

June 30, 1970

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3,517,871

TABLET CUTTER

Filed Nov. 15, 1968

2 Sheets-Sheet 1

FIG. 1.

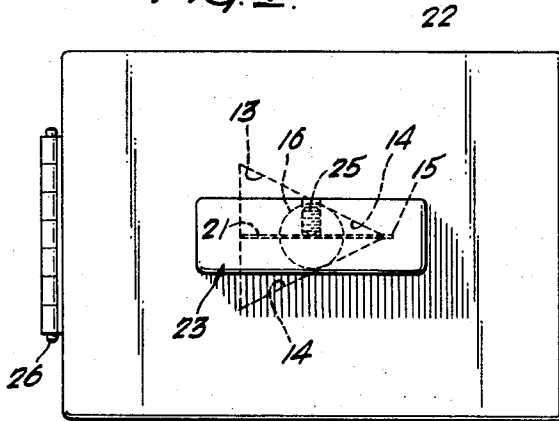


FIG. 3.

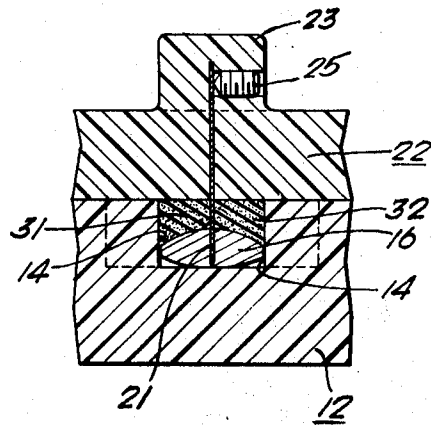


FIG. 2.

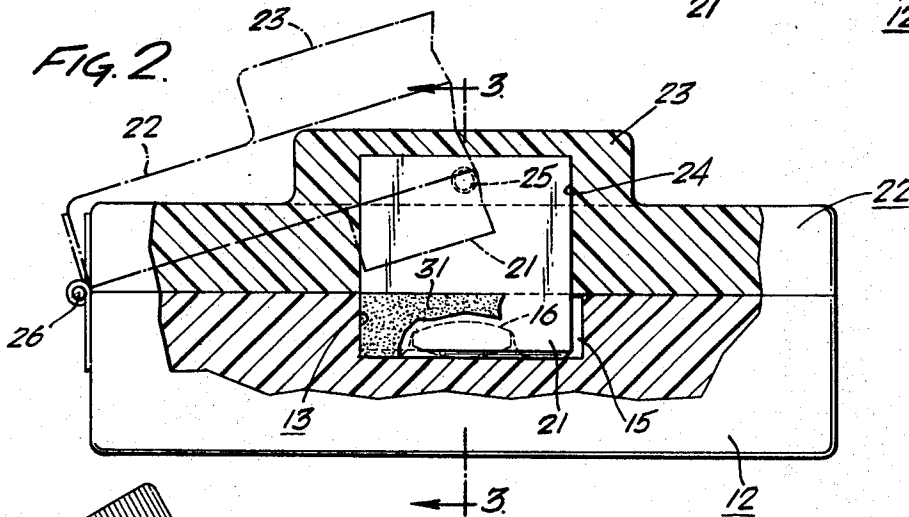
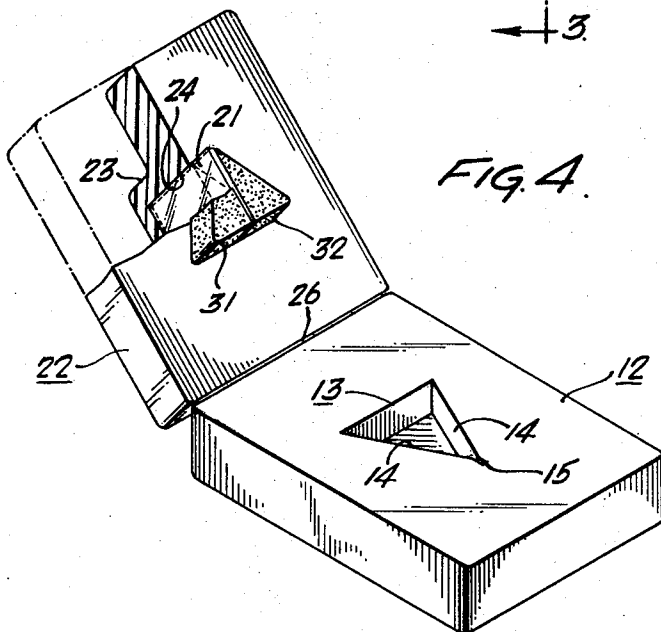


FIG. 4.



