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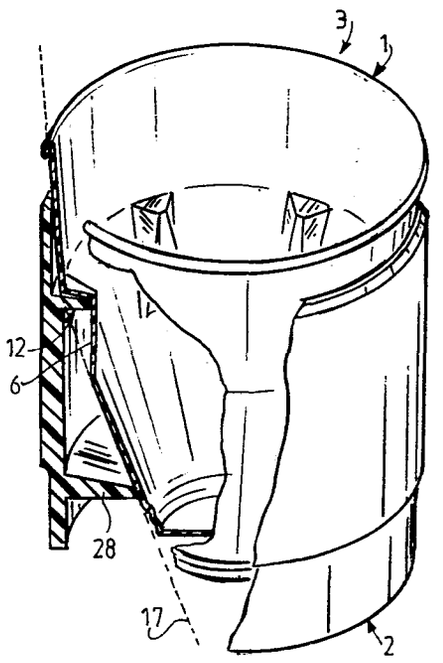
(54) Set comprising a drinking cup and a holder accomodating same.

(57) Set comprising a drinking cup and a holder accomodating same, characterized by mutually co-operating means arranged on a holder wall turned towards the drinking cup and arranged in a drinking cup wall, which means extend throuh an exterior envelope of the drinking cup and/or through an interior envelope.

In a first embodiment of the invention the means comprise at least one recess arranged in the drinking cup wall and one projection arranged on the holder wall. In a second embodiment the means comprise at least one drinking cup wall surface which touches and lies at least partially outside the exterior envelope of the drinking cup.



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Set comprising a drinking cup and a holder accomodating same

The present invention relates to a set comprising a drinking cup and a holder accomodating same.

This known set can be assembled from a holder and diverse drinking cups of varying shape. The invention has for its object to provide a set which can be assembled from only one type of holder and only one type of drinking cup.

This is achieved according to the invention by using mutually co-operating means arranged on a holder wall turned towards the drinking cup and arranged in a drinking cup wall, which means extend through an exterior envelope of the holder. It should be remarked here that if the means extend only through the exterior envelope of the drinking cup, a drinking cup results which can be used not only in the set according to the invention but also in an appropriate holder without the means referred to above.

According to a first embodiment, the means comprise at least one recess arranged in the drinking cup wall and a projection arranged on the holder wall. If walls of the re-

cess diverge in the direction towards the holder wall, whereby the walls of the projection preferably converge towards the drinking cup wall, means result which further assist a rapid assembly of the set of drinking cup and holder, because the projection and the recess have been given a self-aligning form.

If a large number of recesses are arranged in the drinking cup wall at mutual same rotation angles, a relative rotation beween drinking cup and holder need be carried out over only a short distance in order to mutually align a projection and recess.

The least complex construction for the holder is obtained if the number of projections is equal to or smaller than the number of recesses.

In another embodiment of the means according to the invention, the means comprise at least one drinking cup wall surface which touches and lies at least partially outside the exterior envelope of the drinking cup, whereby the means preferably comprise a number of drinking cup wall surfaces which form an imaginary regular polygon.

The drinking cup is adequately accomodated and held in place in the holder if the means comprise a ring arranged on the holder wall, the passage through which takes the form of the polygon.

The drinking cup and the holder accomodating same form a fitting set of the drinking cup and the holder along one of its upper portions make up a clamping connection, and if, as an additional possibility, the form a mutual clamping connection at the bottom. It is therefore prefeable that the means are situated in a central portion of the set.

The invention also relates to the holder and drinking cup for a set according to the invention, as well as to a mould for the moulding of the drinking cup for same, where the mould is provided with structures complementary to the means according to the invention.

