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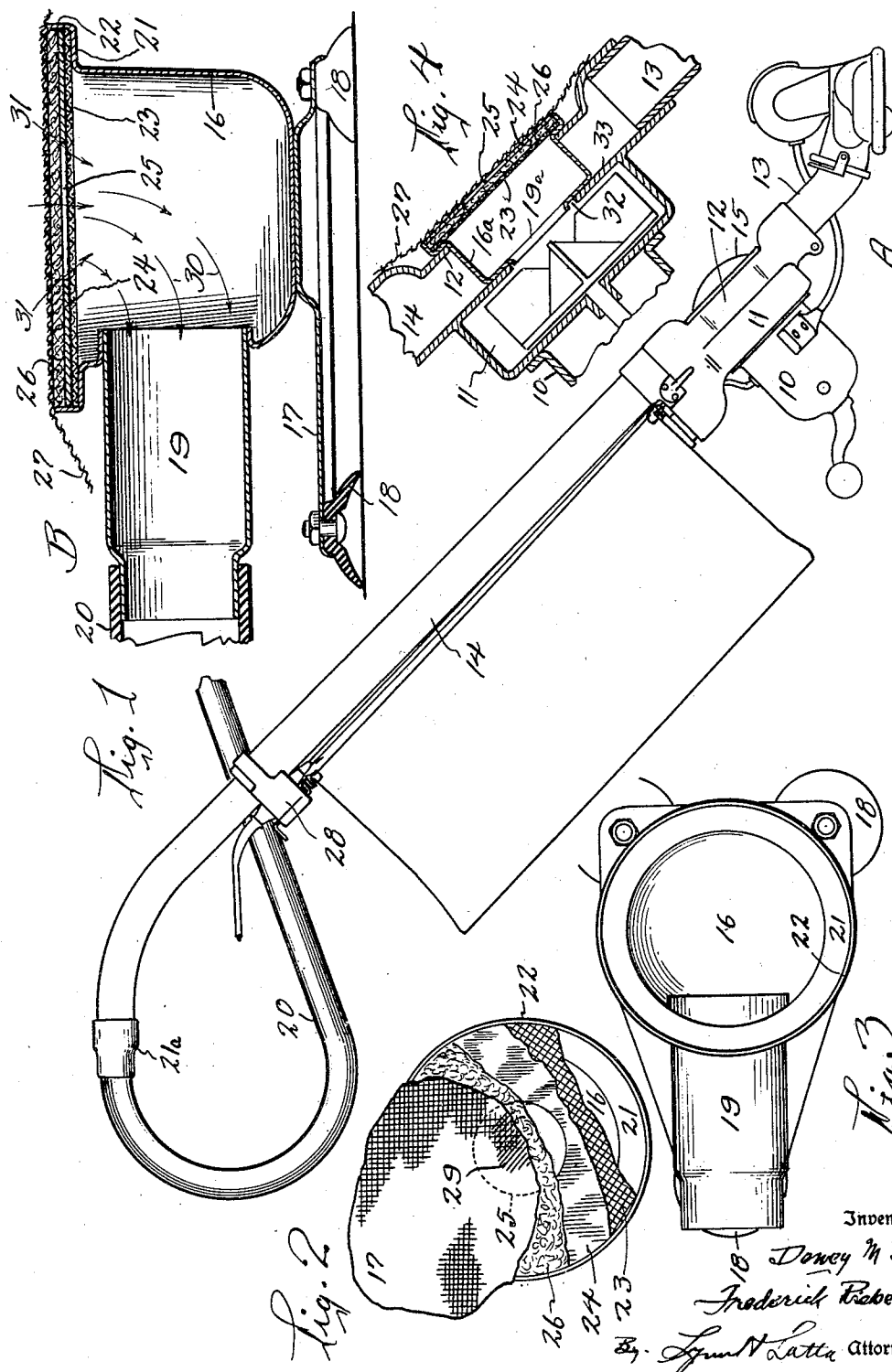
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2,058,632