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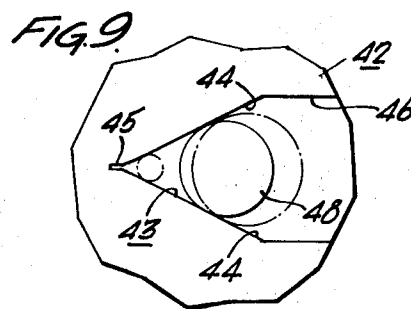
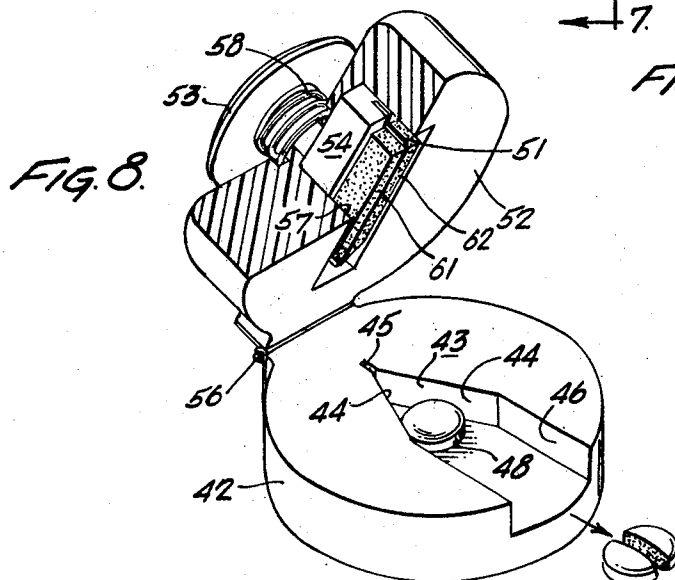
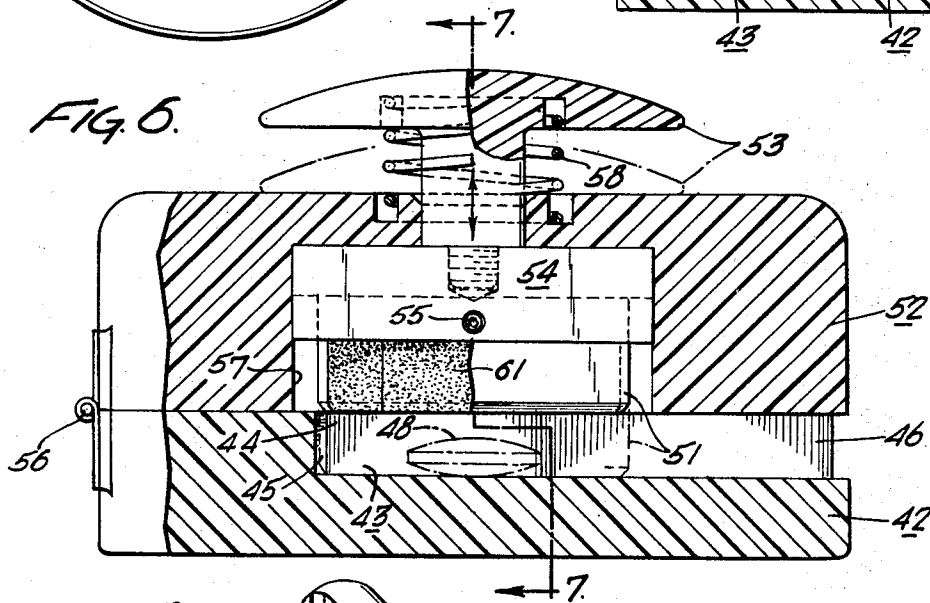
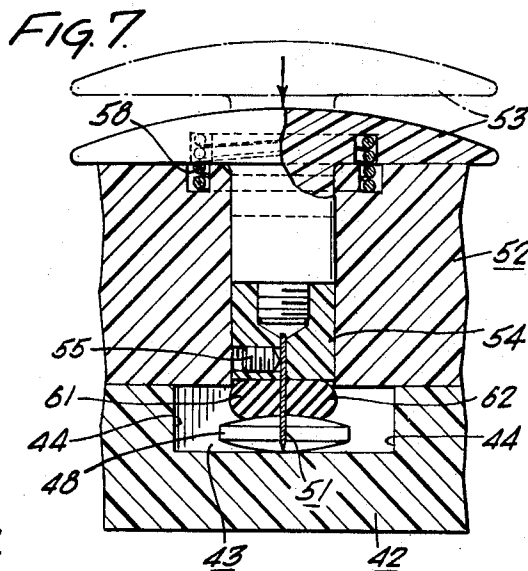
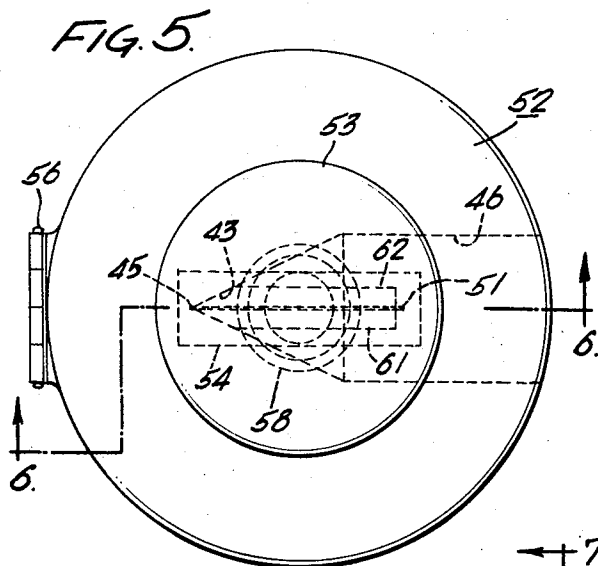
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TABLET CUTTER

