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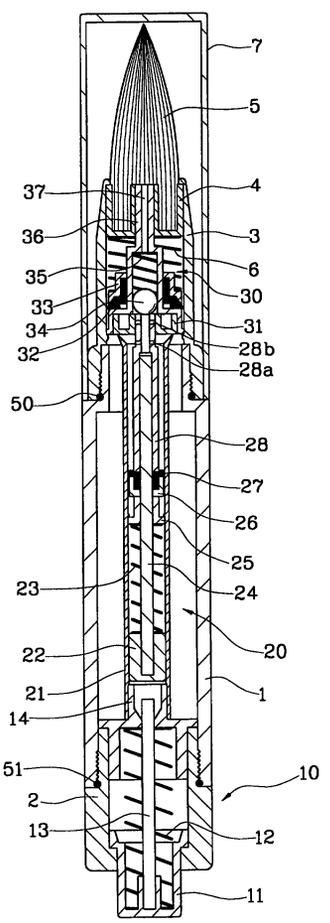
(54) Foundation injector and foundation filled cosmetic implement therewith

(57) Disclosed are a foundation injector and a foundation filled cosmetic implement therewith. The foundation injector includes a pressurization pump having a push button which is reciprocated due to an external force, and a slide pin which is reciprocated by being connected to the push button, to permit the slide pin to be reciprocated by the reciprocation of the push button; a discharge guide tube having a push rod which is reciprocated due to a pressure of the slide pin, and a tube which surrounds an outer peripheral surface of the push rod and supports the push rod to be reciprocated, to receive the pressure of the slide pin and guide the foundation to be flowed; and an injection nozzle having a nozzle with a flow channel which is formed on a reciprocation passage of the push rod, and an open-and-shut mechanism which is interposed within the flow channel, to permit the flow channel to be opened and shut according to the reciprocation of the open-and-shut mechanism due to the pressure of the push rod and the foundation to be discharged according to the open and shut action of the flow channel. Therefore, the present invention has advantages of ensuring a sure foundation discharge and airtight condition and improving productivity owing to reduction in required components.

FIG. 2



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Description

BACKGROUND OF THE INVENTION

Field of the Invention

[0001] The present invention relates to a foundation filled cosmetic implement, and more particularly, to a foundation injector and a foundation filled cosmetic implement therewith, the cosmetic implement being formed by compactly integrating a illiquid type fountain into an implement used for putting the foundation on, the injector and the implement which can achieve a smooth discharge of a foundation filled in a body, reduce manufacturing cost and improve productivity by facilitating a manufacturing and assembling process of components comprised in the cosmetic implement.

Background of the Related Art

[0002] A foundation filled cosmetic implement wherein a liquid type foundation is integrated into a cosmetic implement is disclosed in Korean Patent Application No. 2001-19957. In that, a foundation injector for discharging the foundation is provided with a discharge valve for providing a discharge passage of the foundation to properly control the used volume of foundation filled in a body, and a pressurization pump for injecting the foundation to discharge the foundation through injection of compressed air.

[0003] The discharge valve provides the discharge passage of the foundation. Also, the discharge valve has a one-way discharge structure, such that the discharge of the foundation is permitted only when used for makeup. The pressurization pump is structured to compresses air to inject the foundation filled in the body in a direction where the discharge valve is positioned.

[0004] In the foundation injector constructed as above, basically, the discharge valve and the pressurization pump are under airtight condition, respectively, for basic purpose of protecting the foundation filled in the body from being unintentionally discharged to the outside. There is inevitably generated an air gap between components of the discharge valve and the pressurization pump due to a difference in precision during assembling the components. In consequence, the more the number of components increases, the more defective proportion of products increases.

[0005] The increase in the number of required components causes increase in manufacture time and cost. As a result, unit price is increased and productivity is accordingly decreased.

[0006] Meantime, the pressurization pump has a one-way injecting structure through a spring and an open-and-shut mechanism, so as for the foundation not to be flowed into an inner space where air is compressed. However, this requires lots of money and time consumed in manufacturing and assembling the components. Further, the open-and-shut mechanism supported by the spring is structured to block an entrance into which the air is injected, causing loss of pressure on the compressed air and failing to sufficiently exhibit functions of the pressurization pump.

SUMMARY OF THE INVENTION

[0007] Accordingly, the present invention is directed to a foundation injector and a foundation filled implement therewith that substantially obviates one or more problems due to limitations and disadvantages of the related art.

[0008] An object of the present invention is to provide a foundation injector and a foundation filled implement therewith, which can achieve a smooth discharge of a foundation, reduce manufacturing cost by facilitating a manufacturing and assembling process of components comprised in the cosmetic implement as well as improving productivity.

[0009] Additional advantages, objects, and features of the invention will be set forth in part in the description which follows and in part will become apparent to those having ordinary skill in the art upon examination of the following or may be learned from practice of the invention. The objectives and other advantages of the invention may be realized and attained by the structure particularly pointed out in the written description and claims hereof as well as the appended drawings.

[0010] To achieve these objects and other advantages and in accordance with the purpose of the invention, as embodied and broadly described herein, there is provided a foundation injector including a pressurization pump having a push button which is reciprocated due to an external force, and a slide pin which is reciprocated by being connected to the push button, to permit the slide pin to be reciprocated by the reciprocation of the push button; a discharge guide tube having a push rod which is reciprocated due to a pressure of the slide pin, and a tube which surrounds an outer peripheral surface of the push rod and supports the push rod to be reciprocated, to receive the pressure of the slide pin and guide a foundation to be flowed; and an injection nozzle having a nozzle with a flow channel which is formed on a reciprocation passage of the push rod, and an open-and-shut mechanism which is interposed within the flow channel, to permit the flow channel to be opened and shut according to the reciprocation of the open-and-shut mechanism due to the pressure of the push rod and the foundation to be discharged according to the open and shut of the flow channel.

[0011] The pressurization pump may include a rear end part which is cylindrical in shape with both opened end parts, a valve tube which is fixed on one side of the rear end part, the push button which is installed on other side of the rear end part to be reciprocated, a spring which is interposed between the valve tube and the push button to supply a restoring force to the push button, and

the slide pin which is coupled to the push button, perforates through the valve tube and is protruded, the discharge guide tube may include the tube which is fixed on a portion where the valve tube is perforated and is cylindrical in shape with both opened end parts, the push rod which reciprocated due to the one-way pressure of the slide pin within the tube, a spring holder which is coupled to an end part contacted with the slide pin of the push rod, a guide bush which installs the push rod on the tube to be reciprocated, a spring which is interposed between the guide bush and the spring holder to supply a restoring force to the push rod, and a cover which is coupled to the end part of the push rod and has a plurality of inflow holes and outflow holes thereon through which the foundation is flowed in and out, and the injection nozzle may include the nozzle which is disposed on a reciprocation passage of the cover and has the flow channel on a central part thereof, the open-and-shut mechanism which is interposed in the central part of the nozzle and is reciprocated due to the pressure of the cover, and a spring which is interposed in the central part of the nozzle and supplies a restoring force to the open-and-shut mechanism.

[0012] It is desirable that the discharge guide tube, including a rubber which is installed on an outer peripheral surface of the push rod to be closely adhered to an inner peripheral surface of the tube, guides the foundation entered in an inside of the tube due to the reciprocation of the push rod to be flowed and blocks the foundation from being flowed into the pressurization pump.

[0013] In another aspect of the present invention, there is provided a foundation filled cosmetic implement with a foundation injector, the foundation filled cosmetic implement including a body in which a foundation is filled, a foundation cosmetic applicator being installed on a front end part of the body and a foundation injector for discharging the foundation to the applicator, wherein the foundation injector includes a pressurization pump having a push button which is reciprocated due to an external force, and a slide pin which is coupled with the push button to be reciprocated, to permit the slide pin to be reciprocated due to the reciprocation of the push button; a discharge guide tube having a push rod which is reciprocated due to a pressure of the slide pin, and a tube which surrounds an outer peripheral surface of the push rod and supports the push rod to be reciprocated, to receive the pressure of the slide pin and guide a foundation filled in the body to be flowed; and an injection nozzle having a nozzle with a flow channel which is formed on a reciprocation passage of the push rod, and an open-and-shut mechanism which is interposed within the flow channel, to permit the flow channel to be opened and shut according to the reciprocation of the open-and-shut mechanism and the foundation to be discharged according to the open and shut of the flow channel.

[0014] The pressurization pump may include a valve tube which is fixed on one side of the rear end part, the push button which is installed on other side of the rear end part to be reciprocated, a spring which is interposed between the valve tube and the push button and supplies a restoring force to the push button, and the slide pin which is coupled with the push button, perforates through the valve tube and is protruded, the discharge guide tube may include the tube which is fixed on a portion where the valve tube is perforated through and is cylindrical in shape with both opened end parts, the push rod which is reciprocated due to the one-way pressure of the slide pin within the tube, a spring holder which is coupled to an end part contacted to the slide pin of the push rod, a guide bush which installs the push rod on the tube to be reciprocated, a spring which is interposed between the guide bush and the spring holder and supplies a restoring force to the push rod, and a cover which is coupled with the end part of the push rod and has a plurality of inflow holes and outflow holes thereon through which the foundation is flowed in and out, and the injection nozzle may include the nozzle which is installed on the front end part to be reciprocated and has a flow channel formed on a central part thereof, a spring which is interposed between the front end part and the nozzle and supplies the restoring force to the nozzle, the open-and-shut mechanism which is interposed in the flow channel of the nozzle and is reciprocated due to a pressure of the cover, and a spring which is interposed in the flow channel of the nozzle and supplies a restoring force to the open-and-shut mechanism.

[0015] It is desirable that the discharge guide tube, including a rubber which is installed on an outer peripheral surface of the push rod to be closely adhered to an inner peripheral surface of the tube, guides the foundation entered in an inside of the tube due to the reciprocation of the push rod to be flowed and blocks the foundation to be flowed into the pressurization pump.

[0016] It is desirable that the injection nozzle, including a rubber which is installed on an outer peripheral surface of the nozzle to be closely adhered to an inner peripheral surface of the front end part, prevents the foundation penetrated between the nozzle and the front end part from being discharged to the outside.

[0017] Meantime, the front end part may be separated from the body and coupled with the body through a screw, and the applicator is coupled to the front end part by a holder which has a perforated central part for the nozzle to be reciprocated.

