Dec. 22, 1936. G. P. GHIGNATTI 2,064,903

VACUUM CLEANER ATTACHMENT

Filed Dec. 20, 1935 2 Sheets-Sheet 1

Fig. 1.

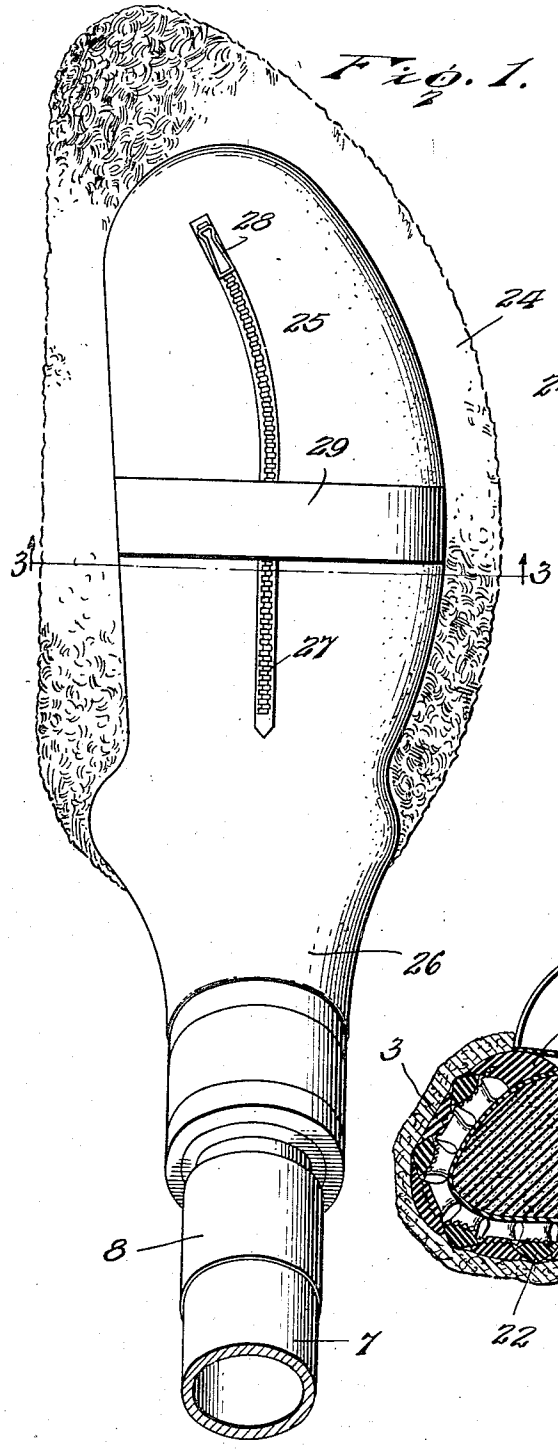


Fig. 2.

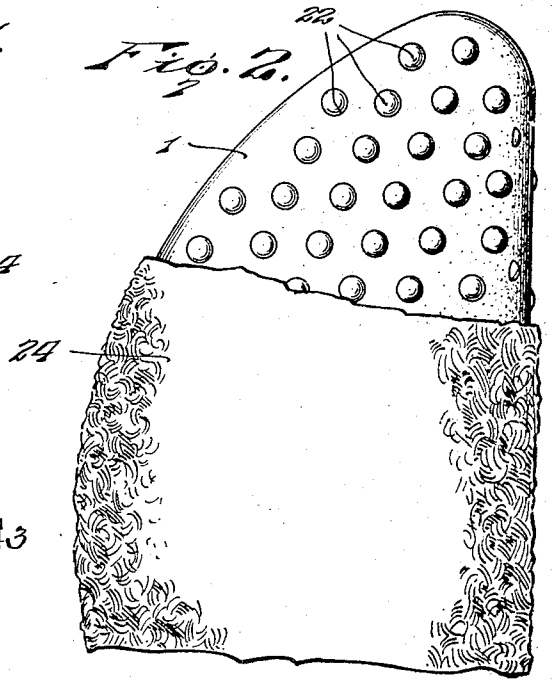
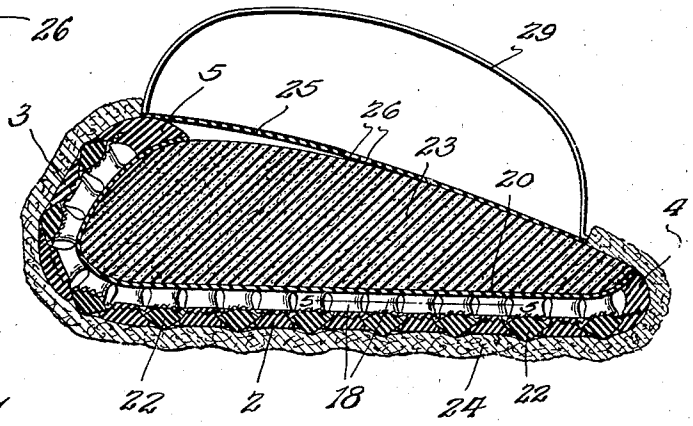


