

"STRIPING DISPENSER"

The invention relates to a dispenser for dispensing two pasty materials from a discharge port of a tubular container particularly by the inwardly drawn action of a product dispensing piston.

5. A dispenser for pasty products is described in U.S. Patent 2,789,731 in which a hollow cylindrical body is provided with a transversely positioned piston in slidable engagement with the side walls of the tubular body which may be displaced toward the delivery end of the tube by means of a forcing handle connected to the piston and projecting from the opposite end of the tube. In the delivery end of this dispenser, an annular insert is provided having a hollow discharge tube and striping grooves through the periphery of the
10. annular insert. The annular insert may be removed from the dispenser and filled with a pasty material of a different colour from that contained in the remainder of the container, so that upon displacing the piston towards the delivery end, the main pasty material is
15. forced out of the container through the discharge tube and at the same time the second striping material in the annular insert is forced by the first pasty material to move through the striping grooves into the body of the other pasty material being extruded from the
20. discharge tube giving it a striped appearance.
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- Such annular insert in a striping dispenser cannot be used for a dispenser having an eccentrically positioned delivery channel and a piston drawing means located in the vicinity of the delivery end. The
30. dispenser of the prior art must be taken apart in order

to be filled with two different coloured pasty materials. It is an object of the invention to provide a dispenser for striped pasty material which will not be subject to one or more of the above disadvantages.

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According to one aspect of the present invention a dispenser for co-extruding two or more pasty materials comprises an elongated container having a discharge end, provided with a main delivery channel having an inlet end communicating with a main storage area and a discharge port, the cross-section of the main delivery channel increasing at or adjacent its discharge port, the main delivery channel being offset from the axis of the container, and at least one subsidiary delivery channel communicating at one end with the main delivery channel in the region of its increased cross-section at or adjacent its discharge port and at its other end with a subsidiary storage area, both storage areas being adapted to be exposed to pressure by the same pressure applying means.

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The subsidiary storage area is preferably arranged to lie next to the main delivery channel.

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The pressure applying means may comprise a piston adapted to slide in the elongated container.

The piston is preferably arranged to be actuatable in a series of steps in which it moves towards the discharge end of the container.

5. Actuating means for the piston preferably located at the discharge end of the container are desirably provided to cause the piston to move in the said series of steps.

10. The actuating means are preferably located outside the container adjacent the main delivery channel and the subsidiary storage area is preferably located in portions of the container adjacent the actuating means and the main delivery channel.

15. According to another aspect of the present invention, a dispenser for extruding a major portion of a first pasty material and a minor portion of a second pasty material is provided which comprises an elongated tubular container forming a first product containing chamber open at one end and adapted to receive a product dispensing piston and closed at the other end with a delivery head including a product delivery channel arranged parallel to the longitudinal axis of the dispenser and communicating the contents of the first product containing chamber to a discharge port, the cross-section of the product delivery channel increasing at or adjacent the discharge port, a second product containing chamber which is open at one end to the first product containing chamber and which has an orifice which communicates with the product delivery channel in the region of its increased cross-section at or adjacent its discharge port, and means adapted to accept a piston drawing means, a piston transversely disposed in the elongated tubular container including stop means to restrain

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outward motion of the piston, and a piston drawing means including a shaft adapted to engage the piston stop means and an actuator to impart reciprocating motion to the shaft.

5. The container according to the invention uses a specially shaped chamber which makes it possible to press a thin stripe of a different coloured pasty material into the main stream of pasty material extruded from that in the remainder of the container in spite of the fact that the discharge port is offset from the containers longitudinal axis.

10. The chamber may have two or more main areas connected by a connecting area running between a delivery channel wall and a holding area wall in order to obtain a continuous chamber of maximum size. The connecting area may communicate with the delivery channel by means of a connecting orifice.

15. For ease manufacturer of the complete container, the shaped chamber may be of unitary construction with the delivery end of the container, and in fact the elongated tubular container will usually be formed as one piece.

20. The invention may be put into practice in various ways and one specific embodiment will be described by way of example to illustrate the invention with reference to the accompanying drawings in which:-

25. Figure 1 is a front elevation of a dispensing container for pasty materials;

30. Figure 2 is a sectional view along the line II-II of Figure 1, showing, in phantom form, the base, the

piston, the drawing shaft and the actuating member of the dispenser; and

5. Figure 3 is a plan view of the container for the dispenser shown in Figure 2 looking up from below with the end cap removed.

10. The container 1 is tubular and has at its lower end a flange 2 to form a circular base. At the upper or delivery end of container 1, a principle or main delivery channel 3 is provided which is parallel to but being displaced from the longitudinal axis of the container, being displaced towards the periphery of the dispensing end. Opposite the delivery channel 3 vertical walls 12 and 13 (see Figure 1; 12 only is shown in Figure 2) are provided containing bearing openings (only the 15. bearing opening 11 of wall 12 is shown in Figure 2), the bearing openings being adapted to permit the insertion of a bearing pin whose function will be described hereinafter.

20. As is most particularly visible from Figure 2, the area between the walls 12 and 13 is closed by a wall 9 through which extends an opening 8 located on the axis of the cylinder 1. The wall 9 is in the plane from which the lower end of the delivery channel 3 leads from the body of the container 1. The remaining 25. cross-sectional area of the container 1 located in the plane of the wall 9 is open towards the flange 2 i.e. towards the main storage area, and part of the said area is taken up by the delivery channel 3, the remainder being taken up by the open bottom of the 30. subsidiary storage area made up of a main area 5, a

main area 6 and a connecting area 7 which together constitute a continuous space which is substantially closed at the top (Figure 2) and affords the said subsidiary storage area. Only the connecting area 7 is connected by a connecting orifice or subsidiary delivery channel 10 to the main delivery channel 3. As shown in Figure 2, the area where the connecting orifice 10 enters the delivery channel 3 is displaced somewhat with respect to the underlying wall portion, so that material discharged from the orifice 10 need not be pressed into the material stream discharged from the delivery channel 3. Instead, a corresponding free space is formed in the stream of material emerging from the channel 3 ready to accommodate the pasty material emerging through the orifice 10, i.e. the cross-sectional area of the main delivery channel 3 increases adjacent the discharge port.

