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(71) Applicant: **SINWA-SEISAKUSHO CO.,LTD.**
1750, Kosugaya-cho Sakae-ku
Yokohama-shi Kanagawa 247(JP)

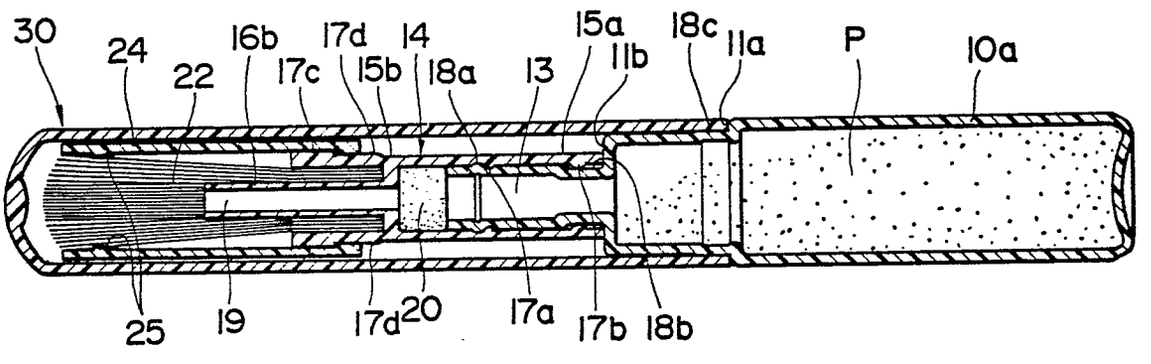
(72) Inventor: **Takahashi, Yasuo**
4-2-502 Tsurugadai
Chigasaki-shi, Kanagawa 253(JP)

(74) Representative: **Calderbank, Thomas Roger et al**
MEWBURN ELLIS 2 Cursitor Street
London EC4A 1BQ(GB)

(54) Powder application apparatus.

(57) A powder application apparatus comprises a powder container (10) in the form of bottle containing powder therein. The container (10) is elastically deformable by being squeezed at the sides (10a) thereof so that it discharges powder (8) together with air from an opening (16b) thereof. A brush portion (22) is mounted on the opening so that it surrounds the opening.

FIG. 3



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POWDER APPLICATION APPARATUS

The present invention relates to a cosmetic application apparatus, and in particular to an apparatus for applying powder such as cheek rouge and powder for body.

Conventional powder application apparatus of such type as shown in Fig.7(Prior Art; Japanese Utility Model Application No 62-29590) has been known. A cartridge cylinder 2 which is charged with powder is received in a main cylinder 4. A brush 6 is mounted on a front end opening of the cartridge cylinder 2. A bellows member 8 is mounted on the rear end of the cartridge cylinder 2. A cover 9 which biases the bellows member 8 is fitted to the main cylinder 4. The bellows member is compressed by knocking the cover 9 in the direction of arrow so that the powder in the cartridge cylinder 2 is discharged into the brush. Reference numeral 3 represents a cap.

The aforementioned conventional apparatus has a problem that it requires a lot of parts and is complicated in structure and expensive in cost since it comprises at least five parts such as cartridge cylinder 2, main cylinder 4, brush 6, bellows member 8 and cover 9.

When powder is to be applied, the main cylinder is tweezed by fingers to spread the discharged powder. In order to discharge the powder it is necessary to knock the cover 9. In order to do so it is necessary to pass the main cylinder 4 from one hand to another to make it easier to knock the cover 4. This involves another problem that it is troublesome to manipulate the apparatus.

This is not fashionable in these present time in which simple style is preferred.

Therefore it is an object of the present invention to provide a powder application apparatus which is easily manipulated.

It is another object of the present invention to provide a powder application apparatus which is fashionable and requires less number of parts.

It is further object of the present invention is to provide an inexpensive powder application apparatus having a simple structure, which is excellent in performance.

These objects of the present invention are accomplished by providing a powder application apparatus comprising a powder container in the form of bottle containing powder therein, said container being elastically deformable by being squeezed at the sides thereof so that it discharges powder together with air from an opening thereof; and a brush portion mounted on the opening so that it surrounds the opening.

