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(54) DUSTPAN

(57) The invention is a dustpan (P) for collecting dirt or dust, comprising a flat portion (P1) and a connection device (1) for connecting a handle (M), in turn comprising a sleeve (3) suited to carry a handle (M), a fixed seat (2) provided with connection means (291, 292) suited to directly or indirectly connect said fixed seat (2) to said flat portion (P1) of said dustpan (P) in a removable or non-removable manner, and wherein said sleeve (3) is hinged to said fixed seat (2) and can rotate with respect to said fixed seat (2) between an operating position (A) and a non-operating or folded position (C), and vice versa.

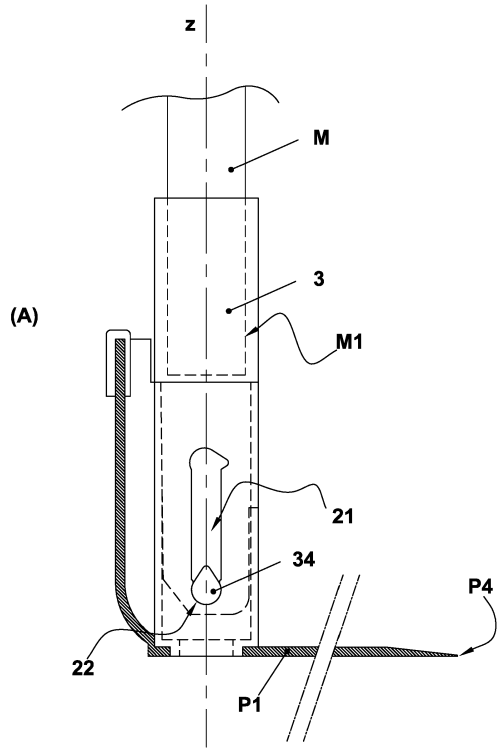

Fig. 4a

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Description

[0001] This patent relates to equipment for house cleaning or for cleaning rooms in general and in particular it concerns a new foldable dirt or dustpan.

[0002] Tools for cleaning rooms, the house and floors in particular, such as brooms, brushes and scrubbing brushes designed to remove dirt from floors are known.

[0003] Dirt that is removed from the floor may be collected with a dustpan, generally equipped with a flat portion suited to rest on the floor and sidewalls for containing dirt, wherein said flat portion has an edge without a containment wall which is thinner in order to facilitate the collection of dirt in the dustpan.

[0004] The known dustpans are also equipped with a handle, generally consisting of a grip, with which the user holds the dustpan in position, with the flat portion resting on the floor, so that the dirt is collected in the dustpan itself.

[0005] Dustpans with a short handle are known, wherein said handle is 10-15 cm long, is integral with the rear containment wall, that is, on the opposite side with respect to the thinner edge, and oriented so that it is generally parallel to said flat portion.

[0006] This type of dustpan has reduced overall dimensions, but has the disadvantage that the user must stoop in order to collect the dirt.

[0007] Dustpans with long handles are also known, for example with a length of 80-120 cm, said handle usually being removably or non-removably constrained to a containment wall and generally positioned orthogonally with respect to the flat portion, so as to be vertical when the dustpan rests on the floor.

[0008] In particular, said long-handled dustpans are equipped with a sleeve or tube that is integral with the containment wall and inside which the connection end of the handle is inserted.

[0009] This type of dustpan has the advantage that the user does not need to stoop or squat down to use it.

[0010] Said long-handled dustpan, however, poses the drawback of being bulky when it needs to be put away, due both to the height of the handle and to the overall dimensions of the flat portion, the latter being positioned horizontally, and the former vertically.

[0011] In order to overcome the above drawbacks a new type of foldable dustpan to collect dirt or dust provided with an articulated connection device for the handle has been designed and constructed.

[0012] The main object of the present invention is to reduce the overall dimensions of the dustpan with its handle connected when not in use.

[0013] One advantage of the present invention lies in that it can be used with any type of handle, preferably long ones.

[0014] Another advantage of the present invention is represented by the fact that the dustpan can assume two stable positions, an operating position, in which said dustpan is locked with its flat portion substantially perpendicular to the handle, and a non-operating position, in which said dustpan is locked with its flat portion substantially parallel to the handle, thus reducing its overall dimensions, particularly its footprint.

[0015] These and other direct and complementary objects are achieved by the new type of foldable dustpan to collect dirt or dust, equipped with an articulated connection device for its handle. The new dustpan comprises in its main parts a substantially flat portion suitable to rest on the surface from which the dirt must be collected, said flat portion having a preferably thinner edge to facilitate the collection of the dirt and dust.

[0016] Said thinner edge, if desired, may be equipped with a rubber edge suited to make the contact edge with the floor even thinner and facilitate its adherence to the floor, preventing the dirt from penetrating between the flat portion of the dustpan and the floor.

[0017] Said dustpan comprises lateral containment walls, rising up from said flat portion, with the exception of said thinner edge.

[0018] An articulated connection device for a handle is constrained in a removable or non-removable manner to one of said side walls and/or to said flat portion, preferably opposite said thinner edge.

[0019] Said connection device in turn comprises a part or sleeve, substantially cylindrical and at least partially hollow, for the removable or non-removable, direct or indirect insertion and connection of the end of a handle, and wherein said sleeve is directly or indirectly hinged to said lateral wall and/or said flat portion, and can rotate between an operating position, in which it is substantially perpendicular or inclined with respect to said flat portion, and a non-operating or closed position, in which it is substantially parallel to said flat portion.

[0020] In said operating position, the handle constrained in said sleeve is thus correspondingly positioned, orthogonal or inclined, with respect to said flat portion, while in the closed non-operating position the handle is substantially parallel to said flat portion.

