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(54) Accident-proof bulb holder

(57) Bulb-holder (2) for a screw-in bulb (1), of the type in which:

- the tang of the bulb is negative mass conductor and threaded (10) for said screwing within the bulb-holder (2) and
- the positive tension contact of the bulb (11) is at the central base of said tang (10),

said bulb-holder (2) being equipped with lateral (22) and axial (23) corresponding tension contacts, characterized in that:

- at least said axial tension contact of said bulb-holder (23) is normally detached with axial sliding, by means of repulsion spring (239) that maintains the tension contact (230-231) interrupted;
- the closure of the circuit with continuity of the contact can only happen by pressing on said axial contact (23), with a force normally possible by the screwing of said bulb (1).

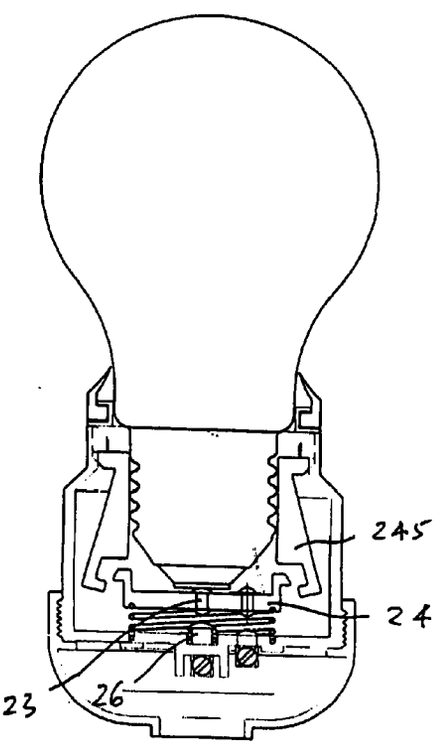

FIG. 4A

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Description

The object of this invention is an accident-proof bulb-holder.

In prior art screw-in bulb-holders are presently well known which notoriously involve danger of accident particularly during the screwing or unscrewing of the bulbs.

Danger also additionally derives when a bulb-holder is without a bulb, in that a child or even accidentally an adult, could insert a finger into the bulb-holder with danger of receiving an electric shock.

Various safety systems have been studied, even providing plug-in solutions, but the large diffusion of the screw-in system, involves the necessity to find a rational and simple solution which is safe and of low cost.

The problem is solved as claimed by means of a bulb-holder for a screw-in bulb, of the type in which:

- the tang of the bulb is a negative mass conductor and threaded for said screwing within the bulb-holder and
- the positive tension contact of the bulb is at the central base of said tang,

said bulb-holder being equipped with corresponding lateral and axial contacts,
characterized in that:

- at least said axial tension contact of said bulb-holder is normally detached with axial sliding, by means of a repulsion spring that always maintains it in contact of interrupted tension;
- the closing of the circuit with contact continuity can only happen by pressing on said axial contact, with a force normally possible by means of screwing of said bulb.

In this way danger of receiving an accidental electric shock on the inside of the bulb-holder is always avoided.

Advantageously even the negative mass contact is normally detached from the respective mass conductor and only after elastic pressure said contact is established.

In such a way a further safety measure is added to the system.

Just as advantageously applied onto the exterior annular edge of the bulb-holder is a gasket with insulating tongue in elastic plastic material that protracts reducing the opening of the bulb-holder and that with the bulb screwed-in adheres annularly on the edge of the bulb preventing any kind of access to the conductive screwing junction between bulb tang and bulb-holder.

In this way a greater safety measure of not touching the conductive part of the bulb or bulb-holder during the screwing or unscrewing or in the manipulation of the entire ensemble is reached.

Advantageously on the inside of the bulb-holder there is a mobile base that detaches both contacts with the respective conductors.

In this way the protection system is ensured to a greater extent, as the mobile base is lowered into contact only on complete screwing of the bulb.

Just as advantageously from said mobile base protracting annularly, around a guide bush on the inside of the tang bulb receiving seat, arms with rays that go towards the center of the mouth and protract resiliently within the mouth preventing the entry of a body through respective thickenings; that prevent the lowering of said mobile base if they are not uniformly pushed peripherically within said guide bush.

In this way the lowering of the base is prevented and therefore contact with the conductors before the screwing.

