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DISPOSABLE SYRINGE AND COMPRESSION DEVICE THEREFOR

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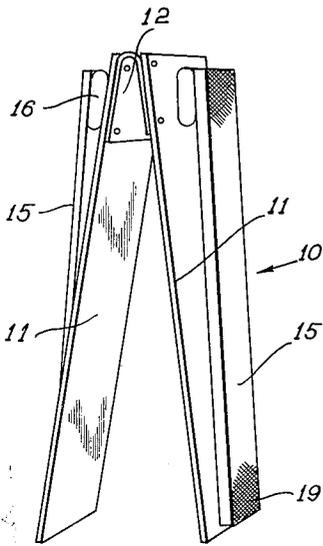


FIG. 1

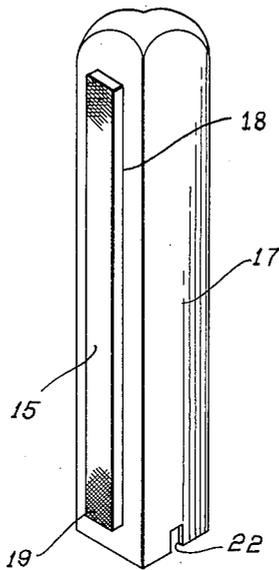


FIG. 2

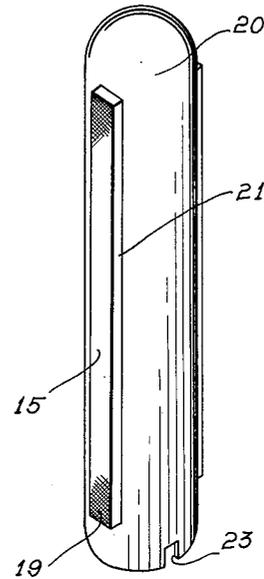


FIG. 3

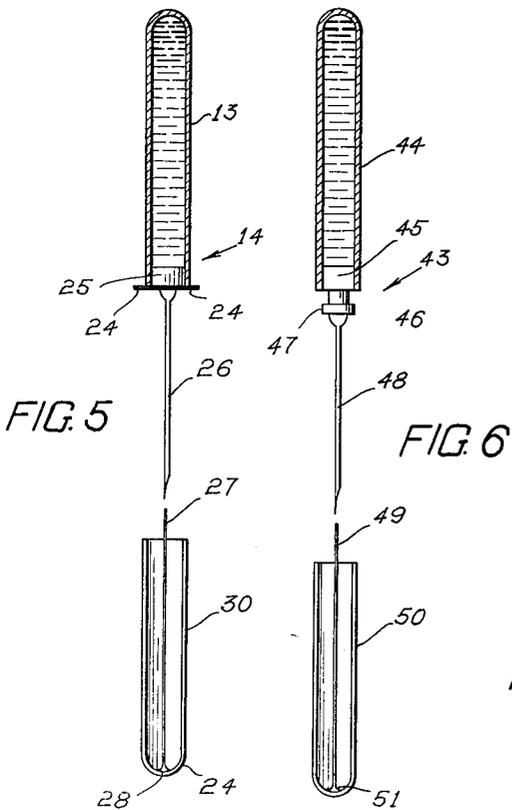


FIG. 5

FIG. 6

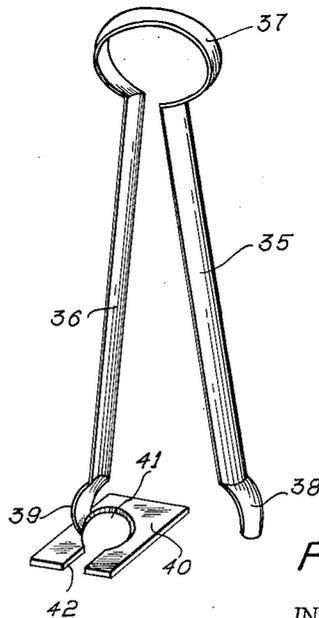


FIG. 4

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DISPOSABLE SYRINGE AND COMPRESSION DEVICE THEREFOR

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This invention relates to a disposable hypodermic syringe, and a compression device therefor, and has as its primary object the provision of a syringe including a container or medicine sack holding a predetermined quantity of medicament which may be injected, after the insertion of a needle into the body of a patient, and discarded after a single use, together with a device for compressing the sack, the compression device being adapted for continued reuse.

