No. 869,542. PATENTED OCT. 29, 1907.

W. J. BERGENS.

PNEUMATIC CLEANING DEVICE.

APPLICATION FILED JAN. 14, 1907.

FIG. 3

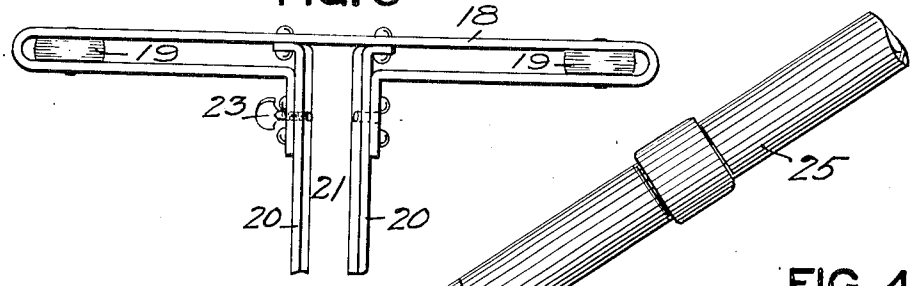


FIG. 4

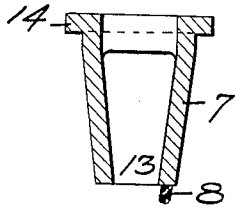


FIG. 2

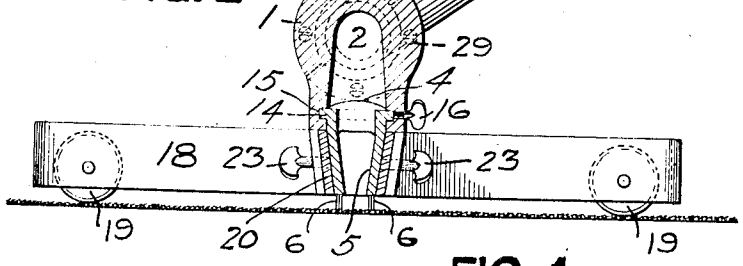


FIG. 1

FIG. 6

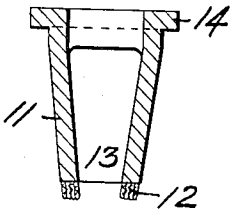
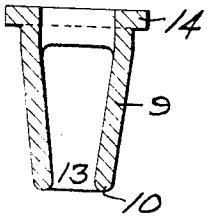


FIG. 5



WITNESSES.

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PNEUMATIC CLEANING DEVICE.

No. 869,542. Specification of Letters Patent. Patented Oct. 29, 1907.

Application filed January 14, 1907. Serial No. 352,255.

To all whom it may concern:

Be it known that I, WILLIAM J. BERGENS, a resident of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Pneumatic Cleaning Devices; and I do hereby declare the following to be a full, clear, and exact description thereof.

This invention relates to pneumatic or suction apparatus for cleaning carpets, floors, tapestries, walls and other surfaces.

The object of the invention is to provide a device for this purpose which is easy to handle, rapid in operation and which is adjustable and interchangeable to meet all conditions and character of work to be performed. The invention comprises certain constructions and adjustments hereinafter described and claimed.

In the accompanying drawings Figure 1 is in part a front view and in part a transverse section of the device; Fig. 2 is a vertical longitudinal section on the line 2—2, Fig. 1; Fig. 3 is a plan view of a portion of the carriage; and Figs. 4, 5 and 6 are cross sections representing different kinds of tools or inlet pieces.

The device operates by suction in the well known way to draw the dust, dirt, moisture or other material to be removed from the fabric or other surface to be cleaned. The main part of the device consists of a hollow head 1 having therein a chamber 2 with the outlet openings at the ends as at 3 and preferably partially divided transversely at the middle as at 4. The latter however, is not necessary.

The head will be provided with a number of removable and interchangeable tools or inlet pieces. A number of the latter are shown in Figs. 2, 4, 5 and 6. For instance 5 indicates an inlet piece having its nose provided with bristles 6 suitable for cleaning hard wood floors and similar hard surfaces. 7 shows a similar inlet piece provided with a rubber or other flexible nose 8 suitable for removing moisture or slush from the floor or other surface. 9 shows a similar piece having a rounded metallic nose 10 and is especially adapted for cleaning carpets, rugs, etc. while on the floor, and 11 shows a piece provided with a fiber nose 12, such as felt or cloth, which is especially useful for cleaning tapestry. Each of these pieces is provided with the inlet slot or opening 13 at its bottom and is adapted to be removably connected to the head 1. Various forms of connections may be used, that shown comprising flanges 14 on the tool or inlet piece sliding endwise into grooves or ways 15 formed in the lower edges of the head. A set screw 16 or other simple means is employed for clamping the inlet pieces in the head. These inlet pieces can be interchanged by merely loosening the set screw 16 when the inlet piece can be slid out endwise and another one inserted in the same manner and fastened by tightening up the set screw. In this manner the device is readily adaptable for cleaning surfaces of various kinds.

