

12

EUROPEAN PATENT APPLICATION

21 Application number: **86309029.6**

51 Int. Cl.4: **A 45 D 40/16**

22 Date of filing: **19.11.86**

30 Priority: **20.11.85 GB 8528602**

43 Date of publication of application:
27.05.87 Bulletin 87/22

84 Designated Contracting States: **DE ES FR GB IT**

71 Applicant: **Ejectoret Limited**
864 Ringwood Road
West Howe Bournemouth BH11 8NF (GB)

72 Inventor: **Timms, Malcolm**
28 Stourpane Road
Poole Dorset (GB)

74 Representative: **Duncan, Angus Henry et al**
Barker, Brettell & Duncan 138 Hagley Road
Edgbaston Birmingham, B16 9PW (GB)

54 **Forming moulded articles such as lipsticks.**

57 In the manufacture of lipsticks in situ in their containers on a continuous basis, similar to the know Ejectoret process, in which molten material is poured through the inverted container and through the stick carrier inside it into a mould fitted onto the stick carrier, the mould not only engages the stick carrier but also fits over the outside of the end of the container and forms the means by which the container is supported whilst the molten material is poured, then the container, complete with the mould, is removed, after which the newly formed stick is retracted and the mould discarded.

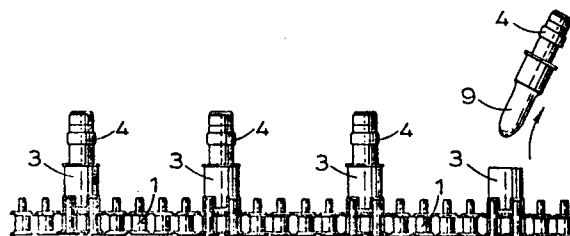


FIG 5.

Description

FORMING MOULDED ARTICLES SUCH AS LIPSTICKS

This invention relates to a method of, and equipment for, forming moulded articles, for example lipsticks, on a continuous basis.

It is known to form lipsticks by casting a molten mass through a hole in the base of an inverted lipstick container into a mould formed by a sheath or 'ogive' mounted within the container and fitted onto the godet or cup. Successive inverted containers, with the sheaths already in place, are brought in turn under a filling head by an intermittently moving conveyor. They then pass to a cooling station and in due course the sheath is removed by advancing the godet to cause the sheath and lipstick to project from the container, whereupon the godet is then retracted, taking with it the stick but the sheath is left behind and detached.

This is known as the Ejectoret process. The skirt of the sheath or mould is formed in a particular way so that it is a push fit onto the godet when the godet is in a retracted position within the body of the container but when the godet is advanced to bring the skirt of the sheath beyond the end of the body, subsequent retraction results in the skirt engaging the end of the body, preventing the sheath from moving back with the stick.

A forerunner of this process is disclosed in British Patent Specification No. 830 110, published in 1960, but in that case the lipsticks were moulded in batches. In a later developed, disclosed in British Patent Specification No. 856 854 the lipsticks were cast in situ in the containers, with the godet in the fully retracted position and into a mould which remained within the container until the lipstick hardened, whereupon the mould was withdrawn downwards, leaving the lipstick already fully enclosed within the container but with no protective sheath. A further development is shown in British Patent Specification No. 1 039 085 of Ejectoret S.A.; in this case the mould was a thin-walled sheath or 'ogive' fitting onto a reduced spigot portion of the godet.

Another known method of forming lipsticks is that disclosed, for example, in British Patent Specification No. 1 502 811 of Avon Products Inc. A large number of open-topped moulds of appropriate shape are mounted permanently on the links of a chain conveyor and the lipstick containers, each with its godet in the fully advanced position are placed in an inverted position on the individual moulds, with the upper end of the container itself (i.e. that part which is lowermost in the inverted position) entering, and being located by a counterbored upper part of the mould. As in the Ejectoret process, the molten mass of liquid is fed in from above the open bottom (uppermost) end of the container. Then, after the mass in the mould has set the container is withdrawn upwards, withdrawing the cast lipstick from the mould, which remains on the conveyor chain. At this time the lipstick is projecting fully from the container and so in a subsequent operation the container mechanism is actuated to retract the godet, which

takes the lipstick with it.