The powder container is elastically deformed inwardly by squeezing the side of the container so that the pressure in the container increases and the powder therein is discharged from the opening to the flange portion together with air.

These and other objects,features, and uses will become more apparent as the description proceeds, when considered with the accompanying drawings in which:

Figs.1 to 6 show an embodiment of the present apparatus.

Fig.1 is an exploded perspective view showing a body powder application apparatus;

Fig.2 is a perspective view showing the body powder application apparatus in which a cap is removed;

Figs.3 and 4 are longitudinal and horizontal sectional views showing the body powder application apparatus respectively;

Fig.5 is a rear view showing a brush holder; and

Fig.6 is a perspective view showing the brush holder, part of which is broken.

In the drawings, reference numeral 10 represents a powder container in the form of bottle which comprises a powder containing portion 10a having an oval cross-section which is charged with the body powder P and a front end opening 13 having a circular cross-section. The powder container 10 is made of flexible synthetic resin such as polypropylene. The container is easily elastically deformed by being squeezed at the sides thereof so that powder P in the container is discharged from the opening 13 together with air.

The cross-sectional area of the opening 13 of the powder container 10 is made smaller than that of the powder containing portion 10a. A step portion 11 (11a, 11b and 11c) is formed between the powder containing portion 10a and the opening 13. The step portion 11 includes three steps such as a first, second and third steps 11a, 11b and 11c which are formed in order from the powder containing portion 10a. A first horizontal extension portion 12a which is in the form of oval pipe is formed between the first and second steps 11a and 11b. A second horizontal extension portion 12b which is also in the form of oval pipe is formed between the second and third steps 11b and 11c. A third horizontal extension portion 12c which forms the opening 13 is formed at an area beyond the third step 11c.

A cylindrical brush holder 14 having flocked brush is mounted on the first and second horizontal extension portion 12b and 12c of the powder container. The brush holder 14 comprises inner and outer cylinders which protrude from the front and rear ends of the cylinder. The rear end 15a of the

outer cylinder 15 is in the form of oval pipe which is fitted to the outer periphery of the second horizontal extension portion 12b of the powder container. The rear side of the inner cylinder 16a is in the form of circular pipe which is fitted to the outer periphery of the third horizontal extension portion 12c of the powder container. The inner cylinder 16a is integral with the rear side of the outer cylinder 15a at the intermediate position in the width direction thereof to form the peripheral wall denoted by a reference numeral 16c. A rib 17a is formed along the inner peripheral wall of the rear side inner cylinder 16a. A rib 17b is formed along the inner peripheral wall of the long side of the outer cylinder 15a. On the other hand, an engagement recess 18b and a rib 18a which engage with said ribs 17b and 17a respectively are formed on the second and third horizontal extension portions 12b and 12c.

Air-tightness between the inner cylinder 16a of the brush holder 14 and the powder container 10 is ensured by fitting the rear side inner and outer cylinders 16a and 15a to the outer periphery of the third and second horizontal extension portions 12c and 12b, respectively. The powder container 10 is formed by blow molding and the brush holder 14 is formed by injection molding. Both of the horizontal extension portion 12c at the side of powder container and the inner cylinder 16a at the side of brush holder are in the form of circular pipe. Since molding of the circular pipe may be carried out with higher precision than that of oval pipe, the size of the extension portion 12c and the inner cylinder 16a can be made with precision as well as the ribs 18a and 17a which are injection molded on the outer and inner wall, respectively. Accordingly air-tightness between the horizontal extension 12c and the inner cylinder 16a is ensured. There is no problem that air is leaked therefrom.

The inner cylinder 16a in the form of pipe having a circular cross-section at the side of front end of the brush holder 14 provides a powder discharging exit 19 having a small diameter which is in communication with the rear end side inner cylinder 16a. A soft porous member 20 made of a material such as sponge is received between the small diameter powder discharging exit 19 and the opening 13 of the powder container 10. The porous member 20 functions as a lid for preventing the inner powder from leaking even when the opening 13 of the powder container 10 faces downward and also functions to adjust the amount of the powder discharged from the powder container 10. That is, the discharging amount of the powder P can be selected as desired by changing the pore size of the porous member 20. Also, the porous member can be replaced according to the kind of the powder.