Mentioned and other characteristics will be described on the basis of a number of non-limitative embodiments given

by way of illustration, with reference to the annexed drawings, in which:

Fig. 1 is a perspective view of a drinking cup according to the invention;

Fig. 2 is a perspective partially broken view of a holder according to the invention;

Fig. 3 is a set comprising the drinking cup from fig. 1 and the holder from fig. 2 perspectively broken away along the line III-III from fig. 1 and 2;

Fig. 4, 5 and 6 are views corresponding to fig. 1, 2 and 3 respectively of an alternative embodiment of the drinking cup and holder according to the invention;

Fig. 7 is a section of a variant along the line VII-VII from fig. 6;

Fig. 8 shows schematically an apparatus for moulding the drinking cup according to the invention;

Fig. 9a-9e show the different positions of a shaping apparatus for the drinking cup according to the invention; and

Fig. 10 and 11 are each prespective views of a mould for shaping a drinking cup from fig. 1 and 2 respectively.

Fig. 1, 2 and 3 show respectively a drinking cup 1, a holder 2 and a set 3 comprising the drinking cup 1 and the holder 2.

A central portion 4 of the drinking cup 1 is provided with recesses 6 arranged in the drinking cup wall 5 around its circumference. The walls diverge in the direction towards the holder wall 11 of the holder 2. It should be mentioned that for the sake of clarity only six recesses are shown, but that in practice a large number of recesses at mutual same rotation angles are arranged in the cup wall 5.

The holder 2 is provided on its wall 11 with a number of projections 12, of which the walls 13-16 converge in the direction towards the drinking cup 1. The projections 12 are arranged around the circumference of the holder wall 11 with the same angular rotation compared to the recesses 6. The projection shape is moreover inherently complementary to a

portion of the recess shape. By means of the divergent recess walls and the corresponding convergent projection walls, the drinking cup 1 can easily be accomodated in the holder 2 because of the resulting self-aligning effect.

Fig. 3 shows the set 3. It can be clearly seen here that the projections 12 extend through the exterior envelope 17 of the drinking cup 1 into the repective recess 6.

It is pointed out emphatically here that the ring shaped wall 28 only extends as far as this exterior envelope 17 and serves to fix a lower portion of the drinking cup 1 in the holder 2.

It will be apparent that if the drinking cup is provided with projections 12 and the holder with recesses 6, the same effect results, with the difference that in these circumstances the drinking cup 1 provided with projections cannot be used in other existing holders.

It should also be mentioned that the number of projections 12 can be smaller than the number of recesses 6. The number of recesses 6 should be as large as possible in order to limit as much as possible the angle of rotation when accomodating the drinking cup 1 in the holder 2.

The figures 4, 5 and 6 show a drinking cup 18, a holder 19 and a set 20 comprising same. In this embodiment the drinking cup 18 is provided with six drinking cup wall surfaces 21, which, as fig. 7 shows in more detail, touch and lie partially outside an exterior envelope 22 of the drinking cup 18.

The holder 19 is provided with projections 24 on its interior wall 23. These projections 24 lie, after the forming of the set 20, inside the envelope 25, whereby a projector surface 56 lies against the respective drinking cup wall surface 21. Once more it should be remarked that he ring shaped wall of the holder extends as far as the envelope 25.

Fig. 7 shows a holder 26 which is a variant of the holder 19. In this set comprising drinking cup 18 and holder 26, the drinking cup wall surfaces 21 lie against a passage

27 in a ring 29. The passage 27 lakes the form here of a regular hexagon.

Fig. 8 shows schematically an apparatus 30 for manufacturing a drinking cup 1, 18 according to the invention. Polystyrene sheet 31 is softened in an infra-red unit 32 and the drinking cup form is shaped in the sheet 31 in a shaping unit 33. The drinking cups 1 are cut out of the sheet in a cutting unit 54.

The figures 9a-9e show the different operating positions of the shaping unit 33. The softened sheet 31 is inserted in the unit 33 and clamped under pressure between two rings 34 and 35 arranged under spring bias on either side of the sheet 31. A mould 36 with an inherently smooth surface subsequently presses a basic drinking cup shape in the sheet 31 (fig. 9c). Using compressed air, the pre-stretched sheet is then pressed against the walls of the mould 37. Air present in the space between sheet and mould 37 can escape via passages 39 (fig. 9d).

After a short cooling period, the mould portions 40 and 41 are moved relative to one another, whereby a mould portion part 42 is moved relative to the remaining part 43 of the mould portion 40 over a distance a towards the shaped drinking cup 1 so that same is released from the mould portion 40 (fig. 9e).