The head is mounted on a suitable carriage comprising side pieces 18 having mounted therein small rubber tired wheels 19, said side pieces being connected by cross bars 20. These several parts can be cheaply and conveniently constructed by bending straps or bars of metal to shape and riveting or otherwise securing the same together as indicated in Fig. 3.

The cross bars 20 are spaced apart as shown so as to provide therebetween an opening 21 extending transversely of the carriage, and adapted to receive the suction head and inlet piece. Preferably the sides of the opening 21 are inclined to correspond to the incline of the inlet pieces, as shown in Fig. 2. The head is connected to the carriage by merely inserting the inlet piece into the opening between the cross bars 20, and securing the same therein by any suitable means, such as set screws 23 or other simple means. This also provides a ready means for adjusting the inlet opening vertically or at different distances from the surface to be cleaned. This is conveniently accomplished by moving the set screws 23 inwardly a greater or lesser distance, thereby varying the extent to which the inlet piece can approach the surface to be cleaned. Various other means for securing vertical adjustment will readily suggest themselves.

In order to provide for the easy handling and quick operation of the device the outlet is through the hollow handle 25 and in order that its handling may be easy and the device not tipped so that the suction will always be directly upward, this hollow handle has a swivel connection to the body. This is accomplished by providing the handle with a Y or forked piece 26 which is hollow and forms a continuation of the handle. The ends of the Y piece are turned toward each other and terminate in flanges 27 arranged vertically and bearing against the end faces of the head 1 with the hollow part of said arms communicating with the outlet openings 3 at the ends of the head. These arms are connected to the head by means of glands 28 recessed on their inner faces to fit the flanges 27 on the hollow arms and secured to the head by suitable means, such as by the tap screws 29. This manner of connection permits the handle 25 to be raised or lowered at will so that an operator can hold the same at any convenient angle, or may permit the handle to swing up and down at his convenience.

If desired, to lock the handle to the head at a given angle, set screws 30 passing through the glands 28 are made to impinge on the hollow arms of the handle. Preferably the head and hollow arms are formed of brass or other comparatively soft metal and since these parts have plain meeting faces they can be ground to an air tight fit. Preferably I place between the same a thin steel washer 31 which reduces wear and friction and insures a tight fit.

In the use of the apparatus the suction hose is con-

nected to the end of the hollow handle 25 and the device is manipulated by pushing or drawing the same over the surface to be cleaned. Since the handle has a swivel connection with the body it can take any angle with reference thereto and the body will always maintain its upright position on the floor or other surface. This is of importance since the draft of the suction on the pile of a rug, carpet or similar fabric has a tendency to give the same a roughened appearance unless the suction is uniform in direction. This is accomplished by always having the suction vertical. The mounting of the head on a carriage enables the device to be moved with ease and rapidity. The device is thoroughly adjustable in order to meet all conditions and character of work, both by the interchangeable inlet pieces and the vertical adjustment so as to vary the distance between the inlet slit and the surface to be cleaned.

What I claim is:

1. In pneumatic cleaning apparatus, the combination of a hollow head provided with horizontal ways, a suction pipe connected to said head, and an inlet piece having a sliding fit with said horizontal ways.

2. In pneumatic cleaning apparatus, the combination of a hollow head, a suction pipe connected thereto, an inlet piece having a tongue and groove connection with the head, said tongues and grooves being arranged horizontally and extending from side to side, whereby the inlet piece can be removed by sliding the same endwise, and means for locking the inlet piece to the head.

3. In pneumatic cleaning apparatus, the combination of a carriage, a hollow head, a removable inlet piece for said head, said head and inlet piece being removably secured to the carriage, and a suction pipe connected to said head.

4. In pneumatic cleaning apparatus, the combination of a carriage provided with a transverse opening tapering downwardly, a tapering hollow head projecting through said opening and provided with an inlet slot, means for securing said head to said carriage, and a suction pipe connected to said head.

5. In pneumatic cleaning apparatus, the combination of a carriage with a transverse opening tapering downwardly, a tapering hollow head having a portion projecting down through said opening and provided with an inlet slot, clamping means for securing the head in said opening and regulating the position of the inlet opening with reference to the surface to be cleaned, and a suction pipe connected to said head.

6. In pneumatic cleaning apparatus, the combination of a carriage comprising side frames and cross bars connecting the side frames and providing an opening therebetween, a suction head provided with a portion projecting downwardly between said cross bars, and means for securing the head to said carriage.

7. In pneumatic cleaning apparatus, the combination of a carriage comprising side frames and cross bars connecting the side frames and spaced apart, a suction head having a portion projecting downwardly between said cross bars, and clamping means for securing said head to said cross bars and adjusting the head vertically on said carriage.

In testimony whereof, I the said WILLIAM J. BERGENS have hereunto set my hand.

WILLIAM J. BERGENS.

Witnesses:
ROBERT C. TOTTEN,
JOHN F. WILL.