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ARRANGEMENT FOR PORTIONING OUT PASTE AND SIMILAR MATERIALS

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Fig. 1.

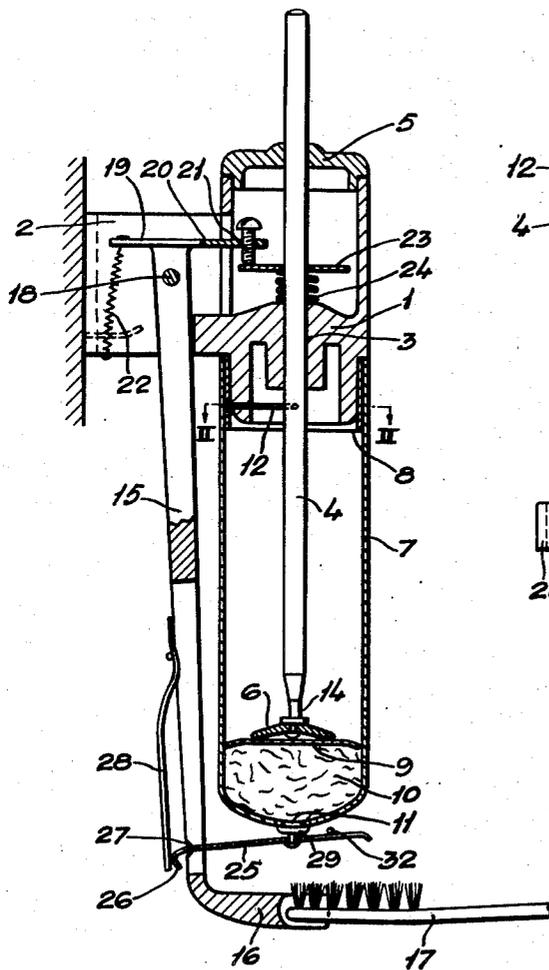


Fig. 2.

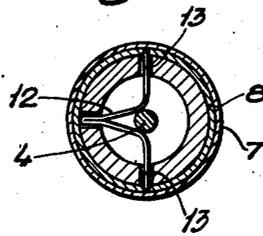
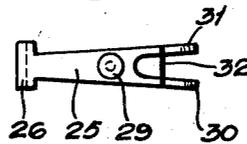


Fig. 3.



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ARRANGEMENT FOR PORTIONING OUT PASTE AND SIMILAR MATERIALS

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The present invention concerns an arrangement for portioning out paste, cream and other materials of a similar consistency, and among other objects of the invention it aims at the amelioration of the hygienical conditions connected with the use of toothpaste. When using toothpaste contained in toothpaste tubes of the types generally used it is difficult to prevent the mouth of the tube from touching the toothbrush, when the toothpaste is portioned out. In families where the same tube is used by several persons the said contact implies of course not inconsiderable risks for the transfer of germs from the toothpaste tube to the toothbrush or from the brush to the tube. The handling of the toothpaste tube including the screwing off and on of the protective cover and the rolling together of the tube so as to press the paste against the mouth of the tube often implies considerable waste of time. To make the threads of the protective cover fit into those of the toothpaste tube is also often a source of irritation.

One of the objects of the present invention is to remove these disadvantages.

The invention is essentially characterized by the fact that the arrangement consists of a stand to be applied to a wall e. g., in which stand there is arranged a piston rod, actuated by a system of levers, and itself actuating a piston or pressing disk; the stand being provided with a reception arrangement for a tube, open at its top, and at its bottom end provided with a relatively narrow outlet, in which tube the piston or the pressing disk can move in such a way that at an actuation from the outside of the system of levers the piston rod and with it the piston is displaced in the direction of the bottom of the tube applied into the stand and presses out a portion of some paste or similar material inclosed into the tube between its bottom and the piston or the pressing disk. These as well as other characteristics of the invention will be fully explained in the following description of an arrangement for portioning out toothpaste, shown on the drawing and constructed according to the idea of the invention.