[0018] Meantime, the front end part may include a guide container which is coupled to an end part of the body and has a protrusion on an outer peripheral surface thereof; a rise and fall holder which surrounds the outer peripheral surface of the guide container, is coupled to the guide container to be pivotally rotated, has a spiral groove being formed on an inner peripheral surface thereof and being engaged with the protrusion to be raised and lowered along the guide container, and has a rise and fall jaw on an outer peripheral surface; a rise and fall guide which surrounds the outer peripheral

surface of the rise and fall holder, is connected to the rise and fall holder to be pivotally rotated, and has a rise and fall groove on an inner peripheral surface thereof for raising and lowering the rise and fall holder through the rise and fall jaw; and a foundation cosmetic auxiliary applicator which is fixed on one side of the rise and fall holder, wherein the applicator is coupled on an end part of the guide container by a holder with a central part which is perforated for the nozzle to be reciprocated therethrough.

[0019] Still meantime, the front end part may include a guide container which is coupled to an end part of the body and has a protrusion on an outer peripheral surface thereof; a rise and fall holder which surrounds the outer peripheral surface of the guide container, is coupled to the guide container to be pivotally rotated, has a spiral groove being formed on an inner peripheral surface thereof and being engaged with the protrusion to be raised and lowered along the guide container, and has a rise and fall jaw on an outer peripheral surface thereof; a rise and fall guide which surrounds the outer peripheral surface of the rise and fall holder, is coupled to the rise and fall holder to be pivotally rotated, and has a rise and fall groove on an inner peripheral surface thereof for raising and lowering the rise and fall holder through the rise and fall jaw; and the applicator which is fixed on one side of the rise and fall holder, wherein a central part of the guide container is perforated, a ball is interposed on one side of the perforated central part to discharge the foundation filled within the body due to rotation of the ball.

[0020] The front end part may include a guide container which is coupled to an end part of the body; a rise and fall guide which surrounds an outer peripheral surface of the guide container, is connected to the guide container to be pivotally rotated, and has a spiral groove on an inner peripheral surface thereof; a rise and fall valve tube having a protrusion which is formed on an outer peripheral surface of the rise and fall valve tube and engaged with the spiral groove to be raised and lowered due to rotation of the rise and fall guide; a fixed holder which is fixed on one side of the rise and fall guide; and a foundation cosmetic auxiliary applicator which is fixed on the rise and fall holder, wherein the applicator is coupled on an end part of the rise and fall valve tube to be raised and lowered.

[0021] The front end part may include a guide container which is coupled to an end part of the body; a rise and fall guide which surrounds an outer peripheral surface of the guide container, is coupled to the guide container to be pivotally rotated, and has a spiral groove on an inner peripheral surface thereof; a rise and fall valve tube having a protrusion which is formed on an outer peripheral surface of the rise and fall valve tube and engaged with the spiral groove to be raised and lowered due to rotation of the rise and fall guide; a fixed holder which is fixed on one side of the rise and fall guide; and a foundation cosmetic auxiliary applicator which is fixed on the fixed holder, wherein the applicator may be a ball which is coupled to an end part of the rise and fall valve tube to be rotated and raised and lowered.

[0022] It is to be understood that both the foregoing general description and the following detailed description of the present invention are exemplary and explanatory and are intended to provide further explanation of the invention as claimed.

BRIEF DESCRIPTION OF THE DRAWINGS

[0023] The accompanying drawings, which are included to provide a further understanding of the invention and are incorporated in and constitute a part of this application, illustrate embodiment(s) of the invention and together with the description serve to explain the principle of the invention. In the drawings:

[0024] FIG.1 illustrates an exploded cross view of a foundation filled cosmetic implement with a foundation injector according to a first preferred embodiment of the present invention;

[0025] FIG.2 illustrates a sectional view of the foundation filled cosmetic implement with the foundation injector of FIG.1;

[0026] FIG.3 illustrates an exploded cross view of a foundation filled cosmetic implement with a foundation injector according to a second preferred embodiment of the present invention;

[0027] FIG.4 and FIG.5 illustrate sectional views of the foundation filled cosmetic implement with the foundation injector of FIG.3, to be specific, FIG.4 illustrating a state that a rise and fall holder is raised and FIG.5 illustrating a state that the rise and fall holder is lowered;

[0028] FIG.6 and FIG.7 illustrate sectional views of a variation of the foundation filled cosmetic implement with the foundation injector of FIG. 3 to FIG.5;

[0029] FIG.8 illustrates an exploded cross view of a foundation filled cosmetic implement with a foundation injector according to a third preferred embodiment of the present invention;

[0030] FIG.9 and FIG.10 illustrate sectional views of the foundation filled cosmetic implement with the foundation injector of FIG.6, to be specific, FIG.7 illustrating a state that a rise and fall holder is raised, and FIG.8 illustrating a state that the rise and fall holder is lowered; and

[0031] FIG.11 and FIG.12 illustrate sectional views of a variation the foundation filled cosmetic implement with the foundation injector of FIG.8 to FIG.10.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0032] Reference will now be made in detail to the preferred embodiments of the present invention, examples of which are illustrated in the accompanying drawings.

[0033] A foundation injector according to the present invention includes a pressurization pump 10 for gener-

ating a one-way pressure of a slide pin 13 due to reciprocation of a push button 11, a discharge guide tube 20 for receiving the pressure from the pressurization pump 10 and guiding a foundation to be flowed, and an injection nozzle 30 for discharging the foundation in a manner that a central part of a nozzle 36 is opened and shut by reciprocation of an open-and-shut mechanism 34 due to a pressure of the discharge guide tube 20.

[0034] Meanwhile, a foundation filled cosmetic implement with the foundation injector according to the present invention includes a body 1 in which the foundation is filled, an applicator for wearing a foundation being installed on a front end part 3 of the body 1, and the foundation injector according to the present invention being installed on a rear end part of the body for discharging the foundation to the applicator.

[0035] In an attempt to avoid redundancy, the foundation injector according to the present invention will be explained at the same time when the foundation filled cosmetic implement with the foundation injector according to the present invention is explained.

[0036] FIG.1 illustrates an exploded cross view of a foundation filled cosmetic implement with a foundation injector according to a first preferred embodiment of the present invention. FIG.2 illustrates a sectional view of the foundation filled cosmetic implement with the foundation injector of FIG.1.

[0037] The foundation filled cosmetic implement according to the present invention includes the body 1, the applicator and the foundation injector.

[0038] The body 1 has the liquid type foundation to be filled therein and cylindrical in shape with both opened end parts.

[0039] The applicator is installed on the front end part 3 of the body and serves to apply the foundation discharged to the outside of the body 1. The applicator may be a bundle of soft cilia as shown in FIG.1 and FIG.2 and if necessary, may be a sponge, which is generally used for wearing a foundation. The applicator may be coupled on the front end part 3 by a holder 4 as shown in FIG.2.

[0040] The front end part 3 according to the first preferred embodiment of the present invention may be separated from the body and interconnected with the body with a screw so as to facilitate disassembling.

[0041] Meantime, the foundation injector includes a pressurization pump 10, a discharge guide tube 20 and an injection nozzle 30.

[0042] The pressurization pump 10 receives a pressure from the outside for opening/shutting an open-and-shut mechanism 34 of the injection nozzle 30 which will be explained herein after. The pressurization pump 10 includes a valve tube 14, a push button 11, a spring 12 and a slide pin 13.

[0043] The valve tube 14 is fixed on one side of the rear end part and has a perforated central part for the slide pin 13 to be protruded to the outside.

[0044] The push button 11 is installed on other side of the rear end part 2 to be reciprocated, and covers both opened end parts of the rear end part 2 together with the valve tube 14.

[0045] The spring 12 is interposed between the valve tube 14 and the push button 11 to supply a restoring force to the push button 11. That is to say, even if the push button 11 is pressed by an external force and forwardly moved toward the position where the valve tube 14 is positioned, it is restored to its original position by the spring 12. In consequence, the push button can be reciprocated with the external one-way pressure.

[0046] The slide pin 13 reciprocates a push rod, which will be explained herein under, and is reciprocated in the perforated center of the valve tube 14 by being coupled with the push button 11.

[0047] As a result, the pressurization pump 10 comprised of the slide pin 13 and components for reciprocating the slide pin 13 supplies a one-way pressure to the discharge guide tube 20.

[0048] According to the present invention, the pressurization pump 10 reciprocates the slide pin for the purpose of more certainly reciprocating the push rod 24. It is out of question, however, that an additional rubber (which is not shown) may be coupled with the push button to be closely adhered on an inner peripheral surface of the rear end part, thereby transferring compressed air within the rear end part as well as the pressure of the slide pin to the discharge guide tube.

[0049] Then, the discharge guide tube 20 receives a reciprocation driving force from the pressurization pump 10 and opens and shuts an open-and-shut mechanism 34, which will be explained herein after, to discharge the foundation filled within the body to the outside. The discharge guide tube 20 includes a tube 21, the push rod 24, a spring holder 22, a guide bush 25, a spring 23, and a cover 28.

[0050] The tube 21 is fixed on the perforated portion of the valve tube 14, forms an outer appearance of the discharge guide tube 20, and is cylindrical in shape with both opened end parts.

[0051] The push rod 24 receives the one-way pressure of the slide pin 13 within the tube 21 to be reciprocated and reciprocates the open-and-shut mechanism of the injection nozzle 30 which will be explained.

[0052] The spring holder 22 is coupled on an end part of the push rod 24 contacted with the slide pin 13 to prevent the spring 23 from being separated and reinforce a contact portion between the push rod 24 and the slide pin 13.

[0053] The guide bush 25 is installed, such that the push rod 24 is reciprocated in the tube 21.

[0054] The spring 23 is interposed between the guide bush 25 and the spring holder 22 to supply a restoring force to the push rod 24. That is to say, the push rod 24 is reciprocated in a manner that even if the push rod 24 receives the one-way pressure of the slide pin 13 and is forwardly moved, the push rod 24 is restored to its original position due to the restoring force.

[0055] The cover 28 is coupled with an end part of the push rod 24 and directly contacted to the open-and-shut mechanism 34 of the injection nozzle 30. A central part of the cover 28 is perforated and a plurality of inlet holes 28a and outlet holes 28b may be formed on the central part so as for the foundation filled within the body 1 to be flowed in and out.

[0056] Accordingly, the discharge guide tube 20 discharges the foundation through the push rod 24, components for reciprocating the push rod 24, and the cover 28 for permitting the foundation filled within the body to be flowed into the injection nozzle.

[0057] On the other hand, the injection nozzle 30 acts as a discharger for discharging the foundation filled within the body 1 to the outside and includes a nozzle 36, a spring 6, the open-and-shut mechanism 34, and a spring 35.

[0058] The nozzle 36 constitutes the body of the injection nozzle 30, is installed on the front end part 3 to be reciprocated, and provides a discharge passage of the foundation through a flow channel 37 which is formed on a central part of the nozzle 36.