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TABLET CUTTER

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12 Claims

ABSTRACT OF THE DISCLOSURE

Devices for cutting tablets and the like having a triangular receptacle in which the tablet may be centered by pressing the tablet toward the apex, and a blade operable to bisect the apex angle to sever the tablet into two equal halves. During the cutting operation the tablet is held by a resilient holder carried by the blade to engage the tablet just prior to engagement by the blade.

The present invention relates to cutting devices, and has particular application to a device for cutting tablets into two halves.

Tablets are normally manufactured in the dosages which are most commonly prescribed by physicians. However, in many cases physicians will prescribe half doses, for example when prescribing for children or other persons who are sensitive to the drug, or when a dosage of lesser strength is desired for any reason. Although many tablets are manufactured with score lines for facilitating breakage into half doses, it is difficult, if not impossible to accurately fracture the tablet along the score lines to produce two equal doses.

Many tablets are not manufactured with score lines and when the patient attempts to split the tablet in half, the tablet crumbles and loses its integrity so that the patient must collect the bits and pieces of the tablet until he estimates that he has a half-tablet. Such procedures do not permit accurate dosages, and when tablets include multiple ingredients in layers or other arrangements, there is no assurance of obtaining the proper proportion of ingredients in the bits and pieces which are collected by the patient. Where accuracy of dosages is important, the physician must specify a tablet which is manufactured in the desired dosage. This requires the pharmacist to maintain a stock of a large variety of dosages as well as the usual variety of drugs and brands.

With the foregoing in mind, the present invention provides a device which enables accurate severing of a tablet along its center line with minimum risk of crushing or crumbling the tablet.

More specifically, the present invention provides a device which automatically centers the tablet under a blade and resiliently holds the tablet during the severing operation by the blade to prevent inadvertent crushing of the tablet halves formed in the operation.

In particular, the present invention provides a receptacle for receiving the tablet including centering means for centering the tablet in the receptacle and a blade operable to bisect the receptacle and thereby sever the tablet into two halves, said blade carrying resilient tablet-holder pads operable to firmly yet gently retain the tablet in its central position in said receptacle.

The present invention provides a device which is of simple construction and yet which is fully effective in operation and use.

