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[54] **POCKET ARTICLE CONTAINER WITH COVER
 CONTROLLED EJECTOR**
 9 Claims, 6 Drawing Figs.

[52] U.S. Cl..... 221/229,
 221/232
 [51] Int. Cl..... **B65h 1/08**
 [50] Field of Search..... 221/228,
 229, 232, 249

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ABSTRACT: A pocket container for reception and individual removal of filling goods consisting of tablets, candies, or the like, piled up in the container, which comprises a container member constituting a geometrical cylinder defining and surrounding a chamber for filling goods within the container member and having an opening for removal of filling goods and a follower spring pushes the filling goods in direction of the opening. A drop cover is disposed on top of the container member and includes means for sliding the uppermost of the filling goods from the opening upon lifting the drop cover. The drop cover is mounted about a geometrical swinging axis projecting through the geometrical cylinder, the geometrical swinging axis being disposed perpendicular to the axial direction of the geometrical cylinder. The drop cover has on its inside an abutment face between the swinging axis and a wall opposite from the opening, and the abutment face is adapted to engage the uppermost of the filling goods by the pressure of the follower spring in case the drop cover is in its closed or extensively closed position, and the pressure exerted on the abutment face tends to urge the drop cover into its closed position.

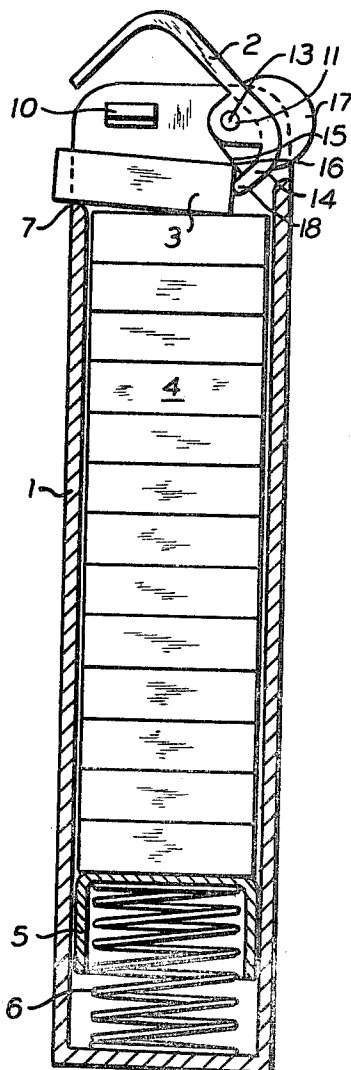


FIG. 1.

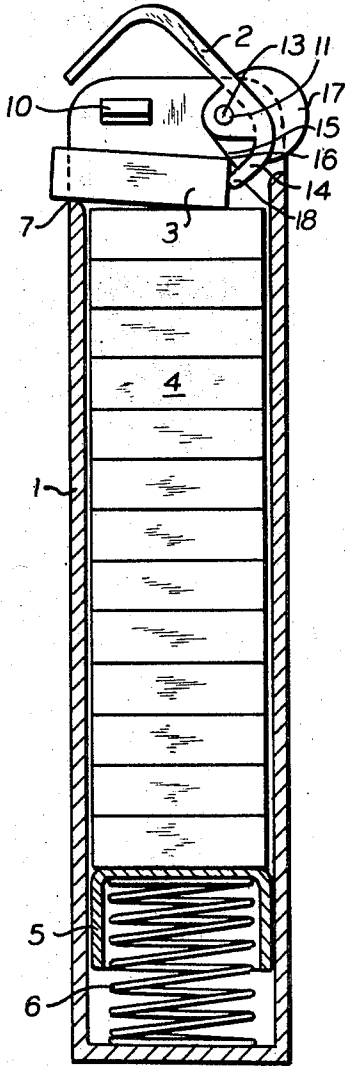


FIG. 2.

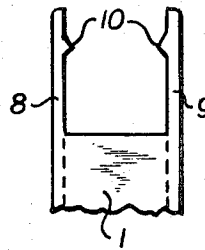


FIG. 3.