[0059] The spring 6 is interposed between the front end part 3 and the nozzle 36 to supply a restoring force to the nozzle 36. That is to say, once the push rod 24 is forwardly moved and the nozzle 36 is pressed, the open-and-shut mechanism 34 is forwardly moved as far as a predetermined distance and the nozzle 36 is forwardly moved along with the push rod 24. Thereafter, the nozzle is returned to its original position due to the restoring force of the spring 6.

[0060] The open-and-shut mechanism 34 is interposed in the flow channel 37 of the nozzle 36 and is reciprocated due to the pressure of the cover 28. The injection nozzle 30 discharges the foundation according to the reciprocation of the open-and-shut mechanism 34.

[0061] The spring 35 is interposed in the flow channel 37 of the nozzle 36 to elastically support the open-and-shut mechanism 34. That is to say, even if the open-and-shut mechanism 34 is forwardly moved by the pressure of the cover 28, it returns to its original position by the restoring force of the spring 35.

[0062] The spring 35 is protected from being separated from the flow channel 37 of the nozzle 36 by virtue of a spring holder 31.

[0063] In consequence, the injection nozzle 30 receives the pressure of the push rod 24 and guides the passage through which the foundation filled within the body 1 is to be discharged.

[0064] Operation of the foundation filled cosmetic implement with the foundation injector according to the first preferred embodiment of the present invention will be explained herein below. To discharge the foundation filled within the body 1 for the purpose of wearing the foundation, it is needed that a necessary volume of foundation is injected to the applicator 5 by using the foundation injector according to the present invention. To operate the foundation injector, it is needed that the push button 11 is pressed in one way.

[0065] That is, if the push button 11 is pressed, the slide pin 13 is forwardly moved. If the slide pin 13 is forwardly moved, the push rod 24 is forwardly moved. If the push rod 24 is forwardly moved, the cover is forwardly moved and the open-and-shut mechanism 34 is forwardly moved. Meantime, once the open-and-shut mechanism 34 is forwardly moved as far as a predetermined distance, the nozzle 34 is forwardly moved, so that the foundation can be discharged in a state that an end part of the nozzle 36 is exposed up to a deep portion of the applicator 5, and a user can put the foundation on her face in a way of rubbing the applicator 5 on her skin.

[0066] To the contrary, if the external force pressing the push button 11 is removed, the nozzle 36, the open-and-shut mechanism 34, the push rod 24, and the push button 11 are restored to their original positions by the respective springs 3, 35, 23 and 12.

[0067] At this time, a noteworthy thing is the discharge passage of the foundation filled within the body 1. The foundation is penetrated through the inlet holes 28a into the inside of the cover 28 under the state that the foundation is first filled within the body 1. If the push button 11 is pressed to push the open-and-shut mechanism 34 toward the end of the cover 28, the foundation penetrated into the inside of the cover 28 can escape from the flow channel 37 of the nozzle 36 through the outlet holes 28b. To the contrary, if the external force pressing the push button 11 is removed to make the cover 28 withdrawn, the outlet holes 28b become blocked by the spring holder 31, resulting in elimination of possibility that the foundation may be discharged without intention.

[0068] In the meantime, an additional component of the discharge guide tube 20 according to the present invention will be explained. A rubber 27 may be installed on an outer peripheral surface of the push rod 24 to be closely adhered to an inner peripheral surface of the tube 21, such that the liquid foundation penetrated into the inside of the tube 21 is flowed into the flow channel of the nozzle 36. The rubber 27 may be fixed by means of a rubber holder 26. For the reason, the discharge guide tube 20 can perform the foundation discharging function in a smoother way through a pumping action of the rubber 27.

[0069] In the same manner, an additional component of the injection nozzle 30 will be explained. A rubber 32 is installed on an outer peripheral surface of the nozzle 36 to be closely adhered to an inner peripheral surface of the front end part 3. Even if the foundation is penetrated between the nozzle 36 and the front end part 3, the nozzle 36 and the front end part 3 are so airtight that the foundation may not be discharged to the outside. Of course, the rubber 32 may be fixed by means of a rubber holder 33.

[0070] FIG.3 illustrates an exploded cross view of a foundation filled cosmetic implement with a foundation injector according to a second preferred embodiment of

the present invention. FIG.4 and FIGL.5 illustrate sectional views of the foundation filled cosmetic implement with the foundation injector of FIG.3. FIG.4 illustrates a state that a rise and fall holder is raised, while FIG.5 illustrates a state that the rise and fall holder is lowered.

[0071] Meanwhile, the foundation filled cosmetic implement with the foundation injector according to the second preferred embodiment of the present invention has some different points in structure from the first embodiment of the present invention.

[0072] That is to say, the body 1 providing a space in which the foundation is filled and the foundation injector for injecting the foundation filled within the body 1 according to the second preferred embodiment are similar in structure to them of the first embodiment. However, the front end part of the body 1 is different in structure from that of the first embodiment.

[0073] The second preferred embodiment employs an auxiliary applicator which is raised and lowered through the rise and fall holder, in addition to the applicator used for wearing the foundation. The second preferred embodiment allows the user to smoothly put coloring by using the two kinds of applicators, even in case of a liquid foundation, which is difficult to be used for makeup because of relatively high concentration.

[0074] Here, the auxiliary applicator may be a brush 44 formed of a bundle of soft cilia as shown in the drawings or may be a sponge, which is often used in the coloring makeup.

[0075] Meanwhile, the front end part according to the second preferred embodiment includes a guide container 41, the rise and fall holder 42, a rise and fall guide 43, and the auxiliary applicator. The two kinds of applicators may be used by turns.

[0076] The guide container 41 is coupled on an end part of the body 1 to form a frame of the front end part. A protrusion 41a is formed on an outer peripheral surface of the guide container 41.

[0077] The rise and fall holder 42 surrounds the outer peripheral surface of the guide container 41 and is coupled with the outer peripheral surface of the guide container 41 to be rotated. A spiral groove 42a is formed on an inner peripheral surface of the rise and fall holder 42 to be raised and lowered along the guide container 41 and is engaged with the protrusion. A rise and fall jaw 24b is formed on an outer peripheral surface of the rise and fall holder 42.

[0078] The rise and fall guide 43 surrounds the outer peripheral surface of the rise and fall holder 42 and is coupled with the outer peripheral surface of the rise and fall holder 42 to be rotated. A rise and fall groove 43a is formed on an inner peripheral surface of the rise and fall guide to raise and lower the rise and fall holder 42 through the rise and fall jaw 42b.

[0079] The auxiliary applicator is fixed on one side of the rise and fall holder 42 to be raised and lowered along with the rise and fall holder 42. A brush 44 is illustrated in the accompanying drawing as an exemplary form.

[0080] The applicator according to the second preferred embodiment of the present invention is coupled with the end part of the guide container 41 by means of a holder 45, similarly in the first preferred embodiment.

[0081] Next, operation of the front end part according to the second preferred embodiment will be explained. The auxiliary applicator should be raised and lowered in order to use the applicator and the auxiliary applicator by turns. The auxiliary applicator can perform a rise and fall action relative to that of the applicator by rotating the rise and fall guide 43.

[0082] If the rise and fall guide 43 is rotated, the rise and fall holder 42 is raised and lowered between the guide container 41 and the rise and fall guide 43, since the rise and fall jaw 42b is engaged with the rise and fall groove 43a of the rise and fall guide 43 and the spiral groove 42a is engaged with the protrusion 41a of the guide container 41.

[0083] The rise and fall holder 42 is raised and lowered due to normal and reverse rotations of the rise and fall guide 43. By way of example, if the rise and fall guide 43 is normally rotated, the rise and fall holder 42 is raised, whereas if the rise and fall guide 43 is inversely rotated, the rise and fall holder 42 is lowered. It is out of question that correlation between the normal and reverse rotations of the rise and fall guide 43 and the rise and fall of the rise and fall holder 42 is determined by whether the spiral groove 42a of the rise and fall holder 42 is formed as a right hand screw or a left hand screw.

[0084] In the result, the front end part of the second preferred embodiment enables the coloring makeup through the two kinds of applicators in a manner that if the applicator is used by rotating the rise and fall guide 43, the auxiliary applicator should be maximally lowered, whereas if the auxiliary applicator is used, the auxiliary applicator should be maximally raised.

[0085] Explanation of the foundation injector according to the second preferred embodiment of the present invention will be omitted because the foundation injector is similar in structure and function to the foundation injector according to the first preferred embodiment.

[0086] FIG.6 and FIG.7 illustrate sectional views of a variation of the foundation filled cosmetic implement with the foundation injector of FIG.3 to FIG.5.

[0087] Meantime, the second preferred embodiment explained through FIG.3 to FIG.5 may be easily varied into a structure in which there is raised and lowered a brush 9 which is positioned on a central part, in place of a rise and fall structure of the rise and fall holder 42 which raises and lowers the auxiliary applicator.

[0088] For reference, in FIG.6 and FIG.7, elements having the same or similar functions as those in FIG.3 to FIG.5 have the same names and reference numerals. Hereinafter, redundant explanation of the elements having the same or similar functions would be avoided.

[0089] The brush 9 illustrated in FIG.6 and FIG.7 is structured, such that the brush 9 on the central part is raised and lowered through rise and fall of a rise and fall

valve tube 61. The brush 44, namely the auxiliary applicator, fixed on an outer circumference of a fixed holder 64 relatively maintains the fixed state thereof.

[0090] That is to say, the rise and fall holder 42 and the injection nozzle 30 of FIG.3 to FIG.5 are varied into the fixed holder 64 and the rise and fall valve tube 61 in FIG.6 and FIG.7, respectively. The fixed holder 64 fixes the brush 44, namely the auxiliary applicator which is positioned on the outer circumference of the fixed holder, and the rise and fall valve tube 61 raises and lowers the brush 9, which is positioned on the central part, through a sleeve 67.

[0091] It is out of question that the sleeve 67 having a protrusion 63 on an outer peripheral surface thereof raises and lowers the rise and fall valve tube 61 by being raised and lowered due to rotation of the rise and fall guide 43 which has a spiral groove 62 engaged with the spiral groove 63 in an inner peripheral surface of the rise and fall guide 43. The sleeve 67 may be integrally manufactured with the rise and fall valve tube 61.

[0092] And, the push rod 24 illustrated in FIG.6 and FIG.7 has a difference in function from the push rod illustrated in FIG.3 to FIG. 5. That is to say, the push rod 24 of FIG. 6 and FIG.7 is structured, such that the end part of the push rod 24 does not directly pressurize the open-and-shut mechanism 34 but the open-and-shut mechanism 34 is opened and shut by transferring the foundation through reciprocation of the rubber 27, in consideration that position of the open-and-shut mechanism 34 is varied by rise and fall of the rise and fall valve tube 61.

[0093] The above is an exemplary embodiment. Therefore, the open-and-shut mechanism 31 may be directly pressurized by determining a length of the push rod 24 in consideration of the position of the open-and-shut mechanism 34 when the rise and fall valve tube 61 is maximally lowered.