Fig. 3.



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Fig. 4.

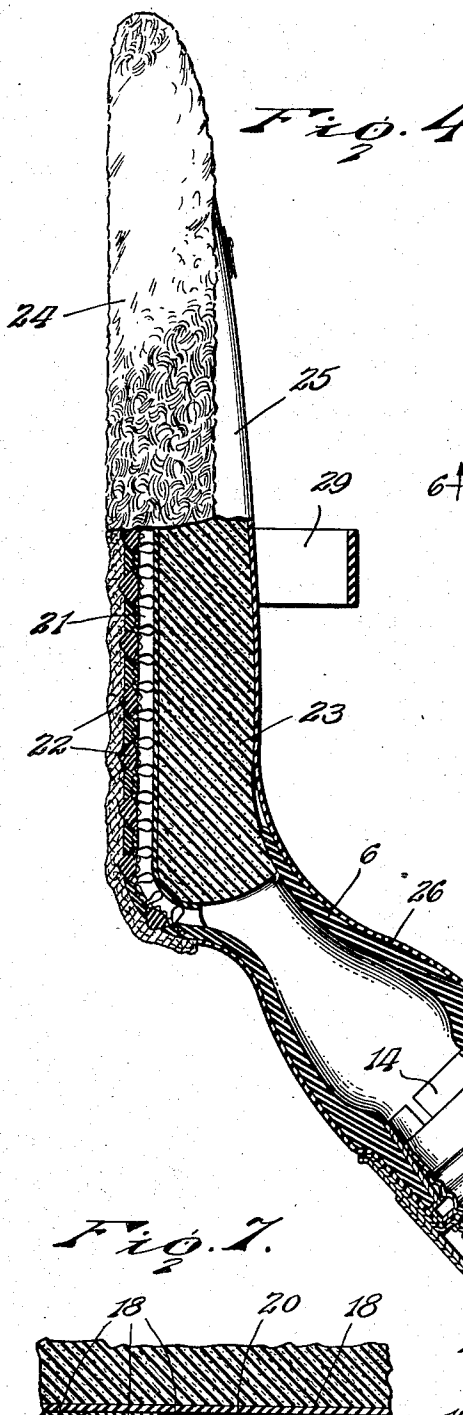


Fig. 5.

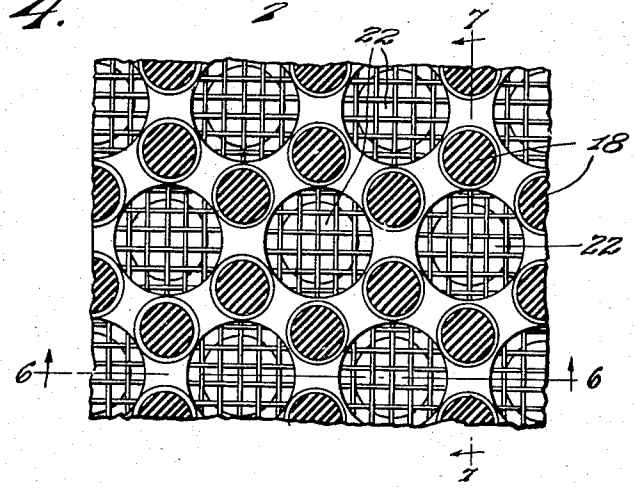


Fig. 6.