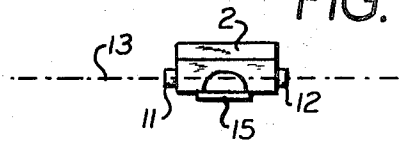


FIG. 4.

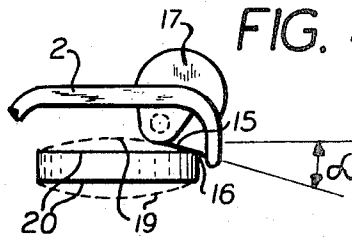


FIG. 5.

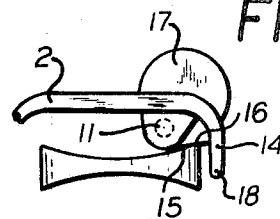
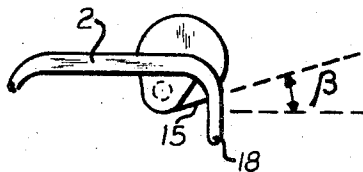


FIG. 6.



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POCKET ARTICLE CONTAINER WITH COVER CONTROLLED EJECTOR

The present invention relates to a pocket container for receiving and individual removal of tablets, candies or the like, which are piled on top of each other in the container and are pushed by a follower spring in the direction of a removal opening, which container is equipped with a drop cover which, upon lifting, slides the uppermost tablet from the removal opening and the geometrical swinging axis of which projects through the geometrical cylinder surrounding the tablet chamber and is disposed perpendicular to the axial direction of the cylinder.

In known containers of this type, for the return of the cover into its resting position, in which the container is closed, a particular return spring is provided, the insertion of which generally creates an appreciable complication of the assembly.

It is one object of the present invention to provide a pocket container, in which the provision of a separate return spring for the cover is superfluous and, nevertheless, the cover is retained resiliently in the closed position, which is brought about by the pressure exerted by the follower spring, provided in the container, onto the tablet pile. For this purpose, the pocket container of the above-stated type is characterized by the fact, in accordance with the present invention, that the drop cover has at its inside an abutment face situated between the swinging axle and its wall opposite from the removal opening, on which abutment face the uppermost tablet comes into engagement under the pressure of the follower spring in case of a totally or extensively closed drop cover, whereby the pressure exerted on the abutment face is to bring the drop cover into the closed position.

The abutment face provided on the inside of the drop cover is in a preferred embodiment of the present invention obliquely upwardly inclined, viewed from the swinging axle of the cover, to the cover wall opposite from the removing opening, which has the advantage that also tablets with plane top faces disposed parallel towards each other, even tablets with concave disposed cover faces cause a correct closing of the drop cover, since by the oblique position of the engaging face, it is assured even in the mentioned tablets types that always the uppermost tablet is in engagement with its edge with the abutment face. If the container, however, is merely designed for the removal of tablets, which have convex cover faces, it is possible, with the same result to form the engagement face horizontal or, seen from the swinging axle to cover wall opposite from the removal opening, also easily upwardly inclined.

In accordance with a further development of the present invention, it is provided that the abutment face is arranged higher than an edge and face, respectively, sliding the tablet out of the removal opening and provided on the drop cover, which embodiment of the present invention has the advantage, that on the tablet edge during opening of the cover only a comparatively small force is exerted, and thus a displacement of the tablet is prevented. This is for the reason that, since due to the greater radius, which is defined by an edge of the drop cover more remote from the rotating axis of the drop cover, the engagement face is freed quickly from its pressure during the opening of the drop cover.

Known pocket containers with a drop cover are designed such that, upon removal of the last tablet, the last candy or the like, a renewed filling is possible, which possibility is, however, undesirable in many instances, which is based on reasons of medicinal and hygienic grounds or grounds of unfair competition. Thus, upon renewed use of containers for medicaments upon filling thereof, for instance, with sweets or the like, errors having heavy consequences can occur. Within the framework of the present invention it is now provided to avoid also this drawback. The particular development of the present invention is characterized by the fact that, between the follower spring and the tablets, a pistonlike pressure member is inserted, which is displaceable up to the position assured normally by the uppermost tablet and that in known manner is

formed appreciably higher than the tablet, so that this pressure member in the uppermost position is not slidable by the drop cover from the receiving opening, and an opening of the drop cover is prevented, that the housing is designed as, at least as to its operation, a one-part cup, at the opening of which sits the drop cover, so that in case the cover is closed, no goods can be inserted and the drop cover is mounted in the walls of the cup.