[0021] In the preferred embodiment, said sleeve is constrained to the inside of the dustpan, that is, between the containment walls, so that in the closed position the sleeve is completely contained between the containment walls.

[0022] In this way even the handle, with the dustpan in the closed position, is partially contained between the containment walls of the dustpan, thereby minimizing its overall dimensions in plan view.

[0023] In the preferred embodiment, said sleeve comprises at least one or preferably a pair of coaxial pins suited to be inserted and to rotate in corresponding holes made in a seat that is fixed with respect to said dustpan, between said operating and non-operating positions.

[0024] According to the invention, in order to limit the rotation of said sleeve between said two positions, said pins have a partially circular cross section, with at least one projection suited to become engaged with the walls of the holes in said two positions.

[0025] In the preferred embodiment, said holes are also slotted, so that they can serve as a guide for the sliding movement of said sleeve with respect to said dustpan in at least one direction.

[0026] In particular, said sleeve can slide between a position close to said flat portion, and in which the sleeve is in said operating position and the size of the hole does not allow the rotation of the sleeve, and a position away from said flat portion, in which said slotted hole comprises an enlarged part to allow the rotation of said sleeve in said non-operating folded position.

[0027] Said fixed seat on which said slotted and shaped holes are made in turn preferably comprises a cylindrical wall in which said holes are made, and removable or non-removable, direct or indirect connection means for connection to the dustpan and in particular to a lateral wall of the dustpan and/or to the flat portion of the dustpan.

[0028] The characteristics of the new dustpan will be better clarified by the following description, with reference to the drawings that are attached hereto by way of non-limiting example.

Figure 1 shows a schematic view of the new dustpan (P) with an articulated connection device (1) for the handle (M).

Figure 2 shows a sectional view of the fixed seat (2) only, constrained to the rear vertical wall (P3) and to the flat portion (P1) of the dustpan (P), where it is possible to see a slotted hole (21) for the sliding and rotation of the pins (34) of the sleeve (3) carrying the handle (M).

Figure 3 and 3a show two views of the sleeve (3), where it is possible to see the pins (34), which can be inserted in said slotted holes (21) of the fixed seat (2) for the sliding and the rotation of said sleeve (3) with respect to said fixed seat (2).

Figures 4a, 4b and 4c respectively show the operating position (A) of the sleeve (3), a shifted position (B) of the sleeve (3) with respect to the fixed seat (2), and the non-operating folded position (C) of the sleeve (3) and the dustpan (P).

[0029] The new dustpan (P) comprises a substantially flat lower portion (P1) suited to rest on the surface from which the dirt must be collected, wherein said flat portion (P1) has a thinner front edge (P4) intended to facilitate the collection of dirt and dust.

[0030] Said dustpan (P) comprises lateral containment walls (P2, P3) rising up from said flat portion (P1), with the exception of the thinner edge (P4).

[0031] An articulated connection device (1) for a handle (M) is preferably constrained in a removable or a non-removable manner to the rear lateral wall (P3), that is, in a position opposite the thinner edge (P4) of said flat portion (P1).

[0032] Said connection device (1) comprises:

- a substantially cylindrical and at least partially hollow (32) part or sleeve (3) suited to contain the handle (M) and to allow the removable or non-removable, direct or indirect insertion and connection of the end (M1) of a handle (M);
- a fixed seat (2), in turn comprising connection means (291, 292) for the removable or non-removable, direct or indirect connection of said fixed seat (2) to said rear side wall (P3) and/or said flat portion (P1) of the dustpan (P);
- one or more holes (21) made in said fixed seat (2);
- at least one or preferably a pair of pins (34) integral with the sleeve (3), preferably aligned on an axis or relative rotation axis (X) of the sleeve (3), and protruding from the two opposite sides of an appendage (33) integral with said sleeve (3), said pins (34) being suited to be inserted and rotated in said holes (21) of said fixed seat (2),

and wherein said sleeve (3), constrained to said fixed seat (2) by means of said pins (34) inserted in said holes (21) of the fixed seat (2), can rotate with respect to said fixed seat (2) between an operating position (A), shown schematically in Figure 4a, in which said sleeve (3) is positioned with its longitudinal axis (3x) substantially orthogonal to said flat portion (P1) of the dustpan (P), that is, coaxial to said fixed seat (2), and a non-operating or folded position (C), shown schematically in Figure 4c, in which said sleeve (3) is positioned with its longitudinal axis (3x) substantially parallel to said flat portion (P1) of the dustpan (P), and vice versa.

[0033] In essence, in said operating position (A), with the dustpan (P) resting on the ground, said sleeve (3) and the handle (M) inserted therein are substantially oriented vertically (Z).

[0034] In said closed position (C), on the other hand, said dustpan (P) is oriented with said flat portion (P1) substantially vertical, thus reducing the overall dimensions of the dustpan (P) itself in plan view.

[0035] In the preferred embodiment, said fixed seat (2) is constrained to the inner part of said dustpan (P), between said containment walls (P2, P3), and in particular comprises at least one connection means (291) suited to be hooked into the upper edge (P31) of said rear wall (P3) of the dustpan (P), and at least one lower projection (292) suited to become engaged in a corresponding seat or hole (P11) created in said flat portion (P1) of the dustpan (P).

[0036] In this way, said fixed seat (2) is rigidly constrained to said dustpan (P) in a removable or non-removable manner.

[0037] Said fixed seat (2) preferably comprises at least one substantially cylindrical wall (25) in which said holes (21) are made, in positions corresponding to those of said pins (34).

[0038] Said cylindrical wall (25) of said fixed seat (2) comprises at least one opening (27) suited to allow the

relative rotation of said sleeve (3) with respect to said fixed seat (2) in said non-operating folded position (C).

[0039] Said opening (27) has, for example, dimensions suitable for the passage of said appendage (33) of said sleeve (3).