Provided just as advantageously is an arm system elastically orientated towards the axis of the bulb tang receiving hole, and thickened to reduce the diameter of the recess and that hooks elastically to the mobile base preventing the lowering, this in such a way that the unhooking of said mobile base, to allow its lowering, can only happen if the tang of the respective bulb is screwed-in.

In this way a further safety guarantee is ensured to the system.

Finally the system provides the functioning without any additional element on the bulb, they allow to function all the screw-in bulbs normally on the market without any modification.

The safety of the system is total because once the bulb is extracted there is no access to the electric current, not even with tools, utensils or various objects.

The system operates automatically because the same bulb excludes safety when being screwed.

The installation system and use of the bulb-holder does not require any variation in respect to a traditional bulb-holder.

These and other advantages will appear from the following description of preferential realization solutions with the help of enclosed drawings the execution particulars of which are not to be considered limitative but only supplied as an example.

Figures 1 and 1A illustrate a first solution of the invention in which the axial tension contact is simply maintained detached, respectively in the start of the bulb screwing and complete bulb screwing. The contact is interrupted by the detachment of the plate 231 with the base of the contact pin 23.

Figures 2, 2A and 2B illustrate a second solution of the invention in which both contacts are elastically normally detached from the network through the mobile base, respectively: of screwing start, screwing in intermediate position and complete screwing.

Figures 3, 3A and 3B illustrate a third solution with mobile base like the preceding, but in which, from the mobile base arms extend, that elastically pro-

trude with thickened extremity within the mouth, respectively: of screwing start, screwing in intermediate position and complete screwing.

Figures 4, 4A and 4B illustrate a fourth solution with mobile base as the preceding, but in which, the mobile base is hooked by a series of arms that elastically protrude with thickening on the inside of the recess, respectively: of screwing start, screwing in intermediate position and complete screwing.

With reference to the diagrams it is shown that 1 indicates the bulb and 2 the bulb-holder.

The bulb may be of any traditional type with conductor tang mass 1 and axial tang base contact for the tension filament 11.

Similarly the bulb-holder 2 may be structured externally like all normal bulb-holders, with insulating shell, which upper edge involves an annular gasket in elastic plastic material with tongue that gives 21 that obstructs the mouth of the bulb-holder and when the bulb is inserted it perfectly and hermetically closes the annular access zone to the conductive part.

On the inside of the bulb-holder there are traditional connection clips to the respective power cables of tension 230 and of mass 220.

The contacts to the bulb tang protract in an elastic way respectively 23 and 22.

In the first solution figures . 1e 1A:

- the mass contact 22 is elastically pushed by a lateral spring 229,
- the axial tension contact 23 is elastically pushed by a spring 239 that always holds it away from the network contact 230 until the bulb is completely screwed-in.

In the second solution figures.2, 2A, 2B:

Contacts are on an elastically mobile base 24 with a single helical spring 239-229 that pushes it away from the network connection.

The underlying contact of axial tension 26 is furthermore elasticized 260.

In the third solution figures.3, 3A, 3B:

The mobile base as in the preceding solution, protracts with radial arms elastically yielding 241 that scroll within a containment bush 243 and the upper extremities of which increase 242 protruding and tightening the mouth.

In such a way the base cannot be lowered until said thickenings are made to disappear within said bush, and only after this (screwing of the bulb) can contact be established.

In the fourth solution figures.4, 4A, 4B:

The mobile base 24 hook 244, with elastic arms of radial hooking 245 that have a central thickening.

The unhooking only happens if all the thickenings of the elastic arms are pushed outwardly, determining the unhooking of the base to allow the connection with the network.

Claims

1. Bulb-holder (2) for a screw-in bulb (1), of the type in which:

   - the tang of the bulb is negative mass conductor and threaded (10) for said screwing within the bulb-holder (2) and
   - the positive tension contact of the bulb (11) is at the central base of said tang (10),

   said bulb-holder (2) being equipped with lateral (22) and axial (23) corresponding tension contacts, characterized in that:

   - at least said axial tension contact of said bulb-holder (23) is normally detached with axial sliding, by means of repulsion spring (239) that maintains the tension contact (230-231) interrupted;
   - the closure of the circuit with continuity of the contact can only happen by pressing on said axial contact (23), with a force normally possible by the screwing of said bulb (1).