All of the objects of the invention are more fully set forth hereinafter, with reference to the accompanying drawings wherein:

FIG. 1 is a plan view of a tablet cutting device embodying the present invention;

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FIG. 2 is a view in side elevation with portions broken away to illustrate the construction and operation of the device shown in FIG. 1;

FIG. 3 is a fragmentary sectional view taken on line 3—3 of FIG. 2;

FIG. 4 is a perspective view with portions broken away illustrating the construction and operation of the device shown in FIGS. 1 through 3;

FIG. 5 is a plan view of an alternate embodiment of the present invention;

FIG. 6 is a transverse sectional view taken on line 6—6 of FIG. 5;

FIG. 7 is a fragmentary sectional view taken on line 7—7 of FIG. 6 but showing the device in operation;

FIG. 8 is a perspective view of the device shown in FIGS. 5 through 7 with portions broken away to more clearly illustrate its construction; and

FIG. 9 is a plan view of the tablet receptacle showing its self-centering accommodation to tablets of differing sizes.

Referring now to the device shown in FIGS. 1 to 4, a base 12 is provided with a receptacle 13 for receiving a tablet 16. As shown in FIG. 4, the receptacle is triangular in shape having side walls 14, 14 converging angularly to an apex having a slotted extension 15. The tablet 16 is inserted in the receptacle 13 and pressed toward the apex 15 so as to be centered in the receptacle (see FIG. 1).

In accordance with the invention, a blade is provided to bisect the receptacle apex angle so that when the blade is displaced into the receptacle, it operates to sever the tablet into two halves along a line equally spaced between the sidewalls 14. In the present instance the blade 21 is carried by a cover element 22 having an upstanding handle 23 therein. In the present instance the blade is mounted in a slotted recess 24 in the cover element 22 and is releasably engaged therein by a set screw 25 which is threaded into the handle 23 as shown in FIG. 3. The cover 22 is hinged to the base 12 as indicated at 26 so that when the cover is swung closed on the hinge 26, the blade 21 enters the receptacle 13, the forepart of the blade passing through the slotted apex 15.

In accordance with an important feature of the invention, a resilient holder is provided to engage the tablet 16 and firmly, yet gently, hold the tablet during the severing operation. To this end, holding pads 31 and 32 are positioned on either side of the blade 21 to enter the receptacle 13 with the blade and engage and hold the tablet therein. As shown in FIG. 4, the pads 31 and 32 conform in outline to the outline of the receptacle 13, in the present instance being triangular in outline. The pads are of a soft resilient material such as foam rubber or the like so as to be readily compressible to accommodate to tablets of varying thickness and to frictionally embrace the tablet to prevent inadvertent displacement thereof during the severing operation. The pads 31 and 32 also serve to protect the projecting portion of the blade 21 when the cover 22 is displaced from the base 12 so that the sharpened edge of the blade is not exposed.

It is noted that the apex 15 of the receptacle 13 is directed away from the hinge 26 so that when the cover is closed on the hinge 26, the angular movement of the blade 21 tends to force the tablet 16 towards the apex of the receptacle 13 and firmly center it between the sidewalls 14, 14, as the resilient pads 31 and 32 gently retain the tablet in its centered position. Thus by simply closing the cover 22 by means of the handle 23 onto the base 12, the tablet in the receptacle 13 is properly severed in half by the blade 21. The firm yet gentle engagement of the pads 31 and 32 against the upper surface of the pill tend to prevent crumbling of the tablet and to insure a clean severing of

the tablet along a center line, even in the absence of a score line on the tablet. After the cover is closed, the tablet may be removed by simply opening the cover and dumping the receptacle into the hand or another container, as required.

FIGS. 5 through 8 illustrate another embodiment of the invention in which the blade is mounted for displacement within the cover so that the cover may be closed without severing the tablet in the receptacle. In this embodiment of the invention, the base 42 is provided with a receptacle 43 having sidewalls 44 converging angularly toward an apex having a slotted extension 45. In the present instance, the receptacle 43 continues rearwardly from the apex 45 in a passageway 46 which opens in the sidewall of the base 42. By this construction a tablet 48 may be inserted into the receptacle 43 without opening the cover 52 associated with the base 42, and the tablet 48, after being severed, may be removed through the passageway 46 without up-ending the device. In the present instance, the cover 52 is hingedly mounted to the base 42 as indicated at 56 so as to permit easy cleaning and inspection of the receptacle 43, although the cover, if desired, may be formed integrally with the base if open access to the receptacle 43 is not required.