A further object of the invention is the provision of a compression device which will serve to extract substantially all of the medicament from the flexible compressible sack or container, in a single relatively smooth operation, and which may be readily engaged with or disengaged from the disposable syringe with a minimum of time, effort, and difficulty.

A further object of the invention is the provision of a compression device of this character which is sturdy and durable in construction, and which will stand continued reuse for an indetermined period.

Still other objects reside in the combinations of elements, arrangements of parts, and features of construction, all as will be more fully pointed out hereinafter, and disclosed in the accompanying drawing wherein there are shown preferred embodiments of this inventive concept.

In the drawing:

FIGURE 1 is a perspective view of a compression mechanism adapted for engagement with the sides of the compressible sack of a disposable syringe.

FIGURE 2 is a perspective view of a container for the operative mechanism disclosed in FIGURE 1.

FIGURE 3 is a view similar to FIGURE 2 but showing a different shape of housing for the compression mechanism adapted for a different shape of disposable sack.

FIGURE 4 is a perspective view of still another form of compression device.

FIGURE 5 is a side elevational view of a disposable hypodermic syringe added to be employed with the devices of FIGURES 1, 2, and 3, a protective cover therefor also being shown; and

FIGURE 6 is a view of a modified form of hypodermic syringe, and cover therefor adapted to be used with the compression device of FIGURE 4.

Similar reference characters refer to similar parts throughout the several views of the drawings.

Having reference now to the drawings in detail, and more particularly to FIGURE 1, there is generally indicated at 10 a compression device which is adapted for the compression of a disposable plastic medicine sack, in a manner to be more fully described hereinafter. Compression device 10 comprises a pair of plates 11 of substantially identical configuration, which are resiliently connected at one end as by means of a resilient leaf spring 12, or in any other desired resilient manner, so that upon compression of their lower ends, the plates will be moved substantially to parallel relation, to completely expel the contents of the plastic sack 13 (see FIG. 5) of a disposable hypodermic needle generally indicated at 14 and to be more fully described hereinafter. The exterior surface of each of plates 11 is provided with a raised roughened panel 15, which is secured at one end in close juxtaposition to the plate, and which at its other end is spaced therefrom as by means of spacer members 16. The compression device 10 is adapted to be positioned in a hous-

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ing 17, which is shown in FIGURE 2 as being substantially rectangular to accommodate a rectangular sack 13, and which is provided on its opposite sides with slots 18, through which the members 15 project, the arrangement being such that when members 15 are compressed at their lower extremities 19, the contents of the sack 13 are expelled.

FIGURE 3 shows an outer container substantially identical to FIGURE 2, but being circular in cross-section, or cylindrical, the outer tube being generally indicated at 20, and provided with slots 21 corresponding in position and function to the slots 18 of the container 17. The lower portions of both containers 17 and 20 are provided with notches 22 and 23 on opposite sides thereof, and in perpendicular relation to the pressure members 15. The notches 22 or 23 are adapted to seat over elongated laterally extending lugs 24, which are secured on opposite sides of a needle hub 25, which hub extends into compressible medicine sack 13. A hollow hypodermic needle 26 extends from hub 25, and is adapted, when not in use, to be engaged internally by a needle wire 27 which is fused as at 28 to the end 29 of a transparent plastic cover 30, the cover being adapted to be secured about the needle in any desired manner.