2. Bulb-holder according to claim 1., characterized in that even said negative mass contact (22) is normally detached from the respective mass conductor (220) and only after elastic pressure (229-239) said contact is established.

3. Bulb-holder according to claim 1., characterized in that applied on the exterior annular edge of the bulb-holder is a gasket with insulating tongue in elastic plastic material (21) that protracts reducing the mouth of the bulb-holder and that when the bulb is screwed it adheres annularly on the edge of the bulb preventing any type of access to the conductive screwing junction between bulb tang and bulb-holder.

4. Bulb-holder according to claim 1., characterized in that on the inside of the bulb-holder (2) there is a mobile base (24) that detaches both contacts with the respective conductors.

5. Bulb-holder according to claim 4., characterized in that from said mobile base (24), around a guide bush (243) on the inside of the tang bulb receiving seat, arms with rays (241) that go towards the

center of the mouth protract annuarly and protract resiliently within the mouth preventing the entry of a body through respective thickenings (242); that prevent the lowering of said mobile base (24) if they are not uniformly pushed peripherically within said guide bush (241).

6. Bulb-holder according to claim 4., characterized in that an arm system elastically orientated towards the axis of the bulb tang receiving hole (245), and thickened to reduce the diameter of the recess and that hooks elastically (244) to said mobile base (24) preventing the lowering, this in such a way that it unhooking of said mobile base (24), to allow its lowering, can only happen if the tang of the respective bulb is screwed-in.

