March 16, 1943. W. C. GLOVER, JR 2,313,935

CLEANING MACHINE FOR CUFFS OF TROUSERS AND THE LIKE

Filed Feb. 13, 1941

Fig. 1.

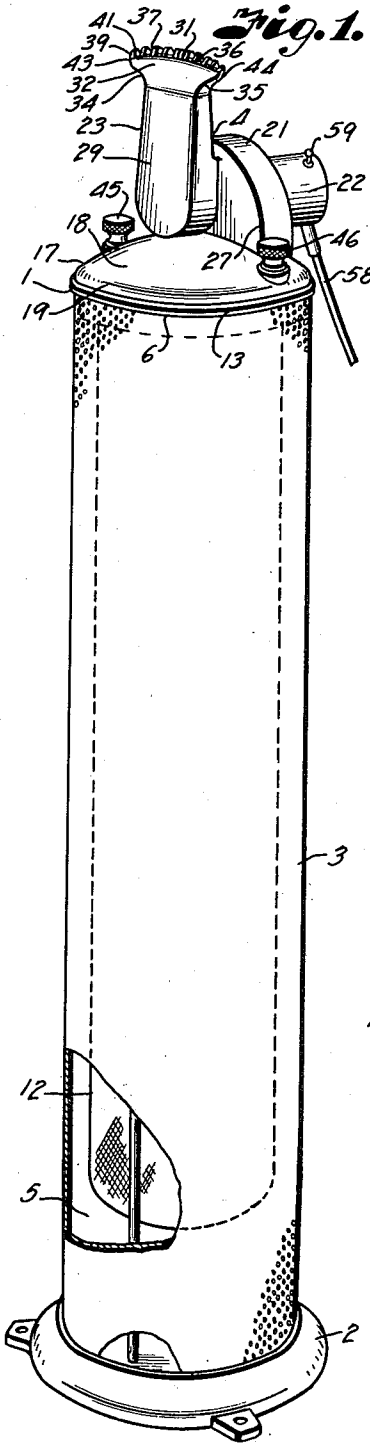


Fig. 2.

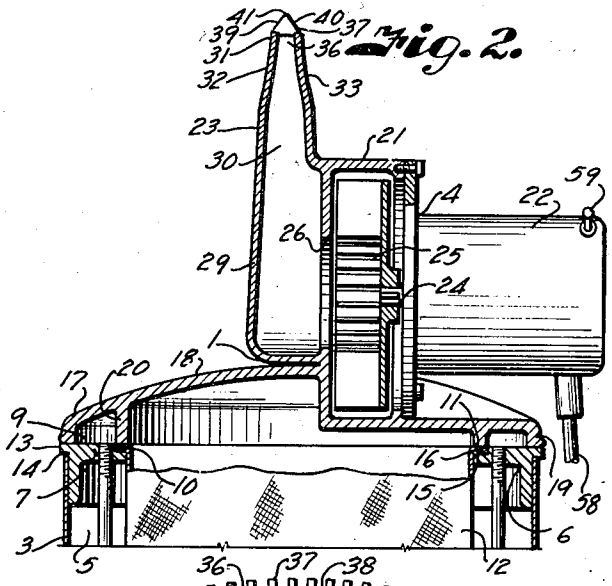


Fig. 3.

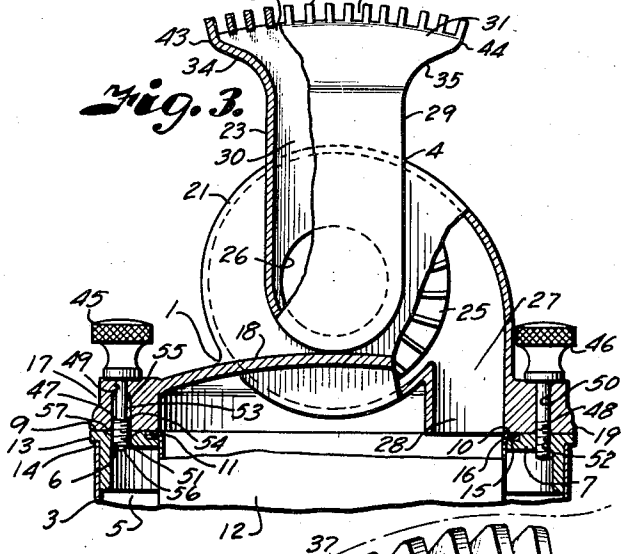
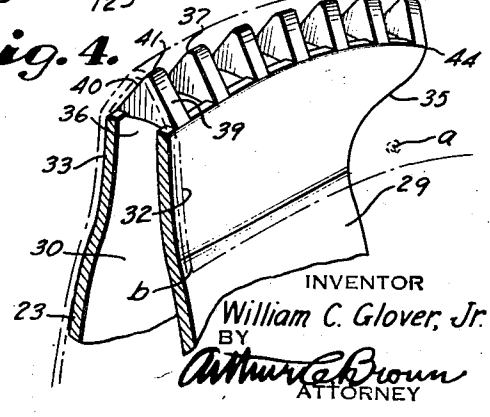


Fig. 4.



