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FILTER BAG

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(57) Claim

1. An arrangement of a filter bag in an electric vacuum cleaner wherein the filter bag has a bottom plate having an insertion opening for a fan-side air-blast connection, at least two side-edge indentations, a lower side which faces the inside of the filter bag, and which is arranged in the manner of a transverse wall in a filter-bag chamber which is adjacent a motor-fan housing and which can be lifted off from same, wherein a first of said at least two side-edge indentations lies opposite a second of said at least two side-edge indentations and, when the vacuum cleaner is in an operating mode, projections from the motor fan housing extend into both if said first and second side-edge indentations protrude beyond the lower side of the bottom plate.

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Complete Specification for the invention entitled:

"FILTER BAG"

The following statement is a full description of this invention, including the best method of performing it known to applicant(s):

FILTER BAG

The present invention relates to an arrangement of filter bags in electric vacuum cleaners in which the filter bag has a bottom plate which has an insertion opening for the blower-side air-blast connection and at least one side indentation and is arranged in the manner of a transverse wall in a filter-bag chamber which is adjacent to the motor-blower housing and can be lifted off from it.

The changing of the filter bag or, more precisely, the removal of the full filter bag, presupposes a certain amount of skill in many cases. Thus, for instance, upon the grasping of the filter bag itself there is a certain amount of aspiration and thus a discharge of dust via the opening. In order to remedy this it is already known to interpose between the motor housing and a chamber of the vacuum cleaner which receives the filter bag, a handle piece which is also insertable into said chamber and which is detachably connected to a bottom plate which forms the closure of the filter bag and has the opening. By pulling on the handle piece the filter bag is pulled out of the chamber. The handle piece is then disconnected and provided with a new filter bag.

~~This invention provides an arrangement of filter bags in electric vacuum cleaners in which the filter bag has a bottom plate which has an insertion opening for the fan-side air-blast connection and at least one side indentation and is arranged in the manner of a transverse wall in a filter-bag chamber which is adjacent the motor-fan housing and can be lifted off from same, characterized by the fact that the side-edge indentation lies opposite a second side-edge indentation and projections extend into both indentations and protrude to beyond the lower side of the bottom plate.~~

A special pull handle, i.e. a handle which can be attached to the bottom plate, can be dispense with: rather, the removal of the full filter bag can now be effected with direct use of the bottom plate as such handle. The structural means are simple and suitable in the manner that opposite the edge indentation there is a second edge indentation and that projections which protrude to beyond the bottom ~~side of the lower plate extend into both indentations. The position~~



According to the present invention there is provided an arrangement of a filter bag in an electric vacuum cleaner wherein the filter bag has a bottom plate having an insertion opening for a fan-side air-blast connection, at least two side-edge indentations, a lower side which faces the inside of the filter bag, and which is arranged in the manner of a transverse wall in a filter-bag chamber which is adjacent a motor-fan housing and which can be lifted off from same, wherein a first of said at least two side-edge indentations lies opposite a second of said at least two side-edge indentations and, when the vacuum cleaner is in an operating mode, projections from the motor fan housing extend into both if said first and second side-edge indentations protrude beyond the lower side of the bottom plate.

The present invention further provides a filter bag for use in an electric vacuum cleaner, said filter bag comprising a web-like blank formed into a tube, one end of said tube being closed, the other end being attached to a bottom plate, said bottom plate having a transverse opening at one end thereof and at least one side-edge indentation, wherein the side-edge indentation lies opposite a second side-edge indentation, said side-edge indentations being adapted to accept projections therein.

A special pull handle, i.e. a handle which can be attached to the bottom plate, can be dispensed with : rather, the removal of the full filter bag can now be effected with direct use of the bottom plate as such handle. The structural means are simple and suitable in the manner that opposite the edge indentation there is a second edge indentation and that projections which protrude to beyond the bottom side of the lower plate extend into both indentations. The position



of corresponding indentations facing each other permits a convenient gripping of the bottom plate by an ordinary clamping grip. In this connection the fingers extend into the one indentation and the opposing thumb into the other. After release of the removal region the two indentations are immediately apparent; to this extent they even themselves suggest the function assigned to them. To this extent no instructions are required either. The projections which extend into the indentations keep the indentations closed in the condition of operation of the vacuum cleaner. They, so to speak, supplement the bottom-plate sections which have been lost by the indentations which form the grip openings. Since they even protrude to beyond the lower side of the bottom plate there can in no case arise bulges which subject the wall of the filter bag to increased stress or a sort of crease constellation in which these wall zones will be subject to increased mechanical stress. Furthermore, the projections also indicate whether the filter bag or its bottom plate is inserted correctly. Furthermore, one advantageous measure is that the wall of the filter bag extends across to the indentations and is bent out by the projections from the lower side of the bottom plate. The supply of wall obtained by the correspondingly ^{intersecting} ~~intersecting~~ course is pushed out by the projections in the opposite direction, which takes place practically entirely free of stress. Furthermore, in this way an optimum bag cross section can be taken as basis. The corner fold of the edge need not be placed behind the base of the indentation. Furthermore, it is found favorable for the glue line of the filter-bag wall to have recesses which are directed towards the center and extend with the same contour as the edge of the indentations. The corresponding offset leads at the same time to an adhesive arrangement which is improved as a whole since the glue line is made longer by the corresponding detour. In order to retain a homogenous wall structure specifically in the region of the recesses, the double layer of the filter-bag wall which forms the filter-bag longitudinal gluing line which lies offset with respect to the indentations is glued in simple manner to the bottom plate. The recesses advisedly assume a trapezoidal course. In the interest of, in particular, also an ergonomic contour, the base is aligned in this connection with the direction of continuation of the edge of the bottom plate.