METHOD OF CLEANING

Filed Oct. 12, 1935

3 Sheets-Sheet 1



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3 Sheets-Sheet 2

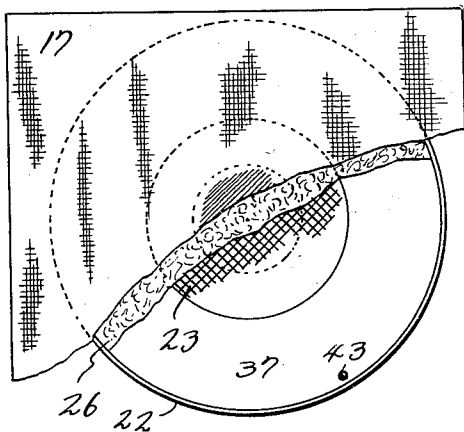


Fig. 5

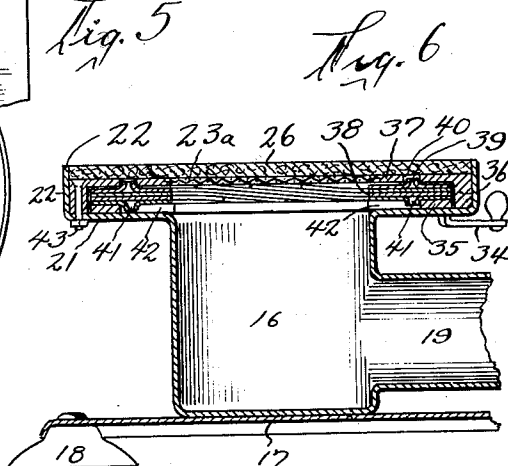


Fig. 6

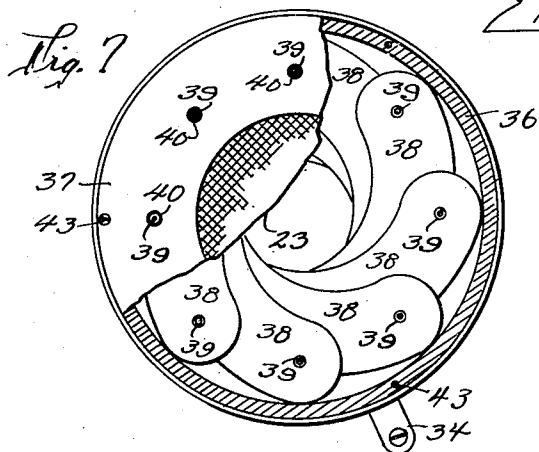


Fig. 7

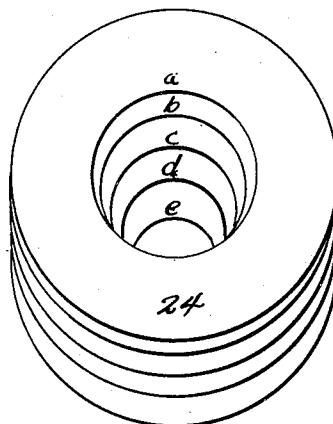


Fig. 9

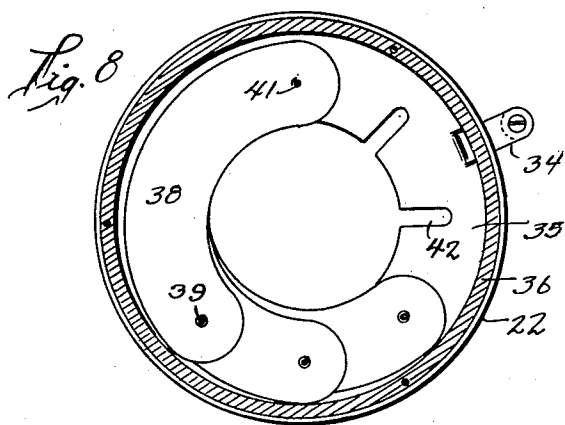


Fig. 8

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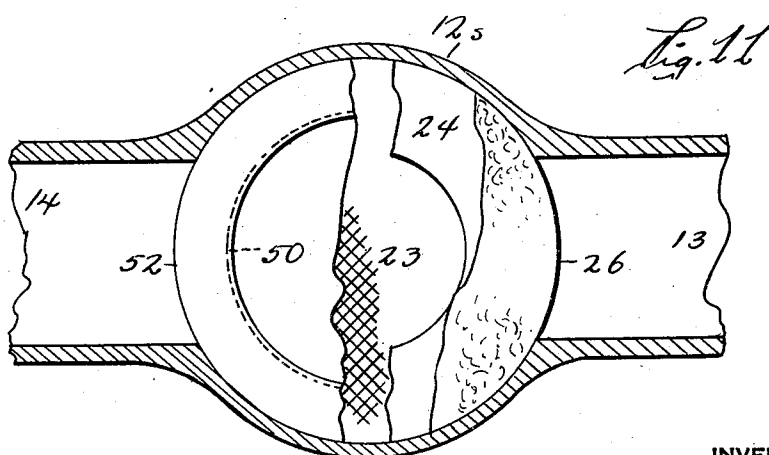
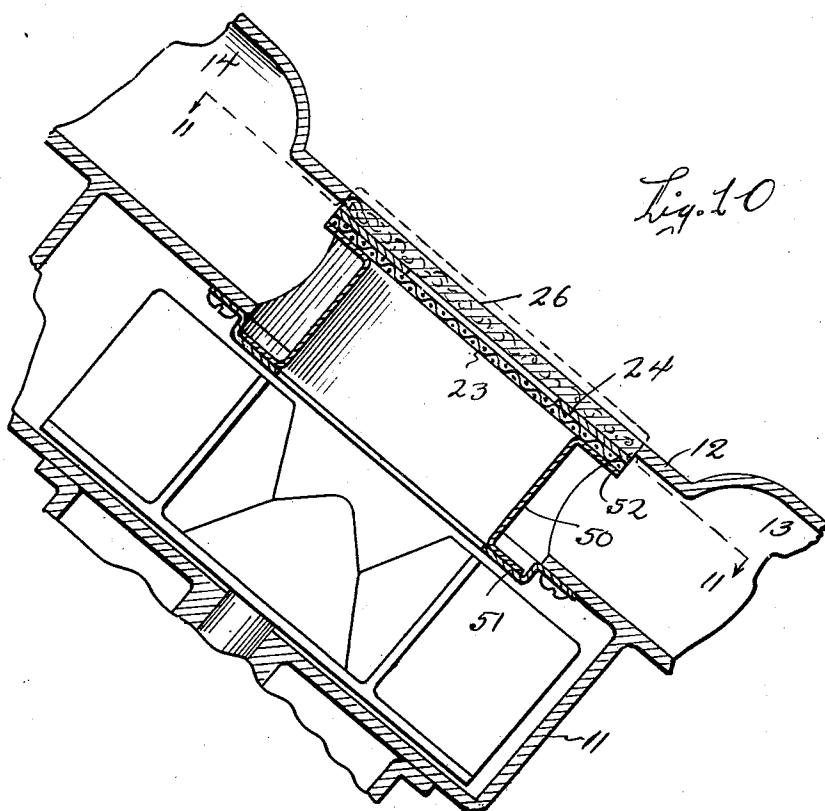
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3 Sheets-Sheet 3



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METHOD OF CLEANING

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Application October 12, 1935, Serial No. 44,743

1 Claim. (Cl. 68—38)

This invention relates to the art of dry cleaning of fabrics and has for its object to provide a method utilizing suction to most efficiently operate upon a soiled spot in a piece of fabric, adjustment being made in accordance with the size of the spot to be removed. To this end, the invention contemplates selectively concentrating the suction to approximately the area of the spot to be removed.

Other objects of the invention will become apparent in the exemplification set forth in the following detailed description making reference to the appended drawings in which

Fig. 1 is a side elevation of an apparatus for performing the invention, the working head of such apparatus being shown in enlarged sectional detail.