The figures 10 and 11 show in more detail and on a larger scale the mould parts 44 and 45 respectively used for shaping drinking cups 1 and 18. The structure 46 is complementary to the projection 12 and the structure 47 is complementary to the wall surface 21.

It will be apparent that, using the means according to the invention which consist of the co-operating recesses 6 and the projections 12, respectively the wall surfaces 21 and the projections 24 or the ring 29, unique sets, 3 and 20 respectively, are formed, while the drinking cups, 1 and 18 respectively, can be used in known holders, but known drinking cups cannot be used in the holders 2 and 9 respectively.

Claims

1. Set comprising a drinking cup and a holder accomodating same, characterized by mutually co-operating means arranged on a holder wall turned towards the drinking cup and arranged in a drinking cup wall, which means extend through an exterior envelope of the drinking cup and/or through an interior envelope.

2. Set as claimed in claim 1, characterized in that the means comprise at least one recess arranged in the drinking cup wall and one projection arranged on the holder wall.

3. Set as claimed in claim 2, characterized in that walls of the recess diverge in the direction towards the holder wall.

4. Set as claimed in claim 3, characterized in that walls of the projection converge towards the drinking cup wall.

5. Set as claimed in claims 2-4, characterized in that a large number of recesses are arranged in the drinking cup wall at mutual same rotation angles.

6. Set as claimed in claim 5, characterized in that the number of projections is equal to or smaller than the number of recesses.

7. Set as claimed in claim 1, characterized in that the means comprise at least one drinking cup wall surface which touches and lies at least partially outside the exterior envelope of the drinking cup.

8. Set as claimed in claim 7, characterized in that the means comprise a number of cup wall surfaces which form an imaginary regular polygon.

9. Set as claimed in claim 8, characterized in that the means comprise a ring arranged on the holder wall, the passage through which takes the form of the the polygon.

10. Set as claimed in any of the preceding claims, characterized in that the means are situated in a central portion of the set.

11. Holder and/or drinking cup for a set, characterized by the means as claimed in claims 1-10.

12. Mould for moulding a drinking cup for the set, characterized by structures complementary to the means as claimed in claims 1-10.

FIG.1

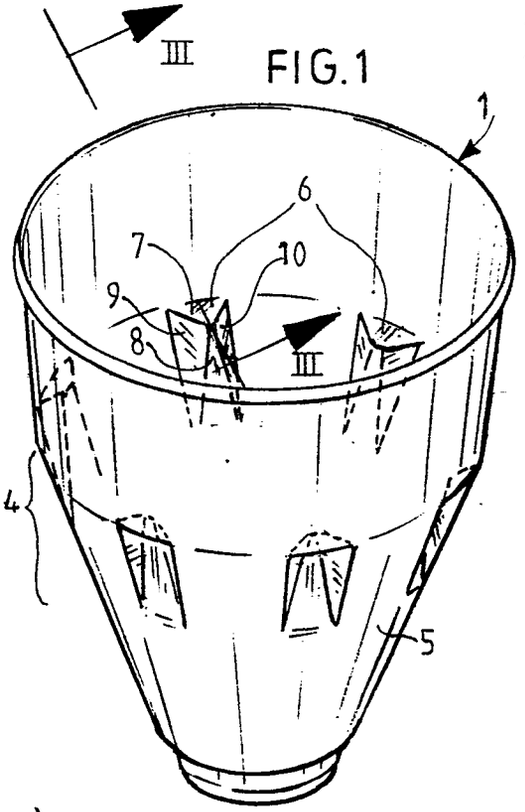
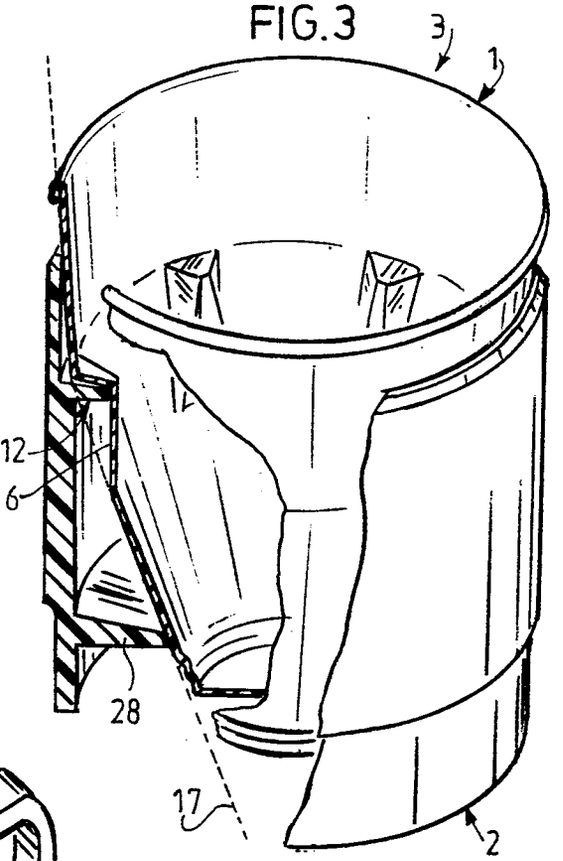