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In order to obtain a more sensitive entrance of the projections into the indentations, the projection end surfaces are rounded in ball shape on their side facing the filter-bag wall. This results in a sort of corrective action with respect to the bottom plate. In order to have indentations which are as large as possible as grip openings, there is proposed a development in the manner that the bottom plate of the filter bag is fixed merely by the resting of the edge thereof, which corresponds in the resting region to the contour of the filter-bag chamber, on an inner step of the filter-bag chamber. For a clean, convenient removal of the filter bag it furthermore proves advantageous for the filter bag to be in a socket-connection communication with respect to a filter-bag intermediate support which is carried along upon the swinging open of the chamber and which bears the valve closure member and from which the filter bag can be separated, for instance on the other side of the vertical position of the socket-connection cross-sectional plane. Dust emergence or the falling out of larger, heavier articles is practically prevented simply by the above-explained change in position of the filter bag. In this connection the changing of the filter bag can even be effected in the normal position of use of the electric vacuum cleaner designed as a hand-held appliance; it need not be laid on its side. Furthermore, in the case of vacuum-cleaner types of this kind the well-proven energy-favorable arrangement can be retained, namely that the motor operates from the bottom to the top and the filter bag is accordingly charged with the dust-laden air from the bottom. The swing opening, which takes place in the plane of the joint between motor housing and filter-bag chamber brings about not only optimal accessibility for the operation described but also favorable pre-requisites for the assembling of the appliance as a whole. The carried-along filter-bag intermediate support acts like an accompanying cover of the socket connection. As soon as the intermediate support reaches said position, the filter bag can be detached. Since only in this position is the mouth of the filter bag exposed, the contents are reliably held back against falling out. It is furthermore of particular advantage that the valve-closure member can even sit on the intermediate support. The filter bags therefore need no longer be equipped in this respect if such a development is desired. The handling is optimized by an automatic separation of the socket-connection communication by stopping of the

swinging movement of the intermediate support and further swinging of a chamber socket. If this movement of the chamber socket encompasses a fully useful angle of 180° then the filter bag can be very simply pulled out like an insert from the then vertically standing filter-bag chamber which is open on top. The axis of swing of the chamber socket is arranged approximately at the height of the resting surface of the bottom of the filter bag. In this case, ^{the} intermediate support and chamber socket swing advisedly around a common axis of swing. The stopping of the intermediate support in the said approximately vertical filter-bag release position is advisedly effected by a swing limiting stop which lies adjacent the common axis of swing. The swinging open is in this case facilitated by a handle on the free end side of the intermediate support. The closed position, on the other hand, is secured in customary manner, for instance by a detent-hook lock which can be actuated by push button. For a structurally simple, spatially small valve-closure device the invention proposes that the valve closure member be formed of a valve flap on the upper end edge of a socket of the intermediate support which extends into the bottom plate of the filter bag, the bottom plate of the filter bag having a foam lining from which a valve flap of smaller diameter than that of the socket is cut out. The said socket leads to a sealing closure even in the case of tolerance-caused deviations of the participating parts. In addition to projections another indicator is provided which indicates whether the filter bag is in its functionally proper position or whether a filter bag which is proper for the operation has been used, in the manner that orientation features are arranged on the periphery of the filter-bag bottom plate, they being associated with mating features in the region of the inner wall of the chamber socket.

In the drawings:

- Fig. 1 is a view of an electric vacuum cleaner taking into account the arrangement of filter bags in accordance with the invention;
- Fig. 2 is a perspective view of the filter bag;
- Fig. 3 shows the region of the place of swing of the vacuum cleaner in the closed position, in a fragmentary view;
- Fig. 4 is a section along the line IV-IV of Fig. 3;

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Fig. 5 is a view corresponding to Fig. 3 but in the swung-open condition and approximately in the position of the intermediate support stopped in the vertical plane;

Fig. 6 shows the swing-limiting stop which produces this stopping, in an individual enlarged view;

Fig. 7 is a top view of Fig. 5;

Fig. 8 is a top view of the folded filter bag showing the course of the glue line or glue track between filter-bag wall and bottom plate, and

Fig. 9 is a section along the line IX-IX of Fig. 9.

The electric vacuum cleaner which is adapted to the arrangement of filter bags in accordance with the invention is designed as a hand-held appliance. It has a housing 1, adjoining which in upward direction there is a rod 2 with handle 3 at one end.

In the transition region between the handle 3 and the rod 2 there is an on/off switch 4. The electric cord connection has not been shown.

The housing 1 of the vacuum cleaner is divided into a motor housing 5 and a chamber 6, extending above it, to receive a filter bag 7. The motor fan has not been shown in the drawing.

The side of the filter bag 7 which faces the motor housing 5 is in socket-connection communication with a fan-air channel 8.

The motor housing 5 passes at the bottom into a tube coupling 9 (see Fig. 1) which produces the air-flow connection to a suction nozzle 10. The suction nozzle 10 can be a so-called suctionbrush nozzle which contains, within the nozzle mouth, a brush roller which is placed in rotation by a separate drive.

The motor fan therefore operates from the bottom to the top and accordingly presses the dust-laden air into the filter bag 7 which is arranged upside down above the motor housing 5.

The cross section of the housing 1 is long and rectangular with slightly arched wide sides and slightly arched narrow sides. In

Fig. 1 the vacuum cleaner is seen on one of the wide sides.

The chamber 6 which receives the filter bag 7 which is of corresponding cross section is formed of a textile bag 11 stiffened with a wire or plastic basket and which passes at the bottom, i.e. on the motor-housing side, into a stiffened rim in the form of a chamber socket 12. The basket-stiffened textile bag 11 can be associated with this chamber socket 12 by means of a detachable clip-plug connection. The region of attachment is stepped-down for this purpose. The step can be noted in Fig. 1. It is designated 13 and permits a well defined inner-outer association of the textile bag 11. An inner plug attachment is preferred.

