Dec. 18, 1962 J. SKOPYK 3,068,868

POISON EXTRACTOR

Filed June 8, 1960

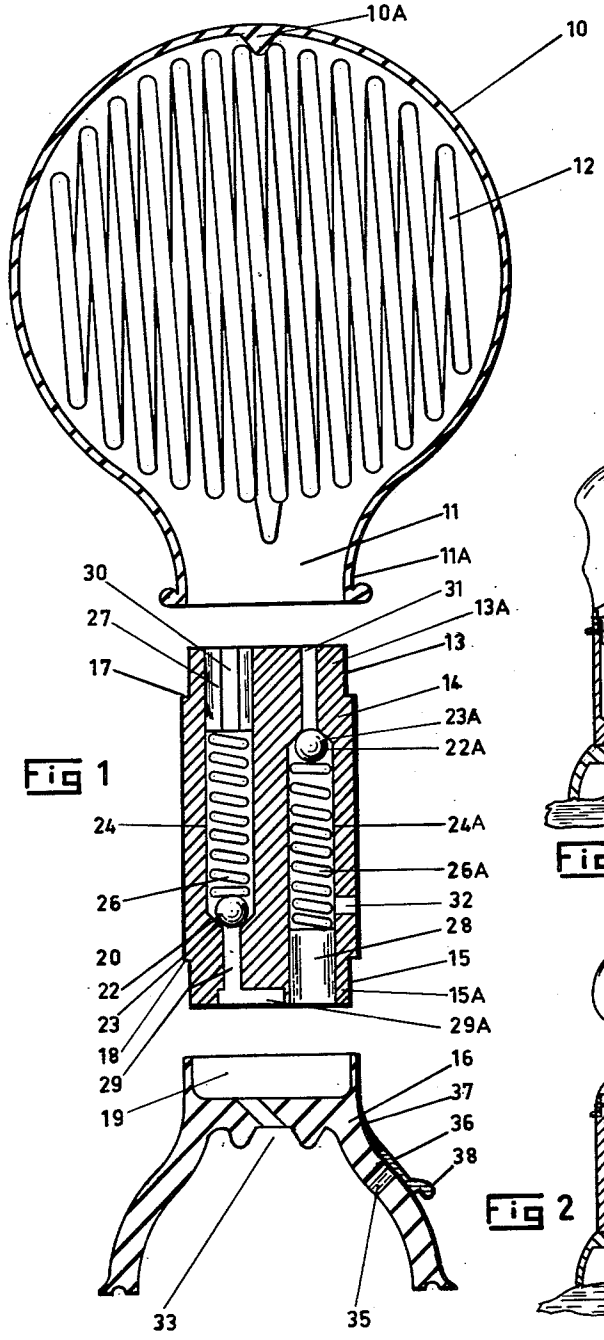


Fig 1

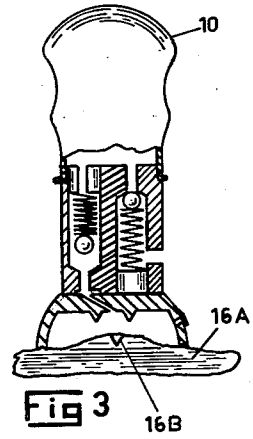


Fig 3

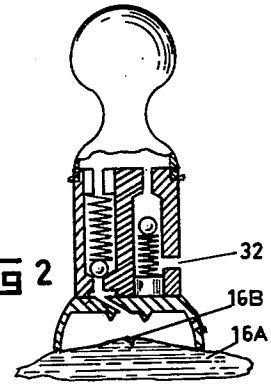


Fig 2

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POISON EXTRACTOR

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This invention relates to improvements in poison extracting apparatus adapted to be utilized in extracting poison from large and small surfaces of a living body.

It is conventional practice to extract poison from snake bites and the like by direct oral suction usually performed by another person. This method has the disadvantage that poison may enter sores or cuts in the mouth of the person sucking out the poison and thereby create a hazard for him.

Other methods of extracting poison are, by squeezing the wound which has the disadvantage that it is extremely diffiicult in this manner, to extract all the poison therefrom.

It is normally possible for the person, that has been bitten, to suck out the wound himself on some parts of his body, whereas other parts may not be orally reached by the bitten person, such cases placing him at considerable disadvantage.

Other methods of poison extraction have been practiced that utilize hand-operated pumps to create suction on a wound, such systems having the disadvantage, that the apparatus is somewhat cumbersome and requires the use of both hands to operate the pumping apparatus, whereas a third hand is sometimes needed to hold the suction device thereof sealably onto the wound. Another disadvantage related to such methods is, that the agitation caused by the pumping action is conveyed to the wound through the suction device, causing painful irritation to the patient.