FIG.3



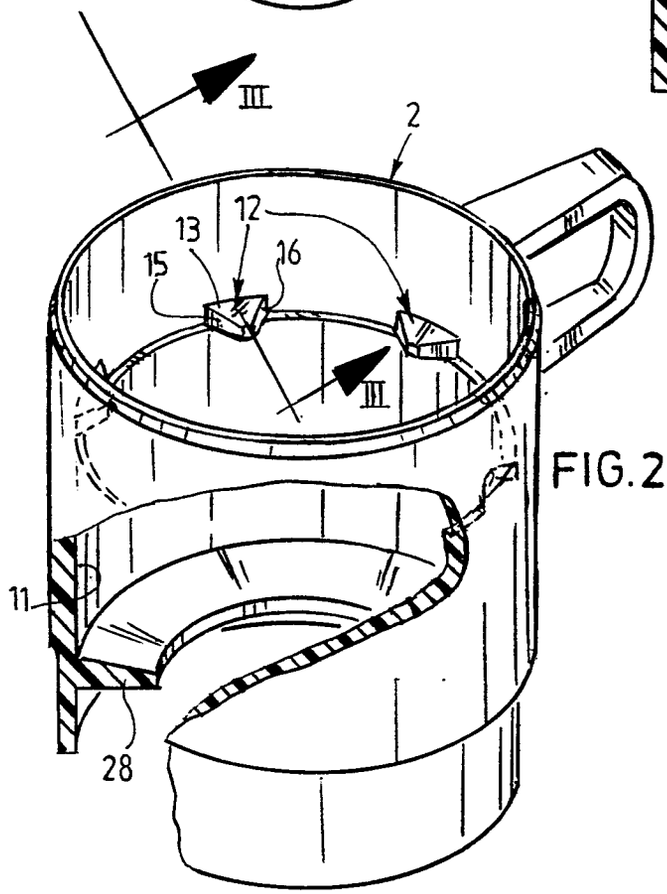


FIG.2

FIG. 4

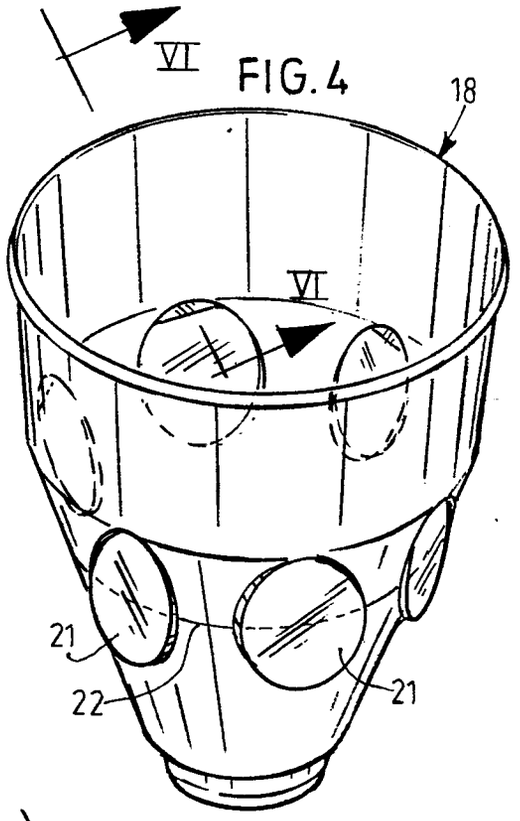