Due to the fact that the pistonlike pressure member is displaceable into the position taken by the uppermost tablet and this pressure member is simultaneously appreciably higher than a tablet, it closes, as soon as it reaches the uppermost position, the removal opening of the container, without, however, being in position to step out therefrom, since, by its height, it is still guided inside of the container. Thus, also no opening of the drop cover can take place, since the opening movement of the drop cover causes simultaneously an advancement of the prevailing uppermost tablet out of the removal opening, and as soon as such advancement is not possible, the cover is locked against opening. It is, thus, not possible after removal of the last of the filling goods, for instance, of the last tablet, to open the drop cover, in order to provide a new filling of the container from this side. If now supplementing the container is formed as a one-part cup, another insertion of filling pieces is not possible. A mounting of the drop cover directly in the walls of the cup supports thereby the previously mentioned measures, since, in this manner, also a removal of the drop cover as a total is nearly impossible.

In order to render possible a simple filling of the container in accordance with the present invention, it is preferably provided to arrange on the upper side of the container elastically outwardly pressable abutments, on which the prevailing uppermost tablet supports itself within the framework of the removal process. By the elasticity of these abutments, the possibility exists to fill the container prior to the insertion of the drop cover with a total pile of tablets or the like, whereby thus the uppermost tablet engages the underside of the abutments, in spite of the pressure exerted from below by the follower spring, the filled containers are easily handable and the drop cover can be inserted into the same without difficulty.

With these and other objects in view, which will become apparent in the following detailed description, the present invention will be clearly understood in connection with the accompanying drawings, in which:

FIG. 1 is a vertical section of a pocket container designed in accordance with the present invention with a drop cover, the latter being shown, however, in elevation;

FIG. 2 is a side elevation of the upper part of the container shown in FIG. 1;

FIG. 3 is a side elevation of a drop cover provided in the container disposed in FIG. 1; and

FIG. 4-6 show drop covers with differently formed abutment faces.

Referring now to the drawings, and in particular to FIG. 1, the pocket container comprises a container cup 1 and a drop cover 2 is provided at the upper end of the container cup 1, which drop cover 2 closes the container in its closed position and during opening slides out the uppermost tablet 3 of a tablet pile 4 out of the opening of the container. A pressure member 5 is disposed below the tablet pile, which pressure member 5 is pressed from below by the follower spring 6 against the pile 4.

The removal opening of the container is limited on its lower side by the edge 7 of the cup 1, at their sides by the rising wall parts 8 and 9 of the cup 1, while the limitation in upward direction is formed effectively by those parts of the drop cover, on which the tablet is engaged during the removal process and upon termination of the removal process is formed by abutments 10 on the wall parts 8 and 9.

The drop cover 2 has on each side an axle stump 11 and 12, which axle stumps form jointly with corresponding bores in the wall parts 8 and 9 of the cup 1 the bearing of the drop

cover, whereby the geometrical swinging axis 13 of the drop cover extending through the axle stumps project through the geometric cylinder surrounding the tablet chamber and are disposed perpendicularly to the axial direction of the latter.

On the inside of the drop cover 2 is provided between the swinging axis 13 and the wall 14 opposite from the removal opening an abutment face 15, on which in case of a closed or slightly opened drop cover, the uppermost tablet 3 of the tablet pile comes under the pressure of the follower spring 6. Due to the fact that the uppermost tablet with its edge 16 presses towards the engagement face 15, in case of an extremely or completely closed cover 2, the cover part disposed between the axle 13 and the wall 14 is pressed upwardly, and thus the cover is guided into the closing position and retained in the latter, respectively.

