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2,360,051

TOILET DEVICE

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Fig. 1.

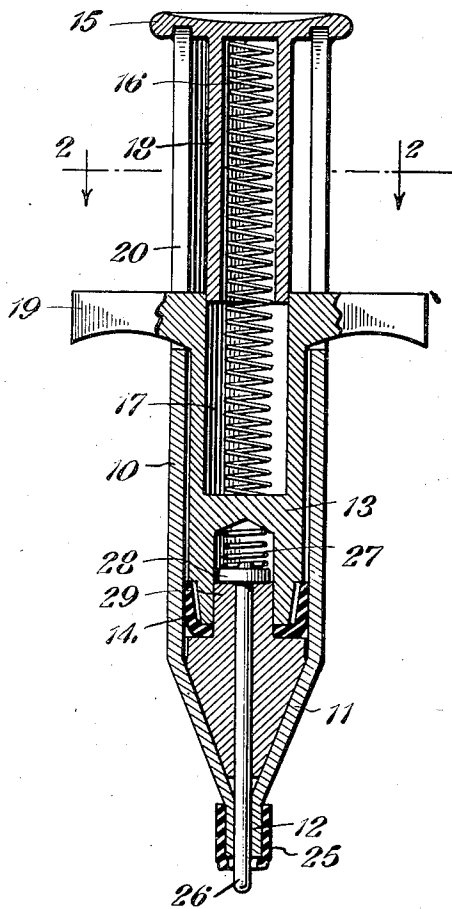


Fig. 2.

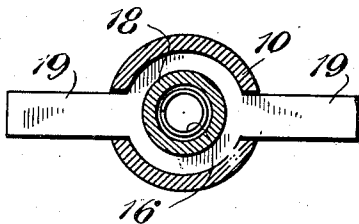


Fig. 3.

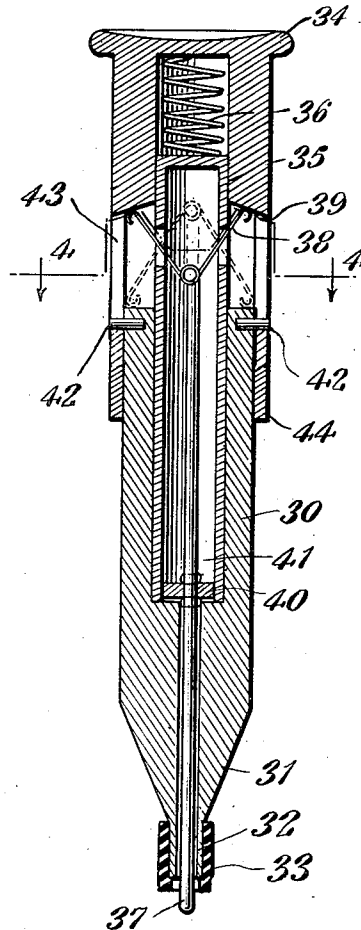
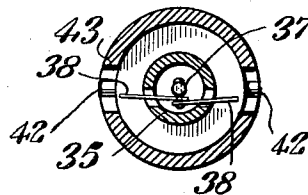


Fig. 4.



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TOILET DEVICE

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Application July 18, 1941, Serial No. 402,916

6 Claims. (Cl. 128—297)

This invention relates to toilet devices, particularly to devices for removing comedos or blackheads and similar occluded or included blemishes from the skin, and has for an object the provision of improvements in this art. This application is a continuation-in-part of my co-pending application, Serial Number 369,172, filed December 9, 1940.

The invention aims to provide a simple, effective, inexpensive and easily operated device which can be used readily by the general public for its intended purpose without danger of injury. One of the particular objects is to provide a soft tubular tip which will fit the skin tightly but which will not cut or mar the skin. Another object is to provide a small point or plunger which assists in locating the device correctly at the selected place on the skin, and which ejects the material from the tubular opening or barrel in which it lodges when removed from the skin. Another object is to provide a tapered barrel and piston which will create an effective vacuum to assist in removing the material from the skin. Another object is to provide a device in which the mechanical parts are largely concealed to present an attractive exterior.

Other objects, advantages and features of novelty will be evident from the following description of certain exemplary embodiments of the invention which are illustrated in the accompanying drawing, wherein:

Fig. 1 is an axial section of the preferred embodiment;

Fig. 2 is a cross section on the line 2—2 of Fig. 1;

Fig. 3 is an axial section of another embodiment; and

Fig. 4 is a cross section on the line 4—4 of Fig. 3.