The Ejectoret process is very successful and is widely used. However it does have the limitation that it is difficult to reduce the size of the sheath below a certain point, and so it is not easy to apply to very thin lipsticks. The other process mentioned above has the drawback that a very large number of moulds are tied up in the system, i.e. throughout the length of the conveyor, which adds to the initial capital cost and furthermore makes it troublesome and time-consuming to switch from a production run of one size of lipstick to a different size and/or shape, as all the moulds on the conveyor have to be replaced. As may as 800 or 1000 moulds may be needed for each shape and size.

A further drawback is that the circulating open moulds are very easily contaminated by foreign matter falling into them, and are anyway difficult to clean.

The aim of the present invention is to overcome these problems and to retain the advantages of the Ejectoret system whilst avoiding its limitations. According to the invention we propose a process for forming a lipstick or similar moulded stick of pasty cosmetics or other material in situ in a container of the kind having an axially retractable godet or carrier supporting the stick, comprising fitting onto the upper end of the container a mould which has an internal surface which engages frictionally over that end of the container and also has a shoulder which engages a rim on the godet or carrier that projects beyond that end of the container, placing the inverted container in a conveyor, the container being supported by engagement of the outside of the mould with a socket on the conveyor designed to receive it, moving the container by means of the conveyor beneath a filling head at which molten material is introduced into the mould through the container and godet, withdrawing the container and mould together from the conveyor after the material has at least partially set to form the stick, and then subsequently retracting the godet and stick axially into the container and discarding the mould from the container.

In this way the moulds, as in the Ejectoret process, are fitted to the individual containers and remain with them until ejection, and so the problems of cleaning and recycling are no more than those of the known process. There is no need for the large number of moulds of the other process referred to above.

An example of the process according to the invention, and of apparatus for putting it into practice will now be described with reference to the accompanying drawings, in which:-

Figures 1 and 2 are respectively a plan view and a partly sectioned side elevation of a part of a chain link conveyor on which are twin carriers.

Figure 3 shows in section a lipstick container with a mould in place on it;

Figure 4 is a transverse view of the carrier to a

substantially larger scale, with lipstick containers in place and pouring nozzles engaged; and Figure 5 shows the conveyor to a smaller scale, with a lipstick container and mould being removed after filling.

A roller link chain 1 forms a conveyor which moves intermittently in a known manner, feeding inverted lipstick containers beneath a filling station at which molten lipstick is poured into sheaths or moulds associated with the containers in a manner similar to the known Ejectoret process. In the example illustrated there are twin pouring nozzles side by side and so the chain conveyor has twin carriers, two of which are shown at 2. It is mounted on a link in the chain and comprises two laterally spaced upright cylinders 3. In Figure 1 the carrier is empty but in Figure 2 an inverted lipstick container 4 is in place in the one cylinder that is visible in each carrier.

Turning now to Figure 3, the container is of known construction, comprising an outer casing 5 which, by rotation relative to an inner sleeve 6, causes axial movement of a stick carrier or godet 7. The godet 7 is shown in its fully advanced position, and it will be noted that a spigot portion 7' of the godet actually projects clear of the end of the outer casing 5, the degree of projection being limited by an inturned lip 5' on the casing engaging a shoulder 8 (Fig 4) on the godet.

Fitted over the upper end of the container is a mould or sheath 9. It has a main portion with a closed end to define the cavity in which the lipstick is to be formed, and a skirt portion 10 which is of larger inside diameter and is designed to be a friction fit on the outside of the casing 4 of the container. Not only is there a step 11 between the main portion 9 and the skirt portion 10 but there is also a small shoulder formed by a counterbore 12 to fit closely onto the exposed spigot portion 7' of the godet 7. This engagement determines the distance by which the mould engages over the container.