[0094] FIG.8 illustrates an exploded cross view of a foundation filled cosmetic implement with a foundation injector according to a third preferred embodiment of the present invention. FIG.9 and FIG.10 illustrate sectional views of the foundation filled cosmetic implement with the foundation injector of FIG.6. To be specific, FIG.9 illustrates a state that a rise and fall holder is raised, while FIG.10 illustrates a state that the rise and fall holder is lowered.

[0095] Meanwhile, the foundation filled cosmetic implement with the foundation injector according to the third preferred embodiment of the present invention is somewhat different in structure from the second preferred embodiment of the present invention.

[0096] Namely, the foundation filled cosmetic implement includes the body 1 for providing the space where the foundation is filled, the foundation injector for injecting the foundation filled within the body 1, the rise and fall holder 42 for raising and lowering the brush 44, the rise and fall guide 43, the guide container 41, etc., which are similar in structure to those of the second preferred embodiment. However, the brush 5 for applying the discharged foundation is replaced with a ball 50 and accompanying components.

[0097] In order to avoid redundant description, components different from the second preferred embodiment will be just explained herein below.

[0098] The ball 50 is rotated in a state that it is closely adhered to one side of the guide container 41a by being inserted into the perforated central part of the guide container 41. It is natural that one side of the guide container 41 takes any shape adaptable for protecting the ball from being separated to the outside. The guide container 41 and the ball 50 are structured, such that the foundation is discharged in the same manner that ball-point pen ink is discharged in necessary quantity through rotations of a ball.

[0099] A support 51 is inserted into the perforated central part of the guide container 41 together with the ball 50 to support the ball 50, so that the ball can be rotated in a state that it is closely adhered to the one side within the guide container 41. A duct line 51b which is perforated at one side thereof is formed on a central part of the support 51 and a hole 51a being communicated with the duct line 51b is formed on an outer peripheral surface of the support.

[0100] A spring 52 supplies a restoring force to the support 51, so as to maintain the state that the ball 50 is closely adhered to the one side of the guide container 41. The spring 52 is interposed into the perforated central part of the guide container 41 in a state that it is positioned at one side of the support 51.

[0101] A valve tube 53 is finally inserted into the perforated central part of the guide container 41 as shown in drawings. The valve tube 53 serves to prevent the ball 50, the support 51, the spring 52 which are interposed within the guide container 41 from being separated to the outside, and acts as a connecting path allowing the foundation filled within the body 1 to reach the position of the ball. The valve tube 53 has a duct line 53a on a central part thereof, the duct line 53a being communicated with the duct line 51b of the support 51.

[0102] Here, an open-and-shut mechanism 55 and a spring 54 are interposed in the duct line 53a of the valve tube 53, such that the foundation is discharged in one way. The open-and-shut mechanism 55 is reciprocated by the push rod 24, more directly by the pressure of the cover 28 as previously mentioned, and opens and shuts the duct line 53a of the valve tube 53.

[0103] In the third preferred embodiment of the present invention as constructed above, if the foundation filled within the body is to be discharged, the discharge is conducted in a simple manner that the ball is rubbed on a portion to be applied.

[0104] FIG.11 and FIG.12 illustrate sectional views of a variation of the foundation filled cosmetic implement with the foundation injector of FIG.8 to FIG.10.

[0105] Meantime, the third preferred embodiment explained through FIG.8 to FIG.10 may be easily varied

into a structure in which there is raised and lowered the brush 9 which is positioned on the central part, in place of the rise and fall structure of the rise and fall holder 42 which raises and lowers the auxiliary applicator.

[0106] For reference, in FIG.11 and FIG.12, elements having the same or similar functions as those in FIG.3 to FIG.5 have the same names and reference numerals. Hereinafter, redundant explanation of the elements having the same or similar functions would be avoided.

[0107] The ball 50 illustrated in FIG.11 and FIG.12 is structured such that the ball 50 is raised and lowered through rise and fall of a rise and fall valve tube 76. The brush 44, namely the auxiliary applicator, fixed on an outer circumference of a fixed holder 73 relatively maintains the fixed state thereof.

[0108] That is to say, the rise and fall holder 42 and the valve tube 53 of FIG.8 to FIG.10 are varied into the fixed holder 73 and the rise and fall valve tube 76 in FIG. 11 and FIG.12, respectively. The fixed holder 73 fixes the brush 44, namely the auxiliary applicator which is positioned on the outer circumference, and the rise and fall valve tube 76 raises and lowers the ball 50 through a sleeve 71.

[0109] It is out of question that the sleeve 71 having a protrusion 74 on an outer peripheral surface thereof raises and lowers the rise and fall valve tube 76 by being raised and lowered due to rotation of the rise and fall guide 43 which has a spiral groove 75 engaged with the spiral groove 74 in the inner peripheral surface of the rise and fall guide 43. The sleeve 71 may be integrally manufactured with the rise and fall valve tube 76.

[0110] And, the push rod 24 illustrated in FIG.11 and FIG.12 has a difference in function from the push rod illustrated in FIG.3 to FIG.5. That is to say, the push rod 24 of FIG.11 and FIG.12 is structured such that the end part of the push rod 24 does not directly pressurize the open-and-shut mechanism 55 but the open-and-shut mechanism 55 is opened and shut by transferring the foundation through reciprocation of the rubber 27, in consideration that position of the open-and-shut mechanism 55 is varied by rise and fall of the rise and fall valve tube 76.

[0111] However, the above is an exemplary embodiment. Therefore, the open-and-shut mechanism 55 may be directly pressurized by determining a length of the push rod 24 in consideration of the position of the open-and-shut mechanism 55 when the rise and fall valve tube 76 is maximally lowered.

[0112] Unexplained reference numerals 7, 8 and 57 represent protective caps for protecting the brushes 5, 44, and 9, and reference numerals 50, 51 and 52 are packing. Unexplained reference numerals 65 and 67 represent tubes for providing a discharge passage of the foundation. In addition, unexplained reference numerals 66 and 77 represent fixing mechanisms for preventing the rubber 27 from being separated.

[0113] As stated above, the present invention has one advantage of maintaining the airtight condition where the foundation is not discharged to the outside without intension and achieving a smooth discharge of the foundation, since the open-and-shut mechanism is opened and shut under the pressure of the cover on which the inlet holes and the outlet holes are formed.

[0114] The present invention has another advantage of enhancing force efficiency and securing a sure discharge of the foundation, since the nozzle is surely opened and shut by the slide pin and the push rod, and thus has no loss of pressure of the compressed air, if being compared with the simple air compressing type foundation injection method.

[0115] The present invention has yet another advantage of reducing increasing unit price due to increase in the required components, since the injection nozzle, the discharge guide tube and the pressure pump have mutual organic airtight means in contrast to the existing injection structure where various components for injecting the foundation have separate means for maintaining the airtight condition, and enhancing productivity, since the manufacturing and assembling process is relatively fast carried out.

[0116] The forgoing embodiments are merely exemplary and are not to be construed as limiting the present invention. The present teachings can be readily applied to other types of apparatuses. The description of the present invention is intended to be illustrative, and not to limit the scope of the claims. Many alternatives, modifications, and variations will be apparent to those skilled in the art.

Claims

1. A foundation injector comprising:

a pressurization pump having a push button which is reciprocated due to an external force, and a slide pin which is reciprocated by being connected to the push button, to permit the slide pin to be reciprocated by the reciprocation of the push button;

a discharge guide tube having a push rod which is reciprocated due to a pressure of the slide pin, and a tube which surrounds an outer peripheral surface of the push rod and supports the push rod to be reciprocated, to receive the pressure of the slide pin and guide a foundation to be flowed; and

an injection nozzle having a nozzle with a flow channel which is formed on a reciprocation passage of the push rod, and an open-and-shut mechanism which is interposed within the flow channel, to permit the flow channel to be opened and shut according to the reciprocation of the open-and-shut mechanism due to the pressure of the push rod and the foundation to be discharged according to the open and shut

of the flow channel.

2. The foundation injector of claim 1, wherein the pressurization pump includes a rear end part which is cylindrical in shape with both opened end parts, a valve tube which is fixed on one side of the rear end part, the push button which is installed on other side of the rear end part to be reciprocated, a spring which is interposed between the valve tube and the push button to supply a restoring force to the push button, and the slide pin which is coupled to the push button, perforates through the valve tube and is protruded,

the discharge guide tube includes the tube which is fixed on a portion where the valve tube is perforated and is cylindrical in shape with both opened end parts, the push rod which is reciprocated due to the one-way pressure of the slide pin within the tube, a spring holder which is coupled to an end part contacted with the slide pin of the push rod, a guide bush which installs the push rod on the tube to be reciprocated, a spring which is interposed between the guide bush and the spring holder to supply a restoring force to the push rod, and a cover which is coupled to the end part of the push rod and has a plurality of inflow holes and outflow holes thereon through which the foundation is flowed in and out, and

the injection nozzle includes the nozzle which is disposed on the reciprocation passage of the cover and has the flow channel on a central part thereof, the open-and-shut mechanism which is interposed in the central part of the nozzle and is reciprocated due to a pressure of the cover, and a spring which is interposed in the central part of the nozzle and supplies a restoring force to the open-and-shut mechanism.

3. The injector of claim 2, wherein the discharge guide tube, including a rubber which is installed on an outer peripheral surface of the push rod to be closely adhered to an inner peripheral surface of the tube, guides the foundation entered in an inside of the tube due to the reciprocation of the push rod to be flowed and blocks the foundation from being flowed into the pressurization pump.

4. A foundation filled cosmetic implement with a foundation injector, the implement comprising a body in which a foundation is filled, an applicator for wearing a foundation being installed on a front end part of the body and a foundation injector for discharging the foundation to the applicator,

wherein the foundation injector includes:

a pressurization pump having a push button which is reciprocated due to an external force, and a slide pin which is coupled with the push button to be reciprocated, to permit the slide pin to be reciprocated due to the reciprocation of the push button;

a discharge guide tube having a push rod which is reciprocated due to a pressure of the slide pin, and a tube which surrounds an outer peripheral surface of the push rod and supports the push rod to be reciprocated, to receive the pressure of the slide pin and guide a foundation filled in the body to be flowed; and

an injection nozzle having a nozzle with a flow channel which is formed on a reciprocation passage of the push rod, and an open-and-shut mechanism which is interposed within the flow channel, to permit the flow channel to be opened and shut according to the reciprocation of the open-and-shut mechanism and the foundation to be discharged according to the open and shut of the flow channel.