For the removal of the filter bag 7, the housing 1 can be swung open with practically complete freeing of its cross section. The swung-open position can be noted from Fig. 1 (shown in dot-dash-line) and Figs. 5 and 7. The axis of swing 14 which makes this swinging open possible is located on the one narrow side of the housing 1. Its chamber-socket-side bearing lugs are designated 15. These bearing lugs 15 lie in the transition region between the narrow side and the wide side of the chamber 6. Between the two bearing lugs 15 there extends a continuous bearing lug of the motor housing 5.

In the region of the joint between the motor housing 5 and the chamber 6 there is further more integrated an intermediate support T on which the filter bag 7 sits.

The filter-bag intermediate support T has a contour which is adapted to the cross section of the housing but is set back from the outer wall of the housing 1 so that it is substantially completely invisible in the coaxial position of motor housing 5 and chamber 6 shown in Fig. 1. Except for a small place of access it is surrounded, namely, by the extended lower rim of the chamber socket 12 of the filter-bag intermediate support T which is also arranged swingably and swings around the same axis of swing 14 as the filter-bag chamber 6. On the hinge side the intermediate support T therefore, in the same way as the chamber socket 12, also forms two bearing lugs, designated 16.

The filter bag 7 which directly adjoins the intermediate support T has a bottom plate 17. Its general contour corresponds also to the cross-sectional shape of the chamber socket 12 which, for the supporting application in the region of the narrow sides of the filter-bag bottom plate 17 on the inner wall forms respective rim steps 18. In this way the bottom plate 17 cannot slide into the chamber 6 in the swung-open position of the apparatus. The bridge-shaped resting of the bottom plate 17, on the other hand, however, produces a certain bendability of the bottom plate 17 in the central region. The common axis of swing 14 of chamber socket 12 and filter-bag intermediate support T extends approximately at the height of the resting rim step 18 of the filter-bag bottom plate 17. In the closed housing 1 (Fig. 3) the rim step 18 extends over the top of the said bottom plate 17 so that, upon the suction blowing, it is not pushed off in an upward direction. The top side of the bottom plate 17, as already indicated, rests on the top side of the filter-bag intermediate support T. In this connection there is obtained a sort of clamping-jaw mounting between chamber socket 12 and intermediate support T in the regions of the narrow side of the bottom plate 17.

In this position the fan-air channel 8 with its offset cylindrical mouthpiece end 8' extends into the lower region of a socket 19. The latter protrudes beyond the top of the valve-bag intermediate support T. The socket 19 is developed directly on the intermediate support T and extends, passing through an opening 20 of corresponding cross section in the filter-bag bottom plate 17, into the inside of the filter bag 7, closing off the edge.

In order, with the upside-down position of the filter bag shown, to avoid having vacuumed material drop back into the region of the motor housing 5, the socket 12 forms a valve flap 21 at its free end. The valve flap rests with the predominant region of the edge freely on the end edge of the socket 19. It is fixed merely in the position designated 22 so that it lifts off under the action of the flow of air but returns into its closed position upon the reduction in the corresponding bottom-side load. The valve flap 21 can be developed as separate structural part and be associated with the place 22 by means of a clip attachment; alternatively, there is of course the



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possibility of molding thereon in case of corresponding flexible material of the socket 19 or filter-bag intermediate support T.

The socket 19 tapers down towards its free end so that its introduction into the opening 20 has practically a centering effect.

As can be noted from Fig. ^{3,} ~~4~~, the end edge 19' of the socket 19 is beveled. It extends downward in the direction of the hinge axis 19. An imaginary line in this direction intersects the hinge axis. The connecting place 22 lies in the upper region of the socket end edge 19'.

The socket 19 advisedly otherwise assumes a radial course of curvature to the axis 14. Between the root region of the socket 19 and the region on the axis of swing side the intermediate support T has a window-like opening. This opening bears the reference number 23. The hinge-side frame leg has in this connection a greater width than the two frame legs facing the wide side wall of the housing.

On the free end, the intermediate support T forms a freely accessible handle 24 at its end side there. There is concerned here a bottom angular extension of the intermediate support T. The angular extension originates from a region which is set back with respect to the end side 25 there. The corresponding leg extends vertically. The substantially horizontal leg adjoining same extends back to the outer wall of the housing 1 and terminates flush with the latter. In the region of the handle 24 there is seated a hook-detent device (not shown in detail) which is actuatable by push button and secures the closed position of the housing. In order to receive the handle 24, the corresponding region of the motor housing 5 is cut out in niche-like fashion. The recess bears the reference number 26.

From the top side of the intermediate support support T upward-directed projections 27 also extend in the region of the longer frame legs thereof. The projections are developed on the longer frame legs and in the operating condition of the electric vacuum cleaner they close two indentations 28 forming grip openings on the longer rim edges of the filter-bag bottom plate 17. The corresponding



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inserted position can be clearly noted from Fig. 4.

The indentations 28 can be developed in the form of uniform roundings (see Fig. 2) or else assume a trapezoidal course, as can be noted from Fig. 8. The base of the trapezoid is aligned with the lateral edge of the bottom plate 17. The projections protrude beyond the lower side of the bottom plate 17. This lower side is the side of the bottom plate facing the inside of the filter bag. In this connection therefore not only is the cross-sectional space of the indentations filled up but the filter-bag wall 31 is also supported against undesired bulging. Thus it cannot be torn or damaged. The same holding-back results also upon reaching into the indentations 28 which form the grip openings and are open towards the corresponding inner wall of the chamber socket 12. In the open position of the housing the wasp-waisted central region of the bottom plate 17 of the filter bag can be conveniently grasped by a suitable clamping grasp and pulled out of the chamber 6. The association of the wall 31 of the filter bag with the lower side of the bottom plate 17 is effected cross-wise to both indentations 28. Reference is had to Fig 8. The folded corner 31' on the bottom-plate side extends approximately to half the depth of indentation, namely parallel to the trapezoid cover or as circular section line or "chord" to the rounded ~~indentation~~ ^{indentation} 28.