The container, with the mould 9 fitting on it, is inverted and placed in the carrier, with an outwardly directed flange 13 at the open end of the mould resting on the upper end of the cylinder. The outside of the skirt portion of the mould is a reasonably loose fit in the cylinder.

This insertion is performed automatically, by means that need not be described here, and of course is performed two at a time. The conveyor transports the containers, two at a time, to a filling station at which, while the carrier is stationary, two filling nozzles 14 descend through the open bottom ends of the two containers and through the open godets, to dispense measured quantities of molten lipstick mass into the moulds 9, and are then withdrawn. They may be withdrawn progressively as the filling takes place.

When the filling nozzles are clear the conveyor can be indexed on to bring a fresh carrier to the filling station whilst the newly filled containers, when sufficient time has passed for the mass to be at least partially solidified, are withdrawn from the carrier at another station, complete with their associated sheaths, or moulds as indicated in Figure 5.

The sheaths can be left on the containers as long

as is necessary to protect the lipsticks. At a subsequent station the lipstick mechanisms can be actuated in a known manner by relative rotation of the casing 5 and sleeve 6 to retract the godet, withdrawing the lipstick out of the mould and into the container. The mould can then be discarded.

It will be appreciated that when a run of lipsticks of a particular shape has been completed, a run of a different shape and size can be introduced, without any alteration to the conveyor, by simply feeding in containers of the appropriate size, already fitted with sheaths or moulds of the appropriate shape. The only requirement is that the outside diameter of the skirt portion of the mould should be a reasonable fit in the carrier; if necessary, for example if particularly slim containers are to be filled, the skirt may have outwardly projecting radial ribs to give it the required effective outside diameter without involving an unduly thick wall.

This contrasts with the second of the known processes mentioned above, in which open-topped metal moulds are attached to the conveyor, and in which up to 800 or a thousand moulds have to be removed by hand and replaced with fresh ones every time a change of lipstick specification is required. Thus the process according to the invention is particularly suitable for short runs and slim lipsticks.

In a modification of the process according to the invention the retraction and discarding of the moulds may be left to the customer, that is say, the lipstick may be marketed with the stick still wholly or partially advanced and with the mould (which in this case must be transparent and have little or no flange) still in place. When it is sold in a blister pack this makes the lipstick tamperproof with the stick protected against damage yet with its actual colour readily visible to the purchaser. A cover for use after the mould has been discarded is incorporated in the blister pack with the lipstick.

Claims

1. A process for forming a lipstick or similar moulded stick of pasty cosmetics or other material in situ in a container of the kind having an axially retractable godet or carrier supporting the stick, comprising fitting onto the upper end of the container a mould which has an internal surface which engages frictionally over that end of the container and also has a shoulder which engages a rim on the godet or carrier that projects beyond that end of the container, placing the inverted container in a conveyor, the container being supported by engagement of the outside of the mould with a socket on the conveyor designed to receive it, moving the container by means of the conveyor beneath a filling head at which molten material is introduced into the mould through the container and godet, withdrawing the container and mould together from the conveyor after the material has at least partially set to form the stick, and then subsequently retracting the

godet and stick axially into the container and discarding the mould from the container.

5

10

15

20

25

30

35

40

45

50

55

60

65

4

20 12 88

0223602

Neu eingereicht / Newly filed
Nouvellement déposé

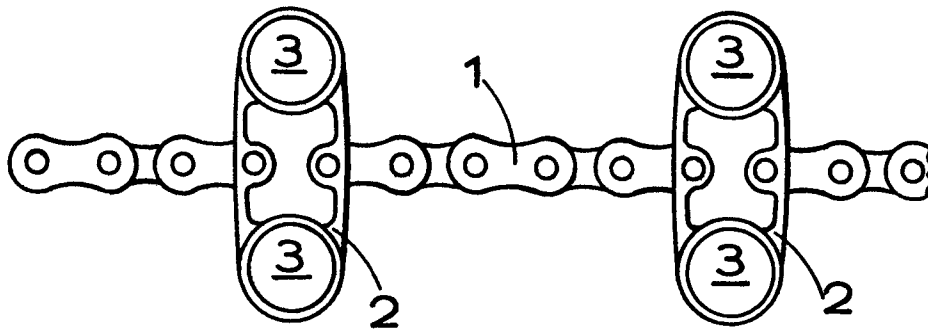


FIG. 1.