5. The implement of claim 4, wherein the pressurization pump includes a valve tube which is fixed on one side of the rear end part, the push button which is installed on other side of the rear end part to be reciprocated, a spring which is interposed between the valve tube and the push button and supplies a restoring force to the push button, and the slide pin which is coupled with the push button, perforates through the valve tube and is protruded,

the discharge guide tube includes the tube which is fixed on a portion where the valve tube is perforated and is cylindrical in shape with both opened end parts, the push rod which is reciprocated due to the one-way pressure of the slide pin within the tube, a spring holder which is coupled to an end part contacted to the slide pin of the push rod, a guide bush which installs the push rod on the tube to be reciprocated, a spring which is interposed between the guide bush and the spring holder and supplies a restoring force to the push rod, and a cover which is coupled with the end part of the push rod and has a plurality of inflow holes and outflow holes thereon through which the foundation is flowed in and out, and

the injection nozzle includes the nozzle which is installed on the front end part to be reciprocated and has a flow channel formed on a central part thereof, a spring which is interposed between the front end part and the nozzle and supplies a restoring force to the nozzle, the open-and-shut mechanism which is interposed in the flow channel of the nozzle and is reciprocated due to a pressure of the cover, and a spring which is interposed in the flow channel of the nozzle and supplies a restoring force to the open-and-shut mechanism.

6. The implement of claim 5, wherein the discharge guide tube, including a rubber which is installed on

an outer peripheral surface of the push rod to be closely adhered to an inner peripheral surface of the tube, guides the foundation entered in an inside of the tube due to the reciprocation of the push rod to be flowed and blocks the foundation from being flowed into the pressurization pump.

7. The implement of claim 5, wherein the injection nozzle, including a rubber which is installed on an outer peripheral surface of the nozzle to be closely adhered to an inner peripheral surface of the front end part, prevents the foundation penetrated between the nozzle and the front end part from being discharged to the outside.

8. The implement of claim 4, wherein the front end part is separated from the body and coupled with the body through a screw, and the applicator is coupled to the front end part by a holder which has a perforated central part for the nozzle to be reciprocated therethrough.

9. The implement of claim 4, wherein the front end part includes:

a guide container which is coupled to an end part of the body and has a protrusion on an outer peripheral surface thereof;
a rise and fall holder which surrounds the outer peripheral surface of the guide container, is coupled to the guide container to be pivotally rotated, has a spiral groove being formed on an inner peripheral surface thereof and being engaged with the protrusion to be raised and lowered along the guide container, and has a rise and fall jaw on an outer peripheral surface thereof;
a rise and fall guide which surrounds the outer peripheral surface of the rise and fall holder, is coupled to the rise and fall holder to be pivotally rotated, and has a rise and fall groove on an inner peripheral surface thereof for raising and lowering the rise and fall holder through the rise and fall jaw; and
a foundation cosmetic auxiliary applicator which is fixed on one side of the rise and fall holder,

wherein the applicator is coupled on an end part of the guide container by a holder having a central part which is perforated for the nozzle to be reciprocated therethrough.

10. The implement of claim 4, wherein the front end part includes:

a guide container which is coupled to an end part of the body and has a protrusion on an outer peripheral surface thereof;
a rise and fall holder which surrounds the outer peripheral surface of the guide container, is coupled to the guide container to be pivotally rotated, has a spiral groove being formed on an inner peripheral surface thereof and being engaged with the protrusion to be raised and lowered along the guide container, and has a rise and fall jaw on an outer peripheral surface thereof;
a rise and fall guide which surrounds the outer peripheral surface of the rise and fall holder, is coupled to the rise and fall holder to be pivotally rotated, and has a rise and fall groove on an inner peripheral surface thereof for raising and lowering the rise and fall holder through the rise and fall jaw; and
the applicator which is fixed on one side of the rise and fall holder,

wherein a central part of the guide container is perforated, a ball is interposed on one side of the perforated central part to discharge the foundation filled within the body due to rotation of the ball.

11. The implement of claim 4, wherein the front end part includes:

a guide container which is coupled to an end part of the body;
a rise and fall guide which surrounds an outer peripheral surface of the guide container, is coupled to the guide container to be pivotally rotated, and has a spiral groove on an inner peripheral surface thereof;
a rise and fall valve tube having a protrusion which is formed on an outer peripheral surface of the rise and fall valve tube and engaged with the spiral groove to be raised and lowered due to rotation of the rise and fall guide;
a fixed holder which is fixed on one side of the rise and fall guide; and
a foundation cosmetic auxiliary applicator which is fixed on the rise and fall holder,

wherein the applicator is coupled on an end part of the rise and fall valve tube to be raised and lowered.

12. The implement of claim 4, wherein the front end part includes:

a guide container which is coupled to an end part of the body;
a rise and fall guide which surrounds an outer peripheral surface of the guide container, is coupled to the guide container to be pivotally rotated, and has a spiral groove on an inner pe-

ripheral surface thereof;
a rise and fall valve tube having a protrusion which is formed on an outer peripheral surface of the rise and fall valve tube and engaged with the spiral groove to be raised and lowered due to rotation of the rise and fall guide;
a fixed holder which is fixed on one side of the rise and fall guide; and
a foundation cosmetic auxiliary applicator which is fixed on the fixed holder,

wherein the applicator is a ball which is coupled to an end part of the rise and fall valve tube to be rotated and raised and lowered.

FIG.1

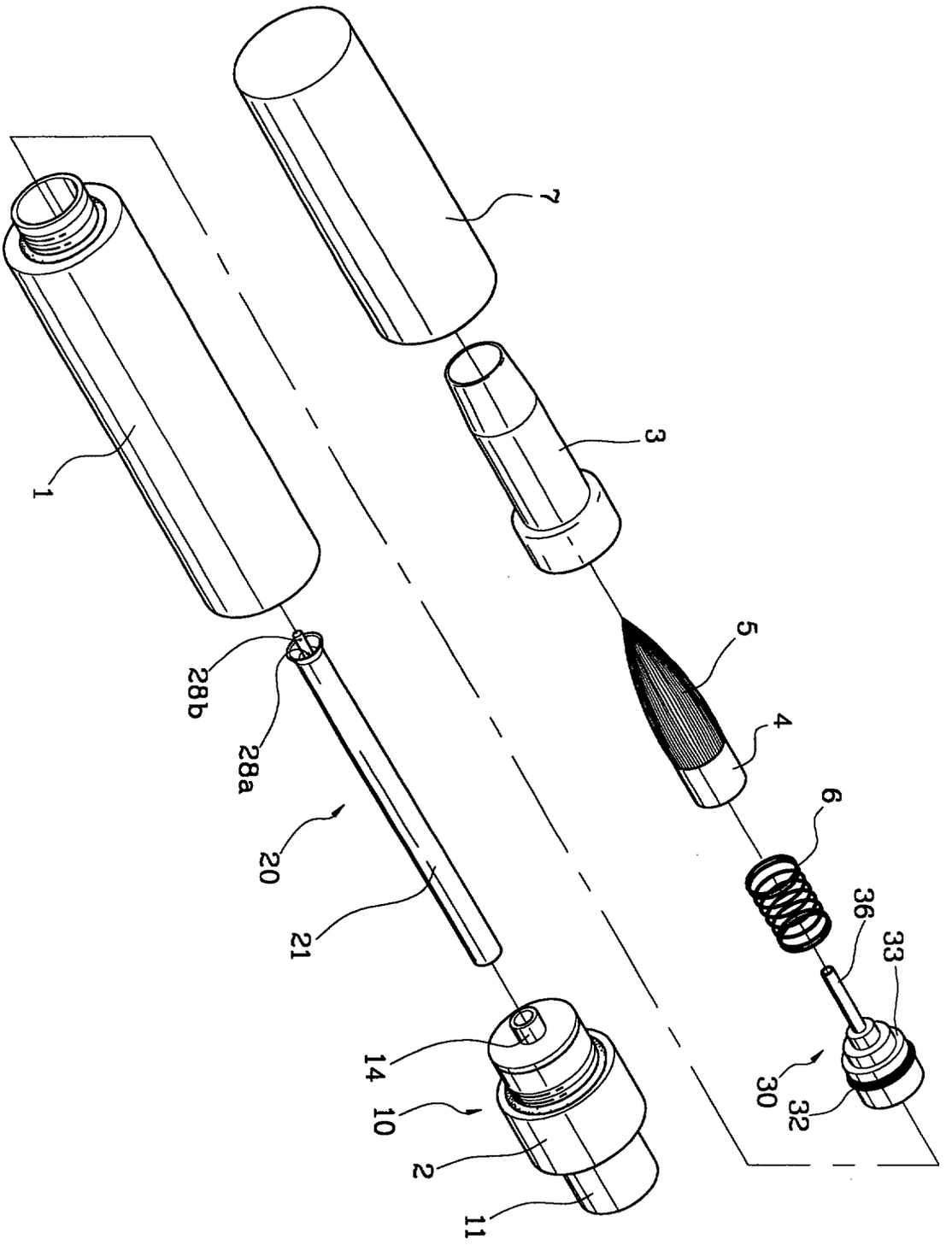
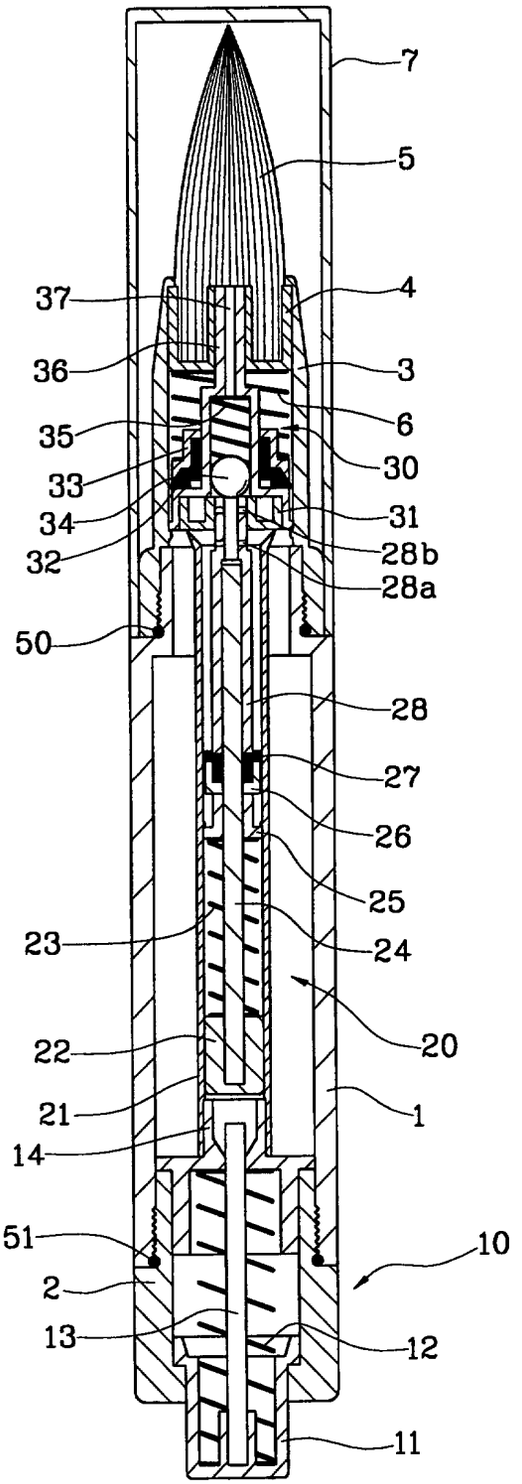