Fig. 1 shows the arrangement seen from one side and partly as a section. Fig. 2 is a section along the line II-II of Fig. 1 at which a form of realisation of a holder for a tube or receptacle containing the paste is shown. Fig. 3 shows a closing device belonging to the arrangement provided with a cutting off knife or thread for the string of paste portioned out from the tube.

1 denotes a bracket or stand, which by means of an arm 2 is applied to a solid frame e. g. a

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wall. A sliding piston rod 4 rests in and is guided by a hole 3 going right through the stand, which piston rod also passes through a cover 5, applied on the upper side of the stand. At its upper end the piston rod is provided with a disclike contrivance 6. 7 denotes a tube or container manufactured of impregnated cardboard or other material resistant against the paste used, in which container the paste is inclosed. At the interior side of its upper end the tube or container is provided with a soft ring 8 of cardboard, which presses all around the interior part of the casting surface of the stand 1. The disk 6 rests against a piston or pressing disk 9, the diameter of which tallies with the interior diameter of the container. The space of the container below the piston is filled with paste 10, which at the portioning out movement of the piston rod will be pressed out through an outlet gate 11 provided in the bottom of the container. A thread spring 12 bent into the shape of a T according to Fig. 2 rests in three holes provided right through the lower part of the stand, the ends 13 of the thread being pressed into the soft cardboard ring 8 by the piston rod, by means of which contrivance the container 7 is firmly affixed to the stand 1. When the container is to be changed the piston rod is lifted so high that a contracted part 14 of the lower end of the piston rod comes on the same level as the thread 12 when the shanks 12 of the thread, which elastically press against the piston rod, enter into the contracted part 14, thus causing the ends 13 of the shanks to be drawn out of the cardboard ring 8. The container can then be removed and replaced with a new one. On pressing down the piston rod the shanks 12 will be removed from each other on account of the diameter of the piston rod increasing at the place where the arms press against the rod. The ends 13 will then be pressed out into the cardboard ring 8 and due to that fact the container will be firmly attached to the stand.

The portioning out movement of the piston rod is caused by a pressing force being applied to the inferior part 16 of the lever 15, which inferior part in this case is provided with a notch for a toothbrush 17. On applying the pressing force the lever 15 turns round a pivot 18 fixed to the holder 2. Above the pivot 18 the lever is developed into the shape of a T, one end of the cross-beam of the T being charged with a spiral spring 22, while the other end is provided with an adjusting screw 21. This screw rests against a plate or disk 23, loosely passed over the piston rod 4

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and resting on a spiral spring 24 pressing against the stand. At the turning movement mentioned above of the lever 15 the spiral spring 22 is stretched. At the same time the point of the adjusting screw 21 presses against the disk 23, which then on account of the eccentric load assumes an oblique position, so that the opposite edges of the hole of the disk press against the piston rod. At the continued effect of the pressure of the adjusting screw on the disk 23 the latter transfers the pressing force to the piston rod by means of the friction engendered between the edges of the hole of the disk and the rod, the latter consequently being pressed downwards. When the exterior pressing force at the end of the lever 16 is removed the spiral spring 22 carries the system of levers back to its original position. 25 denotes an arm supporting a shutting arrangement. One end 26 of the arm 25 is—seen from above according to Fig. 3—developed into the shape of a T. In the arm 15 there is provided a slot through which the lever 25 passes. At the back of the lever 15 the protruding arms of the T-shaped end part rest in notches 27 provided for them in the lever 15. The arm 25 is kept in the said notches 27 by a spring 28 arranged on the lever 15. 29 denotes a shutting and opening device, the upper side of which covers the outlet gate 11. The device 29 rests on the arm 25 in such a way that its upper side is allowed the liberty of movement required to attain a good fitting in around the gate 11. Outside the device the arm 29 is developed into two arms 30 and 31, between which there is arranged a cutting knife or thread 32 for cutting off the paste pressed out. When the toothbrush 17 presses against the end 16 of the lever 15 the device lays open the gate 29, and the thread 32 passes it, whereupon the edges of the disk 23 are caused to catch the piston rod 4. On the continued pressing movement of the toothbrush 17 the piston rod is pressed downwards and the pressing force is transferred to the piston or the disk 9, which in its turn presses against the upper surface of the mass of paste, thus causing the portioning out of a certain portion of paste depending on the position of the adjustment screw 21, which portion flows down on to the bristled part of the toothbrush. At the drawing back of the toothbrush the spiral spring 22 exerts a pressure on the system of levers so that the end 16 of the lever follows the receding movement of the toothbrush 17. When the cutting off thread 32 passes the gate 11, the pressed out amount of paste is separated from the contents of the container 7, whereupon the shutting device 29 goes back to its original position and shuts the gate 11. By the present invention a contrivance for portioning out toothpaste and paste of other kinds has apparently been provided, by means of which a very rapid and convenient feeding and portioning out of the paste is obtained, which advantages also comply with the highest demands for hygienical conditions.