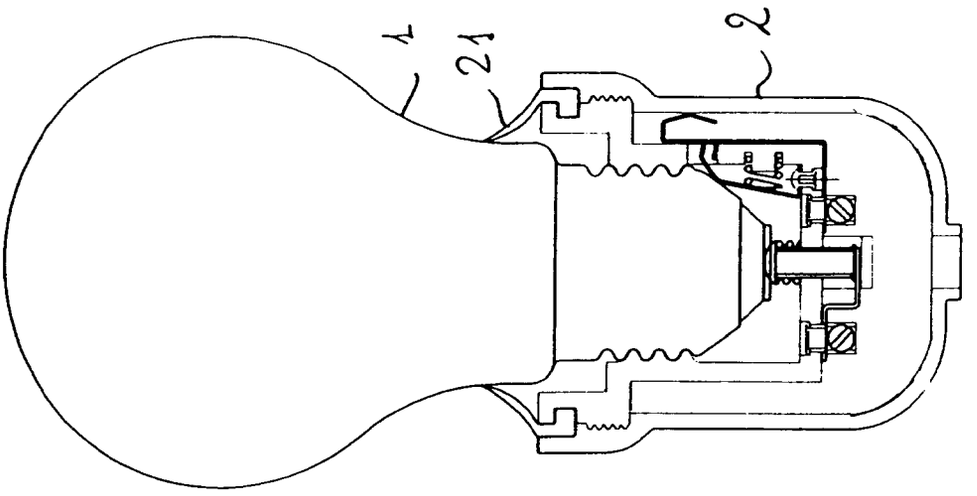

FIG. 1A

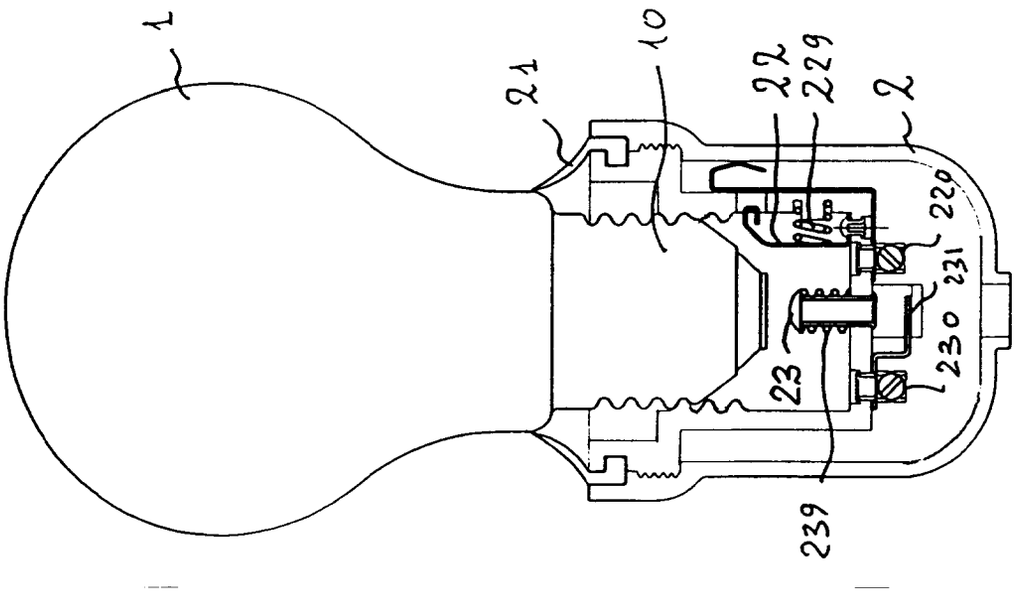

FIG. 1