FIG. 6

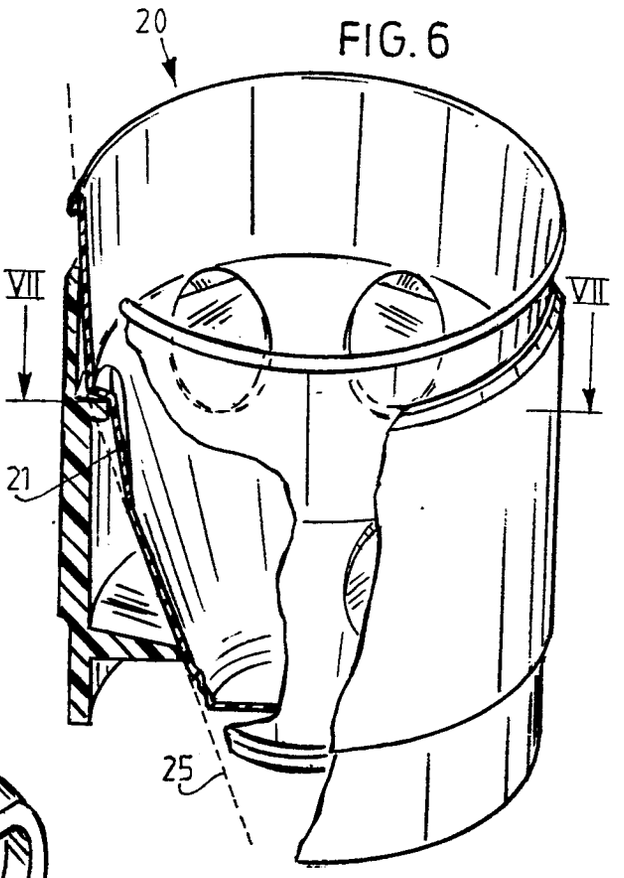
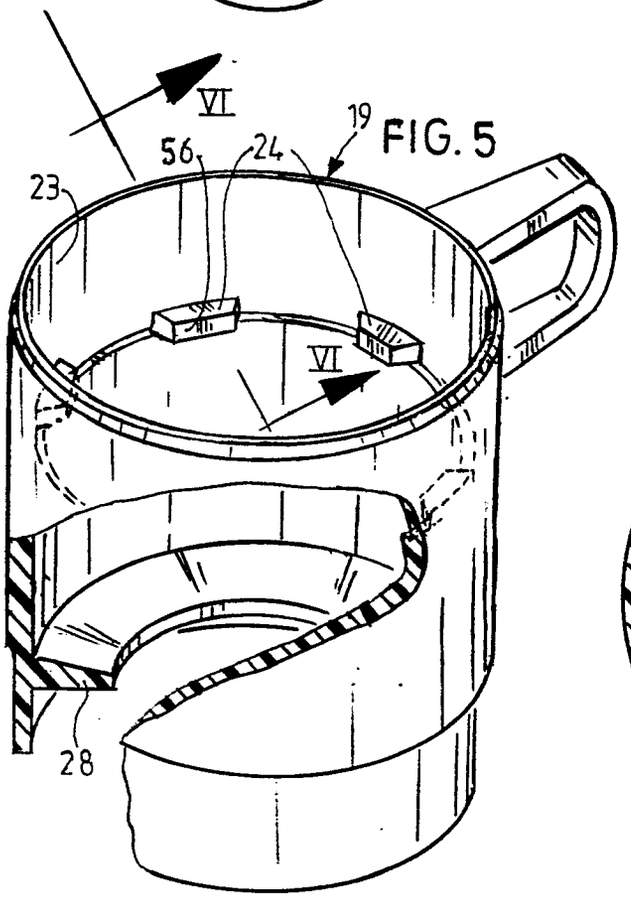