The brush 22 is flocked between the inner and outer cylinders 16b and 15b at the front end side of the brush holder 14 so that it surrounds the inner cylinder 16b. The tip of the brush 22 extends to the front position of the inner cylinder 16b as shown in Figs.3 and 4 .The powder P which has been discharged from the powder discharging exit 19 will adhere to the tip of the brush.

A slide cover 24 which prevents the brush 22 from bristling up is fitted to the outer cylinder 15 of the brush holder 14. That is, the slide cover 24 covers the entire of the brush as shown in Figs.3 and 4 so that the cap 30 can smoothly be mounted without enfolding the brush 22. The slide cover 20 can be slid to a position represented by a phantom line in Figs.3 and 4 along the outer periphery of the outer cylinder 15 by fingers.

Reference numeral 17c represents a stopper which is provided around the front end of the outer cylinder 15 of the brush holder 14, reference numeral 17d represents a rib formed on the outer periphery of the front end side outer cylinder 15b of the brush holder 14 along the long side thereof, reference numeral 25 represents a rib formed on the inner periphery of the slide cover 24 along the long side of the front end side thereof. These are adapted to increase a frictional force between the slide cover 24 and the brush holder 14 at the rib forming area so that the slide cover 24 is retained at a frontmost end position (refer to Figs.3 and 4) or a rearmost end position (refer to Fig.2). Reference numeral 18c represents a rib formed on the outer periphery of the first horizontal extension 12a of the powder container 10 along the long side thereof for ensuring the mounting of the cap 30.

The operation procedure of the powder application apparatus will then be described.

The cap 30 is removed and the slide cover 20 is retracted to expose the brush 22. Then the powder is directed to a position where the powder is wanted to be applied. At this time it is best to face the brush of the application apparatus downwardly. When the powder container 10 is tweezed and strongly squeezed by for example, a thumb and an indexing fingers under such condition, the wall of the powder container 10 is pressed inwardly to deform. The pressure in the container 10 increases so that the powder P is passed through the opening 13 and the porous member 20 and is discharged from the powder discharging exit 19 together with air and adheres to the tip of the brush 22. When the squeezing of the powder container 10 is stopped, the powder container 10 will recover to an original position. Air is introduced into the container 10 from the powder discharging exit 19 due to the negative pressure generated in the powder container 10 at this time and the powder container recovers. The powder can be easily ap-

plied to a desired position by moving the powder application apparatus while repeating the squeezing operation of the powder container with fingers.

If the container is squeezed by mistake, for example, pressing the container 10 under foot when the prior art powder application apparatus is not used, the powder would be discharged from the discharging exit 19. However the slide cover 24 is slid to a frontmost position of the brush holder 14 as shown in Figs.3 and 4 when the application apparatus is not in use. Accordingly the tip portion of the brush 22 is compressed in a radial direction and the front area of the powder discharging exit is closed by the brush 22. The powder which has been discharged from the powder discharging exit 19 is blocked in the brush 22 so that the powder will not leak to outside.

The powder container 10 is only pressure-fitted into the rear end of the brush holder 14. Accordingly mounting and removing of the container is easy. An empty powder container 10 may be replaced with a new one. The application apparatus has a feature in that the amount of the residual powder can be viewed at a glance if the powder container is made translucent.

The powder container 10 and the cap 30 can be ornamented at the surface thereof by transfer printing etc., to provide a good appearance.

All the components of the powder application apparatus shown as an embodiment are made of resin without using any metal components to provide a light-weight structure.

As is apparent from the above description, a cheap powder application apparatus having a very simple structure and a good appearance is provided according to the present apparatus. This apparatus has a great advantage that it can be easily used since the powder can be easily discharged by squeezing the powder container with fingers while moving the powder application apparatus.

It is further understood by those skilled in the art that the foregoing description is a preferred embodiment of the disclosed device and that various changes and modifications may be made in the invention without departing from the spirit and scope thereof.

Claims

1. A powder application apparatus comprising a powder container in the form of bottle containing powder therein, said container being elastically deformable by being squeezed at the sides thereof so that it discharges powder together with air from an opening thereof; and a brush portion mounted on the opening so that it surrounds the opening.

