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AMPOULE OPENER

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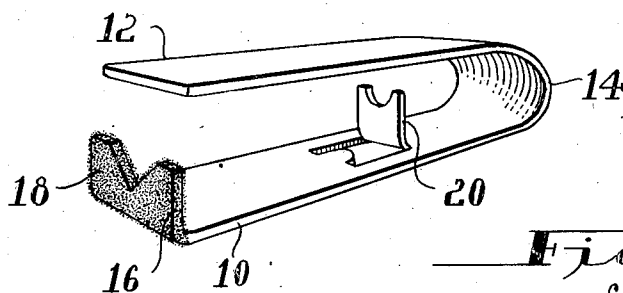


Fig. 1.

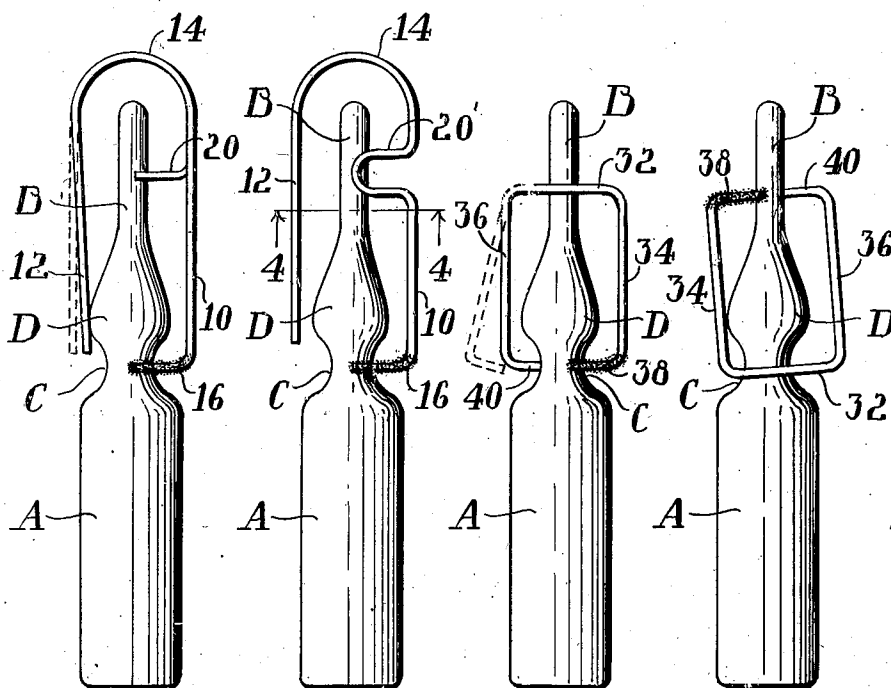


Fig. 2. Fig. 3. Fig. 5. Fig. 7.

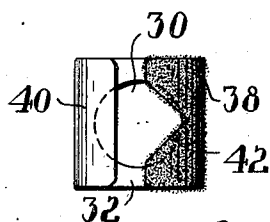


Fig. 6.

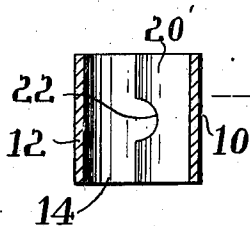


Fig. 4.

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AMPOULE OPENER

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4 Claims. (Cl. 51—205)

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This invention relates to an improvement in ampule openers for opening medical injection ampules which are formed of relatively thin blown glass.

One of the objects of my invention is the provision of an opener which is adapted for severing the necks of the ampules by first scoring the neck and then snapping the neck from the body of the ampule while retained in the opener.

Another object of my invention is the provision of an ampule opener made of light spring strip stock whereby the openers can be made at such a low cost that an opener can be furnished with each box of ampules, thus assuring the doctor or nurse that an opener is available when a box of ampules is purchased.

In the drawings I have illustrated several forms of openers made in accordance with my invention and in which:

Fig. 1 is a perspective view of one form of opener;

Fig. 2 is a side view showing an ampule in position for scoring within the opener;

Fig. 3 is a view similar to Fig. 2 showing a slightly modified form of opener;

Fig. 4 is a sectional view on the line 4—4 of Fig. 3;

Fig. 5 is another view similar to Fig. 2 showing another form of opener;

Fig. 6 is an end view of the opener shown in Fig. 5; and

Fig. 7 is a side elevation of an opener such as shown in Fig. 5 in which the opener has been reversed on the ampule to snap off the neck after scoring.