In the use and apparatus of this form of the device, the cover 30 and its associated needle wire are first removed from the needle, and one of the members 10 or 20 positioned over the sack 13 in accordance with the shape thereof. The lugs 24 are engaged by the notches 22 or 23 in accordance with the type of sack and compression device employed. Pressure on the panels 15 exerts corresponding pressure on the plates 11, which serve to move into substantially parallel relation completely extruding the contents of tube 13, after needle 26 has been injected into the body of the patient. Upon completion of the hypodermic, the tube 13 and its associated needle 26 in cover 30 may be discarded, while the compression device of FIGURES 1, 2, and/or 3 may be retained for subsequent use.

A modified type of compression device is disclosed in FIGURE 4, and comprises two substantially straight transversely arcuate compression members 35 and 36, which are connected at their upper ends by a resilient integral loop 37 which serves normally to bias the lower ends of the members 35 and 36 apart. Member 35 has an arcuate extremity 38, the purpose of which will be more fully described hereinafter, while the member 36 has a similar extremity 39 to the lower end of which is secured a plate 40, in substantially perpendicular relation to the member 30, the plate 40 having a central opening 41, and a slot 42 therein. This device is adapted to be used with a disposable syringe generally indicated at 43 in FIGURE 6 which includes a compressible sack 44 substantially identical to that of the previously disclosed modification, and a needle hub 45 closing the lower end thereof. The needle hub 45 includes an outwardly extending portion 46 which is provided by forming an annular groove between hub portion 45 and its lower flanged extremity 47. A needle 48 identical to the needle 46 is secured to the hub portion 47, and is protected by a needle wire 49 in a plastic container 50 identical to the previously described container 30, the needle wire 49 being fused to the end of the protective cover 50 as at 51.

In this form of the device the procedure is substantially identical to that previously described with the exception of the fact that the applicator of FIGURE 4 is positioned about compressible sack or container 44, with groove 46 passing through slot 42 into opening 41. The arcuate portions 38 and 39 are adapted to extend on opposite sides of flange portion 47, so that compression of members 35 and 36 into substantially parallel relation completely extrudes the contents of collapsible sack 44. After use the

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sack 44 and its associated elements may be discarded, while the compressor of FIGURE 4 may be re-utilized as frequently as desired.

From the foregoing it will now be seen that there is herein provided an improved disposable hypodermic syringe and a compression device therefor which accomplishes all the objects of this invention, and others, including many advantages of great practical utility and commercial importance.

As many embodiments may be made of this inventive concept, and as many modifications may be made in the embodiment hereinbefore shown and described, it is to be understood that all matter herein shown and described is to be interpreted merely as illustrative, and not in a limiting sense.

I claim:

1. A compression device for use with a disposable hypodermic syringe having a collapsible medicament containing sac with the hub of a hypodermic needle connected to one end thereof, said device comprising; a pair of similar opposed compression plates which are connected closely together at one end thereof by V-shaped spring means and normally diverge outwardly therefrom to the free ends thereof, a pair of similar compression plate actuators of slightly less width than the width of said compression plates, one of which actuators is secured to the outer side of each of said compression plates, the outer surface of said actuators diverging outwardly from the outer sides

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of said compression plates as they extend from the free ends of said compression plates toward the connected ends thereof, a tubular housing which is open at one end thereof and is provided with a pair of diametrically opposed elongated slots in the side wall thereof, said compression plates and actuators being mounted in said housing with said actuators extending out through said slots, said compression plates being adapted when in normal divergent position to have said sac inserted therebetween and to be manually pressed through said actuators from divergent position to substantially parallel position to thereby collapse said sac and expel medicament therefrom.

2. A compression device for a disposable hypodermic syringe as defined by claim 1 in which the open end of said tubular housing is provided with a pair of diametrically opposed notches in which a pair of lugs which are secured to and extend outwardly from the said hub of a hypodermic needle are adapted to be received.

References Cited in the file of this patent

UNITED STATES PATENTS

1,222,814	Storz	Apr. 17, 1917
2,890,698	Sloane	June 16, 1959
2,950,717	Bouet	Aug. 30, 1960

FOREIGN PATENTS

286,616	Germany	May 14, 1914
1,030,639	France	Mar. 18, 1953