[0040] Said cylindrical wall (25) of said fixed seat (2) may also suitably comprise ribs and reinforcing elements (26).

[0041] In order to limit the rotation of said sleeve (3) with respect to said fixed seat (2) between said two positions (A, C), said pins (34) of said sleeve (3) have a partially circular cross-section (35) with at least one protrusion (36). In the preferred embodiment, said cross-section of said pins (34) is substantially drop-shaped.

[0042] Said holes (21) of said fixed seat (2) are made in said cylindrical wall (25) in corresponding positions for the insertion of said pins (24) of the sleeve (3), that is, in diametrically opposite positions aligned on said rotation axis (X).

[0043] Said holes (21) are preferably slotted (21), that is, they are developed in the axial direction (2x) of said cylindrical wall (25) of said fixed seat (2), and wherein said slotted holes (21) substantially serve as a guide for the sliding movement of said sleeve (2) with respect to said fixed seat (2) and in said axial direction (2x, 3x), as shown in Figure 4b.

[0044] In this way, said sleeve (3) can slide between a position close to said flat portion (P1), in which said sleeve (3) is in said operating position (A), and a position away from said flat portion (P1).

[0045] In said position close to said flat portion (P1), said pins (34) of said sleeve (3) are housed in one end (22) of said slotted holes (21), wherein said end (22) is shaped so as not to allow the rotation of said sleeve (3) with respect to said fixed seat (2).

[0046] According to the preferred embodiment of the invention, in the vicinity of said end (22) of said slotted holes (21) there are one or more protrusions or narrowed portions (23) suited to become engaged with said pins (34) of said sleeve (3) so that the unintended sliding movement of the sleeve (3) is prevented. The protrusion of the pins (34) from said folded position is obtained by simply exerting a slight traction force on the handle (M) constrained in the sleeve (3).

[0047] In contrast, in said position of said sleeve (3) away from said flat portion (P1), said pins (34) of the sleeve (3) are housed at the opposite end (24) of said slotted holes (21), and where said opposite end (24) is enlarged or otherwise shaped so as to allow the rotation of said sleeve (3) in said non-operating folded position (C). In particular, said shaped end (24) comprises walls (28, 29) suited to limit said rotation of said sleeve (3) between said operating position (A) and said non-operating folded position (C). Said rotation is preferably and substantially a 90° rotation.

[0048] Therefore, with reference to the above description and the attached drawings, the following claims are expressed.

Claims

1. Dustpan (P) for collecting dirt or dust, comprising at least one substantially flat portion (P1) suited to be rested on the surface from which the dust/dirt must be collected, **characterized in that** it comprises at least one connection device (1) for connecting at least one handle (M), wherein said connection device (1) in turn comprises:

   - a substantially cylindrical and at least partially hollow portion or sleeve (3) suited to carry the handle (M), for coaxially inserting and directly or indirectly connecting the end (M1) of a handle (M) in a removable or non-removable manner;
   - a fixed seat (2), in turn comprising connection means (291, 292) for directly or indirectly connecting said fixed seat (2) to said flat portion (P1) of said dustpan (P) in a removable or non-removable manner;
   - one or more holes (21) made in said fixed seat (2);
   - at least one or preferably a pair of pins (34) integral with said sleeve (3) and suited to be inserted and rotated in said holes (21) made in said fixed seat (2),

   and wherein said sleeve (3), hinged to said fixed seat (2) through said pins (34) inserted in said holes (21) made in said fixed seat (2) can rotate with respect to said fixed seat (2) between an operating position (A), in which said sleeve (3) is positioned with its longitudinal axis (3x) substantially orthogonal to said flat portion (P1) of the dustpan (P), and a non-operating position or folded position (C), in which said sleeve (3) is positioned with its longitudinal axis (3x) substantially parallel to said flat portion (P1) of the dustpan (P) and vice versa.

2. Dustpan (P) according to claim 1, **characterized in that** it comprises one or more lateral containment walls (P2, P3) integral with said flat portion (P1), and wherein said fixed seat (2) of said connection device (1) comprises at least one connection means (291) suited to be coupled with the upper edge (P31) of one of said lateral containment walls (P2, P3) of said dustpan (P).

3. Dustpan (P) according to claim 3, **characterized in that** said fixed seat (2) of said connection device (1) is constrained to said lateral containment wall (P2, P3) on the inner side of the dustpan (P), so that said sleeve (3), hinged to said fixed seat (2), is positioned inside the dustpan (P), meaning between said containment walls (P2, P3), so that said sleeve (3), when in said folded position (C), is completely contained between said containment walls (P2, P3).

4. Dustpan (P) according to claim 4, **characterized in that** said fixed seat (2) of said connection device (1) is constrained to the rear lateral containment wall (P3) of said dustpan (P), meaning on the opposite side with respect to a thinner edge (P4) of said flat portion (P1).

5. Dustpan (P) according to claim 1, **characterized in that** said fixed seat (2) of said connection device (1) comprises at least one lower projection (292) suited to become engaged with a corresponding seat or hole (P11) made in said flat portion (P1) of the dustpan (P).

6. Dustpan (P) according to the preceding claims, **characterized in that** said sleeve (3) comprises at least one or preferably a pair of said pins (34), aligned on an axis or relative rotation axis (X) of the sleeve (3), said pins (34) being suited to be inserted and rotated in said holes (21) made in said fixed seat (2), and wherein said pins (34) have cross section with at least one protrusion (36) suited to become engaged with the correspondingly shaped walls (28, 29) of said holes (21), in such a way that said rotation of said pins (34) is limited between said two positions (A, C).

7. Dustpan (P) according to claim 6, **characterized in that** said pins (34) of said sleeve (3) project from an appendage (33) that is integral with said sleeve (3) and at least partially inserted in said fixed seat (2) that in turn comprises a substantially cylindrical wall (25) in which said holes (34) are made, and wherein said cylindrical wall (25) of said fixed seat (2) comprises at least one opening (27) suited to allow the relative rotation of said sleeve (3) with respect to said fixed seat (2) in said non-operating folded position (C).

