

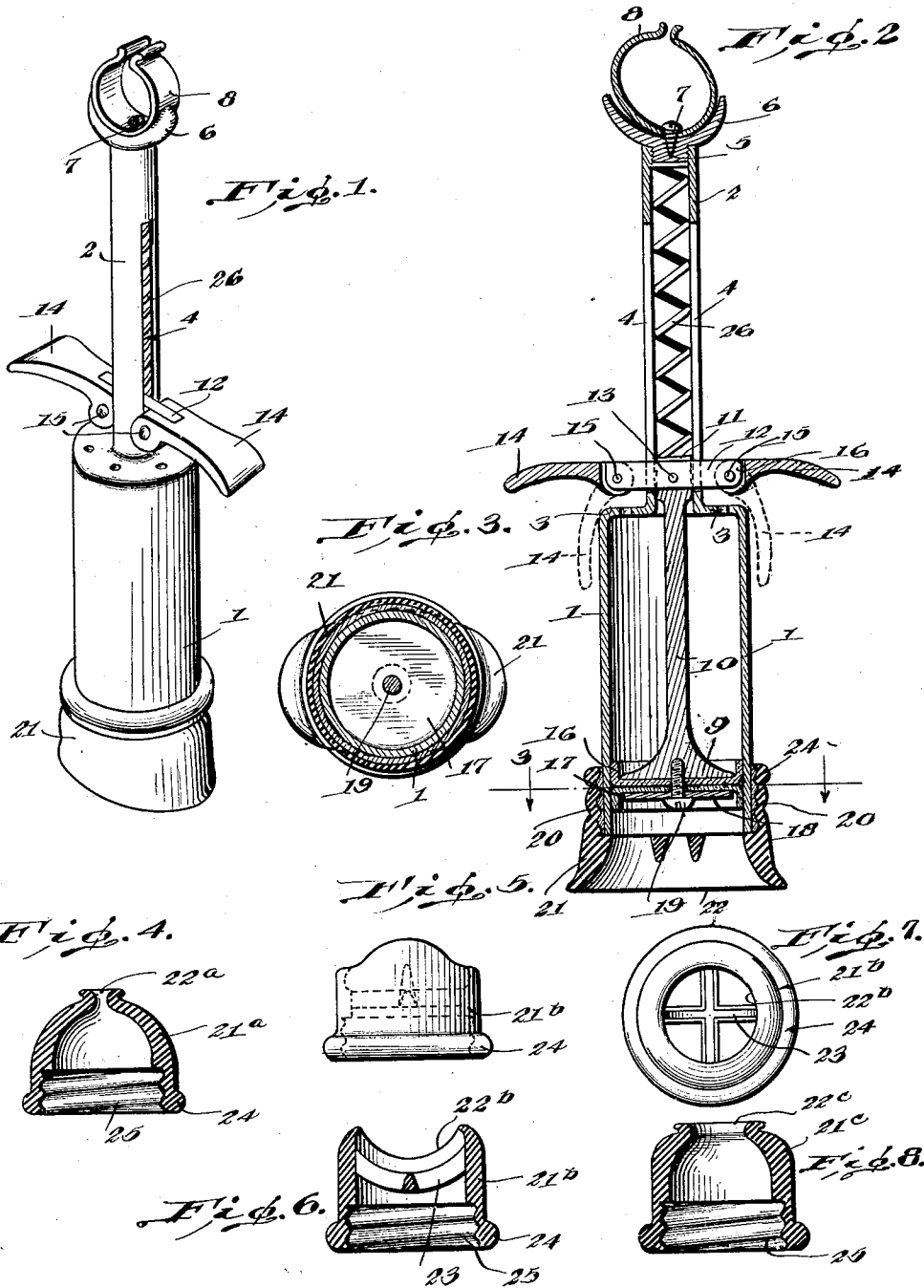
June 28, 1932.

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1,864,700

VENOM EXTRACTION PUMP

Filed March 10, 1931



WITNESS

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VENOM EXTRACTION PUMP

Application filed March 10, 1931. Serial No. 521,574.

My invention relates to improvements in devices for extracting venom such as that injected in people who have been bitten by poisonous reptiles, and it consists in the combinations, constructions and arrangements herein described and claimed.

It has been demonstrated that where a considerable amount of venom has been injected into the skin of the victim, the use of all old remedies has proved to be worthless. Even the most recently produced serums have not proved to be as good for relieving the victim from the poisonous effects as the actual removal of the poison by suction by the mouth or by a suction pump. The danger of using the mouth lies in the fact that if there are any abrasions in the mouth the poison will at once attack the person who is attempting the removal of the venom from the victim.

An object of my invention is to provide a simple and effective pump which may be quickly applied to the bitten portion, and which will positively act to withdraw a large portion of the venom even after several hours following the snake bite.