2. The powder application apparatus defined in claim 1 in which a soft porous member such as sponge is provided between the opening of said powder container and said brush, said porous member being adapted to function as a lid for the opening of the powder container and to adjust the discharging amount of the powder.

3. The powder application apparatus defined in claim 2 in which said powder container comprises a powder containing portion and a horizontal extension portion in the form of circular pipe which protrudes forward from a step portion formed in front of the front end of the powder containing portion to form an opening of powder container and in which said brush portion comprises brush flocked on a cylindrical brush holder and in which a mounting portion of the brush holder on the powder container comprises an outer cylinder fitted to the step portion of the powder containing portion at the front end side thereof and the rear end side inner cylinder in the form of circular pipe containing the soft porous member therein, which is fitted to the outer periphery of the horizontal extension portion protruding from the front end of the powder containing portion, said rear end side inner cylinder of brush holder being in communication with the front end side inner cylinder which extends into the brush to form a powder discharging exit at the front end side of the brush holder.

4.The powder application apparatus defined in claim 3 in which ribs which ensure air-tightness are formed along at least one of the outer peripheral surface of the horizontal extension portion which is in the form of circular pipe at the side of said powder container and the inner peripheral surface of the inner cylinder at the rear end side of the brush holder.

5.The powder application apparatus defined in claim 3 or 4 in which the outer cylinder of said brush holder is long in form and has an oval or substantially oval cross-sectional area and is integral with a part of the inner cylinder at the side wall thereof.

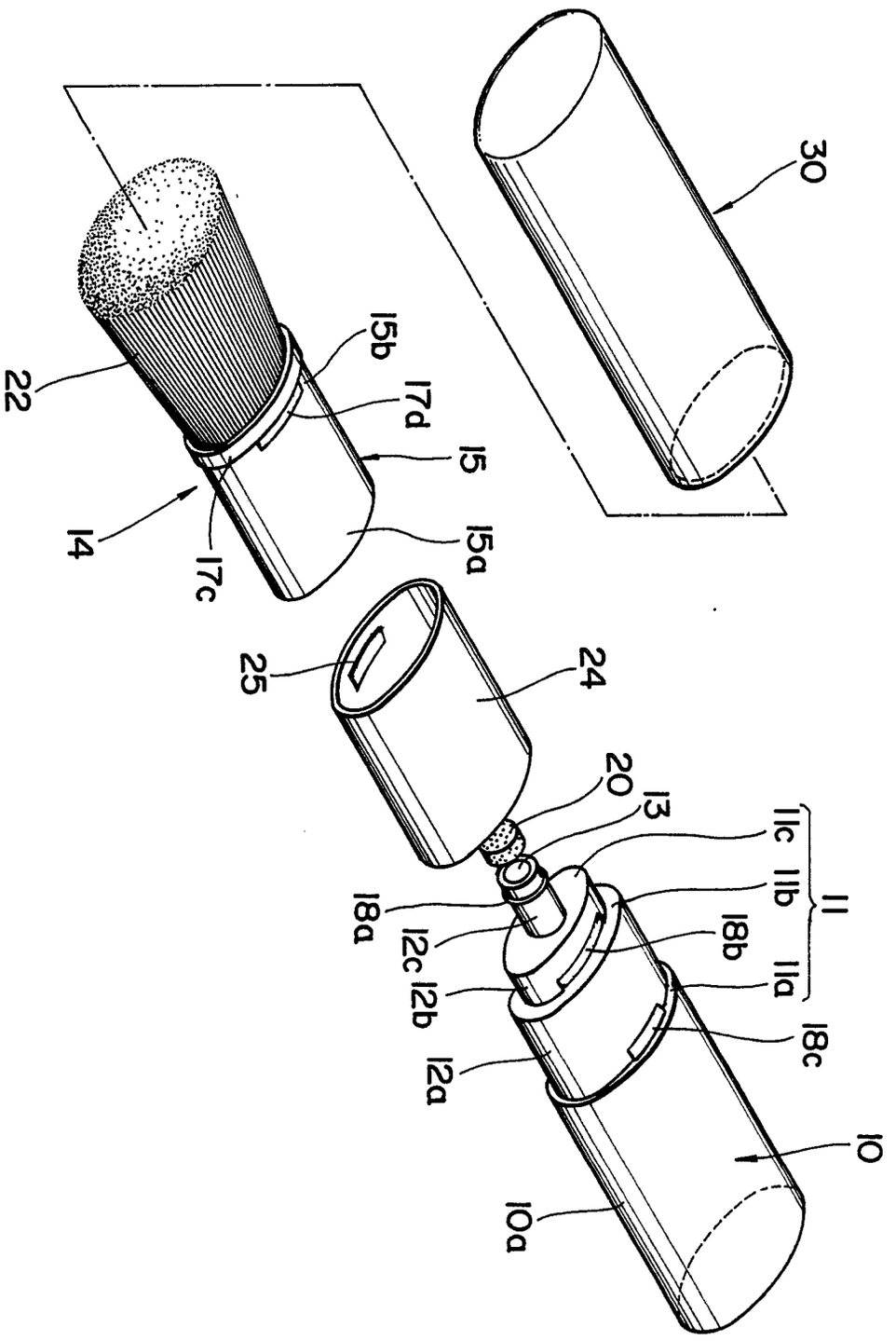
30
22
15b
17d
15
14
17c
15a
25
24
20
13
11c
11b
11
18a
12c
18b
12b
11a
18c
12a
10
10a