FIG. 2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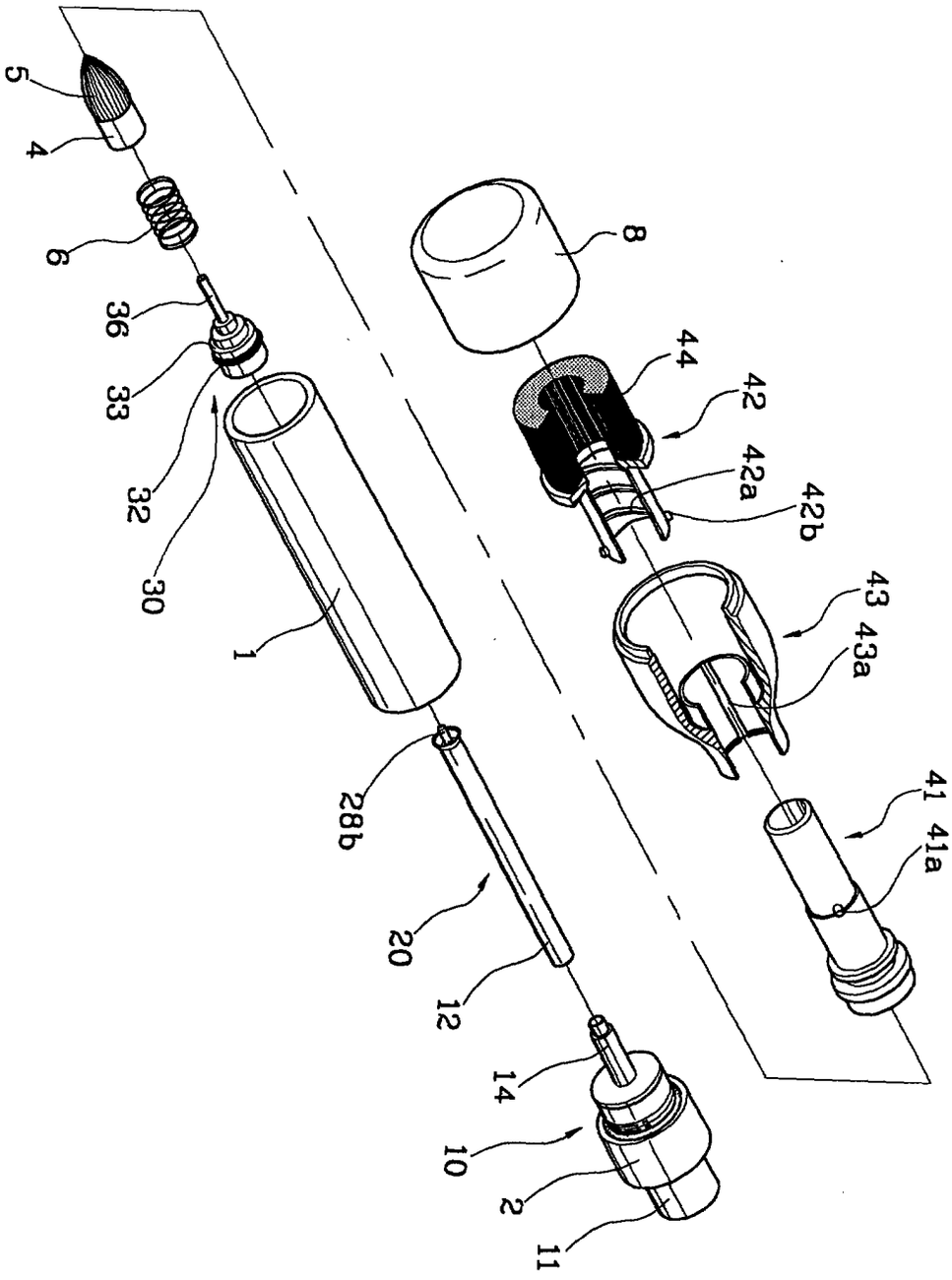

FIG. 3

FIG. 4

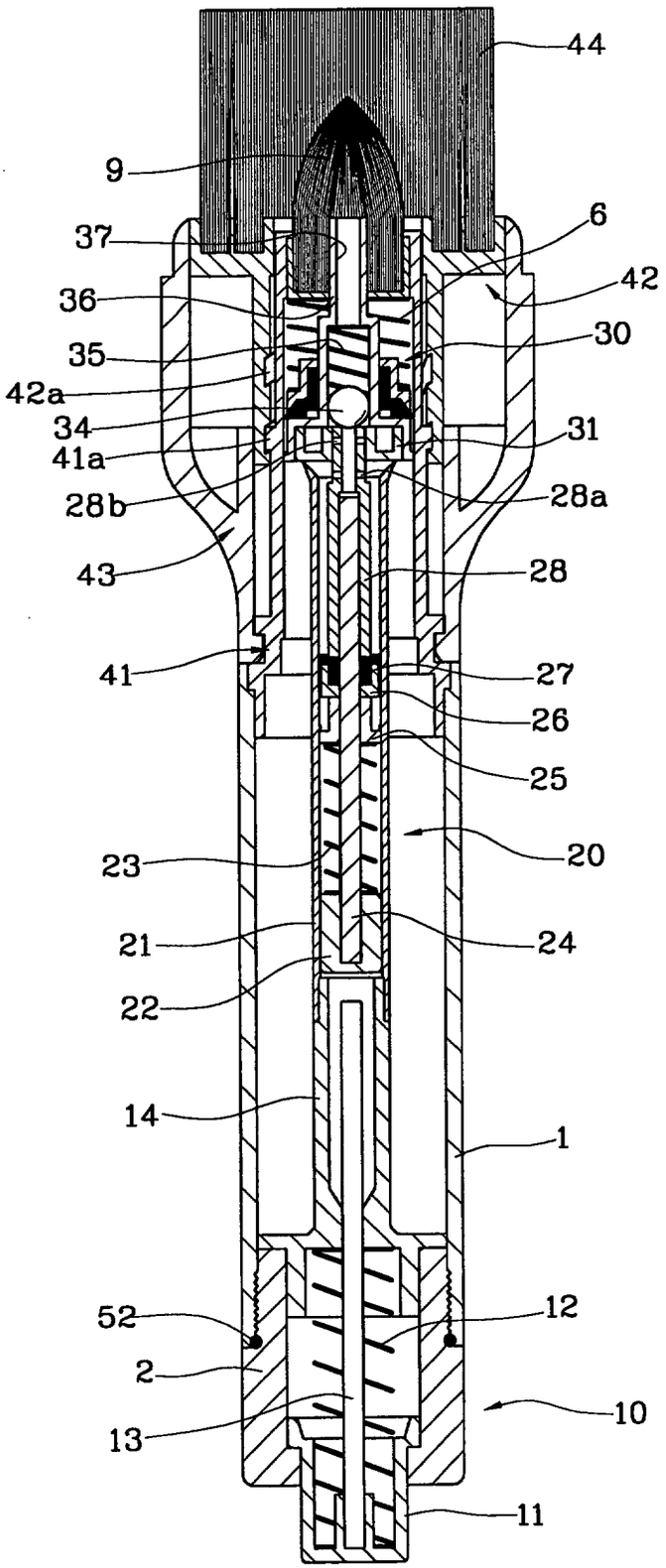
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FIG. 5

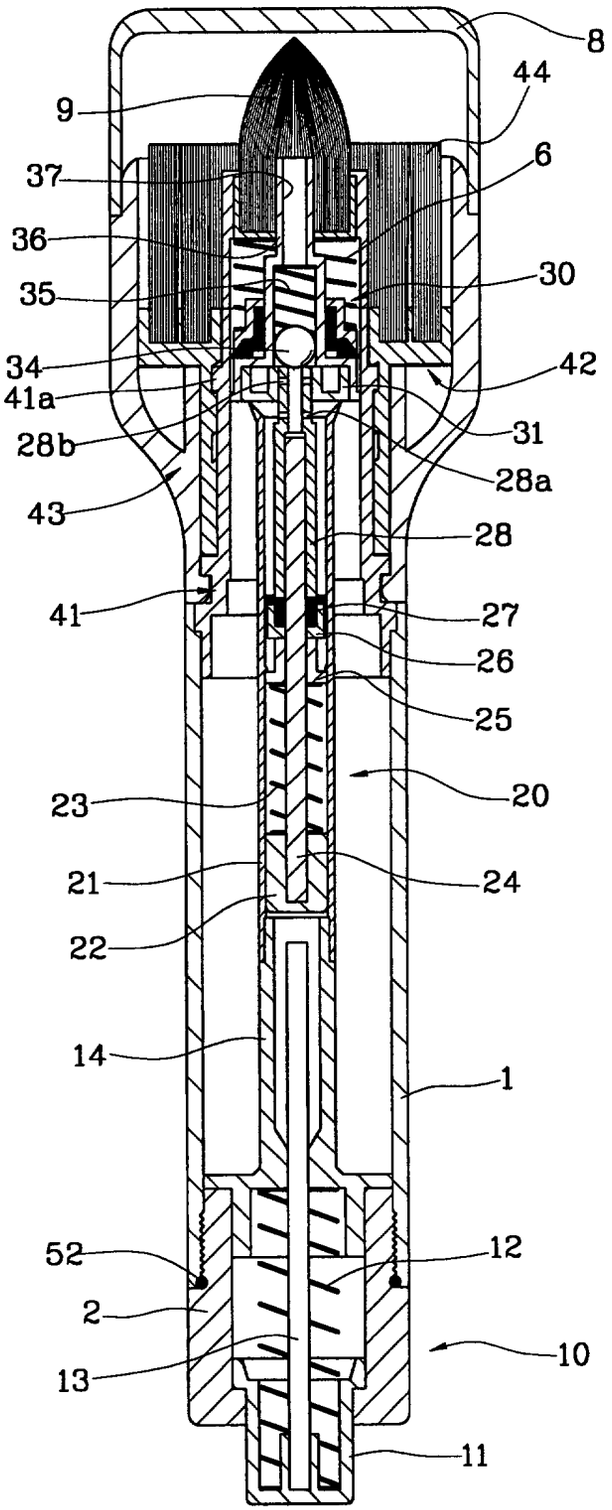
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FIG. 6