The end section 31" of the filter bag wall 31, which section is folded in on all sides, is fastened via a glue line or glue track L which extends approximately with the same contour as the edge of the indentations 28 and has recesses 35 directed toward the middle. To be sure, the flanks 35' formed by these recesses 35 are not in as steep an angle of about 45° as the corresponding flank 28' of the indentation 28. The corresponding course of the indentation results in an additional fastening zone for the glue line or track L. The flanks 35' then pass into an extension line 35" which extends parallel in space to the base of the recess in order then to follow the bends or the course of the narrow lateral edges 17' of the bottom plate 17.



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The filter bag 7 is formed by a long web-like blank folded into a tube. The double layer 36 forming the filter-bag longitudinal gluing in this connection can be noted from Figs. 8 and 9. The region of overlap of the double layer 36 of the filter-bag wall 31 is about 2 cm. The double layer 36 is staggered laterally to the indentations 28 and is therefore glued to the bottom plate 17 in a wider end section, here the right end section, of the bottom plate.

The end of the filter bag 7 lying opposite the bottom plate 17 is closed by tucking and gluing.

The other, wider and therefore left-hand end section contains the opening 20 for the socket 19. The filter bag according to Fig. 8 is, with respect to this opening 20, still further developed to the effect that the bottom plate 17 is provided on the top and therefore on the side facing away from the inside of the bag, with a foam backing 37. There is concerned a thin foam layer of closed-pore soft foam. From this foam-backing layer there is cut out, concentrically to the opening 20 of larger cross section here, a valve flap 8. The diameter thereof is less than that of the socket-side valve flap 21.

Furthermore, the filter-bag intermediate support T is so associated and developed that it has a limited angle of swing, i.e. it cannot come into the 180° angular position of the chamber socket 12; rather, it remains in a position which lies approximately in or on the other side of the vertical position E-E of the socket-connection cross-sectional plane so that the socket-connection communication V lies on the other side of the angular bisector of the maximum angle of swing of 180° . In this position there is sufficient free space for the filter bag 7 in order to withdraw it from the intermediate support T (see Fig. 5). The corresponding position is defined by a limiting stop 29 between the bearing lug of the motor housing 5 and the rear flank 30 lying in the direction of swing of one or both bearing lugs 16 of the filter bag 7 of the filter-bag intermediate support T (see Fig. 6).

In addition to this type of separation of intermediate support T and filter bag 7, there is also present that of an automatic separation of the socket-connection communication V, namely by the aforementioned stopping of the swinging motion of the intermediate support T and a further swinging of the chamber socket 12 or the chamber 6 into the 180° position shown in Fig. 5. The static friction of the filter-bag wall 31 on the chamber wall 6' in combination with a certain pressure of filling namely holds the filter bag 7 frictionally fast in the said chamber. The transition into the position reversed to the upside-down position and therefore with opening 20 pointing upwards takes place without the possibility of an escape of dust or larger particles. The filter bag 7 can therefore be conveniently gripped in the manner explained above and lifted out. The filter-bag wall 31 is not pushed in. It is not necessary to touch the wall upon the removal; all aspiration is absent. By stretching of the bag there is obtained, to be sure, a suction effect. The insertion of a new filter bag 7 is readily possible in the same way since the entire cross section of the chamber 6 is open towards the top (see Fig. 1). Accordingly, it is merely necessary still to swing the chamber back into the position shown in solid line in Fig. 1, in which position the upper structure of the housing 1 which comprises the chamber 6 automatically engages on the motor housing 5. In this return swing path, the opening 20 captures the socket 19 or vice versa. This can take place in the vertical position of the filter-bag intermediate support T, which is possibly still present with frictional lock, or else, however, only when the back of the intermediate support T again rests on the top of the motor housing 5. In the closed position, the projections 27 substantially fill up the indentations 28 which form the grip openings i.e. to such an extent that upon the inflating of the filter bag or else by the filling load no bulging out of the fleece-like paper filter wall 31 can take place.

In order to enlarge the indentations 28 which are opposite each other, the wall region of the inner wall of the chamber socket 12, which region lies in this direction and therefore points outward, is further cutout somewhat. The recesses bear the reference number 12'.

For foolproof association of the filter bag 7 in the proper position,

its bottom plate 17 is provided in the region of both narrow sides with orientation features 32 which engage in suitable mating features 33 in the region of the inner wall of the chamber socket 12. The orientation features 32 which engage in suitable mating features 33 in the region of the inner wall of the chamber socket 12. The orientation features are trapezoidal projections on the narrow side of the flat body which forms the bottom 17 and may consist of cardboard or plastic. In this way a correctly aligned position is obtained between opening 20 and socket 19 before an improper association is noticed due to the housing parts coming together in an improper closing position.

The facing lengthwise sides of the projections 27 are transversely rounded, as can be noted from Fig. 7, which also serves for the associating in proper position of the bottom plate 17. They act as control surfaces on the corresponding rounded or trapezoidal niche base of the indentations 28.

Instead of the stop means shown in Fig. 6, a separation of the intermediate support T from the chamber 6 of the filter bag 7 can be effected in the manner that both parts are arranged eccentrically to each other with respect to the axis of swing 14. The eccentricity is about 1.5 mm. In this connection the narrow side of the inner wall of the chamber socket 12 which faces away from the axis of swing 14 has a hook-like detent projection 39 pointing in the direction of the axis 14 and which co-operates with a detent shoulder 40 on the corresponding face end of the filter-bag intermediate support T. With due consideration of the eccentric supporting of the axis, the intermediate support T which acts like a drag cover extends, for instance, in the vertical position from the region of the detent projection 39.