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CLEANING MACHINE FOR CUFFS OF TROUSERS AND THE LIKE

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2 Claims. (Cl. 15—15)

This invention relates to cleaning machines particularly for removing accumulations of dust, dirt and the like from the cuffs of trousers, pockets of clothing, and similar articles.

The principal object of the invention is to provide a machine of this character which is efficient and convenient to operate.

Other objects of the invention are to provide a nozzle shaped so that portions thereof will clean under the tack stitching of cuffs and other relatively inaccessible places; to provide a nozzle with teeth adapted to loosen the dirt and lint that tends to cling to the fabric; and to provide the machine with means for effecting suction through the nozzle for withdrawing and depositing the accumulations into a bag or container forming a part of the machine.

It is a further object of the invention to provide a simple, inexpensive construction wherein the nozzle, suction pipe, and motor form a unit with the cover for the bag.

In accomplishing these and other objects of the invention, as hereinafter pointed out, I have provided improved structure, the preferred form of which is illustrated in the accompanying drawing, wherein:

Fig. 1 is a perspective view of a cleaning machine embodying the features of the present invention.

Fig. 2 is a vertical section through the upper portion of the machine, particularly illustrating the suction nozzle and the unit mounting thereof with the fan, motor, and bag cover.

Fig. 3 is a similar section taken at right angles to the section shown in Fig. 2, with parts broken away to better illustrate the construction.

Fig. 4 is a detail fragmentary view of the nozzle.

Referring more in detail to the drawing:

1 designates a cleaning machine constructed in accordance with the present invention, and which includes a base 2 supporting a stand 3 carrying a nozzle and suction fan assembly 4 on its upper end. The stand 3 is preferably formed of foraminated sheet metal which, in the illustrated instance, is rolled to cylindrical form for providing an inner bag retaining chamber 5. Sleeved within the upper end of the stand is a collar 6 having an inwardly extending annular flange 7 encircling the bag opening 8. The upper face of the flange is substantially flat to form a cover seat 9, and the inner marginal edge is provided with a countersunk, annular shoulder 10 for supportingly engaging the rim 11 of a bag 12, later described. The collar is also provided on the exterior side thereof with a bead 13 which seats upon the upper edge 14 of the stand, as shown in Figs. 2 and 3. The collar thus described is suitably secured, for example, by draw-bolts which clamp the stand between the collar and base 2.

The bag 12 is preferably formed of fabric having sufficient closeness of weave to retain dust, lint, etc., while being sufficiently porous to allow passage of air therethrough. The bag may be of cylindrical form and has a hem 15 at its upper end carrying a hoop 16 that provides the rim referred to above. When the rim seats upon the shoulder, as shown in Figs. 2 and 3, the bag is suspended within the stand 3. The bag preferably extends substantially to the bottom of the stand so as to provide maximum capacity and thereby lengthen the periods between which the bag must be emptied.

Seated upon the collar 6 is a cover 17 having a dome-shaped top 18 and a peripheral flange 19 for engaging the seat 9. The cover also includes an inner, annular flange or rib 20 which seats on the rim 11 of the bag and clamps it against the shoulder 10 to provide a dust-tight joint. Formed integrally with the cover is a fan housing 21 carrying a motor 22 on one side thereof and a suction nozzle 23 on the other. The motor 22 includes an armature shaft 24 projecting into the fan housing and carrying an impeller 25. The fan housing has an inlet 26 at the center thereof, opposite the motor, and a circumferential discharge 27 having connection with the interior of the bag through an opening 28 in the cover.

The nozzle 23 comprises a hollow body 29 forming an interior duct 30 connected with the inlet or suction opening 26 of the fan housing. The upper end of the body carries a substantially fan-shaped head 31 including upwardly converging sides 32—33 and outwardly and upwardly extending curved ends 34—35 forming a substantially arcuate opening 36 therebetween having connection with the duct 30. Extending across the opening is a plurality of upwardly projecting guards or teeth 37, spaced apart to provide a series of passageways 38 to the duct 30. The teeth 37 are of substantially triangular shape and have flat faces 39 and 40 extending from the plane of the opening and converging in slightly rounded tips 41. The transverse faces of the teeth are substantially flat and form relatively sharp corners 42 with the inclined faces

39 and 40 to provide scrapers for dislodging dust and lint when the cuff of a pair of trousers, or the like, is moved thereacross.