8. Dustpan (P) according to the preceding claims, **characterized in that** said holes (24) are slotted so that they can substantially serve as a guide for the sliding movement of said sleeve (3) with respect to said fixed seat (2) in the axial direction (2x, 3x) of said sleeve (3), so that said sleeve (3) can slide with respect to said fixed seat (2) between a position close to said flat portion (P1), in which said sleeve (3) is in said operating position (A), and a position away from said flat portion (P1), and wherein in said position close to said flat portion (P1) said pins (34) of said sleeve (3) are housed at one end (22) of said slotted holes (21), said end (22) being shaped in such a way as to limit the rotation of said sleeve (3) with respect to said fixed seat (2), while in said position of said sleeve (3) away from said flat portion (P1) said pins (34) of the sleeve (3) are housed at the opposite end (24) of said slotted holes (21), said opposite end (24) being enlarged or in any way shaped so as to allow the rotation of said sleeve (3) in said non-operating folded position (C).

9. Dustpan (P) according to claim 8, **characterized in that** said shaped end (24) of said slotted holes (21) that is furthest from said flat portion (P1) comprises walls (28, 29) suited to limit said rotation of said sleeve (3) between said operating position (A) and said non-operating folded position (C).

10. Dustpan (P) according to claim 8, **characterized in that** said end (22) of said slotted holes (21) that is closest to said flat portion (P1) comprises one or more protrusions or narrowed portions (23) suited to become engaged with said pins (34) of the sleeve (3) so as to prevent the unintended sliding movement of the sleeve (3) from said operating position (A).