Fig. 2 is a plan view of the working head.

Fig. 3 is a plan view of the same with the working face elements removed.

Fig. 4 is a sectional view of a modified form of the working head.

Fig. 5 is a view similar to Fig. 2 of a modification of the working head.

Fig. 6 is a sectional view of the same.

Fig. 7 is a plan view of the same, parts being broken away to illustrate the internal construction.

Fig. 8 is a plan view of the same with additional parts removed, and

Fig. 9 is a plan view of a stack of orifice rings used in connection with the form shown in Figures 1 to 4 inclusive.

Fig. 10 is a sectional view similar to Fig. 4 showing a further modification of the apparatus, and

Fig. 11 is a sectional view taken on the line 11—11 of Fig. 10.

Referring first to the form of apparatus shown in Figures 1 to 3, we provide a suction apparatus in the form of a household suction cleaner A, and a working head indicated generally by the reference character B. The cleaner A includes an electric motor 10, a suction fan 11, inlet port 12 communicating respectively with the floor tool tube 13 and the hollow suction handle 14 and a rotatable valve 15 operating in the port 12 to direct the suction either to the handle 14 or the floor tool tube 13.

The working head B comprises a suction chamber 16 secured upon a base 17 which has feet comprising resilient suction cups 18 adapted to engage a supporting surface to securely hold the working head in position.