Other methods of poison extraction require positioning of extraction apparatus in such a manner, that pressure is exerted through the apparatus directly against the wound, causing added discomfort to the patient.

It is an object of this invention to provide an extractor for the removal of poison from snake and inset bites, in the following called "Poison Extractor," which may be used by the bitten person on any part of his body.

It is another object of this invention to provide a poison extractor that is extremely compact, requiring no outside power source such as electricity to produce suction required for extraction of poison.

It is a further object of this invention to provide a poison extractor adapted to be operated entirely with one hand.

It is still another object of this invention to provide a poison extractor adapted to be operated, without any operating pressure being transferred to the surface of the wound and thereby causing extra discomfort to the bitten person.

It is another object of this invention to provide a poison extractor composed of three simple units, adapted to be easily attached to each other for the poison extraction operation, yet easily detached from each other for cleaning purposes etc.

It is a further object of this invention to provide a poison extractor of extreme simple configuration, that is self-sufficient without requiring appendages in the form of tubes and the like for its operation.

It is another object of this invention to provide a poison extractor utilizing a double set of poison extracting vacuum seals of general suction cup configuration these vacuum seals being located concentric with each other, one of these vacuum seals being adapted to provide a

comparatively large area for suction, the other vacuum seal being adapted to provide suction on a comparatively small area, such as, for instance on the end of the finger.

It is a further object of this invention to provide a poison extractor having two concentric mouthpieces made of flexible material permitting the larger mouthpiece of the two to be selectively retracted and inverted into a convex cup configuration, thereby allowing a comparatively small suction cup, located in the centre of the larger suction cup, to protrude and be utilized on any part of the body.

These and other objects and features of this invention will become apparent when taken in conjunction with the accompanying drawings in which:

FIG. 1 is an enlarged, mid-vertical, exploded, sectional, side elevation of a poison extractor embodying this invention.

FIG. 2 is a mid-vertical, part sectional side elevation showing the poison extractor illustrated in FIG. 1, in the process of being compressed, to expel air therefrom.

FIG. 3 is a mid-vertical part sectional side elevation of the poison extractor illustrated in FIG. 2, shown in suction position, upon bulb portion having been released to provide vacuum within the poison extractor.

Referring to FIG. 1, the illustrated poison extractor comprises an assemblage incorporating a substantially spherical resilient bulb **10**, containing a substantially spherical, helical, internal compression spring **12**, an opening **11** in bulb **10** being adapted to contractably encompass a collar **13** of a cylindrical body **14**, having an upper end **13A** and a lower end **15A**, comprising two cylindrical bores **24** and **24A** which include spring-loaded ball check valves **22** and **22A**. A collar **15** of body **14** is adapted to be pressurably inserted into cavity **19** of dual suction cups **16** and **33**.

More particularly the said poison extractor comprises a resilient bulb **10** of substantially spherical configuration, having an opening **11** and an axis extending from the centre of a neck opening **11** through the centre of the bulb **10**. A spring **12**, for instance, of a substantially spherical, helical configuration is located within bulb **10**, spring **12** having an axis parallel with direction of compression of spring **12**, axis of helical spring **12** being located in perpendicular relation to axis of bulb **10** and maintained in such perpendicular relation by means of a circumferential rib **10A** moulded internally within bulb **10**, adapted to engage, for instance, between central coils of helical spring **12**.

Opening **11** of bulb **10** is extended in an elongated neck **11A** adapted to be detachably attached to a collar portion **13** of body **14**, collar portion **13** having a larger diameter than internal diameter of neck opening **11** of bulb **10** and a substantially smaller diameter than main portion of body **14** requiring neck opening **11** to be expanded before insertion of collar **13**, providing a contracting fit during operation of the poison extractor, to frictionally retain neck opening **11** on collar **13** during operation of this invention.

In body **14** two cylindrical bores **24** and **24A** are located, one on each side of, and parallel with axis of body **14**, in inverse relationship to each other, bore **24** providing an intake means and bore **24A** providing an exhaust means. Upper end of bore **24** at upper end **13A** of body **14** comprises a tubular outlet passage **30** axially located within a press fitted sleeve **27**, adapted to retain a compression spring **26**, adapted to bias a ball valve **22** toward a seat **23**, a bore **24** extending into a passage **29** ending in a shallow, cylindrical recess **29A** in lower end **15A** of body **14**. Bore **24A** at upper end **13A** of body **14** comprises an inlet passage **31** ending in a conical seat **23A** against which a ball valve **22A** is sealably biased by a compression spring **26A** retained within bore

24A by a press-fitted stop plug 28. Exhaust means for bore 24A is provided through an outlet 32, communicating bore 24A with outer atmosphere.