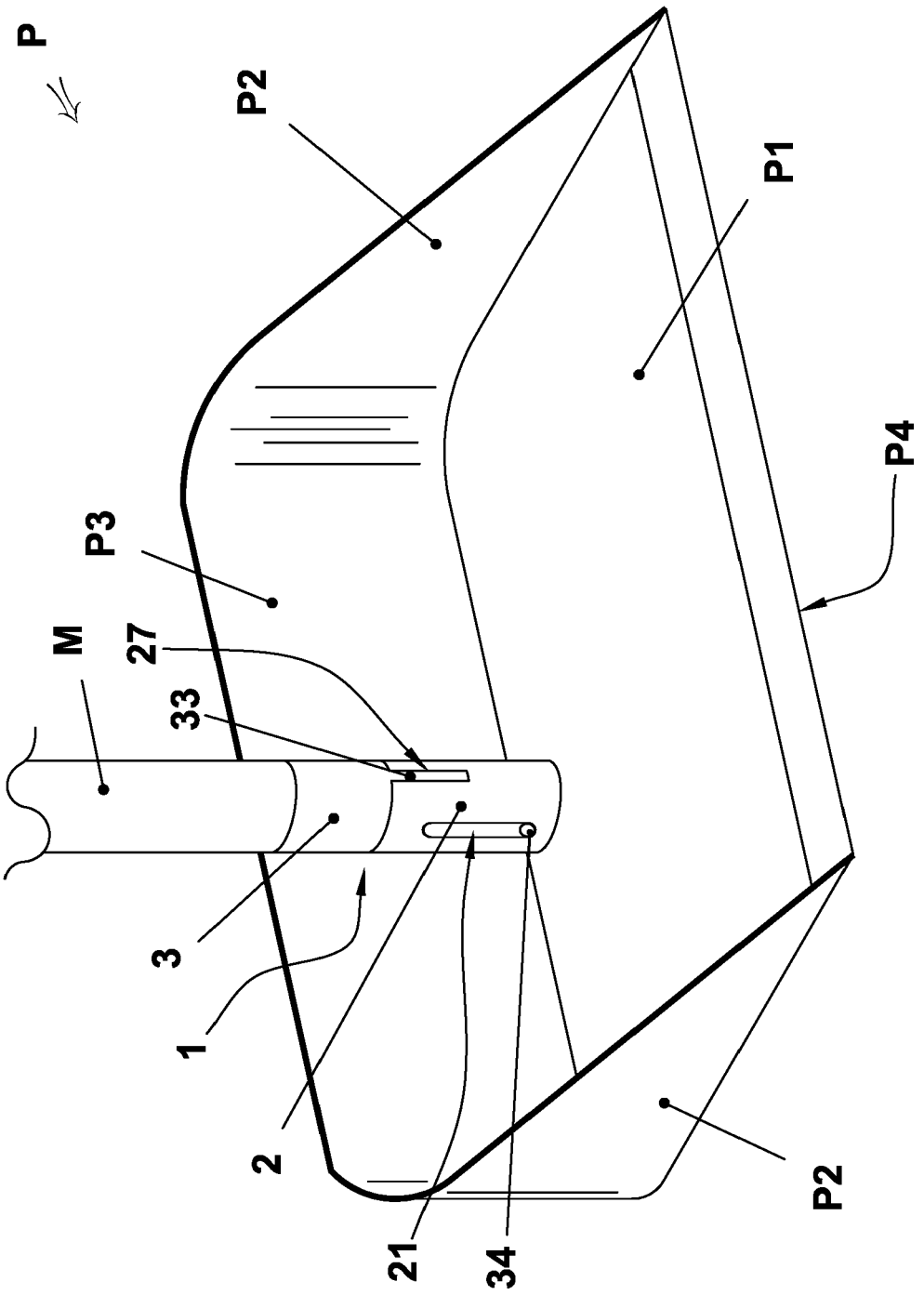

Fig. 1

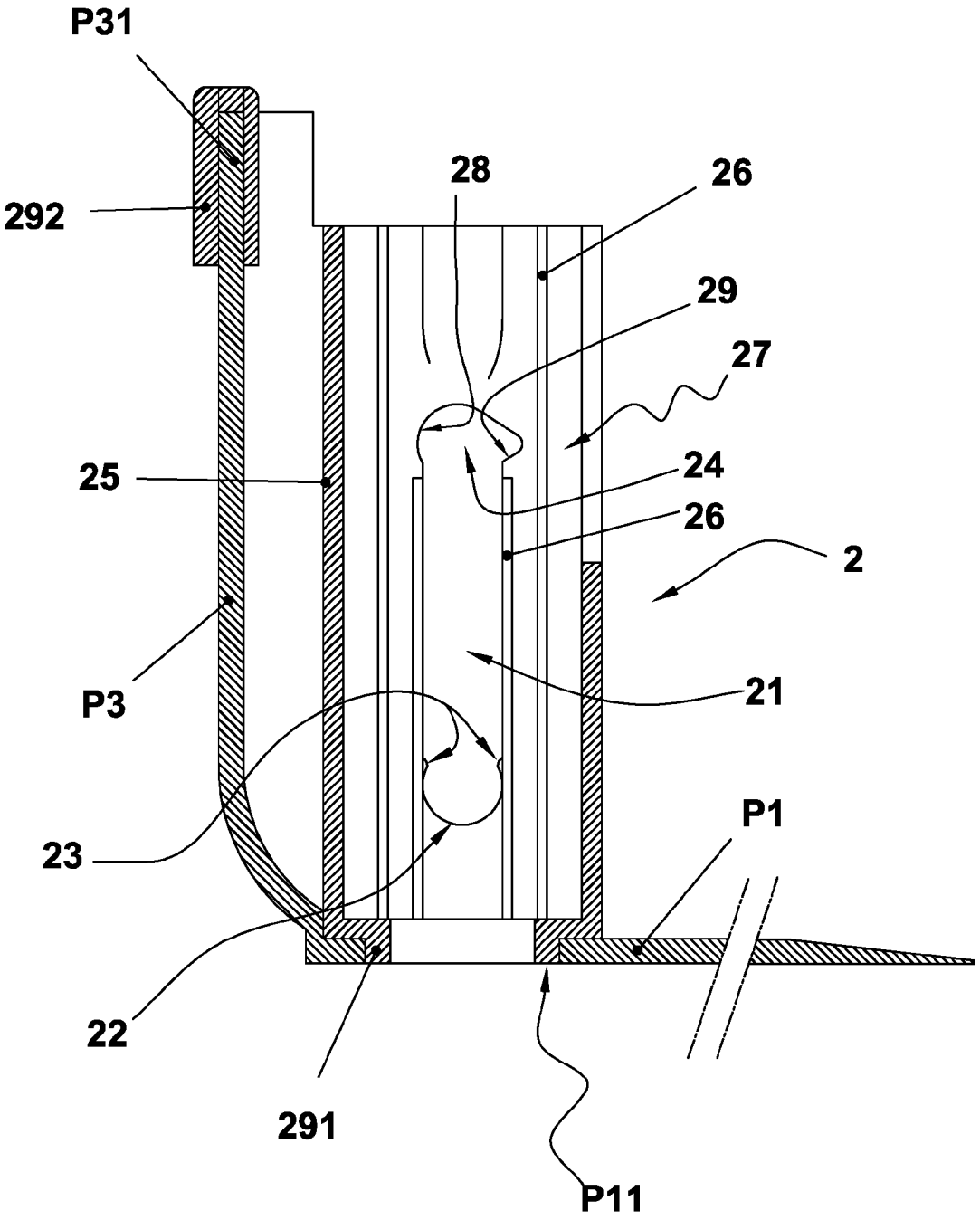