All new features mentioned in the specification and shown in the drawings are essential to the invention even if they are not expressly set forth in the claims.

The claims defining the invention are as follows:

1. An arrangement of a filter bag in an electric vacuum cleaner wherein the filter bag has a bottom plate having an insertion opening for a fan-side air-blast connection, at least two side-edge indentations, a lower side which faces the inside of the filter bag, and which is arranged in the manner of a transverse wall in a filter-bag chamber which is adjacent a motor-fan housing and which can be lifted off from same, wherein a first of said at least two side-edge indentations lies opposite a second of said at least two side-edge indentations and, when the vacuum cleaner is in an operating mode, projections from the motor fan housing extend into both if said first and second side-edge indentations protrude beyond the lower side of the bottom plate.

2. An arrangement according to claim 1, wherein the filter-bag wall extends in a manner crossing each indentation, and is bent out from the lower side of the bottom plate by the projections, when the vacuum cleaner is in an operating mode.

3. An arrangement according to claim 1 or claim 2, wherein the glue line of the filter-bag wall has recesses directed towards the center which extend with approximately the same contour as the edge of the indentations.

4. An arrangement according to any one of the preceding claims, wherein a double layer of the filter-bag wall which forms a filter-bag longitudinal gluing line, is glued to the bottom plate, lying offset laterally to the side-edge indentations.

5. An arrangement according to any one of the preceding claims, wherein the indentations extend approximately trapezoidally.

6. An arrangement according to any one of the preceding claims, wherein the projection end surfaces are developed with barrel-shaped rounding on the side thereof facing the filter-bag wall.

7. An arrangement according to any one of the preceding claims, wherein the bottom plate of the filter bag is fixed merely by the resting of its edge, corresponding in the



resting region to the contour of the filter chamber, on an inner step of the filter-bag chamber.

8. An arrangement according to any one of the preceding claims, wherein the filter bag is in socket-connection communication with a filter-bag intermediate support which has a valve closure member and which follows the path of the chamber as it is swung open, and from which the filter bag can be separated somewhat beyond the vertical position of the cross-sectional plane socket connection.

10 9. An arrangement according to claim 8 comprising an automatic separation of the socket-connection by stopping of the swinging motion of the intermediate support and further swinging of a chamber socket.

10. An arrangement according to claim 9, wherein the axis of swing of the chamber socket is arranged approximately at the height of the filter-bag bottom plate.

11. An arrangement according to either one of claims 9 or 10, wherein the intermediate support and the chamber socket swing around a common axis of swing.

20 12. An arrangement according to any one of claims 8 to 11 comprising a swing-limiting stop for the intermediate support, adjacent the common axis of swing.

13. An arrangement according to any one of claims 8 to 12 comprising a handle on the free end side of the intermediate support.

14. An arrangement according to any one of claims 8 to 13, wherein the valve-closure member is formed by a valve flap on the upper end edge of a socket of the intermediate support which engages the bottom plate of the filter bag, and the bottom plate has a foam backing from which there is cut free a valve flap of smaller diameter than the diameter of the opening.

15. An arrangement according to any one of the preceding claims comprising orientation formations on the periphery of the filter-bag bottom plate, with which formations there are associated mating formations within the region of the inner wall of the chamber socket.

16. A filter bag for use in an electric vacuum cleaner,



said filter bag comprising a web-like blank formed into a tube, one end of said tube being closed, the other end being attached to a bottom plate, said bottom plate having an insertion opening at one end thereof capable of receiving a fan-side air blast connection of a vacuum cleaner, and having at least two side-edge indentations, wherein a first of said at least two side-edge indentations lies opposite a second of said at least two side-edge indentations, said side-edge indentations being capable of accepting projections therein from a motor-fan housing of the vacuum cleaner.

17. A filter bag according to claim 16, wherein the filter-bag wall extends in a manner crossing each indentation, and is bent out from the lower side of the bottom plate by the projections, when the vacuum cleaner is in an operating mode.

18. A filter bag according to claim 16 or claim 17, wherein the glue line of the filter-bag wall has recesses directed towards the center which extend with approximately the same contour as the edge of the indentations.

19. A filter bag according to any one of claims 16 to 18, wherein a double layer of the filter-bag wall which forms a filter-bag longitudinal gluing line, is glued to the bottom plate, lying offset laterally to the side-edge indentations.