FIG. 5



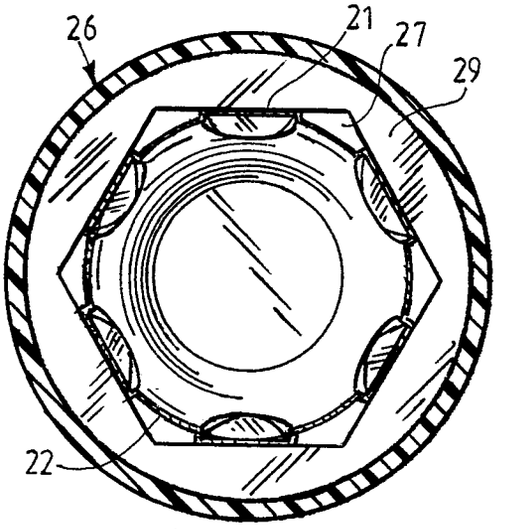


FIG. 7

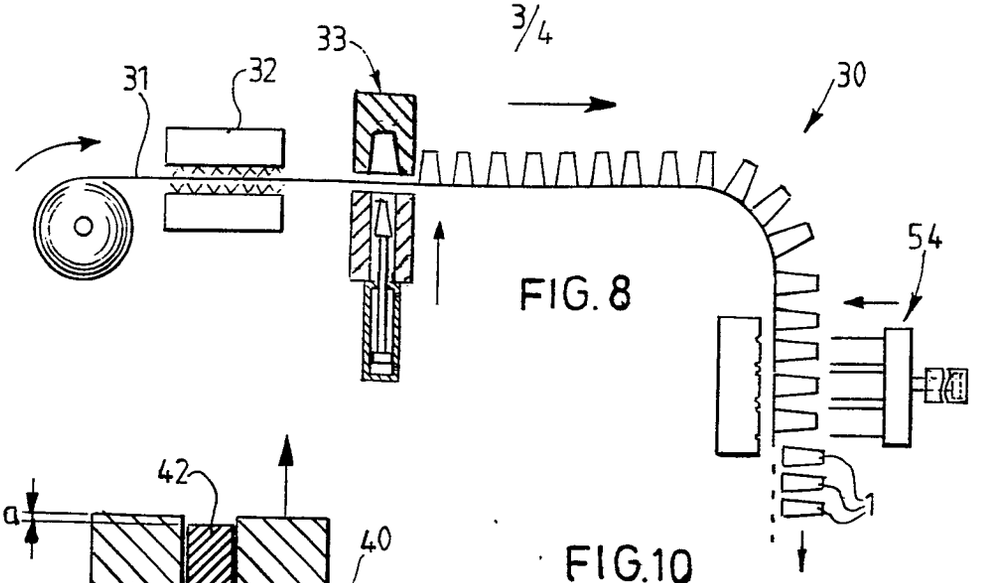


FIG. 8

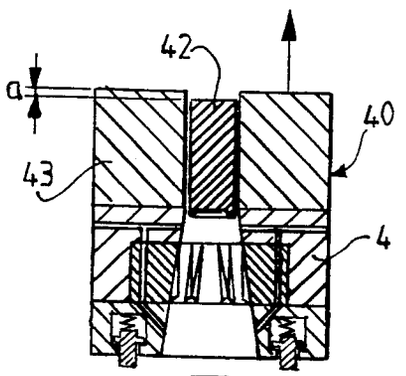


FIG.9 e

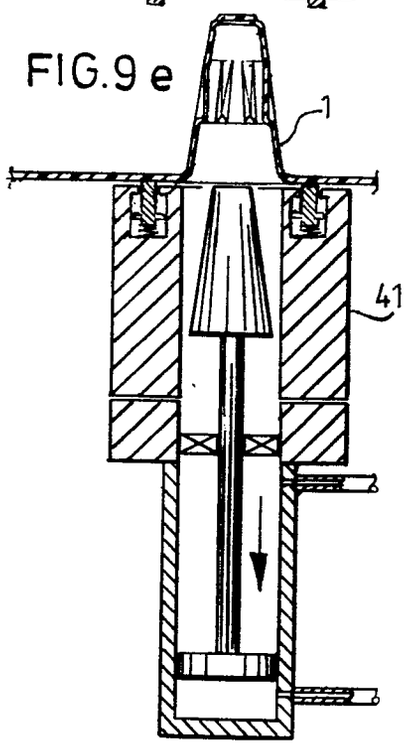
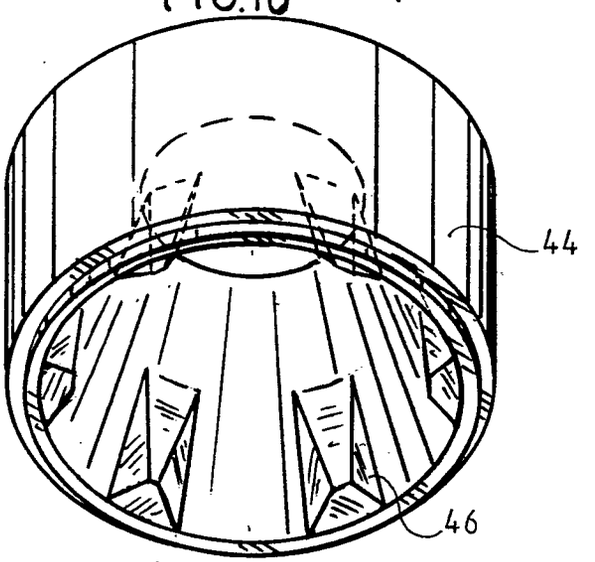