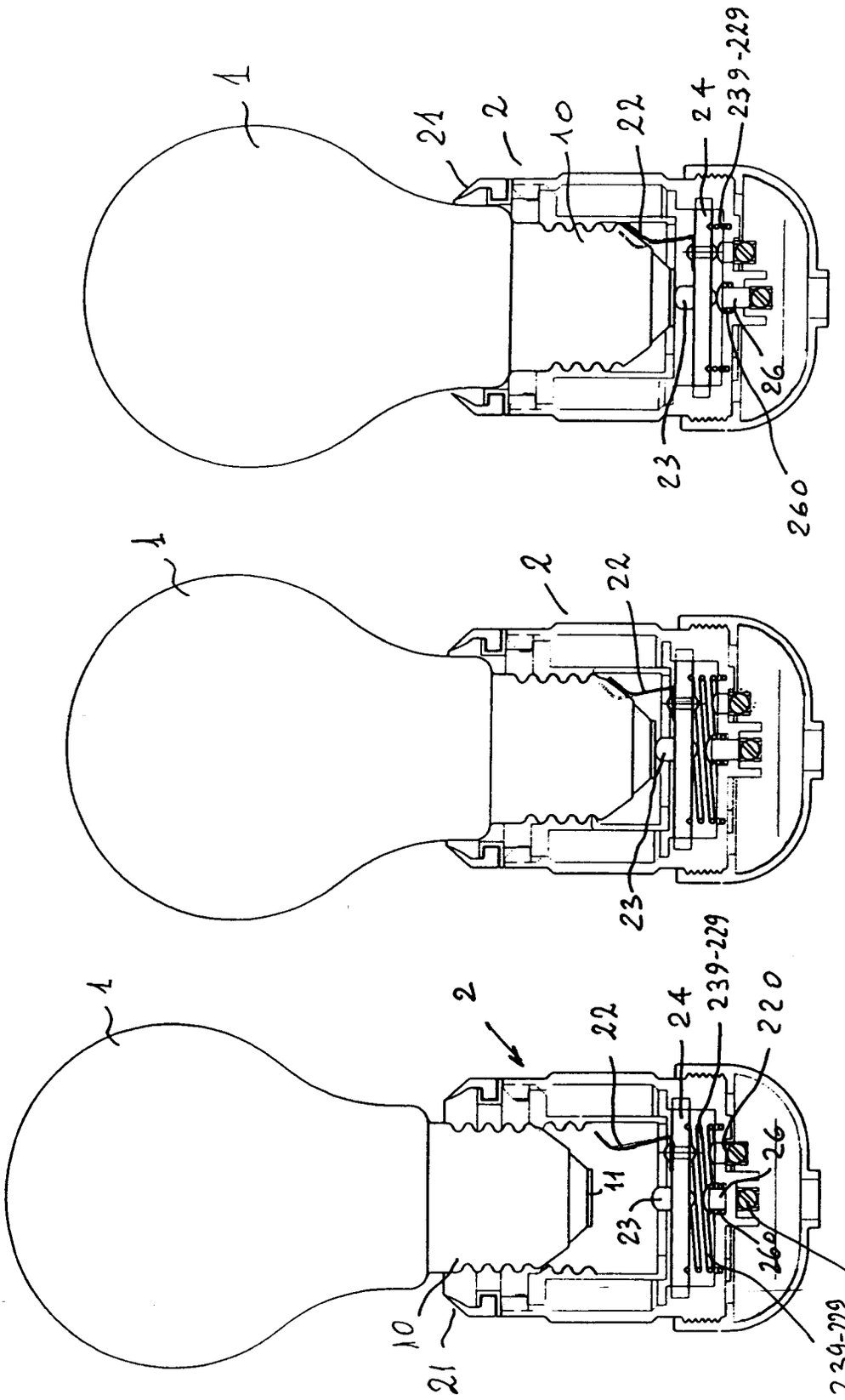

FIG. 2B

FIG. 2A

FIG. 2

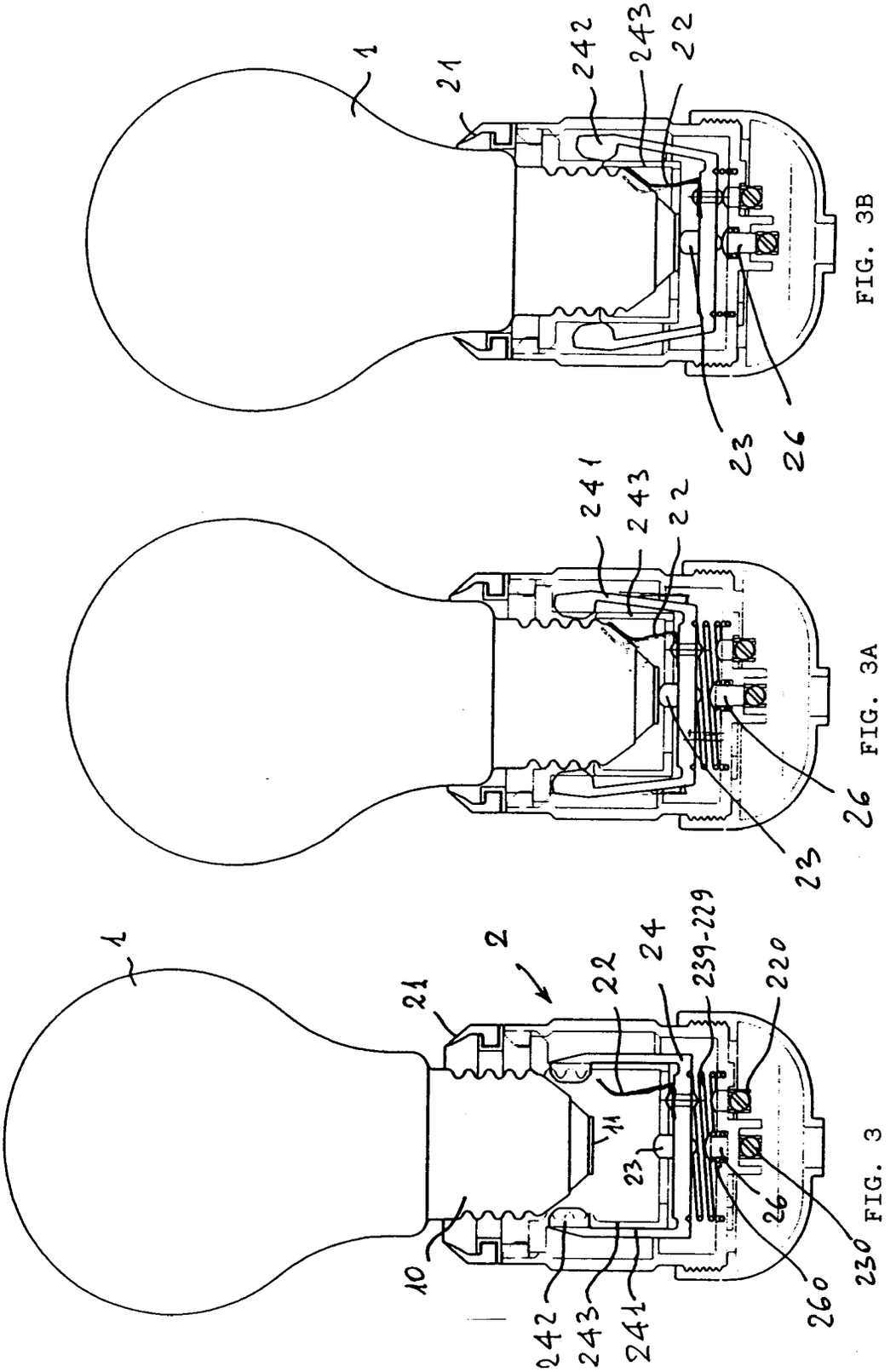