Referring first to the form shown in Figs. 1 and 2, this comprises a cylinder 10 which is tapered at 11 to join a small tubular portion or barrel 12 which is of a size to receive the oily clots or blackheads removed from the skin. Within the cylinder there is disposed a piston 13 provided with packing 14, as of rubber, cupped leather or the like, which closely fits within the straight part of the cylinder to create a difference in air pressure or a vacuum when the piston is operated. The piston is tapered to fit the taper 11 so as to completely fill the space. This minimizes clearance and produces a better vacuum when the piston is operated. The body of both the cylinder and piston may be formed of a plastic material, and may be attractively colored.

The upper end of the cylinder 10 is closed by a cap 15 which may be secured in any convenient manner, as by a suitable adhesive, as illustrated. The piston 13 is urged toward the lower tapered end of the cylinder by a spring 16 which fits within a tubular recess 17 in the piston and a telescopic tubular projection 18 carried by the cap 15.

To the outside of the upper end of the piston there are secured, as by being formed integrally therewith, a pair of oppositely disposed projections 19 which extend outwardly through narrow slit-like axially elongated openings 20 in the cylinder 10. The projections 19 and the cap 15 provide means for engagement by the fingers and thumb respectively, whereby the device may be operated by one hand. The projections are concave on their lower side and the cap is concave on its upper side, the better to fit the fingers and thumb.

The end of the tip or barrel 12 will serve alone but it is of relatively hard material and may be somewhat uneven when molded so as to create some likelihood of injury to the skin. In order to eliminate this danger and provide good contact with the skin for a better vacuum, a resilient tip 25 may be provided. This may comprise a short length of rubber tubing cut to length and pushed tightly on the straight part of the tip until it engages the tapered portion. The end of the rubber tip 25 extends slightly beyond the end of the tip 12 and contracts in size.

To the lower end of the piston there is secured a small plunger 26. This normally extends out from the lower end of the barrel, like the lead of a pencil. By placing it on the spot to be treated, the device is accurately centered for operation. Preferably, the plunger is urged outward by a light spring 27, whereby a slight pressure against the skin will cause it to retract into the barrel. It may be retained by an enlargement 28 thereon and a part 29 on the end of the piston. The parts 13 and 29 may be secured together in any convenient manner to form the assembly, as by a tight fit or adhesive, as indicated.

In operating the form shown in Figs. 1 and 2, the projections and cap are grasped between the fingers and thumb, and the end of the plunger is placed at the desired place on the skin. The entire device is then pushed down by the thumb until the plunger retracts into the barrel and the end of the barrel (or rubber tip) firmly engages the skin. The piston is then quickly pulled back by the fingers to cause the material in the skin to be drawn up into the barrel. The device

is then removed and released from the finger grip, whereupon the material is ejected from the barrel by positive pressure of the piston under spring pressure and the assistance of the plunger. The plunger is positively moved with the piston until its end is about at the end of the barrel, thus forcefully ejecting any material in the barrel, even if air pressure created by the return of the piston is inadequate to do so.

In Figs. 3 and 4, there is shown a simpler modification in which a slighter vacuum may be employed, pressure on the tubular tip being practically sufficient to cause the material to be ejected from the skin. Here the cylinder 30 is tapered at 31 and provided with a tubular tip 32. The auxiliary rubber tip 33 is also shown. A cap 34 telescopically fits the outside of the cylinder, and a small interior tubular extension 35 secured to the cylinder. The cap may be urged away from the cylinder by a spring 36.

The plunger 37 is secured as by a transverse hinge pin or otherwise to light resilient leaf springs 38 which pass through opposite openings in the extension 35 so as to fulcrum on the edges of the openings and cooperate with surfaces 39 on the cap, whereby the plunger may be pushed up when pressed against the skin by pushing down on the cap, and will be pulled back to allow space in the barrel for material when the cap is pushed down further. A piston 40 secured to the plunger 37 operates in a cylindrical recess 41 to create a vacuum or pressure at the tip.

The outer skirt portion 44 of the cap may be slotted longitudinally at 43 and may be retained by any suitable means such as a pin or pins 42 secured in the cylinder 30.

The springs 38 may be integral and connected by a coiled central portion by which they are pivoted to the plunger. In Fig. 3 the normal position of the springs is shown in full lines, and their position when the plunger is raised is shown in dotted lines. The springs may be curled or provided with knobs on their outer ends to have a smoother camming action with the surface 39. It will be noted that the plunger 37 may be pushed up to the end of the tubular tip by a light push against the springs 38, the spring ends sliding out against the cam face in this action. For greater retraction of the plunger, the cap 34 is operated to move it down axially relative to the cylinder 30.