20. A filter bag according to any one of claims 16 to 19, wherein the indentations extend approximately trapezoidally.

21. An arrangement substantially as herein described with reference to the accompanying drawings.

22. A filter bag substantially as herein described with reference to the accompanying drawings.

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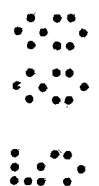
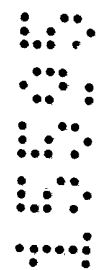
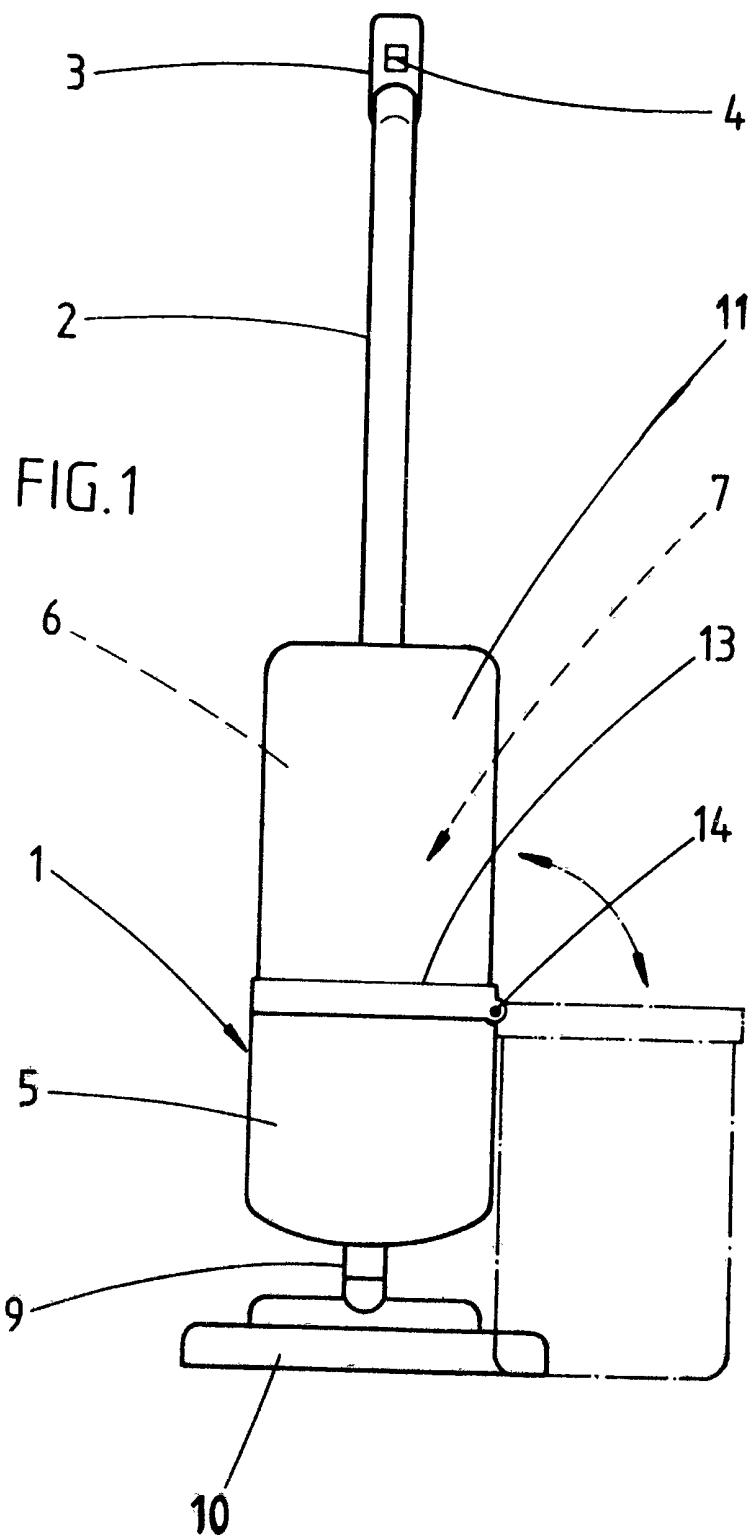