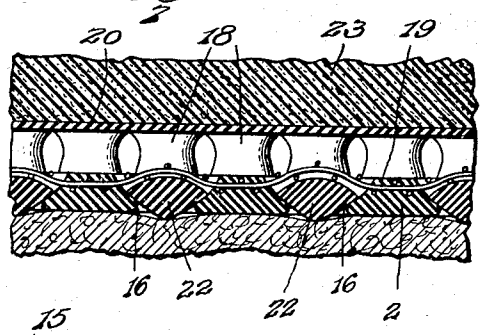
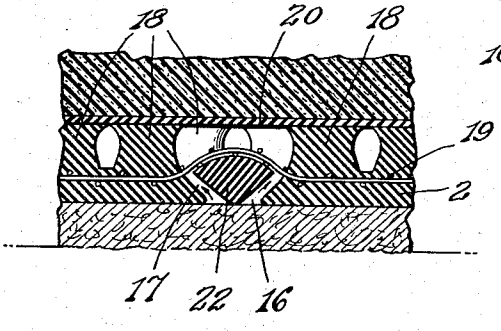


Fig. 7.



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VACUUM CLEANER ATTACHMENT

Gabriel P. Ghignatti, Chattanooga, Tenn.

Application December 20, 1935, Serial No. 55,462

10 Claims. (Cl. 15—158)

This invention relates to a vacuum cleaner appliance, and more particularly to a device adapted to be connected with the suction hose of a vacuum cleaner and used for removing dust and dirt from furniture, draperies and the like.

One object of the invention is to provide a device of this character which is so constructed that it may be applied to a hand of the operator and then brought into contact with the furniture or other article to be cleaned and moved about the same after the manner in which a dust cloth is used. By so forming the device it may be very easily used and held in direct contact with the upholstery or other portions of the furniture to be cleaned and the cleaning operation easily and quickly performed.

Another object of the invention is to provide a dusting appliance having a wall formed with perforations constituting air inlets communicating with an air chamber, valves being provided for the openings which are yieldably held closed and adapted to be individually opened by pressure exerted when the device is in contact with a surface to be cleaned. By this arrangement only the valves closing openings in the portion of the wall pressed against the surface to be cleaned will be opened and a very strong suction will take place.

Another object of the invention is to provide a dusting appliance wherein a soft pad is mounted in a pliable shoe and supported in spaced relation to the perforated wall of the shoe, thus providing an air chamber in the shoe to receive the dust laden air drawn inwardly through openings, the valves of which have been moved to an open position. By this arrangement the device may be easily grasped in a person's hand and pressure applied where desired.

Another object of the invention is to provide the device with improved valves and with improved means for yieldably holding the valves closed but permitting them to be individually moved to an open position when the device is in use.

Another object of the invention is to provide the device with a jacket which encloses the shoe and pad and is so formed that it may be easily applied and when in place held snugly about the shoe and pad with a portion enclosing the shank of the shoe to which the suction hose is connected.

The invention is illustrated in the accompanying drawings, wherein

Figure 1 is a top plan view of the improved dusting appliance.

Figure 2 is a fragmentary bottom plan view of the appliance with the forward portion of the jacket broken away.

Figure 3 is a section taken transversely through the appliance along the line 3—3 of Figure 1.

Figure 4 is a view showing the appliance partially in side elevation and partially in longitudinal section.

Figure 5 is a fragmentary sectional view upon an enlarged scale taken along the line 5—5 of Figure 3.

Figure 6 is a sectional view taken along the line 6—6 of Figure 5 and showing the valve closed, and

Figure 7 is a sectional view taken along the line 7—7 of Figure 5 with the valve shown in its opened position.