FIG. 3B

FIG. 3A

FIG. 3

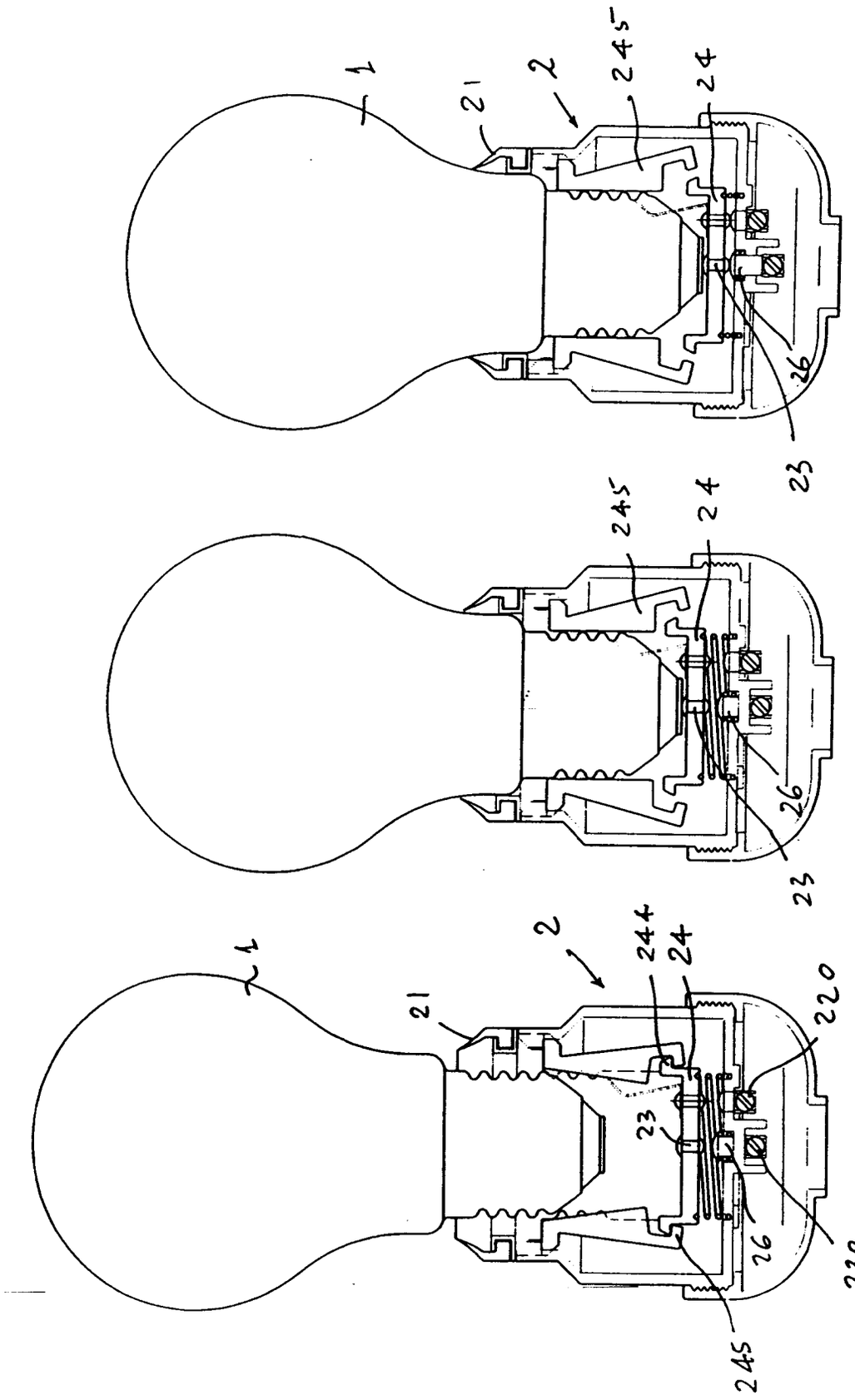

FIG. 4B

FIG. 4A

FIG. 4