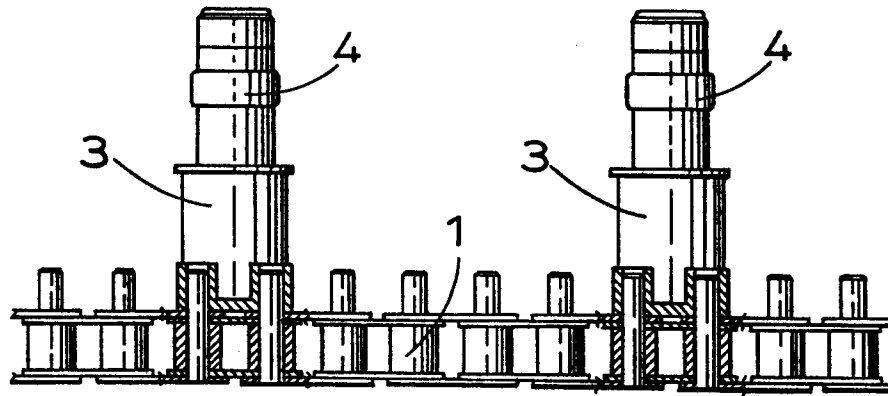


FIG. 2.

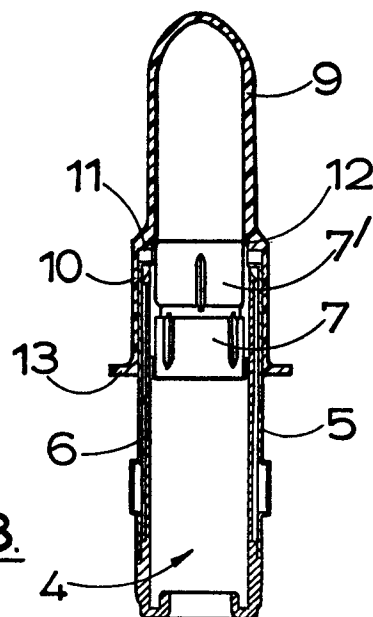
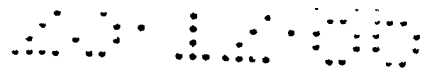


FIG. 3.