The shoe 1 of this improved dusting appliance is open at its back, as shown in Figures 3 and 4, and has a front wall 2, the side portions of which are extended upwardly, as shown at 3 and 4, to provide side walls, and attention is called to the fact that the wall 3 has its marginal portion extended inwardly, as shown at 5, to provide a bead for the same. This bead merges into ends of the short side walls 4 and together therewith forms a reinforcement for the open back of the shoe. A shank 6 which is hollow, as shown in Figure 4, extends from the rear end of the shoe at an upward incline and provides means for connecting the shoe with the suction hose 7 of a vacuum cleaner. The terminal sleeve 8 at the forward end of the hose 7 has its forward portion fitting about a ring 9 to which it is secured by a screw 10 and this ring fits tightly about a cup or sleeve 11 which, in its turn, encircles a nipple 12 threaded for engagement with a threaded collar 13 forming a portion of a metal sleeve 14 fitting tightly within the rear end portion of the shank 6. There has also been provided a sleeve or collar 15 of metal which is firmly secured to the outer end of the collar 13 and of such diameter that when the nipple 12 is screwed into the collar 13, the sleeve 15 will fit snugly within the sleeve or collar 11. Therefore, the shoe will be firmly but detachably connected with the suction hose of the vacuum cleaner and will not be liable to accidentally slip loose when the device is in use.

The shoe, which is formed of pliable rubber, has its front wall 2 and side wall 3 perforated to provide air inlet openings 16 which taper inwardly, as shown clearly in Figure 7, and are then flared, as shown at 17, to provide outwardly tapered valve seats surrounding the air inlet open-

ings. Lugs 18 of rubber, which are formed integral with the walls of the shoe, project inwardly therefrom about the air inlet openings and valve seats in spaced relation to each other, as shown in Figures 5, 6 and 7 and by referring particularly to Figures 6 and 7 it will be seen that coarsely woven fabric 19 is embedded in the walls of the shoe close to the inner face thereof with portions of the fabric exposed and these portions disposed directly back of the air inlet openings and valve seats. A sheet 20 of thin rubber conforming to the interior dimensions and configuration of the shoe is applied to the inner ends of the lugs 18 to which it is firmly secured and this sheet also has its marginal edges secured against the bead 5 and short wall 4. It will thus be seen that the sheet 20 will be maintained in spaced relation to the perforated walls of the shoe and, together therewith, define an air chamber 21 communicating with the forward end of the hollow shank, as shown in Figure 4, so that a suction will be created in the air chamber when the device is in use. Valve blocks 22, which are substantially conical in shape and formed of rubber which is of a more unyielding texture than the rubber from which the perforated walls of the shoe are formed, are provided to normally close the air inlet opening 16. These valve blocks which are solid, as shown in Figures 6 and 7, are forced into place through the air inlet openings and when in place are engaged by the exposed portions of the fabric sheet 19 so that tension will be applied and the valve blocks normally held in the closed position shown in Figure 6 but permitted to be moved inwardly to the opened position shown in Figure 7 when pressure is applied to their apexes or tapered outer ends which extend through the air inlet openings and project somewhat beyond the outer faces of the perforated walls of the shoe. By this arrangement the valves will be normally held closed but when the device is in use pressure applied by contact of the appliance with a surface to be cleaned will cause the valves which are subjected to pressure to be individually shifted inwardly and thus moved to an opened position in which air may be sucked inwardly through the air inlet openings with which the inwardly shifted valves cooperate.