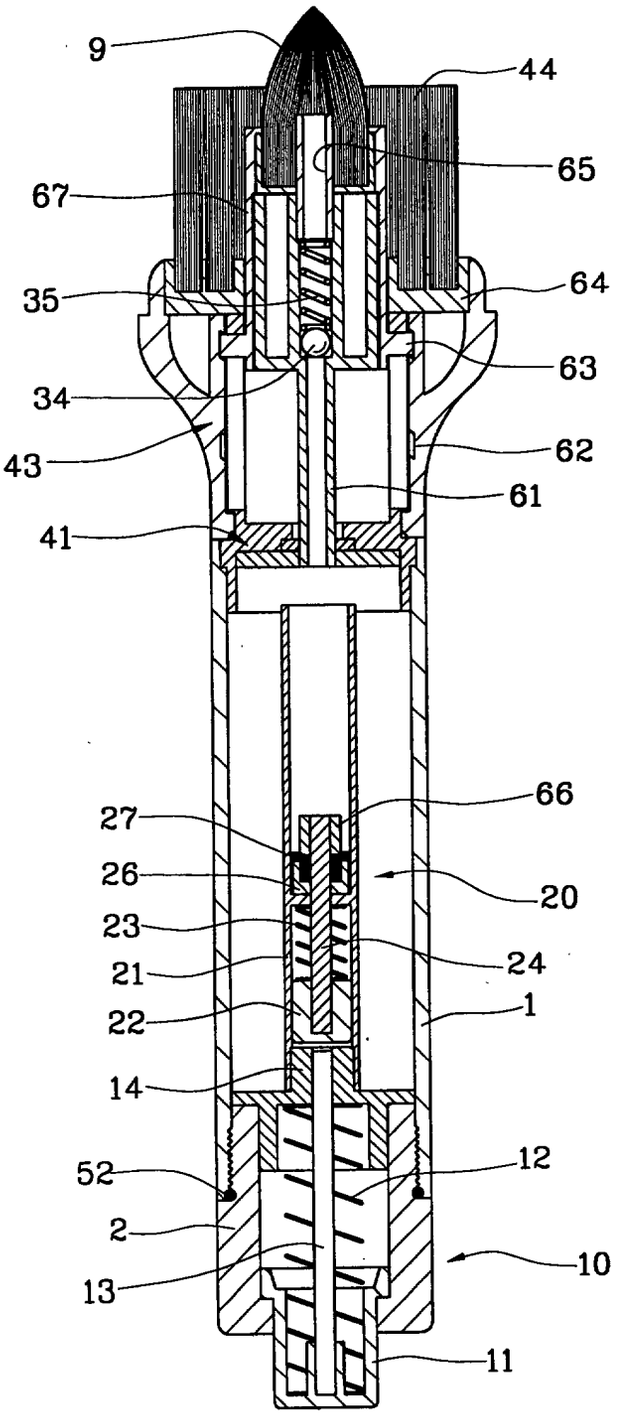
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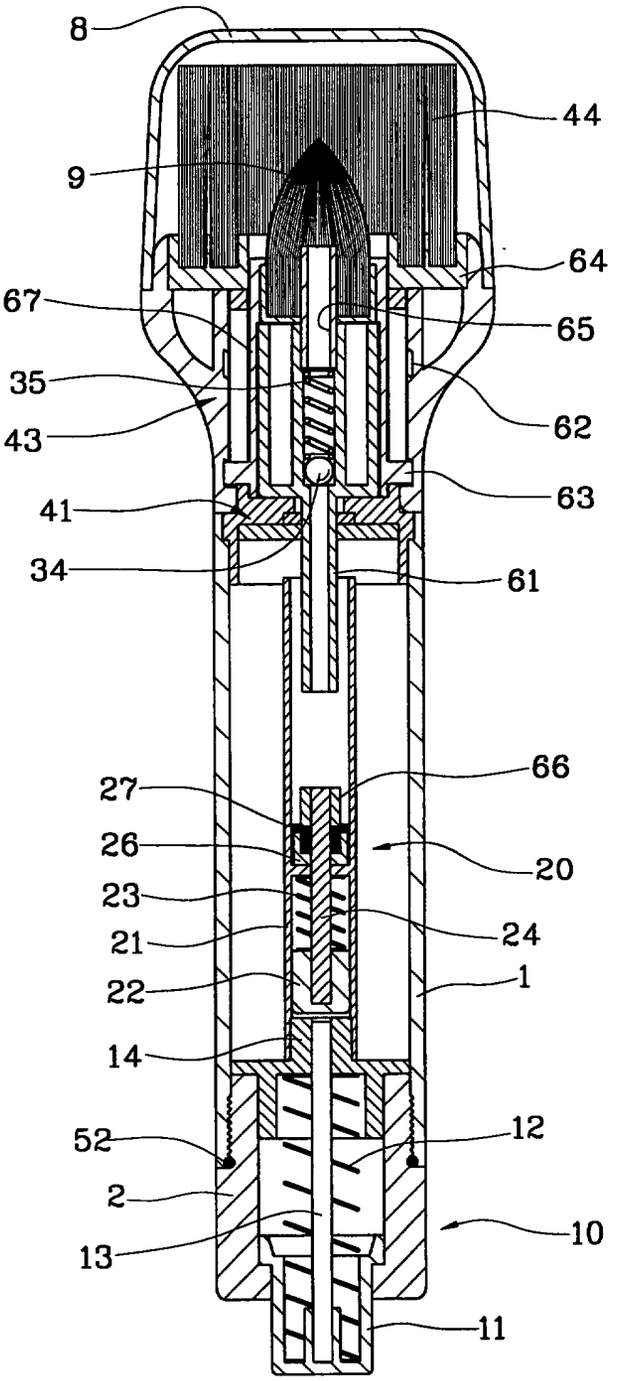
FIG. 7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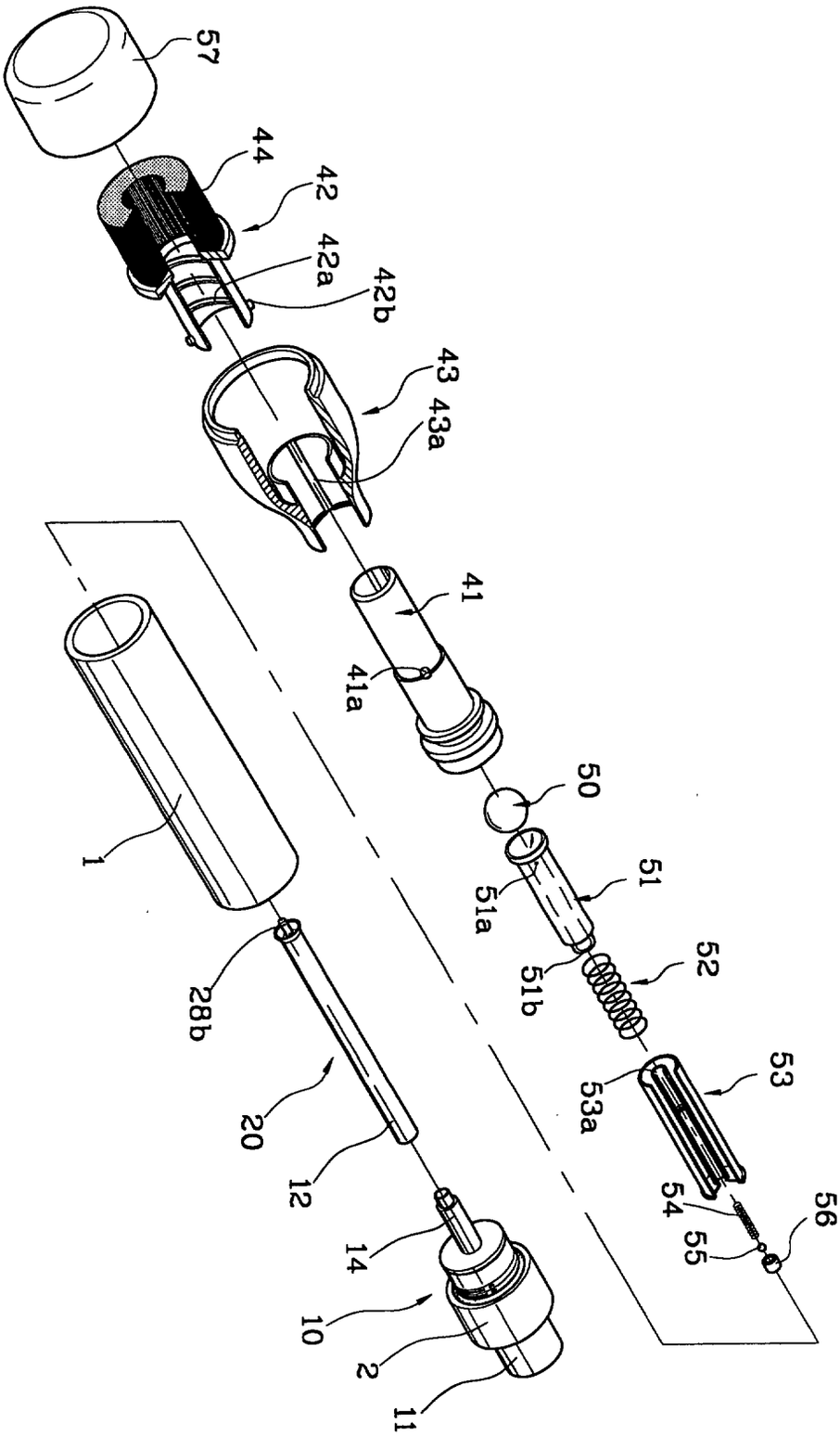
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FIG.8