0223602

Neu eingereicht
Neuvellement

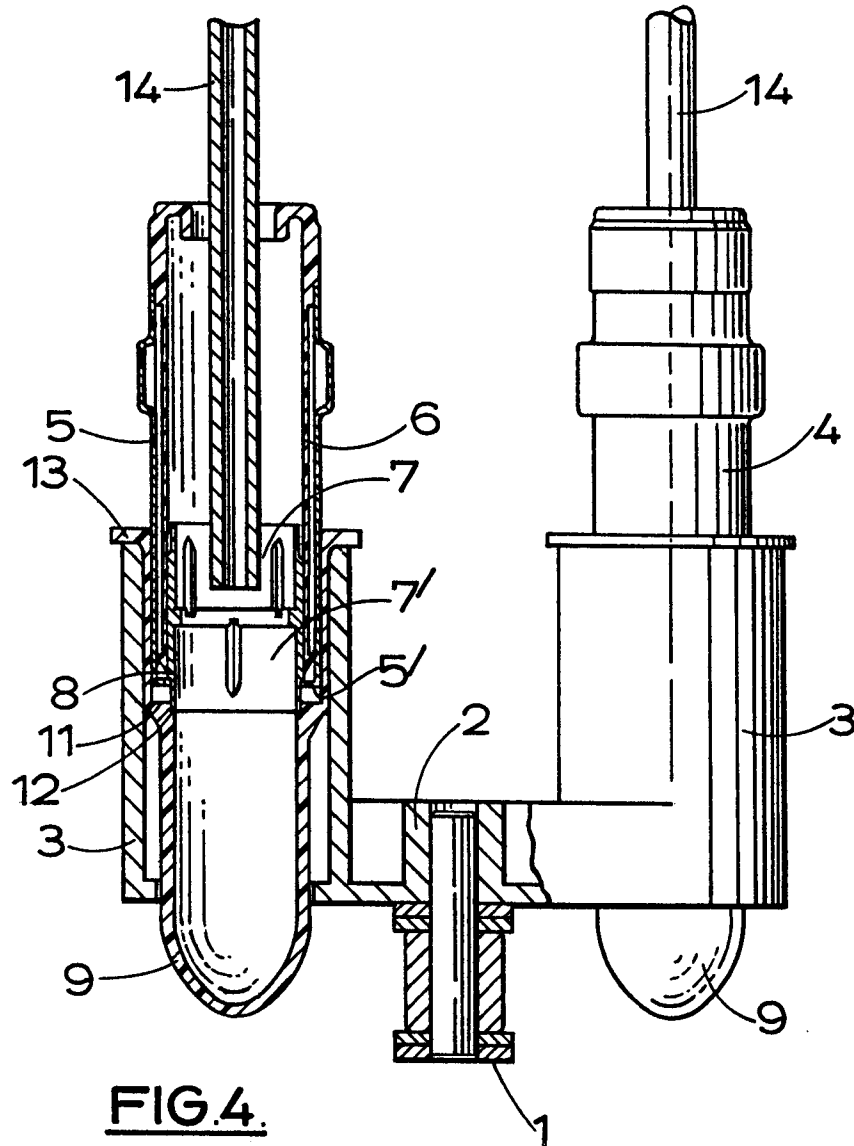


FIG. 4.

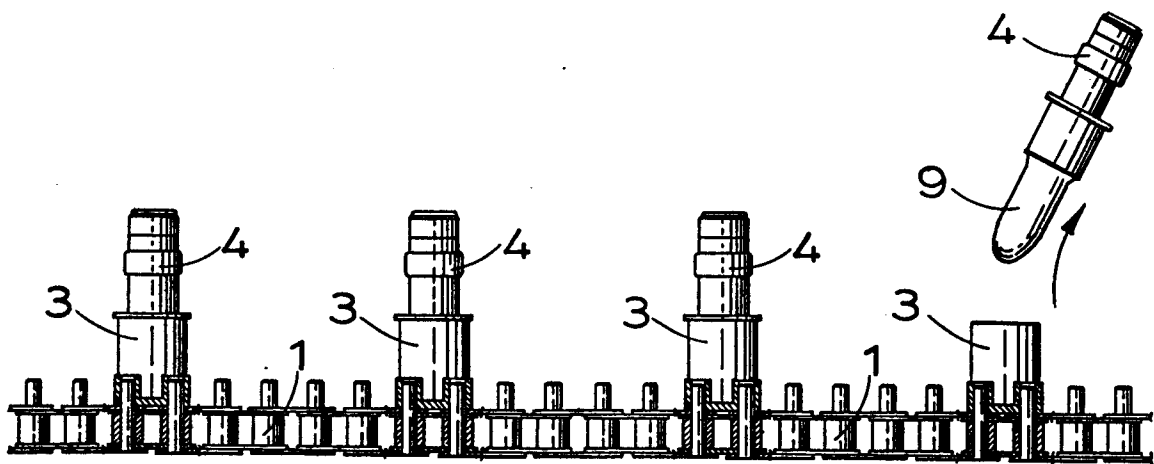


FIG. 5.