In order to fill the shoe between its open back and the rubber sheet 20 and permit the device to be easily grasped in a person's hand and pressure applied during a cleaning operation, there has been provided a pad 23 formed of sponge rubber. This pad conforms to the configuration of the interior of the shoe and fits snugly therein, as shown in Figures 3 and 4. A jacket 24 which is formed of soft fleecy, porous fabric fits about the shoe in covering relation to the perforated walls thereof with a marginal portion extended inwardly beyond the short wall 4 to overlie a portion of the pad 23, as shown in Figure 3, and marginal portions of the jacket are sewed or otherwise secured to fabric 25 which covers the open back of the shoe in overlying relation to the pad and terminates in a sleeve 26 fitting snugly about the hollow shank of the shoe. A slit or opening is formed in the portion 25 of the jacket longitudinally thereof in order that the jacket may be easily applied or removed from the shoe, and along opposite margins of the slit or opening, there has been provided separable fasteners 27 of the zipper type which are moved into interlocking engagement with each other when the actuating device 28 is slid forwardly to the position shown in Figure 1. By shifting the actuating device rearwardly, the separable fasteners will be released and the jacket may be easily removed or the pad 23 merely withdrawn and after being washed or otherwise thoroughly cleaned, replaced. It should be noted that the rear end portion of the sleeve 26 of the jacket fits snugly about the collar 13 and is firmly secured thereto. A band 29 extends transversely of the jacket in bridging relation to the portion 25 thereof and is secured at its ends in the seam connecting the portions 24 and 25 of the jacket. This band is loose except at its ends, as shown in Figure 3, and, therefore, the hand of the operator may be passed through this loop in order to retain the device in engagement with the hand and permit the device to be easily grasped.

When the improved dusting implement is in use, it is connected with the suction hose and the hand of the operator passed through the loop or strap 29. The operator grasps the shoe in the hand and applies the device to the surface to be cleaned. The device is moved across the surface, which may be wood or upholstery, and pressure is applied so that certain of the valve blocks or practically all of them will be forced inwardly to open position. When the valve blocks are moved inwardly to an open position, air will be sucked inwardly through the air inlet openings and dust carried with it. In view of the fact that the shoe tapers toward its forward end, it may be very easily moved into confined spaces, such as corner portions of a chair or sofa, or into depressions formed by upholstery buttons. In view of the fact that only the valve blocks to which pressure is actually applied will be opened, a strong suction will be created through the inlet openings which have been uncovered and dust and dirt very easily and quickly removed. If so desired, a jacket having brush forming bristles instead of a soft fluffy portion 24 may be employed, in which case the upholstery of a chair or draperies in a room may be brushed during a cleaning operation and dirt and dust easily loosened so that it will be sucked into the air chamber.

Having thus described the invention, what is claimed as new is:

1. In a vacuum cleaner appliance, a pad of soft compressible material, a shoe of resilient material having a front wall formed with openings defining air inlets and valve seats surrounding the same, the front wall being spaced from the under face of said pad to provide an air chamber between the same, said air chamber communicating with a hollow shank adapted to be connected with a source of suction, valves to close the air inlets yieldably held against the valve seats with portions projecting outwardly from the openings, and a jacket of porous material enclosing the shoe and pad.

2. In a vacuum cleaner appliance, a shoe of resilient material open at its back and having a front wall and side walls and a hollow shank adapted for connection with a suction hose, the front wall having air inlet openings, inwardly opening valves for the air inlets, a soft pad in said shoe spaced from the front wall to provide an air chamber communicating with said shank, the valves being yieldably held closed and adapted to be opened when pressure is applied to their outer ends, and a jacket of porous material enclosing the shoe and pad.

3. In a vacuum cleaner appliance, a shoe of resilient material open at its back and having a front wall and side walls and a hollow shank adapted for connection with a suction hose, the

front wall having air inlet openings, inwardly opening valves for the air inlets, lugs extending inwardly from the front walls about the openings, a pad in said shoe held spaced from the front wall by said lugs to define an air chamber communicating with said shank, an air tight sheet between the lugs and pad, the valves being yieldably held closed and adapted to be opened when pressure is applied to their outer ends, and a jacket of porous material enclosing the shoe and pad.

4. In a vacuum cleaner appliance, a shoe of resilient material open at its back and having a perforated front wall providing air inlet openings and internal valve seats surrounding the openings, a hollow shank for said shoe adapted to be connected with a suction hose, a pad in said shoe spaced from the front wall to provide an air chamber communicating with the shank, valves, and reinforcing means carried by the front wall and having exposed portions extending across the openings and engaging the valves to yieldably hold the valves in a closed position against the valve seats with portions of the valves projecting outwardly through the air inlet openings whereby pressure may be applied to the projecting portions of the valves to shift the valves inwardly to an opened position.