FIG.10



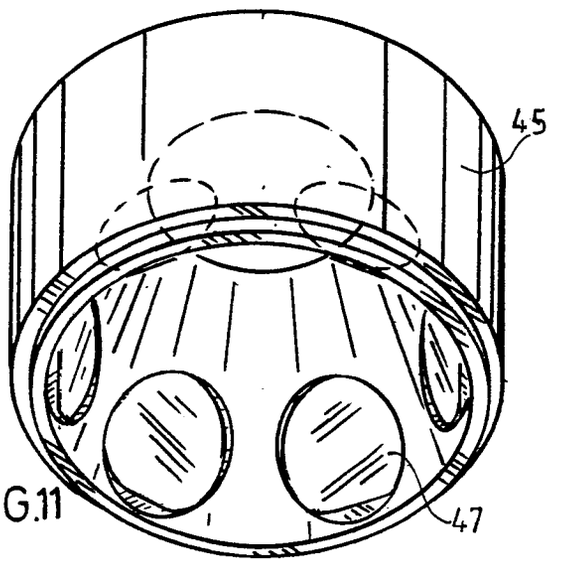


FIG.11

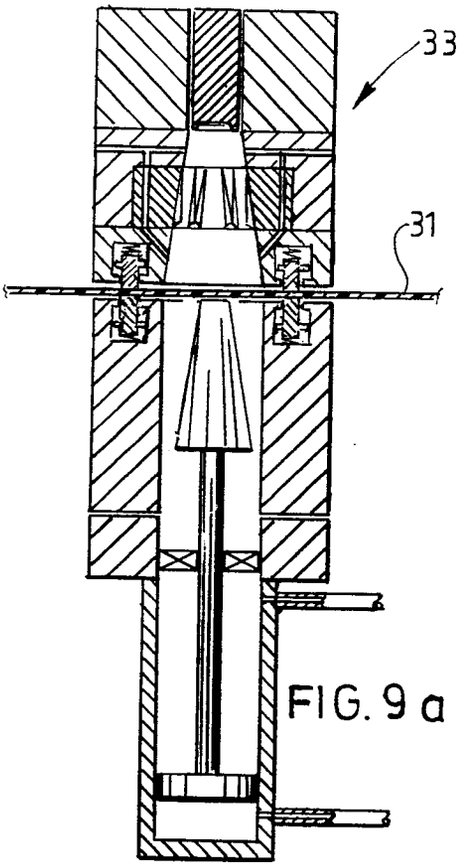


FIG. 9 a