Figure 2 shows the construction of the complete dispenser showing, in phantom form, a bottom base 21, a piston 22, a stop spring or spider 23, all mounted on a drawing shaft 20. An actuating member 24 is also shown in phantom form. The drawing shaft 20 extends through the opening 8 and is connected by means of a wrist or hinge pin 25 to the actuating member 24, which is held by a bearing pin (not shown) extending through the bearing opening 11 in the wall 12 and the corresponding bearing opening in wall 13. A spring 26 bears on the wall 9 and presses the actuating member 24 upwardly into the position shown in Figure 2.

In order to press the material out of the delivery

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channel 3, and a different coloured pasty material from the main areas 5 and 6 and the connecting area 7, the right-hand end (in Figure 2) of the actuating member 24 is depressed downwards and consequently the drawing shaft 20 is moved upwardly (in the sense of Figure 2). Due to the indexing action of the stop spring or spider 23, during this movement, the piston 22 is also moved upwardly and presses the pasty material in the container out of the delivery channel 3. Due to the resulting pressure, the differently coloured material is pressed out of the subsidiary storage area afforded by the main areas 5 and 6 and the connecting area 7 through the subsidiary delivery channel or connecting orifice 10, and joins the pasty material stream which is moving through the main delivery channel 3.

Upon releasing the actuating member 24, the drawing shaft 20 moves downwards until the spring 26 has relaxed, while the piston 22 remains in the position previously reached, because the drawing shaft 20 can slide with virtually no resistance past the stop spring or spider 23 going downwardly in order to reach the position shown in Figure 2.

Thus the piston 22 is caused to execute a stepwise or ratched series of upward movements on repeated actuations of the member 24, being held fixed relative to the shaft 20 by the spring 23 during upward movements of the shaft and thus moving up with it but not moving during downward movement of the shaft because the spring 23 does not lock against the shaft on downward movement

thereof, so that the piston remains stationary relative to the container during downward movement of the shaft 20.

5. The container may be manufactured from plastic material and can be produced in one piece by injection moulding.

10. The dispenser may be filled with toothpaste. For example, using essentially conventional equipment with either one or two filling nozzles. In the case of single-nozzle equipment the specially shaped top end chamber (above the wall 9) is filled in the first operation and the dispenser is moved to the next filling station to be completely filled with the main product. Where the filling apparatus has two filling nozzles per filling station, the pasty materials are sequentially filled before insertion of the piston and final packaging.

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CLAIMS

1. A dispenser for coextruding two or more
pasty materials, comprising an elongated container
having a discharge end, provided with a main
delivery channel having an inlet end communicating
5. with a main storage area and a discharge port, the
cross-section of the main delivery channel
increasing at or adjacent its discharge port, the
main delivery channel being offset from the axis of
the container and at least one subsidiary delivery
10. channel communicating at one end with the main
delivery channel in the region of its increased
cross-section at or adjacent its discharge port
and at its other end with a subsidiary storage
area, both storage areas being adapted to be
15. exposed to pressure by the same pressure applying
means.

2. A dispenser as claimed in Claim 1 in which
the subsidiary storage area is arranged to lie next
20. to the main delivery channel.

3. A dispenser as claimed in Claim 1 or Claim 2
in which the pressure applying means comprise a
piston adapted to slide in the elongated container.
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4, A dispenser as claimed in Claim 3 in which the piston is arranged to be actuatable in a series of steps in which it moves towards the discharge end of the container.

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5. A dispenser as claimed in Claim 4 in which actuating means for the piston located at the discharge end of the container are provided to cause the piston to move in the said series of steps.

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6. A dispenser as claimed in Claim 5 in which the actuating means are located outside the container adjacent the main delivery channel and the subsidiary storage area is located in portions of the container adjacent the actuating means and the main delivery channel.

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7. A dispenser for extruding a major portion of a first pasty material and a minor portion of a second pasty material which comprises

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an elongated tubular container forming a first product containing chamber open at one end and adapted to receive a product dispensing piston and closed at the other end with a delivery head including a product delivery channel arranged parallel to the longitudinal axis of the dispenser and communicating the contents of the first product containing chamber to a discharge port, the cross-section of the product delivery channel increasing at or adjacent the discharge port, a second product containing chamber which is open at one end to the first product containing chamber and which has an orifice which communicates

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with the product delivery channel in the region of its increased cross-section at or adjacent its discharge port, and means adapted to accept a piston drawing means,

5. a piston transversely disposed in the elongated tubular container including stop means to restrain outward motion of the piston, and
a piston drawing means including a shaft adapted to engage the piston stop means and an actuator to impart reciprocating motion to the shaft.

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8. A dispenser as claimed in Claim 7 in which the second product containing chamber includes two main areas and a connecting area which affords the orifice which communicates with the product delivery channel.

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9. A dispenser as claimed in Claim 7 or Claim 8 in which the elongated tubular container is constructed in one piece.

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10. A dispenser container as claimed in Claim 1 substantially as specifically described herein with reference to the accompanying drawings.

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11. A dispenser as claimed in Claim 7 substantially as specifically described herein with reference to the accompanying drawings.



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