5. In a vacuum cleaner appliance, a shoe open at its back and having a perforated front wall providing air inlet openings and internal valve seats surrounding the openings, a hollow shank for said shoe adapted to be connected with a suction hose, fabric embedded in the front wall and having exposed portions back of the air inlet openings, inwardly opening valves forced into place through the inlet openings and yieldably held in a closed position against the valve seats by the exposed portions of the fabric, said valves when closed having portions projecting outwardly through the openings beyond the front wall whereby the valves may be forced inwardly to an opened position by pressure applied against their projecting portions, and a pad in said shoe spaced from the front wall to provide an air chamber communicating with the hollow shank.

6. In a vacuum cleaner appliance, a shoe open at its back and having a perforated front wall providing air inlet openings and internal valve seats surrounding the openings, a hollow shank for said shoe adapted to be connected with a suction hose, fabric embedded in the front wall and having exposed portions extending across the inner ends of the valve seats, said valve seats being conical and having their walls converging outwardly, outwardly tapered valves for closing said air inlet openings yieldably held in a closed position against the valve seats by the exposed portions of said fabric with their outer ends projecting through the openings beyond the outer face of the front wall, and a pad in said shoe spaced from the front wall to provide an air chamber communicating with the hollow shank.

7. In a vacuum cleaner appliance, a shoe open at its back and having a perforated front wall providing air inlet openings and internal valve seats surrounding the openings, a hollow shank for said shoe adapted to be connected with a suction hose, fabric embedded in the front wall and having exposed portions extending across inner ends of the valve seats, said valve seats being conical and having their walls converging outwardly, outwardly tapered valves for closing said air inlet openings yieldably held in a closed position against the valve seats by the exposed portions of said fabric with their outer ends projecting through the openings beyond the outer face of the front wall, lugs projecting inwardly from the front wall about said openings, a rubber sheet supported by said lugs, and a pad in said shoe bearing against the rubber sheet.

8. In a vacuum cleaner appliance, a shoe open at its back and having a perforated front wall providing air inlet openings and internal valve seats surrounding the openings, a hollow shank for said shoe adapted to be connected with a suction hose, fabric embedded in the front wall and having exposed portions extending across the inner ends of the valve seats, said valve seats being conical and having their walls converging outwardly, outwardly tapered valves for closing said air inlet openings held in a closed position against the valve seats by the exposed portions of said fabric with their outer ends projecting through the openings beyond the outer face of the front wall, lugs projecting inwardly from the front wall about said openings, a rubber sheet supported by said lugs in spaced relation to the front wall and together therewith defining an air chamber communicating with said shank, a pad filling the shoe between the rubber sheet and open rear of the shoe, and a jacket of porous material fitting snugly about the shoe and shank and confining the pad in the shoe.

9. In a vacuum cleaner appliance, a shoe open at its back and having a perforated front wall providing air inlet openings and internal valve seats surrounding the openings, a hollow shank for said shoe adapted to be connected with a suction hose, fabric embedded in the front wall and having exposed portions back of the air inlet openings, inwardly opening valves forced into place through the inlet openings and yieldably held in a closed position against the valve seats by the exposed portions of the fabric, said valves when closed having portions projecting outwardly through the openings beyond the front wall whereby the valves may be forced inwardly to an opened position by pressure applied against their projecting portions, lugs projecting from the inner face of the front wall, a rubber sheet supported by said lugs in spaced relation to the front wall and together therewith defining an air chamber communicating with the shank, a pad filling the shoe between the sheet and open rear of the shoe, a jacket of porous material fitting about the shoe and exposed portion of the pad and at its back formed with an opening, and means for closing the opening after applying the jacket.

10. In a vacuum cleaner appliance, a shoe of pliable material having a wall perforated to provide air inlet openings, a fabric reinforcement embedded in the perforated wall and having portions exposed at the openings, a pad in the shoe spaced from the perforated wall to provide an air chamber, and inwardly opening valves for closing the air inlet openings having their inner ends engaged by the exposed portions of the fabric reinforcement whereby the valves are yieldably held closed with portions of the valves projecting outwardly from the openings whereby the valves may be individually moved inwardly to an opened position by pressure applied to their outer ends when the appliance is in use.

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