A further object of the invention is to provide a device having novel foldable finger holds which may be instantly swung into position for the efficient operation of the device, and which may be folded when not in use, so as to permit the pump to be packed away in a small space.

A further object of the invention is to provide a novel form of thumb hold so that the device may be held and operated in one hand while the other hand is holding the limb or body of the victim.

A further object is to provide a device having removable mouth-pieces to accommodate different portions or contours of the body from which the venom is being drawn.

Other objects and advantages will appear in the following specification and the novel features of the invention will be particularly pointed out in the appended claims.

My invention is illustrated in the accompanying drawing forming part of this application, and in which:

Figure 1 is a perspective view showing one embodiment of my invention.

Figure 2 is a longitudinal sectional view of the device shown in Figure 1.

Figure 3 is a section along the line 3—3 of Fig. 2.

Figure 4 is a sectional view of a modified form of a mouth-piece.

Figure 5 is a side view of another modified form.

Figure 6 is a sectional view of the form shown in Fig. 5.

Figure 7 is a plan view of the form shown in Fig. 5, and,

Figure 8 is a sectional view of another modified form of mouth-piece.

In carrying out my invention I provide a casing 1 in the form of a cylinder. This casing is preferably made of metal, but may be made of any suitable material. The cylinder 1 is provided with a reduced extension 2, which is secured at the end 3 of the cylinder 1. The reduced portion is provided with registering longitudinal slots 4. One end of the extension 2 is threaded internally to receive the threaded stud 5 of an arc-shaped support 6. Secured to this support 6 by any suitable means such as by the screw 7, is a flexible metal thumb-piece 8 like that shown in the drawing. The thumb-piece is made preferably in the form of an ellipse with its major axis inclined angularly with respect to the longitudinal and transverse axes of the reduced cylindrical portion, as shown in Fig. 2.

Referring now particularly to Fig. 2 I have shown therein a plunger head 9 having a stem 10 provided with a piston like end 11 arranged to enter and to be guided in the interior of the extension 2. The end 11 is slotted to receive a cross bar 12, which is secured to the portion 11 by a pin such as that shown at 13 or in any other suitable manner. This cross bar 12 projects through the slots 4 and bears at each end a finger hold 14. These finger holds, as will be seen from Fig. 1, are slotted to receive the end of the bar, and are secured by pivot pins 15. The finger holds have shoulders 16, which engage the ends of the bar 12 when the finger holds are

brought to the operating position shown in full lines in Fig. 2.

At the end of the plunger head are two washers 16 and 17 respectively which are held in position by means of a plate 18 and screw 19.

Near the open end of the casing, the latter is provided with a threaded portion 20 for holding more securely the suction cup 21. The latter is made of rubber and is provided with threads to engage those of the casing. Different forms of these suction cups may be used. In Figs. 1, 2 and 3 I have shown a cup having an elongated mouth 22.

In Figs. 4 to 8 inclusive I have shown modified forms. Thus in Fig. 4, the cup 21a is provided with a small mouth-piece 22a. In Fig. 5 the cup 21b has a mouth 22b which is curved to conform to the curvature of a finger. This form of the device is provided with strengthening ribs 23. The form of the cup shown in Fig. 8 at 21c has a larger opening or mouth 22c than that shown in Fig. 4, but smaller than that shown in Figure 1. Each of the vacuum cups is provided with a bead 24 and the opening 25 encircled by the bead is designed to receive the end of the casing 1 to which the vacuum cups are attached.

From the foregoing description of the various parts of the device the operation thereof may be readily understood.

The finger holds 14, as stated, are normally in the dotted line position shown in Fig. 2, and the device may be packed in a small space. In case of a snake bite, as for instance that of a rattle snake, incisions are made in the wound, these incisions being preferably cuts at right angles to each other so as to permit the blood and lymph to flow freely. The finger holds 14 are brought into the full line position shown in Fig. 2. The thumb is inserted in the thumb hold. A finger is placed underneath each of the finger holds and the cup 21 is firmly pressed over the wound, by means of the thumb. Now by exerting pressure on the finger holds to draw them toward the thumb hold while maintaining the device in close contact with the injured part, the plunger is drawn into the casing against the tension of the spring 26, which, as will be seen, is within the reduced portion 2 and bears at one end on the member 11, and at the other end on the member 5. The movement of the plunger creates the suction by means of which the venom is drawn from the wound into the cup. The blood or lymph drawn with it tends to flush the wound. By shoving the thumb hold end of the pump to one side the air-tight contact between the mouth-piece and the surface around the wound may be broken. The pump may then be removed from the wound entirely and by holding the mouth-piece downwardly and releasing the finger holds,

the entire pressure of the spring in the extension will force the plunger down quickly, thus forcing or blowing the contents of the pump barrel and mouth-piece out. The operation may be repeated to withdraw all the venom.

