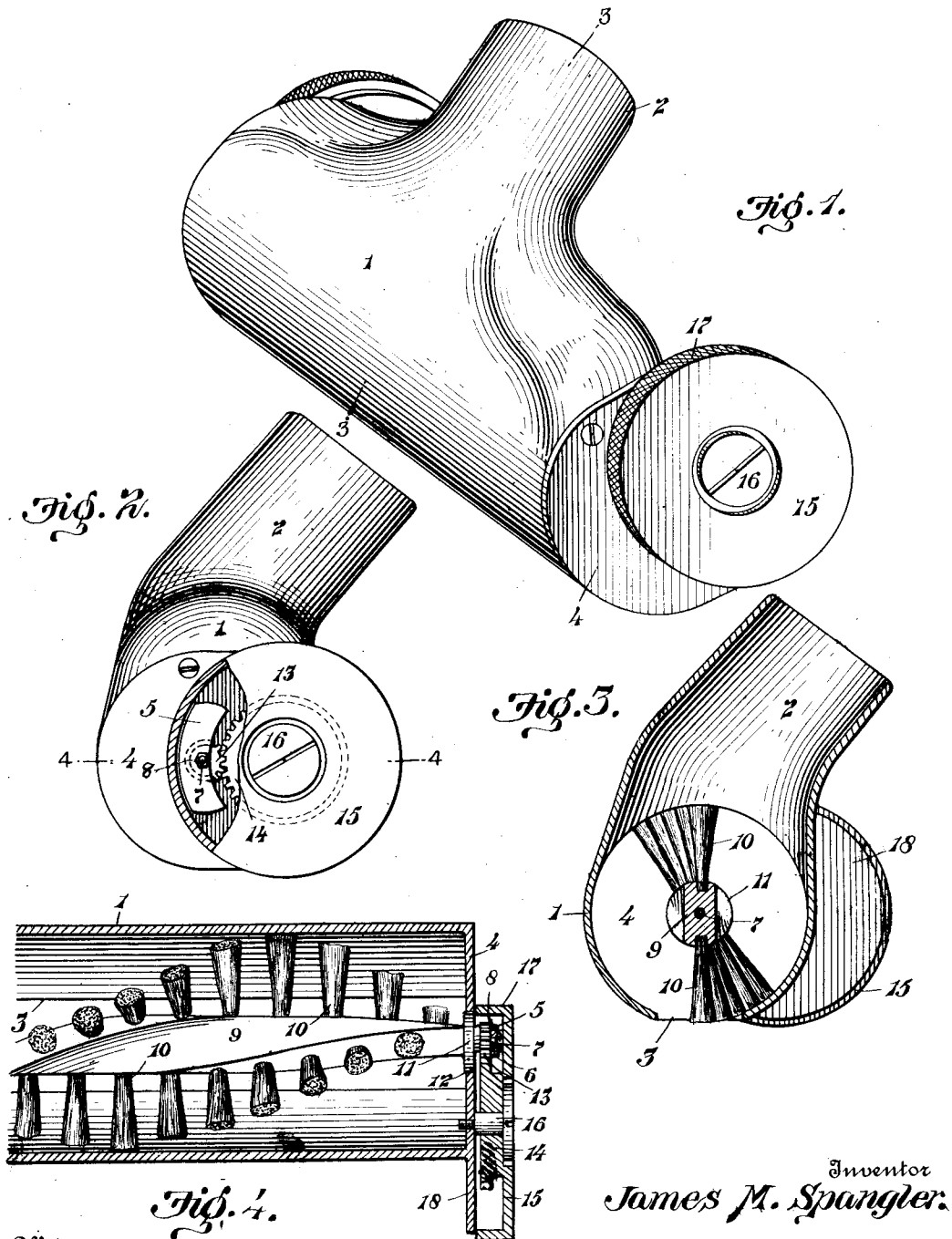


J. M. SPANGLER.
PNEUMATIC CLEANING DEVICE.
APPLICATION FILED JULY 24, 1911.

1,064,783.

Patented June 17, 1913.



Witnesses

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UNITED STATES PATENT OFFICE.

JAMES M. SPANGLER, OF CANTON, OHIO, ASSIGNOR TO THE HOOVER SUCTION SWEEPER COMPANY, OF NEW BERLIN, OHIO, A CORPORATION OF OHIO.

PNEUMATIC CLEANING DEVICE.

1,064,783.

Specification of Letters Patent.

Patented June 17, 1913.

Application filed July 24, 1911. Serial No. 640,262.

To all whom it may concern:

Be it known that I, JAMES M. SPANGLER, a citizen of the United States, residing at Canton, in the county of Stark and State of Ohio, have invented a new and useful Pneumatic Cleaning Device, of which the following is a specification.

My invention relates to improvements in devices for pneumatic cleaning of floors, rugs, draperies, walls, and other surfaces and objects, and especially to that class of such devices wherein a brushing effect is combined with an inrush of air into the cleaning device for the purpose of thoroughly cleaning the surface to which it is applied.

The objects of my invention are to generally improve devices of the character mentioned and to provide a simple, strong, durable, cheaply made and yet thoroughly practical pneumatic cleaning device and to so construct the device that a revolving brush is brought into contact with the surface to be cleaned at the very place where the inrush of air occurs so as to combine the brushing and pneumatic actions to accomplish satisfactory results.

Another object is to so construct the device that the working parts may be inclosed and so arranged that threads, dust and the like will not enter the same to impede their proper operation.

These objects, together with other objects apparent to those skilled in the art, may be attained by the construction illustrated in the accompanying drawings, although the invention may be embodied in other forms, the construction illustrated being chosen by way of example.