Fig. 2

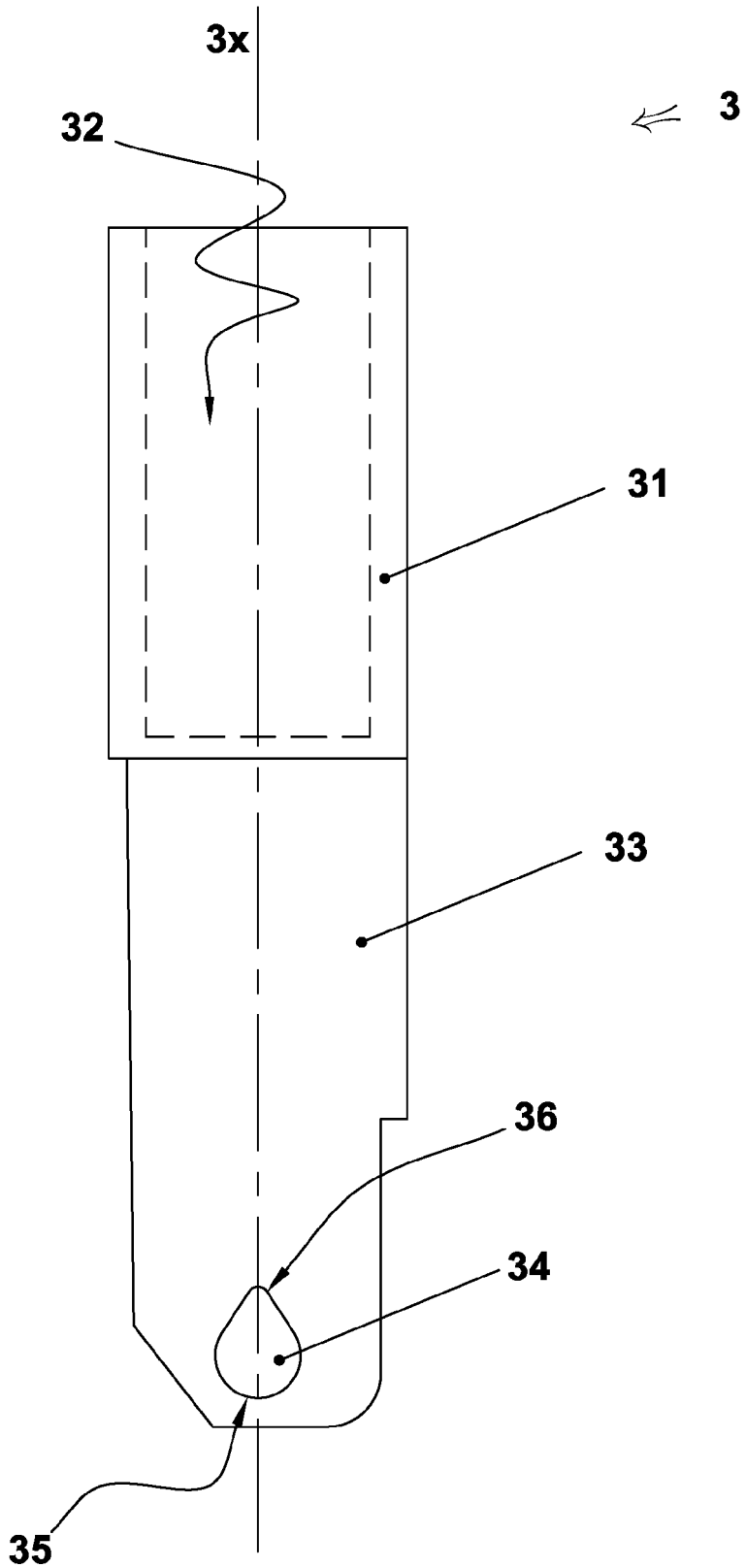

Fig. 3

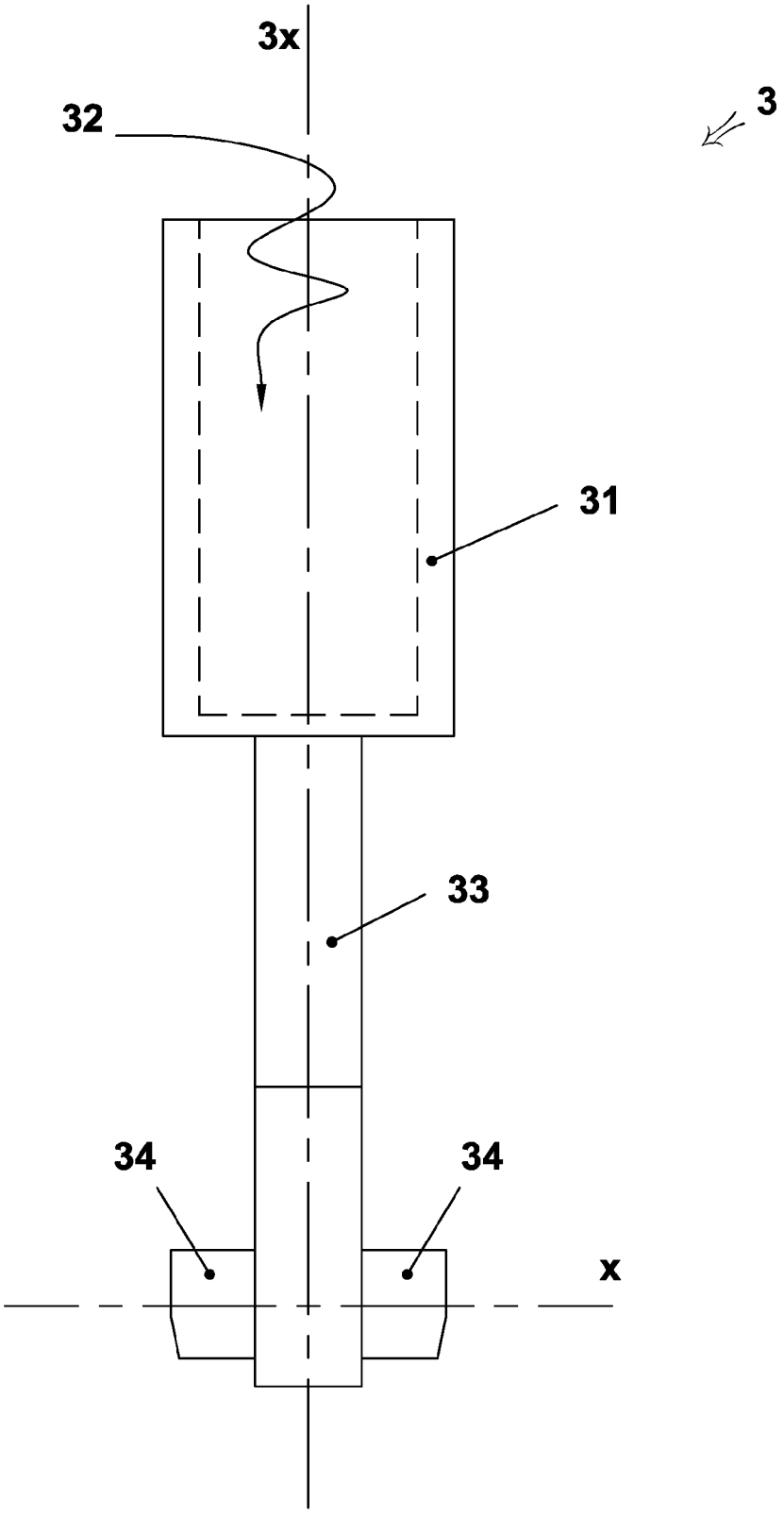