FIG. 1

FIG. 2

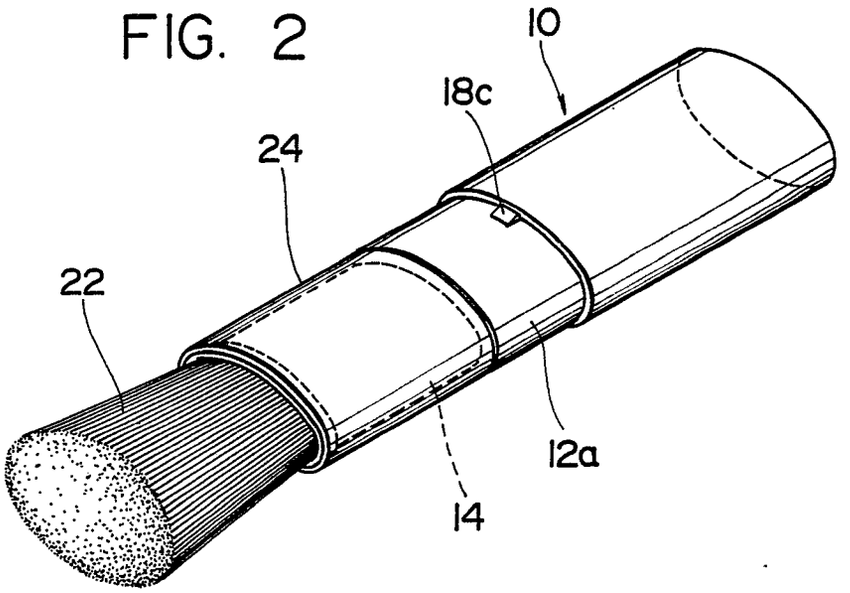

FIG. 3

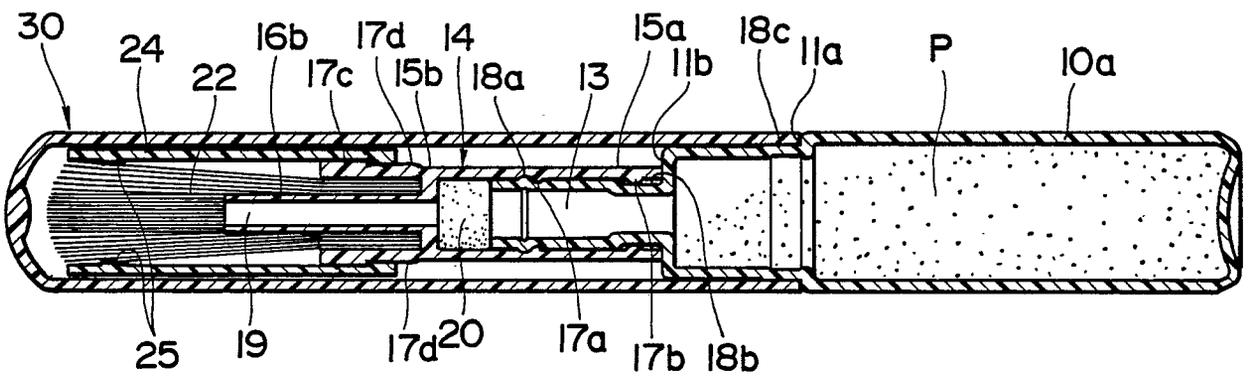

FIG. 4

