Dec. 31, 1957 A. W. BARRY 2,818,071

SCARIFYING APPLICATOR

Filed Aug. 27, 1956

FIG.3.

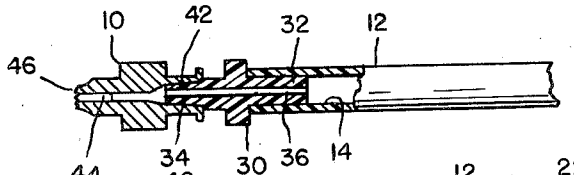



FIG.2.

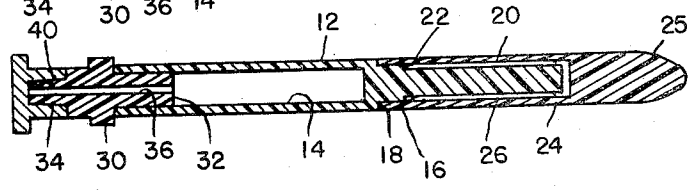
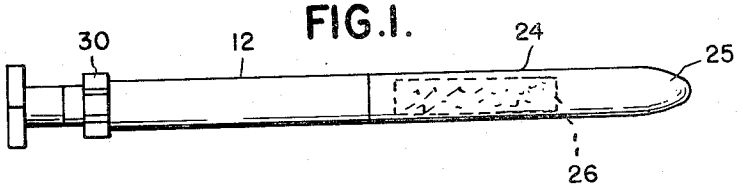



FIG.1.



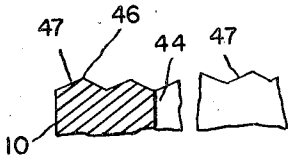




FIG.4.

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# SCARIFYING APPLICATOR

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6 Claims. (Cl. 128—333)

The present invention relates to a scarifying applicator, and more particularly, to one designed for a particular application of a solution such as allergenic extracts and analogous material to the skin of a patient.

The present application is a continuation-in-part of my prior copending application Serial No. 497,155 filed March 28, 1955.

The problems presented in the proper application of medicinal solutions such as allergenic extracts are quite different from those presented in vaccination. In the case of vaccination, it is only necessary to prick or slightly scarify the skin of the patient, after which the vaccine may be applied. On the contrary, for proper application of allergenic extracts it is necessary to scarify a substantial area of skin to the extent of removing the outer layer thereof so as to expose the under or second layer. If a drop of allergenic extract is then placed on the scarified area, surface tension or similar action of the allergenic extract may in many cases prevent absorption into the tissue.

In accordance with the present invention scarification is accompanied by simultaneous application of the allergenic extract so that the section of the scarifying teeth serve to break up the allergenic extract to prevent surface tension and similar action thereof from interfering with absorption and at the same time, the scarifying element is so formed as to effect mechanical rubbing in of the allergenic material to increase and assist absorption.

For satisfactory tests it is in many cases necessary to insure absorption of the solution into the scarified tissue and continued surface contact with the solution for an extended period which may be from a few minutes up to half an hour or longer depending on the solution used.

In accordance with the present invention the scarifying applicator is designed to receive a quantity of solution and to retain this solution in sterile condition until application. The applicator is designed to permit controlled ejection of the solution during scarification to produce the desired results.

It is an object of the present invention to provide a disposable solution container formed of plastic material.

It is a further object of the present invention to provide a container for a solution, designed for use with a scarifier having a leur type connection therewith.

It is a further object of the present invention to provide a scarifying applicator including means for exposing a printed label in a manner to prevent removal of the label and/or to keep such label readable by not contacting the outer side of the container.

It is a feature of the present invention to provide a plastic container for allergenic and analogous materials comprising an elongated plastic body having an opening extending into one end thereof to provide a compressible tubular end portion thereof, a plastic closure including a portion received in the open end of the tubular portion of the body and sealed therewith to insure keeping the contents of the container sterile and to provide support for the end of the tubular portion.



It is a further feature of the present invention to provide a container as described in the preceding paragraph comprising in addition a transparent sleeve adapted to extend over the other end of the body and to expose a printed label located within the sleeve.

It is a further feature of the present invention to provide a container as described in the preceding paragraphs in combination with a removable plastic cap adapted to cover and protect the end portion of the closure.

It is a further object of the present invention to provide a scarifying applicator comprising a hollow compressible handle portion adapted to contain a solution, a scarifier having a passage communicating with the interior of the handle portion, the scarifier having an annular array of scarifying teeth surrounding the end of the passage to provide for simultaneous scarification by rotation of the applicator about its axis and for controlled ejection of liquid by compression of the handle during rotation thereof.

Other objects and features of the invention will become apparent as the description proceeds, especially when taken in conjunction with the accompanying drawings, wherein:

Figure 1 is a side elevation of the container portion of the scarifying applicator.

Figure 2 is a longitudinal section of the scarifying applicator.

Figure 3 is an end view of the applicator, partly in section, showing the cap removed and the scarifier in position.

Figure 4 is an enlarged fragmentary sectional view showing the teeth on the scarifier.

The scarifying applicator comprises the container assembly illustrated in Figures 1 and 2, in conjunction with a detachable scarifier **10** shown in Figure 3. The container illustrated in Figures 1 and 2 comprises an elongated handle portion which the user holds for manipulation with a pencil grip. The handle portion comprises a body **12** of circular cross-section having an elongated cylindrical opening **14** providing a tubular portion having a relatively thin wall which provides for compression of the tubular portion to eject fluid contents therefrom. The opposite end of the body **12** is reduced as indicated at **16**, thereby providing a first shoulder **18**. The end portion is further reduced as indicated at **20** providing a second shallower shoulder **22**. A sleeve member **24**, preferably closed at one end as indicated at **25**, is received over the reduced end portion of the body **12**. The sleeve member **24** is formed of a transparent plastic material and is therefore adapted to expose a printed label **26**. The label is located outwardly beyond the shoulder **22**. This provides space for the label and permits the inner end of the sleeve **24** to be in firm contact with the reduced portion **16** of the body **12**. This in turn permits the end portion of the sleeve **24** to be permanently united and sealed with the body **12** so as to prevent removal or loss of the printed label **26**.