Fig. 3a

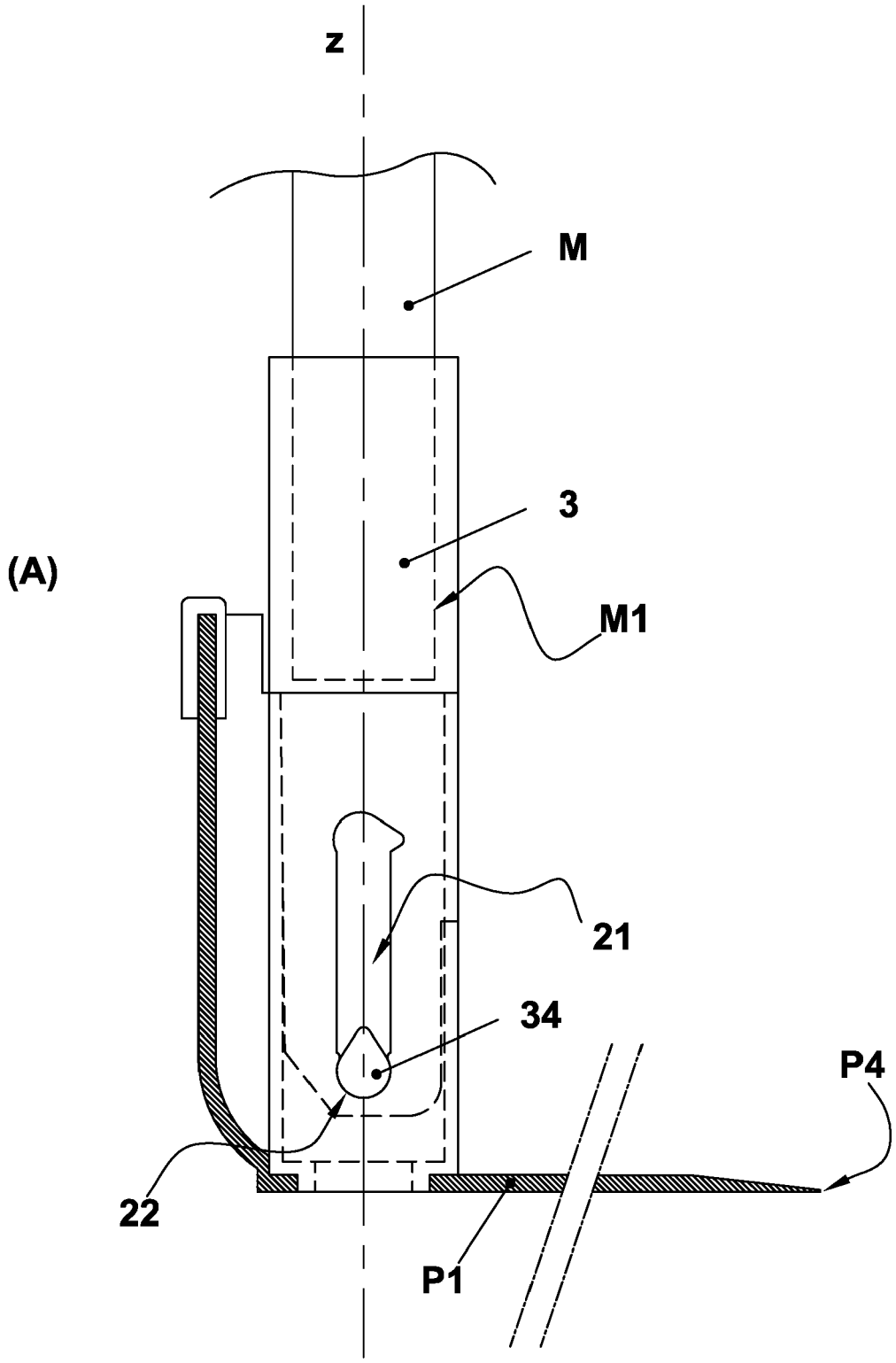

Fig. 4a