Fig. 2

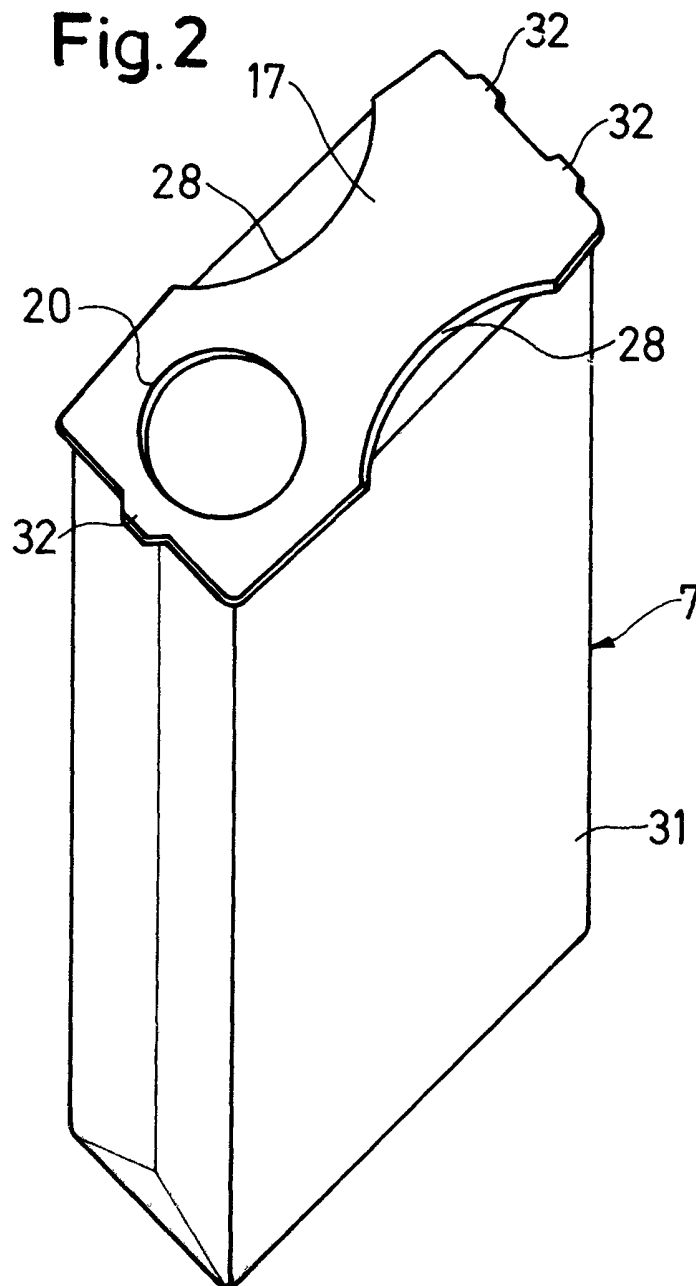


FIG.4

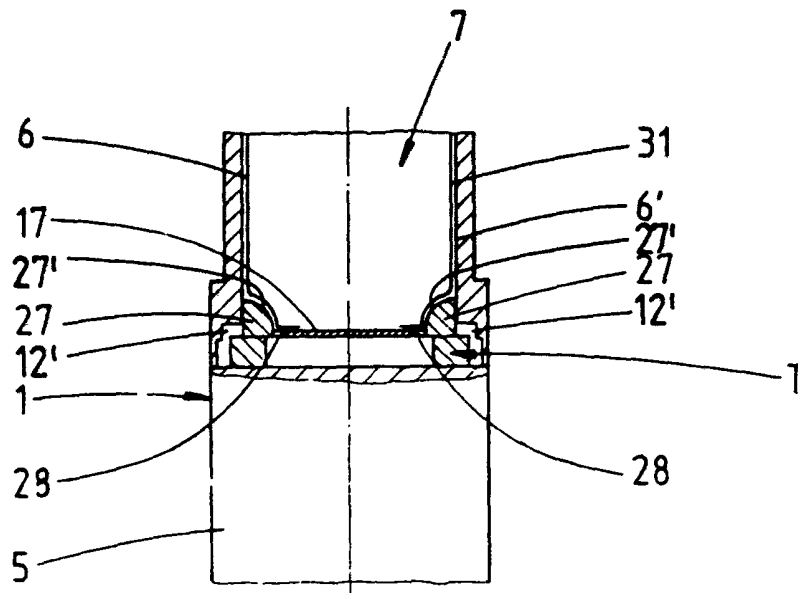
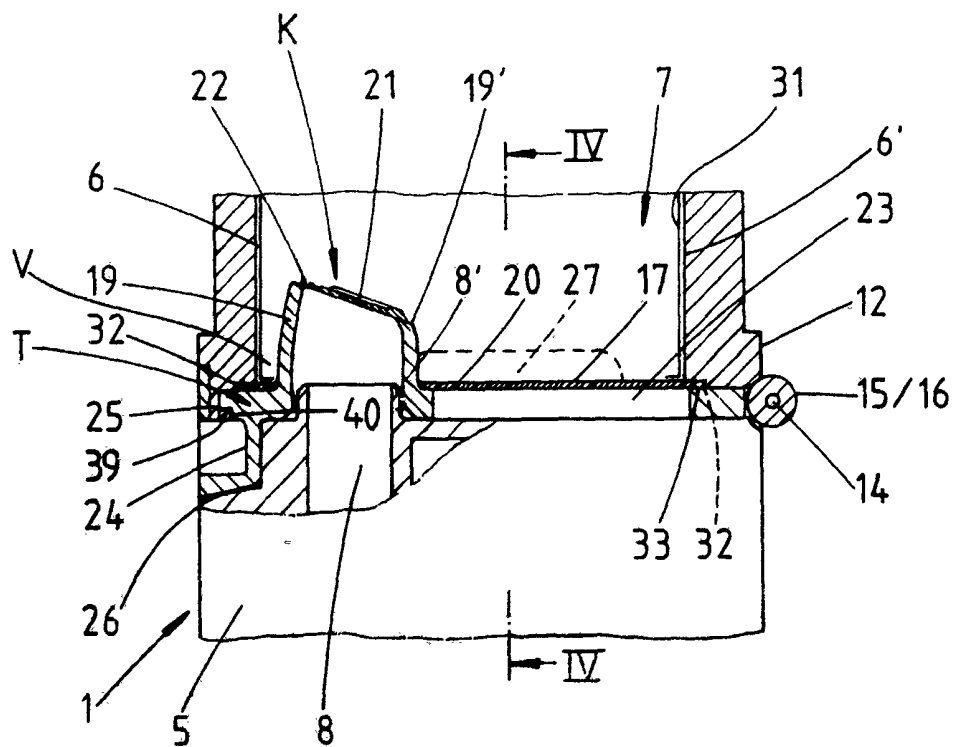