The invention is of course not restricted to the form of realization shown and described, but it can be varied in several different ways without differing from the idea of the invention. Thus for instance the tube or the container can be made movable in relation to a firm system of arms. The contrivance can be used for portioning out all kinds of paste, cream and similar products, where the advantages of the invention will be apparent. One form of realization for instance is intended to be used for hand paste,

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used for cleaning purposes. At such forms of realization which are intended for hand paste the arm 25 can suitably be given the shape of a long strip of plate, the outer end of which is developed into a terminal short down bend, serving to prevent the accumulation of paste on it.

The arrangement shown and described for attaching the tube or the container to the stand can of course be replaced with any other arrangement of attaching. It can be given the form e. g. of a screw cap, a bayonet fixture or some similar contrivance.

I claim:

1. A paste-dispensing device comprising, in combination, a paste-tube supporting bracket provided with a tube holder having a downwardly protruding cylindrical hollow boss adapted to receive the upper open end of a paste-tube having a dispensing gate at the lower end thereof, a plunger rod extending with a sliding fit through said holder and carrying a plunger disk at the lower restricted end thereof and a loosely mounted canting disk above said holder with a spring coiled about the rod between the holder and said disk, a substantially T-shaped resilient wire inset with the three ends thereof slidably engaging corresponding slots provided in the wall of said hollow boss and resiliently straddling said plunger rod at the junction between the stem portion and the cross bar portion of said T-configuration with the end portions of said cross bar piercing the wall of the tube surrounding said hollow boss to retain the tube in place, said end portions being adapted to spring back when contacting the restricted end portion of the plunger rod so as to release the paste-tube for replacement, and a lever system operative when actuated to cant said canting disk into frictional engagement with the plunger rod and, upon further actuation of the lever system, to move the rod with its plunger disk downwards to extrude paste through said dispensing gate.

2. A toothpaste-dispensing device comprising, in combination, a paste-tube supporting bracket provided with a tube holder having a downwardly protruding cylindrical hollow boss adapted to receive the upper open end of paste-tube having a dispensing gate at the lower end thereof, a plunger rod extending with a sliding fit through said holder and carrying a plunger disk at the lower restricted end thereof and a loosely mounted canting disk above said holder with a spring coiled about the rod between the holder and said disk, a substantially T-shaped resilient wire inset with the three ends thereof slidably engaging corresponding slots provided in the wall of said hollow boss and resiliently straddling said plunger rod at the junction between the stem portion and the cross bar portion of said T-configuration with the end portions of said cross bar piercing the wall of the tube surrounding said hollow boss to retain the tube in place, said end portions being adapted to spring back when contacting the restricted end portion of the plunger rod so as to release the paste-tube for replacement, a lever system operative when actuated by a tooth-brush pressed thereagainst to cant said canting disk into frictional engagement with the plunger rod and, upon further actuation of the lever system, to move the rod with its plunger disk downwards to extrude paste through said dispensing gate, and a bifurcated closure strip secured to said lever system in slidable engagement with the lower end of the tube and normally closing said dispensing gate, said bifurcated strip having a

severing wire extending crosswise between the shanks thereof and adapted to sever a portion of the extruded paste at said further actuation of the lever system and to permit said severed portion to drop down between said shanks onto the tooth-brush therebeneath.

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