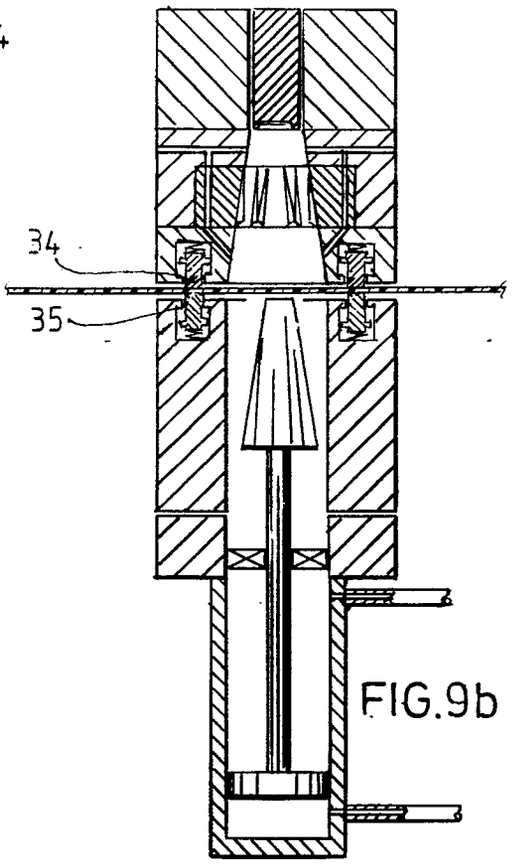


FIG.9b

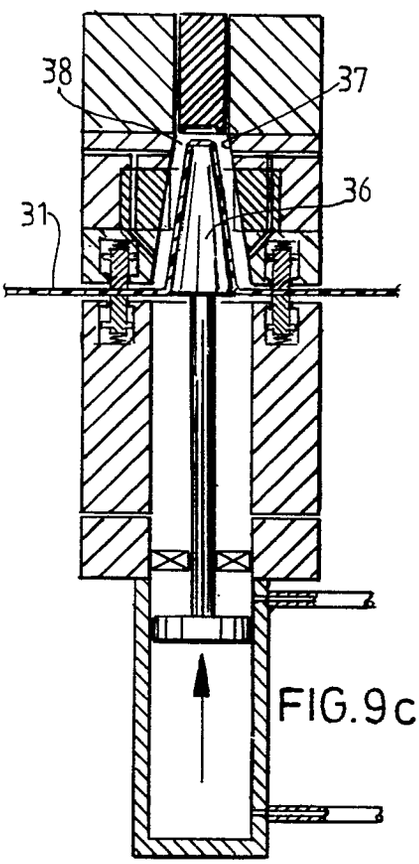


FIG.9c

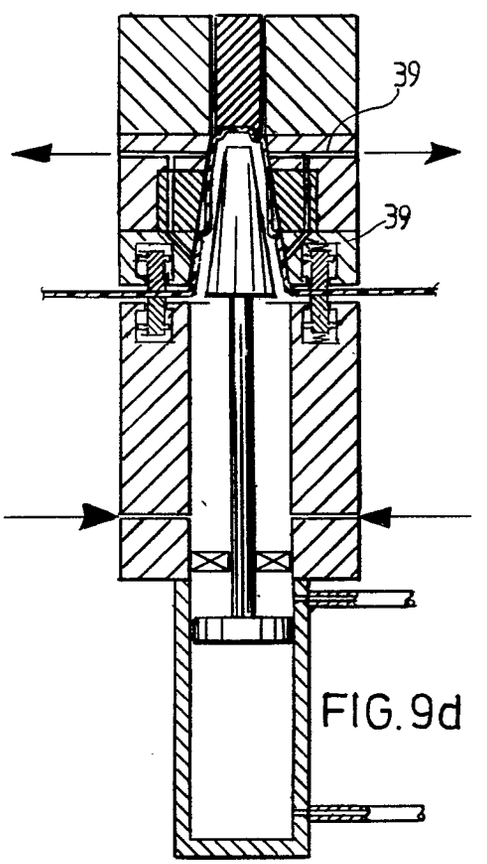


FIG.9d