In practice it is of course advisable to place the patient in such a way that the venom may be drawn downwardly, thus permitting gravity to aid in the operation, and confining the venom so withdrawn in the cup.

The use of a venom extraction pump, such as that described above, has a number of advantages. The construction permits its operation by one hand, thus permitting the other hand to engage or hold the affected part. The provision of the foldable finger holds, as stated, permits the device to be carried in a small space. The provision of the thumb hold with its major axes inclined to the longitudinal and transverse axes of the reduced portion 14 brings the opening in the position in which the thumb would naturally lie when the fingers are moved to operate the piston, and the provision of a flexible thumb hold permits thumbs of greater size to enter since the spring portions will give. Without this thumb hold it will be necessary to use two hands. With the thumb hold the instrument may hang from the thumb and be grasped by the fingers at the time when it is necessary for extracting the venom.

The device may be used for withdrawing matter of various kinds, such as a festering pimple. In Fig. 4 I have shown a cup which might be used for the purpose provided with a relatively small mouth 22a. In Figs. 5, 6 and 7 I have shown a form in which the mouth, as stated, is curved to conform to the curvature of the finger, it being desirable to fit the mouth-piece closely to the affected part; while in Fig. 8 there is another form of mouth for wounds of medium size.

It will be understood that the flexibility of the mouth-piece permits it to make an air-tight covering over the wound so that the operation of the pump tends to exert a sufficient pulling or vacuum effect to thoroughly draw out the venom.

I claim:

1. A venom extraction pump comprising a cylinder, a plunger disposed therein, a flexible cup secured at one end of said cylinder, an extension carried by the cylinder, a thumb hold carried by said extension, and a pair of foldable finger holds secured to the plunger rod for drawing the plunger within the cylinder.

2. A venom extraction pump comprising a cylinder, a plunger disposed therein, a flexible cup secured at one end of said cylinder, an extension carried by the cylinder, a thumb hold carried by said extension, a pair of foldable finger holds secured to the plunger rod for drawing the plunger within the cylinder,

and a spring for normally forcing the finger holds away from the thumb hold.

3. A venom extracting device comprising a cylinder having a reduced cylindrical extension, said extension being provided with registering longitudinal slots, a plunger having a plunger rod, the end of said rod extending in the said reduced cylindrical extension, a bar secured to the end of the plunger rod, and extending through said registering slots, and a pivoted finger hold secured at each end of said bar, and being provided with a shoulder for limiting the movement of the finger hold with respect to the bar in one direction.

4. A venom extracting device comprising a cylinder having a reduced cylindrical extension, said extension being provided with registering longitudinal slots, a plunger having a plunger rod, the end of said rod extending in the said reduced cylindrical extension, a bar secured to the end of the plunger rod, and extending through said registering slots, a pivoted finger hold secured at each end of said bar, and being provided with a shoulder for limiting the movement of the finger hold with respect to the bar in one direction, a thumb hold support carried by said reduced extension, a thumb hold mounted on said thumb hold support, and a spiral spring disposed within said extension and bearing at one end on said plunger rod and at the other rod and at the other on the thumb hold support.

5. A venom extracting device comprising a hollow cylinder having a reduced hollow cylindrical extension at one end thereof, said extension having registering longitudinal slots, an arc-shaped thumb hold support carried at one end of said extension, a thumb hold consisting of a split spring loop having its major axis inclined toward the longitudinal axes of the reduced portion and being angularly inclined with respect to the transverse axes of the reduced portion, a plunger disposed within the cylinder and having a plunger rod, a bar secured to said plunger rod and extending through the registering openings in the reduced extension, a finger hold pivotally connected at each end of said bar and adapted to be folded into contact with the cylinder, each of said finger holds having a shoulder arranged to engage the end of the bar to limit the movement of the finger hold in one direction, and a spiral spring disposed within the reduced extension and bearing at one end on the plunger rod and at the other on the thumb hold support.

6. A venom extracting device comprising a hollow cylinder having a reduced hollow cylindrical extension at one end thereof, said extension having registering longitudinal slots, an arc-shaped thumb hold support carried at one end of said extension, a thumb hold consisting of a split spring loop having

its major axis inclined toward the longitudinal axes of the reduced portion and being angularly inclined with respect to the transverse axes of the reduced portion, a plunger disposed within the cylinder and having a plunger rod, a bar secured to said plunger rod and extending through the registering openings in the reduced extension, a finger hold pivotally connected at each end of said bar and adapted to be folded into contact with the cylinder, each of said finger holds having a shoulder arranged to engage the end of the bar to limit the movement of the finger hold in one direction, a spiral spring disposed within the reduced extension and bearing at one end on the plunger rod and at the other on the thumb rod support, and a flexible cup-shaped member having an opening arranged to receive one end of the cylinder and being provided with a flaring mouth having free communication with the interior of the cylinder.

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