Attention is particularly directed to the laterally projecting ends 43 and 44 of the nozzle which are formed by the curved ends 34 and 35, as these projections provide for a maximum length nozzle and allow for cleaning under the tack stitch "a" of the cuff "b" of trousers and other inaccessible places, such as the corners of pockets and the like.

The cover is secured in position by a thumb nut 45 and a stud bolt 46, having threaded stems 47 and 48 which extend through openings 49 and 50 in the cover and into threaded sockets 51 and 52 of the collar flange 7. The threaded stem for the nut 45 has a reduced portion 53 forming a shoulder 54 with the threaded end thereof, and the opening 49 which receives the stem 47 has a stop shoulder 55 adapted to engage the shoulder 54 when the thumb nut is turned to disconnect the stem from the threaded socket of the flange 7. The terminal of the shank is preferably of cone-shape, as indicated at 56, and the threaded opening is provided with a conical counterbore 57 to guide the stem into threaded engagement therewith.

The motor is supplied with suitable current through the conductor cable 58, and the circuit is controlled by a switch 59 carried by the motor housing.

In using the machine constructed and assembled as described, the motor 22 is energized to effect rotation of the fan or impeller 25 which draws air through the passageways between the teeth and discharges it into the bag. The cuff of the trousers is passed over the teeth of the nozzle, as shown in dotted lines Fig. 4, and drawn downwardly so that the tips of the teeth closely engage in the crease and inner surfaces of the cuff. The cuff is then drawn laterally across the teeth, in the longitudinal direction of the opening 36, so that the edges thereof remove the lint and dirt tending to cling to the cuff. Usually the cuffs are secured by tack stitches arranged on the opposite sides thereof. For this reason the cuff will be moved over the nozzle between the tacks at one side with the tacks passing under the projecting ends 43 and 44 of the nozzle so that a portion thereof passes under the tacks and enters the space thereunder to dislodge and remove the accumulations. When one side of the cuff is cleaned, the cuff is removed and the opposite side applied in a similar manner. The dust, dirt and other material is dislodged by the teeth as the cuffs are drawn thereacross and are drawn by suction of the fan between the passageways 36 and into the duct 30 for discharge by the fan into the bag.

When it is necessary to remove the bag for emptying the contents, the thumb nut 45 is loosened and backed off from the threaded socket 51 of the collar 6 so that the enlarged threaded end of the stud 47 enters the enlarged portion of the opening 49. In this position the cone end 56 will clear the flange 7 so that upon loosening of the thumb nut 46 the cover may be swung laterally to permit removal of the bag 12. When the bag 12 is emptied and reinserted, the cover is returned to its position on the collar. As soon as the cone end enters the conical counterbore 57, the stem will automatically center with the threaded socket 51, whereupon the nut 45 is turned to screw the stem thereinto, then when the nut 46 is retightened the cover is clamped to the collar for retaining the bag and establishing a dust-tight joint therebetween.

From the foregoing, it is obvious that I have provided a cleaning device of simple and inexpensive construction, and which is equipped with a nozzle adapted to remove dust, lint and like accumulations from the cuff, pockets, and other inaccessible places of clothing and similar articles.

What I claim and desire to secure by Letters Patent is:

1. In a machine for cleaning the cuffs of trousers and the like, a suction nozzle having side walls spaced apart and having upwardly and outwardly projecting end walls cooperating with terminal edges of the side walls to form an elongated slot-like opening of less length than the spacing between the tackings of a cuff, and a plurality of spaced triangular-shaped teeth projecting upwardly from the edges of the side walls and extending transversely of the slot-like opening, said teeth having upwardly converging edge faces to closely engage in the fold crease of the cuff, said outwardly projecting end walls forming portions adapted to pass into the space between the tacking and fold crease of the cuff to present the teeth to the portions of the cuff underlying the tackings.

2. In a machine for cleaning the cuffs of trousers and the like, a suction nozzle having spaced side walls terminating in arcuate edge faces and having upwardly and outwardly projecting end walls cooperating with the arcuate edges of the side walls to form an elongated slot-like opening, and a plurality of spaced teeth projecting above the arcuate edges of the side walls and extending transversely across the width of said slot-like opening, said teeth being of triangular shape with their apices arranged to engage the fold crease of a cuff and said outwardly projecting end walls being adapted to pass into the space between the tacking and fold crease of the cuff to present the apices of the endmost teeth to the portion of the fold crease under said tacking when the cuff is shifted back and forth across the nozzle in the direction of said slot-like opening.

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