If the cover 2 is opened by hand by means of the handle 17, the rounded edge 18 of the wall 14 slides the uppermost tablet 3 over the edge 7 out of the container, which removal, after the cover 2 and the abutment face 15, respectively, has reached a predetermined oblique position, is still supported by the spring force of the follower spring 6, since the pressure exerted to the tablet from below slides its edge along the abutment face 15 and thus a further force component, which slides the tablet out of the container becomes effective. The joint effect of the opening force exerted by hand and the force of the follower spring 6 can bring about thereby also a direct opening of the cover, which movement type is of advantage during the removal of the uppermost tablet, so far as thereby independently from the speed applied always during opening of the cover by hand, a small jolt is exerted to the tablet 3 and such that the latter is always moved out of the container to the same extent and thereby projects further, as this could be obtained by hand by the removal movement, whereby an easier gripping of the removed tablet is made possible.

Due to the fact, that the abutments 10 in the container 1 are disposed higher than the abutment face 15 of the drop lever, the tablet becomes completely free upon termination of the opening movement of the cover 2 and can easily be removed. If the abutment face provided on the drop cover seen from the swinging axle is obliquely upwardly inclined at an angle α , as it is provided in connection with the cover 2 of the container shown in FIG. 1, and is further exemplified in FIG. 4, one obtains also in connection with tablets with concavely curved or flatly formed cover faces 19 and 20 a good engagement of the tablet edge 16 on the abutment face 15, which is contributory to a safe maintenance of the closing position of the drop lever. If, however, the container is designed only for the removal of tablets, which have concave top faces, such engagement of the edge 16 of the uppermost tablet can be obtained also in case of a horizontal or an upwardly directed arrangement under the angle β of the abutment face 15, which positions of the abutment face 15 are shown in FIGS. 5 and 6 jointly with the corresponding tablet shape. The two last-mentioned positions of the abutment face 15 result thus in a better securing of the cover in its closing position than the embodiment shown in FIG. 4, whereby, however, the amplification of a removal movement by the follower spring 6 is lower than in the position of the abutment face in accordance with FIG. 4.

In case the cover is completely opened, the edge 18 of the wall 14, based on a position of the container in accordance with FIG. 1, is disposed at the left of the axle 13 and by the follower spring 6, the open position of the cover 2 is maintained. If now the cover 2 is closed manually, the spring 6 supports the closing movement, as soon as the edge 18 is in a position to the right of the axle 13 and thus by eccentric force application, a force component, pressing the edge 18 towards the right, occurs.

By this arrangement, the cover 2 is automatically brought into the closing position by the force of the spring 6, as soon as the cover is brought manually into an oblique position.

If now the height of the pistonlike pressure member 5 is chosen larger than the height of a tablet and if the pressure member is slidable up to that position, which is assumed by the

uppermost tablet of the tablet pile 4, the edge 18 of the drop cover comes into engagement with the side face of the pressure member 5, as soon as the latter is brought into the uppermost position upon removal of the last tablet and an opening of the drop cover is now rendered impossible, since the pressure member 5, due to its height, cannot emerge from the removal opening. Rather, by this arrangement, according to which a lower part of the pressure member still is guided by the walls of the container 1, a sliding out of the latter from the removal opening is prevented and simultaneously also an upward swinging of the cover 2. Thus, the container is closed by the locked drop cover and from the drop cover side no new filling goods can be inserted into the container. Due to the fact that the container 1 is additionally designed as a one-part cup, that means with the exception of that side on which the drop cover sits, it has no opening through which filling material could be inserted, and a different refilling of the container is not possible. The container cup can then be manufactured as one piece in a single working step, which renders possible a particularly simple and cost-saving manufacture. It can also, however, in case this is considered for producing or for other reasons, be made up of several pieces.

Due to the fact that the drop cover 2 is mounted directly in the upwardly extending wall parts 8 and 9 of the container cup 1, the cover closed in the locked state of the container cannot be removed without difficulty out of the container.