Received in the open end of the body **12** is a closure **30** formed of plastic material and having an elongated cylindrical portion **32** extending a substantial distance within the hollow portion of the body **12**. The portion **32** of the closure provides adequate support for the thin wall at the open end of the body **12**. The closure **30** is permanently sealed within the open end of the body **12**.

The closure **30** includes a tapered projection **34** which forms a leur type connection with the applicator **10**. The closure **30** has a longitudinally extending passage **36** for ejection of liquid from the hollow container.

The body **12**, the sleeve **24**, and the closure **30** are all formed of plastic material such for example as a suitable grade of polyethylene. The plastic body **12** and

closure 30 are gas sterilized by an operation which comprises evacuating a vessel containing the parts, followed by application of sterilizing gas under substantial pressure. Other sterilizing methods may also be used. The parts are assembled in the relationship best illustrated in Figure 2, and the elements are permanently sealed together by heat sealing. This renders the container portion in effect a unitary device.

The contents of the container are protected in sterile condition by a removable cap having a slightly tapered recess 40 to interfit closely with the tapered projection 34 of the closure 30.

In use the applicator has attached thereto the metal or hard plastic scarifier 10 having a tapered recess 42 adapted to fit snugly over the tapered projection 34. The scarifier 10 has a passage 44 for the ejection of fluid from the interior of the handle portion and surrounding the end of the passage 44 are a plurality of sharp scarifying teeth indicated at 46. The teeth 46 include surfaces 47 which extend at a relatively small angle to the plane perpendicular to the axis of the scarifier. These surfaces serve in use to effect a rubbing in action facilitating absorption of the allergenic extract into the tissue.

It will be observed that the hollow portion of the body 12 may be compressed by radial pressure acting inwardly in any direction. Accordingly, this permits the operator to grip the applicator in the same manner as a pencil and to rotate it in his fingers to effect scarification. This will result in rotation of the scarifying teeth substantially about the axis of the handle or container. At the same time, and while the fingers of the user may contact with circumferentially spaced portions of the hollow container, controlled pressure may be exerted to effect the controlled ejection of the required amount of solution.

Since the ejection of the allergenic material preferably is accompanied by continued oscillatory rotation of the handle portion, any tendency for the solution to remain in drops due to its surface tension is prevented. At the same time, the teeth 46 of the scarifier include surface portions 47 which are effective to rub the solution into the scarified tissue.

The drawings and the foregoing specification constitute a description of the improved scarifying applicator in such full, clear, concise and exact terms as to enable any person skilled in the art to practice the invention, the scope of which is indicated by the appended claims.

What I claim as my invention is:

1. A scarifying applicator comprising a plastic container having an intermediate compressible tubular portion and a cylindrical rear extension, a transparent tubular sleeve over said extension, a label sheet between said extension and sleeve, a leur type fitting at the other end of said container, and a scarifier carried by said fitting having a passage for ejection of liquid by compression of the tubular portion of said container, and an annular array of scarifying teeth surrounding said passage.

2. A scarifying applicator comprising a plastic container having an intermediate compressible tubular portion and a solid reduced cylindrical rear extension, a transparent tubular sleeve over said extension, a label sheet between said extension and sleeve, a leur type fitting at the other end of said container, and a scarifier carried by said fitting having a passage for ejection of liquid by compression of the tubular portion of said container, and an annular array of scarifying teeth surrounding said passage.

3. A sterile container for solution including allergenic and similar material comprising an elongated member of plastic material having an opening extending from one end to an intermediate point of said member to define a tubular compressible portion, a transparent sleeve received over the other end portion of said member to expose a printed label received between said sleeve and member, and a plastic leur type fitting carried by the other end of said member having a hollow tapered projection adapted to receive a scarifier, and a protective cap carried by said projection.

4. A sterile container for solution including allergenic and similar material comprising an elongated member of plastic material having an opening extending from one end to an intermediate point of said member to define a tubular compressible portion, a transparent sleeve received over the other end portion of said member to expose a printed label received bytween said sleeve and member, and a plastic leur type fitting carried by the other end of said member having a hollow tapered projection adapted to receive a scarifier, said fitting having a tubular portion fitted within the open end of said member and sealed thereto, and a protective cap carried by said projection.

5. A scarifying applicator comprising an elongated plastic compressible hollow handle, an annular scarifier having a passage communicating with the interior of said handle and an annular array of scarifying teeth surrounding the outer end of said passage, said handle being compressible from any direction around its circumference by the application of radial pressure to provide for simultaneous rotation of the handle about its axis to scarify the skin of the patient, and for simultaneous controlled ejection of liquid by compression of the hollow handle.

6. A scarifying applicator comprising an elongated hollow tubular plastic member closed at its rear end and provided at its front end with an annular fitting having a passage communicating with the hollow interior of said member, said fitting having an annular scarifying surface at its outer end surrounding said passage, said member being adapted to contain a liquid allergenic or similar material, the intermediate portion of said member being sufficiently rigid to provide for rotation of said scarifying fitting by rotation of said member, said intermediate portion being compressible from any direction around its circumference by radial pressure to provide for rotation of the member about its axis to scarify the skin of the patient and for simultaneous controlled ejection of liquid by compression of the hollow member.

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