In the form shown in Figs. 1 and 2, the structure comprises a pair of legs 10 and 12 connected to each other by a cross-bar 14, the end of the leg 10 is turned at right angles to the leg to form a projection 16, which is provided with a V-shaped slot, the surfaces of the slot and portions of the inner and outer faces of the projection 16 are coated with abrasive material, such as emery, Carborundum or similar abrasive material as indicated at 18. The leg 10 between the projection 16 and the cross-bar 14 is provided with an inwardly extending projection 20 punched out of the metal forming the leg 10 and is provided with a curved recess forming a support for the neck of the ampule, as clearly shown in Fig. 1. In using the device for opening an ampule by severing the neck portion B from the body A thereof, the ampule is inserted into the device while the leg 12 is in the position shown in dotted lines and resting the neck B in the recess in the

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projection 20 and inserting the groove C between a bulbular portion D at the lower portion of the neck and the body A of the ampule within the V-shaped slot in the projection 16 of the leg 10. The leg 12 is then depressed from the dotted line position to the full line position to press the plane surface of the leg against the bulbular portion D of the neck to hold the ampule against the abrading material on the faces of the V-shaped slot in the projection 16 on the leg 10 as well as in the recess in the support 20. The ampule is then rotated in the V-shaped slot while held therein by pressure on the legs to score the surface of the reduced portion C, and, after scoring, the body A is quickly wrenched laterally while the neck is in a clamped position between the end projection 16, the leg 12 and the projection 20 to snap off the neck at the scored portion.

In Figs. 3 and 4, I have illustrated a structure which is identical with the structure shown in Figs. 1 and 2 with the exception of the formation of the projection 20' on the leg 10 is formed by punching an opening 22 in the leg forming portion and then forming the projection by bending the blank at the central portion of the opening 22 as shown in Fig. 3.

In Figs. 5 and 6, I have illustrated another form of opener which is provided with a circular opening 30 in the cross-bar 32 connecting the legs 34 and 36. The ends of the legs 34 and 36 are bent to form end projections 38 and 40, respectively, the projection 38 being provided with a V-shaped slot, the surfaces of which are also coated with abrasive material as indicated at 42 in Fig. 6. The end face of the projection 40 with a plane ampule engaging surface may be normal to the edges of the projection.

In the use of an opener such as shown in Figs. 5 and 6, the neck B is inserted through the opening 30 in the cross-bar 32, at which time the leg 36 is in the position shown in dotted lines in Fig. 5, the reduced portion C of the ampule is then moved into the V-shaped slot and the legs 34 and 36 are pressed towards each other to clamp the portion C in the slot by the projection 40 which is provided with a plane surface. The ampule is then rotated to score the same, and, after scoring, the body A of the ampule is then wrenched laterally to snap the neck from the ampule. During the scoring, the neck of the ampule may be held against the wall of the opening 30 to support the neck C of the ampule during the rotation thereof to form a continuous score about the axis of the ampule and also to permit

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ampules of greater length to be scored and severed due to the size of the opening, which will permit the entry of the bulbular portion D.

The opener may be removed from the ampule, reversing the same as shown in Fig. 7 and then snapping the neck B'' from the body A'.

If desired the ends of legs 12 in Figs. 2 and 3 may be provided with projections such as shown in Figs. 5 and 6 or the leg 36 in the structure shown in Fig. 5 may be formed as in Fig. 2 to engage the bulbular portion D of the ampule.

What I claim and desire to protect by Letters Patent is:

1. An ampule opener formed of strip metal having a cross-bar, a leg extending from each end of the cross-bar, one of the legs having a scoring member extending towards the other leg provided with a recess, said other leg having a plane ampule engaging face for pressing the ampule into the recess to score the ampule when rotated thereon.

2. An ampule opener formed of strip metal having a cross-bar, a leg extending from each end of the cross-bar, one of the legs having its end bent towards the other leg, said bent end having a V slot therein and abrasive material secured to the surfaces of the slot, the other leg having a plane ampule engaging face for pressing the ampule into the V slot to score the ampule when rotated therein.

3. An ampule opener formed of strip metal

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having a cross-bar, a leg extending from each end of the cross-bar, one of the legs having its end bent towards the other leg, said bent end having a V slot therein, abrasive material secured to the surfaces of the slot, a support for the end portion of the ampule, said other leg having a plane ampule engaging face for pressing the ampule into the V slot to score the ampule when rotated.

4. An ampule opener formed of strip metal having a cross-bar, a leg extending from each end of the cross-bar, there being an opening in the cross-bar for the reception of the neck of an ampule forming a support for the neck of the ampule, one of the legs having scoring means extending towards the other leg, said other leg having a plane ampule engaging face for pressing the ampule against the scoring means.

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The following references are of record in the file of this patent:

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