The abutments 10 provided on the inner side of the walls 8 and 9 serve also the purpose of securing the filling goods after the insertion into the container during filling of the container with a pile of tablets or the like, so that, without any further difficulties, the drop cover can be mounted on the container cup and into the same inserted, respectively, in order to make possible during filling of the container to slide in simply the tablet pile 4, the abutments 10 are elastically resiliently arranged, so that they are outwardly pressed by the horizontal outwardly directed force component, which is exerted upon insertion of the tablet pile 4 on the upper faces 19 of the abutments 10. The elastic mounting of the abutments takes place thereby in the most simple case such, that these abutments are disposed on elastic resilient wall parts of the container cup, it is, however, also possible to provide a resiliency of the abutments independently from the container walls, for instance, such that they sit on resilient tongues.

The oblique arrangement of the upper sides and faces 19, respectively, of the abutments 10 simplifies first of all the filling of the container with the tablet pile, since by such oblique arrangement the pressure exerted on the tablet pile can be low and, thus, also damaging or scratching of the individual tablets of the pile is prevented to a great extent. An oblique arrangement of the lower side end face 20, respectively, of the abutments 10 is, first of all, of advantage for the production of the container cup 1, since such oblique arrangement gives the possibility jointly with the elastic characteristic of the bearing abutments 10 to remove simply axially a core disposed inside of the cup 1 serving for the production of the container cup 1.

It has been found advantageous, as it is the case in the embodiment shown in the drawing, if the lower faces of the abutments 10 define an angle of about 30° to the horizontal and the upper faces extend at an angle of about 30° to the vertical extending through the prevailing container wall 8 and 9, respectively.

While I have disclosed one embodiment of the present invention, it is to be understood that this embodiment is given by example only and not in a limiting sense.

I claim:

1. A pocket container for reception and individual removal of filling goods consisting of tablets, candies, or the like, piled up in the container, comprising:

a container member constituting a geometrical cylinder defining and surrounding a chamber for filling goods within said container member and having an opening for removal of filling goods;

a follower spring pushing said filling goods in direction of said opening;

a drop cover disposed on top of said container member and including means for sliding the uppermost of said filling goods from said opening upon lifting said drop cover;

said drop cover being mounted about a geometrical swinging axis projecting through said geometrical cylinder, said geometrical swinging axis being disposed perpendicular to the axial direction of said geometrical cylinder; and

said drop cover having on its inside an abutment face between said swinging axis and a wall opposite from said opening, and said abutment face being adapted to engage the uppermost of said filling goods by the pressure of said follower spring in case said drop cover is in its closed or extensively closed position, and the pressure exerted on said abutment face tending to urge said drop cover into its closed position.

2. The pocket container, as set forth in claim 1, wherein said abutment face extends obliquely upwardly from said swinging axis to said wall of said drop cover opposite from said opening.

3. The pocket container, as set forth in claim 1, wherein:

said drop cover has an edge and face, respectively, sliding out the uppermost of said filling goods from said opening, and

said abutment face is disposed at a higher level than that of said edge and face, respectively.

4. The pocket container, as set forth in claim 1, wherein the inside of the walls of said container member has abutment means disposed higher than said abutment face on said drop cover.

5. The pocket container, as set forth in claim 4, wherein said

abutment means of said container member are elastically outwardly pressable.

6. The pocket container as set forth in claim 5, wherein: the walls of said container member are formed elastically at the point of said swinging axis of said drop cover; and said swinging axis is defined by axle stumps provided on said drop cover.

7. The pocket container, as set forth in claim 1, which includes a pistonlike pressure member between said follower spring and said filling goods;

said pressure member being displaceable into the position assumed normally by the uppermost of said filling goods and being higher than that of said filling goods, so that said pressure member is not slidable through said opening in its uppermost position and prevents an opening of said drop cover;

said container member is formed as an at least operationally one part cup at the opening of which said drop cover is arranged, so that no filling goods can be inserted through said closed drop cover; and said drop cover is mounted in the walls of said container member.

8. The pocket container, as set forth in claim 7, wherein said abutment means are inclined at their upper face and at their lower face; and

said upper face is formed steeper than their lower face.

9. The pocket container, as set forth in claim 8, wherein said lower face of said abutment means extends obliquely inward upwardly at an angle of about 30° to the horizontal and the upper face of said abutment means extends obliquely inward downwardly at an angle of about 30° to the vertical.

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