In the drawings Figure 1 is a perspective view of a pneumatic cleaning device embodying my invention. Fig. 2 is an end elevation of the device, a portion being broken away to disclose internal construction. Fig. 3 is a transverse sectional view on the line 3—3 of Fig. 1. Fig. 4 is a partial longitudinal sectional view on the line 4—4 of Fig. 2.

Throughout the several views similar reference numerals indicate similar parts.

The numeral 1 indicates a hollow casing provided with the integral pipe attaching collar 2 normally extending upwardly and backwardly as shown in Figs. 2 and 3, the lower portion of the casing 1 being trans-

versely elongated and internally cylindrical, the axis of cylindricity extending transversely with reference to the direction of the extension of the collar 2, said casing 1 being provided on its under side with an inlet slot at 3 extending the full length of said cylindrical portion, the front and rear or side edges of said slot lying in a common plane.

At the ends of the cylindrical portion of the casing 1 the end plates 4 not only act as heads to close the cylindrical casing but also support the bearings for the rotating brush and driving wheels, as will be presently explained. The end plates 4 are provided with the integral, outwardly offset portions 5 in which, at the axis of the cylindrical portion of the casing are arranged apertures as at 6, for the reception of the stationary brush shaft 7 which extends beyond the offset portions 5 and is provided at each end with a nut 8 or other fastening device for holding it in place. Rotatably mounted upon the shaft 7 is the brush spindle 9 provided with the bristles 10 which extend radially, and are adapted to protrude slightly through and sweep across the slot at 3. At each end of the spindle 9 a thread guard 11 is arranged, the end plate 4 being provided with an aperture adapted to receive the thread guard 11, which thread guard is of slightly greater thickness than the plate 4, thus having its inner edge project inwardly from the inner surface of the plate 4 as at 12. Continuing beyond the thread guard 11 the spindle 9 is provided with the fixedly mounted small pinion 13 located just within the offset portion 5, said offset portion having a lateral opening to permit a portion of the pinion 13 to extend beyond the outer edge of said offset portion to engage and mesh with the driving pinion 14 which is fixedly connected to the driving wheel 15.

The driving wheel 15 is preferably of greater diameter than the cylindrical portion of the casing 1. The bearing screws 16 are connected to the plates 4 and the driving wheels with their fixedly connected driving pinions are rotatably mounted upon said bearing screws and are offset to the rear of the cylindrical portion of the casing 1 so that the pinion 14 at its forward side will mesh with the rear side of the pinion 13, as clearly illustrated in Fig. 2. It should be noted that the two driving wheels rotate

about a common axis which axis lies to the rear of the slot 3 and spindle 9. The driving wheels 15 are provided with the externally knurled tread flanges 17, which extend downwardly beyond the hereinbefore mentioned plane of the front and rear edges of the slot 3. The flanges 17 also extend inwardly closely adjacent the plates 4 and the plates 4 are provided with the rearwardly projecting portions 18 extending fully to the rear of the driving wheels to accomplish the complete inclosure of the pinions 13 and 14, thus preventing threads and dust or small particles from becoming entangled in the working parts.

It is intended that the device be connected, by means of the collar 2 to a suitable tube or pipe of well known construction to be used as a handle and having connection, as by means of a flexible tube or otherwise, with some form of pneumatic device for exhausting the air from the interior of the casing 1 and causing a strong inrush of air through the slot 3. It will be obvious when the device is rested upon the floor or other surface to be cleaned and the knurled tread flanges 17 thus brought into contact with such surface, that by a forward and rearward movement of the device the wheels 15 will be rotated, thus communicating rotation through the pinions 14 and 13 to the brush spindle 9 and rapidly rotating the brush. It will be understood that the brush is not of large or heavy design and does not require much power to rotate it. As the bristles 10 pass the slot at 3 they come in contact with the surface being cleaned, especially in the case of floor coverings and the like which are drawn up against the edges of the slot by the inrush of air. By this action the surface being cleaned is lightly brushed while at the same time a strong inrush of air is produced where the brushing action takes place, thus producing a combined brushing and pneumatic cleaning action adapted to produce thoroughly satisfactory results.

It should be noted that the axis of the driving wheels being located to the rear of the axis of the brush and cylindrical portion of the casing, the operator in using the de-

vice may readily bring the brush and front edge of the inlet slot of the casing into closer relation to the surface being cleaned by merely raising the tube or pipe of well known construction which is connected to the collar and which is used as a handle. By thus raising said tube the axis of the brush and of the casing are lowered, and the reverse operation is as easily accomplished when desired. In this way the operator may readily accommodate the device to varying conditions, it being well understood that a smooth, polished, hardwood floor requires different treatment than a heavy velvet or similar rug, whereas in the practical use of the device these two conditions present themselves side by side and the device must be rapidly and easily accommodated to meet the conditions while in use.

I claim:

A pneumatic cleaning device of the character described comprising a hollow casing, a pair of driving wheels and a brush, said casing provided on its under side with an elongated inlet slot having front and rear edges lying in a common plane, said brush rotatably mounted within said casing upon an axis parallel with said slot, said brush having bristles adapted to sweep across said slot, said driving wheels rotatably connected to said casing and having a common axis parallel with the axis of said brush and to the rear of said slot, the peripheries of said driving wheels extending below the said plane and means operatively connecting said driving wheels with said brush, whereby said brush may be rotated by the rotation of said driving wheels in moving the device over the surface to be cleaned, and the front edge of said slot is moved into engagement with or away from said surface when said casing is tilted.

In testimony that I claim the above, I have hereunto subscribed my name in the presence of two witnesses.

JAMES M. SPANGLER.

Witnesses:

WILLIAM H. MILLER,
IRENE LUTZ.