In the operation of the form shown in Figs. 3 and 4, the plunger is placed on the desired spot on the skin and pushed back by a light downward pressure on the cap. Then by continued heavier pressure on the cap, the tip is pressed against the skin to remove the plug therefrom, and at the same time the plunger is retracted further into the cylinder to allow the plug to be received. The barrel or cylinder 30 may be held between the fingers while the thumb is kept on the top of the cap 34 to hold the parts together while being removed from the skin. Later, when the fingers are released, the parts expand and the plug is ejected from the cylinder.

For greater simplicity, the piston may be omitted entirely, greater pressure being exerted on the tip to take the place of pressure and vacuum in removing the occlusions from the skin.

It will thus be seen that the invention provides a simple, safe, sanitary, inexpensive and efficient device for removing plugs from the sebaceous glands of the skin.

While certain embodiments of the invention have been particularly disclosed for illustrative

purposes, it is to be understood that the invention may have various embodiments within the limits of the prior art and the scope of the subjoined claims.

I claim as my invention:

1. A device for removing skin occlusions comprising in combination, a first part having a tubular tip, a second part having a plunger disposed in said tip, said parts being axially movable relative to each other, resilient means for holding said parts in one direction against movement by the fingers in the other direction, said plunger being retracted when the device is operated to remove an occlusion, and resilient means between said plunger and the second part which is lighter than the resilient means between said parts for pressing the plunger to extended position.

2. A device for removing skin occlusions comprising in combination, a cylinder, a piston therein, a small tubular tip on said cylinder, a plunger carried by said piston in said tip and normally extending slightly beyond the end of the tip, resilient means between said piston and plunger normally holding the plunger extended and permitting it to retract to the end of the tip, and means, including elements formed for engagement by the fingers of an operator, for producing reciprocation of the piston in the cylinder, the retraction of the piston in the cylinder serving to retract the plunger further and to create a vacuum at said tip to draw an occluded plug therein behind the plunger, and the return of the piston creating pressure to eject the plug from the tip and to return the plunger to its initial position with its end projecting beyond the end of the tip.

3. A device for removing skin occlusions comprising in combination, a cylinder, a piston therein, a small tubular tip on said cylinder, a plunger carried by said piston in said tip and normally extending slightly beyond the end of the tip, resilient means between said piston and plunger normally holding the plunger extended and permitting it to retract to the end of the tip, and means, including elements formed for engagement by the fingers of an operator, for producing reciprocation of the piston in the cylinder, the retraction of the piston in the cylinder serving to retract the plunger further and to create a vacuum at said tip to draw an occluded plug therein behind the plunger, and the return of the piston creating pressure to eject the plug from the tip and to return the plunger to its initial position with its end projecting beyond the end of the tip, said cylinder being tapered to the tip and the piston filling said tapered space to minimize clearance and create a more effective vacuum and pressure.

4. A toilet device for removing skin occlusions or plugs, comprising in combination, a cylinder tapered to a straight tubular tip which is adapted to surround the plug to be removed, a piston in said cylinder provided with a tapered portion fitting the tapered portion of the cylinder to minimize clearance, said cylinder being provided with longitudinal slits, lateral projections on said piston passing through the longitudinal slits in the cylinder wall, said projections being concave on their lower sides to fit the fingers, a cap on said cylinder which is concave to fit the thumb, a tubular cavity in the upper end of the piston, a tubular projection on said cap extending into the piston cavity, a spring disposed in said tubular cap projection and in the piston cavity for forcing the cylinder and piston to move relative

to each other in one axial direction, the fingers of the operator forcing the cylinder and piston to move in the opposite axial direction, a plunger mounted for axial movement in the end of the piston and having its end normally projecting from the end of said tip, a light spring urging the plunger outward, and means for retaining the plunger in operative slidable position in the end of the piston.

5. A device for removing skin occlusions comprising in combination, a first part including a tubular tip adapted to surround the occlusion to be removed, a second part movable axially relative to the first part, a plunger mounted in said tubular tip and having axial movement relative to said second part, and resilient means between said plunger and said second part which normally holds the plunger in an extended position with its end protruding beyond the end of the tip, said resilient means being sufficiently light 20

to permit the plunger to retract into the tip when the plunger is pressed against the skin.

6. A device for removing skin occlusions comprising in combination, a first part including a tubular tip adapted to surround the occlusion to be removed, a second part movable axially relative to the first part, a plunger mounted in said tubular tip and having axial movement relative to the second part, resilient means between said plunger and said second part which normally holds the plunger in an extended position with its end protruding beyond the end of the tip, said resilient means being sufficiently light to permit the plunger to retract into the tip when the plunger is pressed against the skin, and resilient means between said first part and said second part urging them in one direction relative to each other.

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