Attached to and communicating with the suction chamber 16 is a neck 19 the outer end of which is adapted to be telescoped into engagement

with the end of a flexible extension hose 20 attachable by means of the sleeve 21a to the hollow handle 14.

The suction chamber has an open mouth defined by an annular radial flange 21 having an upstanding rim 22. A disc shaped grid of wire cloth 23 is supported on the flange 21 and fits snugly within the rim 22. On top of the grid 23 is an orifice 24 of impervious material having a central opening 25 which defines the effective suction opening.

In Fig. 9 is shown a set of such rings which is provided for each working head, the rings being marked a, b, c, d, and e, respectively, and having openings of progressively diminishing diameters.

On top of the ring 24 is a felt disc 26 upon which is laid the fabric 27 to be cleaned.

The cleaner A includes switch 28 for stopping and starting the motor 10. In the operation of the device, the fabric is laid upon the felt disc 26 with the soiled spot 29 (Fig. 2) centered over the opening 25 in the disc 24. Cleaning fluid is thence poured on to the fabric on the spot 29, the suction mechanism is started into operation, and the operator rubs the spot 29 with a piece of cloth or the like while the air is being sucked through the fabric. The cleaning fluid laden with absorbed soil, will be drawn through the fabric, through the felt disc 26, the opening 25, the screen 23 and into the suction chamber 16 as indicated by the arrows 30. The soil will be absorbed largely by the felt disc 26 so as not to be deposited in the cleaner.

In cleaning a large spot, the ring a will be used first. The air currents going into the edge region of the opening 25 are slanted inwardly as indicated by the arrows 31 owing to the depth of the felt disc 26 lying between the fabric 27 and the opening 25. This indrawing effect will assist the operator in working the fluid from the edge region of the spot toward the center, and will give the desired cleaning effect avoiding a "ring" in the area being cleaned. The spot having been worked to a smaller size, discs with progressively smaller openings can be used as the spot is gradually worked down to nothing.

The secret of operation of the device is concentrating the suction to the area of the spot to be cleaned.

In the form shown in Fig. 4 the working head B comprises simply a suction chamber 16a with a neck 19a adapted to communicate directly with the inlet opening 32 of the fan 11. The bottom of the chamber 16a sets against the partition wall 33 which separates the fan from the valve casing 12 so that connections to both handle 14 and floor

tool tube 13 are completely shut off by the chamber 16a.

5 In Fig. 4 the ring 24 is shown above the felt disc 26, although the preferred arrangement is that shown in Fig. 1.

10 In the form shown in Fig. 6, the suction chamber 16 has a flange 21 and a rim 22 of proper size to accommodate an aperture forming mechanism which is operable by a lever 34 to give a continuous variation in aperture size from maximum to minimum.

15 This mechanism includes a ring 35 in which the lever 34 is formed, said ring 35 being rotatably seated on the flange 21 within the annular flange 36 of a complementary ring 37. Between the rings 35 and 37, are a series of thin leaves 38 of arcuate shape, each of which has at one end an extruded trunnion 39 journaled in an opening 40 of the upper ring 37 and at its other end a similar 20 trunnion 41 engaged in a radial slot 42 in the lower ring 35. The upper ring is secured as by bolts 43 to the flange 21 and serves to hold the mechanism in position. The lower ring 35 is rotatable by means of the lever 34, and upon rotation causes 25 the leaves to close together restricting the aperture defined between them.

The upper ring 37 is formed with a grid 23a of wire cloth across its open center and a felt disc 26 is supported thereon extending over the ring

37 and fitting within the rim 22. In this form of apparatus the aperture may be progressively decreased during the operation of cleaning thus avoiding the lifting off of the fabric and the felt disc to replace the rings 24. 5

In the form shown in Fig. 10 and Fig. 11 the attachment comprises simply a thimble 50 which rests against the wall 51 separating the fan case 11 from the valve casing 12. It has a flange 52 which fits loosely within the two semi-circular 10 wall portions 12s of the valve casing 12, and the grid 23, orifice ring 24, and felt disc 26, are all received in the cavity between the walls 12s and the flange 52.

The invention is not to be limited to the exact 15 construction illustrated and described, but is intended to be construed as covering all modifications thereof which come within the scope of, or are equivalent to, what is defined in the appended claim. 20

We claim as our invention:

The method of cleaning a soiled spot from a fabric comprising: supporting the fabric and drawing therethrough a current of air, applying 25 cleaning fluid to the soiled spot, and selectively concentrating the suction to substantially the area of the spot.

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