FIG.3



4 5 88 1508

FIG. 7

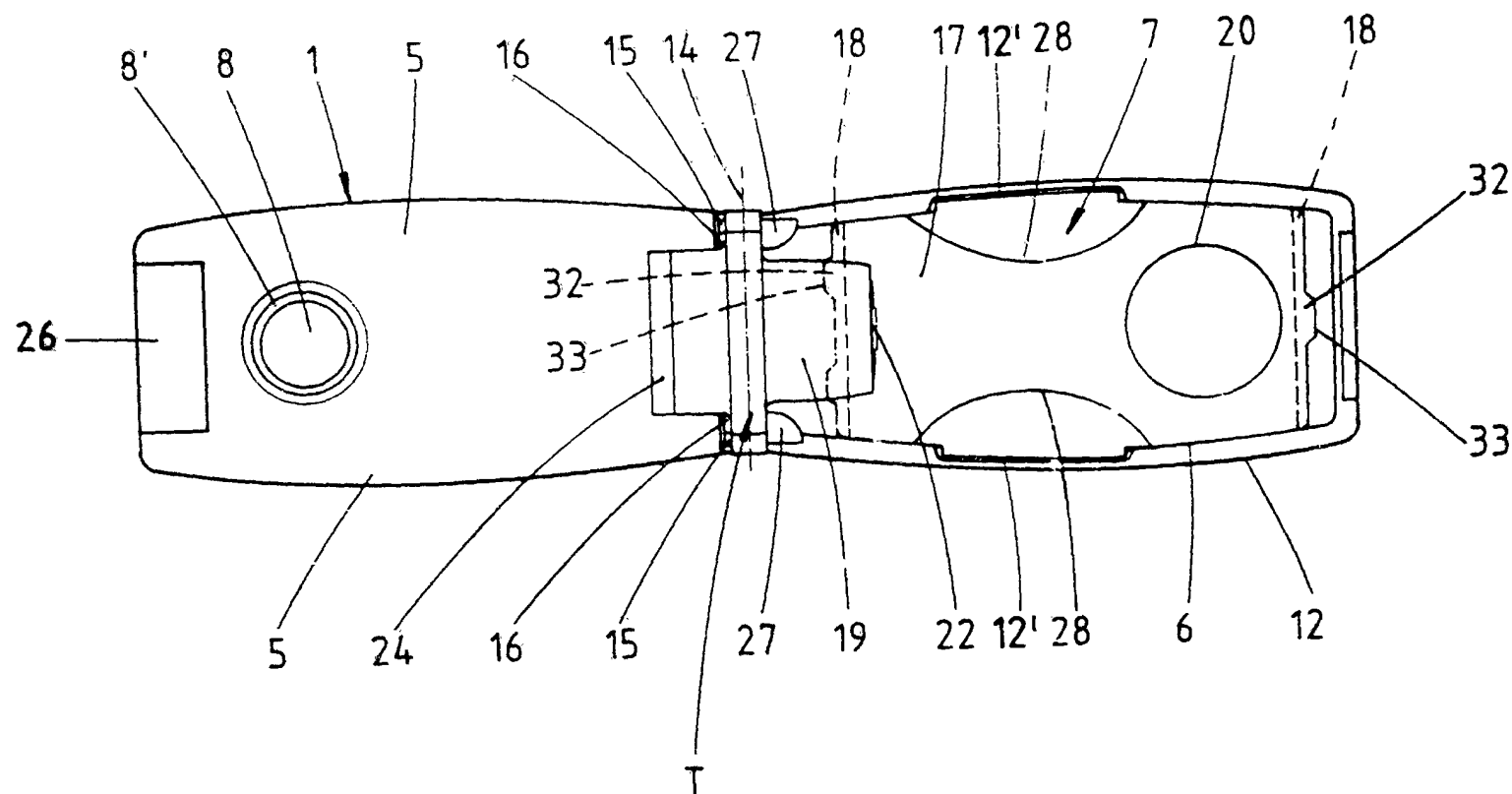


FIG. 8

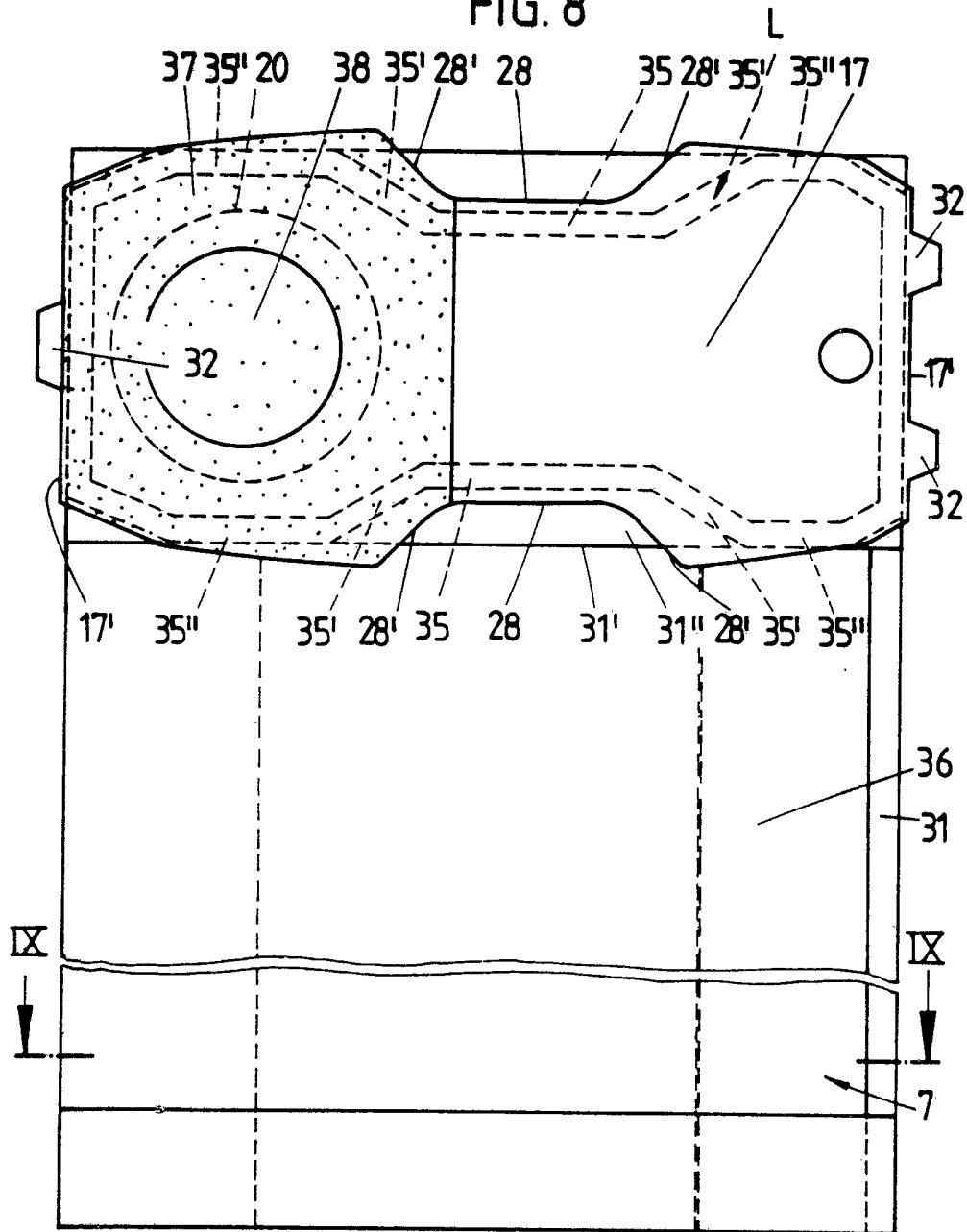


FIG. 9