A blade is mounted in the cover 52 for axial displacement by a handle 53 having a plunger 54 which mounts the blade therein, for example by a setscrew 55. The blade 51 is mounted for vertical displacement along a line which bisects the apex of the sidewalls 44, 44, engaging in the slotted extension 45 as shown in FIG. 6. The plunger 54 is telescopically engaged in a recess 57 in the cover 52 to an extent that the blade is normally retracted out of the confines of the receptacle 43, for example by a spring 58 compressed between the handle 53 and the cover 52, as shown.

In accordance with an important feature of the invention, resilient tablet holding means is associated with the blade to further yet gently engage the tablet and retain it against displacement from its centered position in the receptacle 43 during the operation of the blade. To this end the plunger 54 mounts a pair of resilient pads 61 and 62 on either side of the blade 51 to engage the tablet 48 before the blade 51. The pads 61 and 62 are resiliently compressible and generally conform in outline to the outline of the recess 57 and like the pads 31 and 32 of the previous embodiment serve the additional function of protecting the blade 51 when the cover 52 is displaced.

As shown in FIG. 9, the angular convergence of the sidewalls 44 accommodates a wide range of tablet sizes and positions the tablet centrally in the receptacle 43 regardless of the size of the tablet. The tablet may be as small as a saccharine tablet, or as large as the width of the receptacle permits. The resilient pads 61 and 62 permit the device to accommodate tablets having widely varying thicknesses, without detracting from the firm yet gentle support provided thereby. The device is operable to sever tablets along a centerline without substantial crumbling, whether the tablets are of a relatively fragile or a hard composition, or are of uniform composition or are layered or coated. Although most effective with rounded tablets, it may be used to sever square, elongated or other shaped tablets.

The device of the present invention enables a patient to sever pills accurately and cleanly without substantial loss of medication and is of such a simplified construction as to be relatively inexpensive. Preferably the base and cover of the device are fabricated from plastic or other suitable inexpensive material which is durable and resistant to corrosion and is readily cleansed to prevent contamination of the medication. The illustrated embodiments of the invention are designed to utilize a razor blade as the cutting blade so that the blade may be replaced simply and expeditiously in the event that the blade becomes dull or damaged.

While particular embodiments of the present invention have been herein illustrated and described, it is not in-

tended to limit the invention to such disclosure but changes and modifications may be made therein and thereto within the scope of the following claims.

We claim:

1. A device for severing tablets comprising a base having a receptacle therein for receiving the tablet to be cut, said receptacle having sidewalls converging angularly to an apex and cooperable to position any tablet centrally between said walls in said receptacle, a blade mounted for displacement into said receptacle along a line bisecting said apex to thereby sever said tablet into two halves, and resilient holding means positioned on both sides of said blade to engage said tablet and firmly and gently retain the same in its position centrally between the walls of said receptacle during displacement of said blade into said receptacle and into severing engagement with said tablet.

2. A device according to claim 1 wherein said resilient holding means comprise pad means of resilient compressible material operable to engage the tablet in advance of said blade and to frictionally retain the tablet in its position.

3. A device according to claim 2 including a handle mounting said blade for displacement into said receptacle, said pad means being mounted on said handle for displacement into said receptacle concurrently with said blade and operable to be compressed by said tablet upon displacement of the blade into severing engagement with said tablet.

4. A device according to claim 3 including a set screw releasable mounting said blade in said handle.

5. A device according to claim 3 wherein said handle is hingedly mounted on said base to pivotally displace said blade into and out of said receptacle.

6. A device according to claim 5 including a cover member for said base formed integrally with said handle.

7. A device according to claim 5 wherein said receptacle comprises a triangular recess in said base and said pad means comprises a pair of pads of triangular outline conforming to the outline of said recess and adapted to project into said recess in advance of displacement of said blade thereinto.

8. A device according to claim 7 wherein said triangular recess is positioned with its apex facing away from said hinged connection between said handle and base.

9. A device according to claim 3 wherein said blade is mounted on a plunger connected to said handle for axial displacement into said receptacle.

10. A device according to claim 9 including a cover element for said base having a recess overlying said receptacle, said plunger being telescopically mounted in said recess in the cover.

11. A device according to claim 10 wherein said receptacle in the base includes a passageway extending rearwardly away from said apex and opening in an exterior wall of said base.

12. A device according to claim 11 including spring means to bias said plunger away from said receptacle to normally position said blade within said recess for movement against the bias of said spring means from said recess into said receptacle.

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FRANK T. YOST, Primary Examiner

U.S. Cl. X.R.

83—382, 465, 564, 588, 648, 925; 206—42