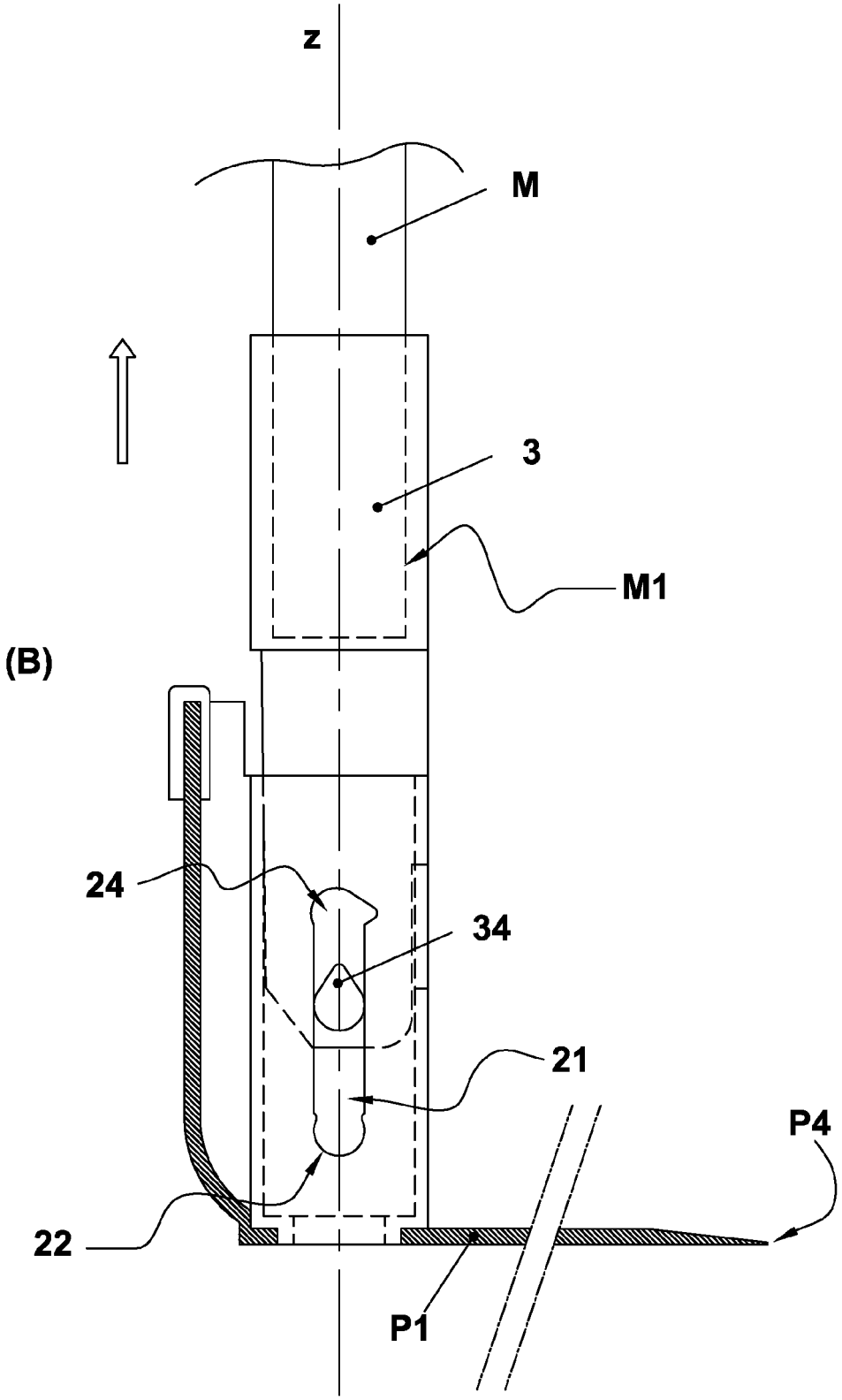

Fig. 4b

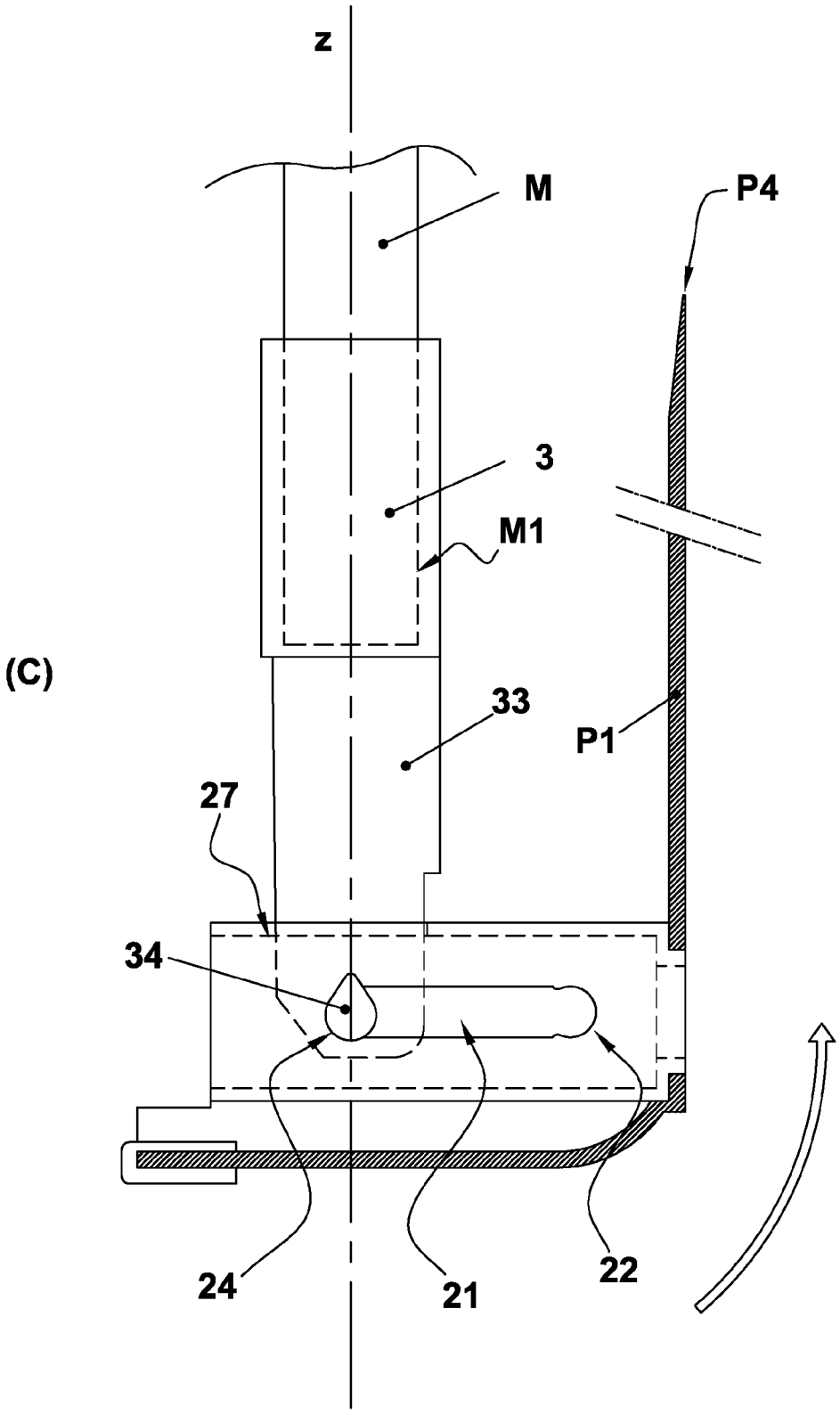

Fig. 4c