A collar 15 is situated at lower end 15A of body 14, having a larger diameter than internal diameter of a cavity 19 in upper end of suction cup 16, and a substantially smaller diameter than main portion of body 14, requiring cavity 19 to be expanded before insertion of collar 15 thereon to provide a contracting fit during operation of the poison extractor.

Referring to FIG. 2, the poison extractor illustrated in FIG. 1 is shown with suction cup portion 16 located on a body 16A directly over a wound 16B. The bulb 10 is shown during process of being compressed, whereby ball 22A has been forced away from seat 23A permitting contents of bulb 10 to be exhausted through outlet 32 while ball 22 is biased firmly against seat 23 by spring 26.

Referring to FIG. 3 the poison extractor illustrated in FIG. 2 is shown upon bulb 10 having been released, vacuum thereby being set up inside bulb 10, this vacuum withdrawing ball 22 from seat 23 thereby placing internal portion of suction cup portion 16 under vacuum to provide suction means to draw poison out of wound 16B.

Referring to FIG. 1 again, a relief valve passage 35, located in wall of suction cup portion 16, communicates internal cavity in suction cup portion 16 with external atmosphere. A flap valve 36 is hingeably attached at 37 over passage 35, externally of suction cup portion 16, flap valve 36 being adapted to close external outlet of passage 37 during suction operation, flap valve 35 being held sealably over passage 35 by vacuum within suction portion 16, such vacuum being broken by manual pull on a lever portion 38, attached to the free end of flap valve 36 upon it being required to remove suction cup portion 16 from wound 16B.

The method of utilizing a poison extractor embodying this invention is as follows:

The resilient bulb 10 is grasped between thumb and fingers of one hand in such a manner that pressure can be exerted axially on the spherical spring 12, and suction cup 16 is placed over the wound from which poison is to be extracted. Compression of resilient bulb 10 forces air within bulb 10 into passage 31 causing ball 22A to separate from seat 23A, against spring 26A thus allowing air to escape to atmosphere through cylinder 24A and exhaust passage 32. Release of pressure on resilient bulb 10 allows spherical spring 12 to axially expand, forcing walls of bulb 10 outwards, thereby creating a vacuum within bulb 10 and allowing ball 22A to resume contact with conical seat 23A. Evacuation also occurs in passage 30 of sleeve 27 and cylindrical bore 24 causing ball 22 to separate from seat 23 against spring 26A thus allowing passages 29 and 32, and suction cups 33 and 16 to become evacuated and draw poison from the wound through cylinder 24 into opening 11 of resilient bulb 10 whereafter compression of bulb 10 forces poison out through cylinder 24A and outlet 32 to atmosphere.

The general design of the individual parts of my invention as explained above may be varied according to requirements with regards to manufacture and production thereof, while still remaining within the spirit and

principle of my invention, without prejudicing the novelty thereof.

The embodiments of the invention in which I claim exclusive priority and privilege are as follows:

1. A poison extractor for snake bites and the like comprising a resilient bulb, an opening at one end of said bulb, said bulb being supplied with an elongation in the form of a neck surrounding said opening, a valve body having an upper and a lower end, said valve body detachably attached to said neck at said upper end, an inlet valve and an outlet valve located within said body, said inlet valve and said outlet valve communicating with the internal cavity of said bulb, a suction cup portion containing a resilient concave primary suction cup at one end thereof, the opposing end of said suction cup portion containing a substantially cylindrical cavity detachably attached to said lower end of said valve body, said suction cup portion containing a passage communicating the internal cavity within said primary suction cup with said substantially cylindrical cavity of said primary suction cup, said inlet valve having an inlet end and an outlet end, said inlet valve being supplied with a passage communicating said inlet valve with said passage in said suction cup portion, said outlet valve having an inlet end and an outlet end, said inlet end of said outlet valve being supplied with a passage communicating said inlet end with said cavity within said bulb, said outlet end of said outlet valve having a passage communicating said outlet valve with atmosphere outside said valve body.

2. A poison extractor for snake bites and the like as claimed in claim 1 in which said bulb is supplied with a spherical, helical spring, the axis of said spring being located perpendicular to the longitudinal axis of said bulb, said bulb being supplied with a ridge located internally of said bulb and in a plane containing the longitudinal axis of said bulb, said ridge protruding substantially into said helical spring, between two adjacent centrally located coils of said helical spring.

3. A poison extractor for snake bites and the like as claimed in claim 1 in which said internal cavity within said primary suction cup is supplied with manually operable vacuum relief valve means.

4. A poison extractor for snake bites and the like as claimed in claim 1 in which said suction cup portion is supplied with a secondary suction cup located within said primary suction cup, said secondary suction cup being of substantially smaller size than said primary suction cup, said secondary suction cup being located substantially concentrically with said primary suction cup and entirely within said primary suction cup.

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