FIG. 9

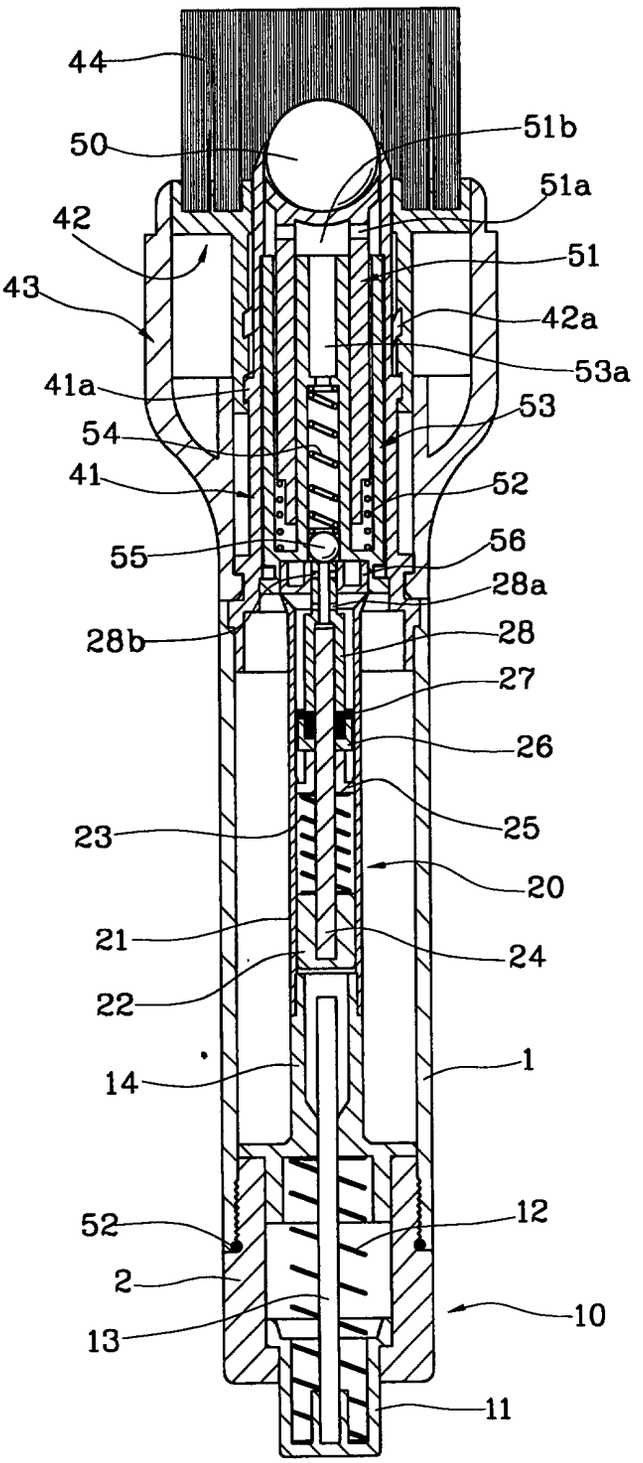
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FIG.10

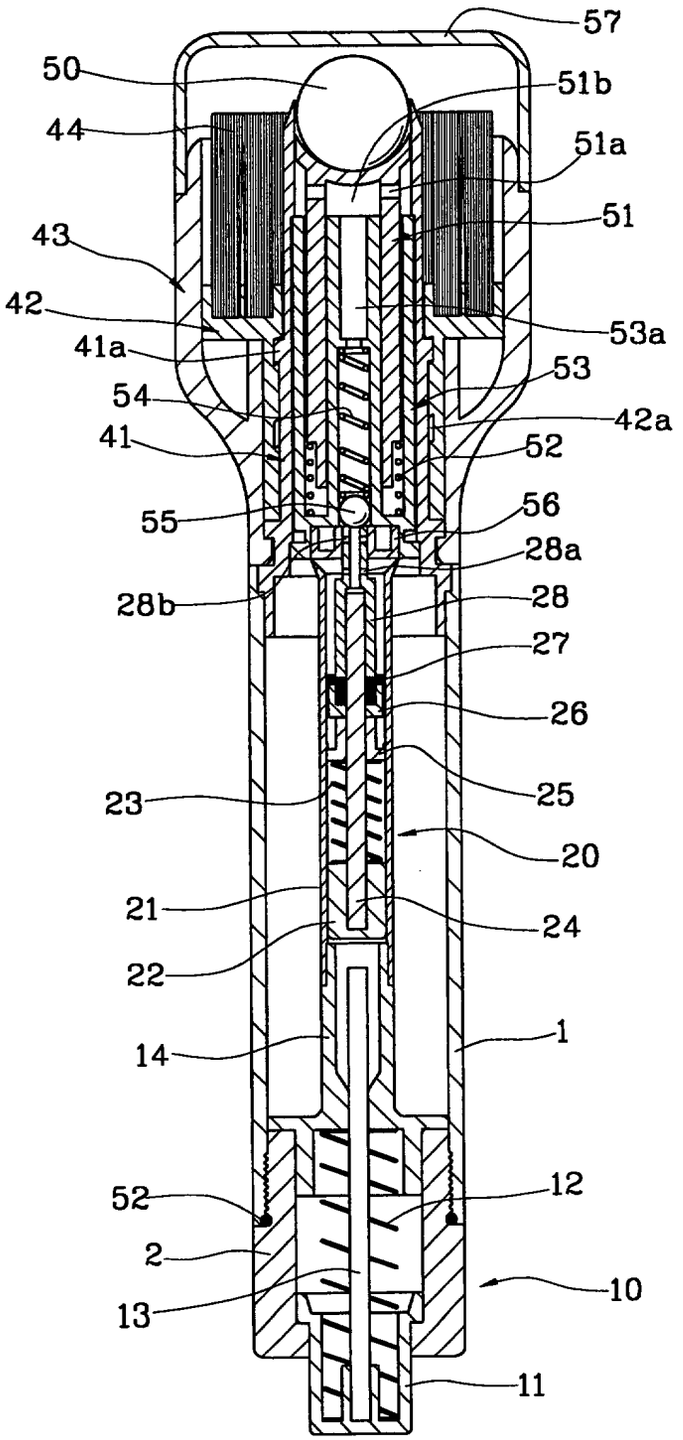
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FIG.11

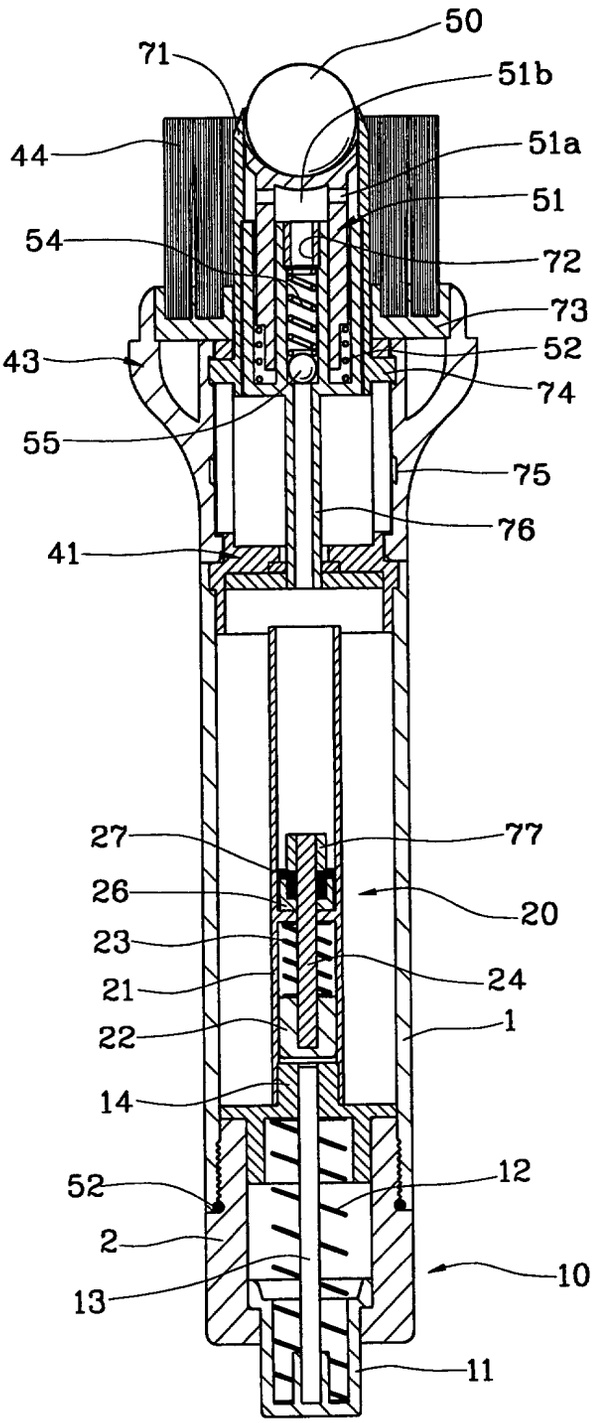
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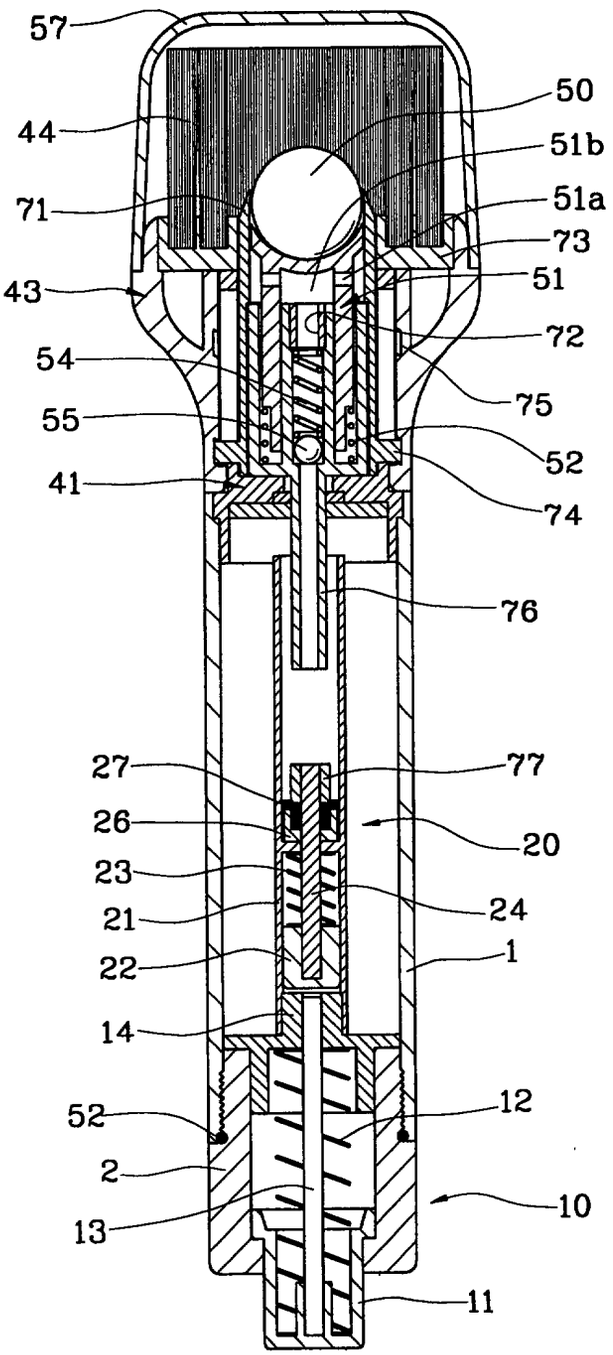
FIG.12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