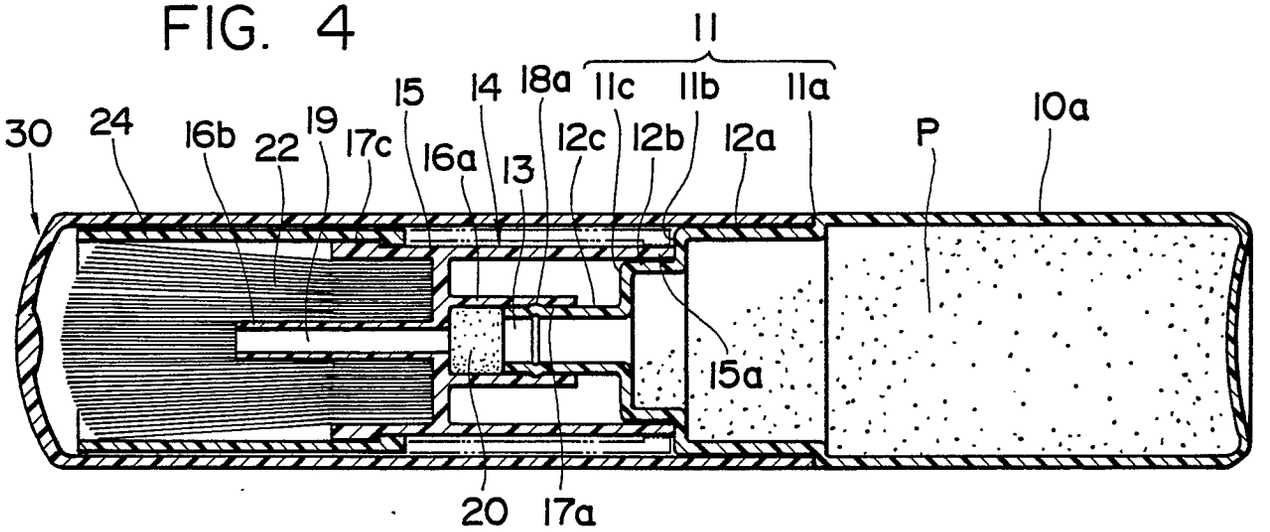

FIG. 5

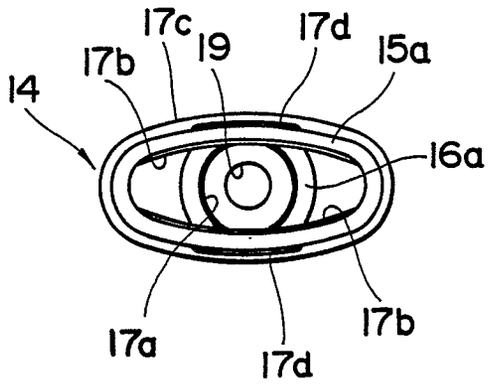

FIG. 6

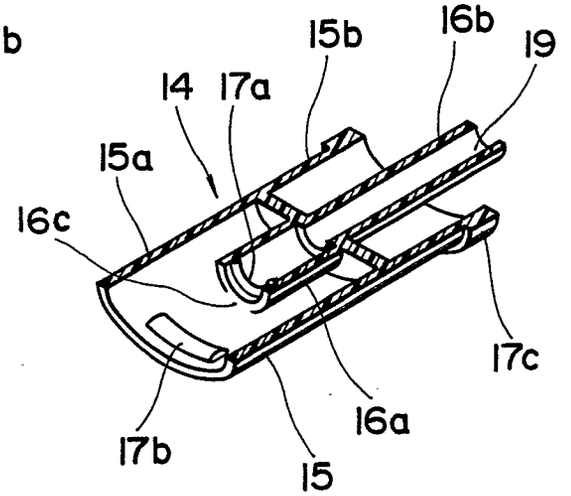

FIG. 7