No. 681,975. Patented Sept. 3, 1901.

J. N. RANGER.

SURGICAL INSTRUMENT.

(Application filed Apr. 6, 1901.)

(No Model.)

Fig. 6.

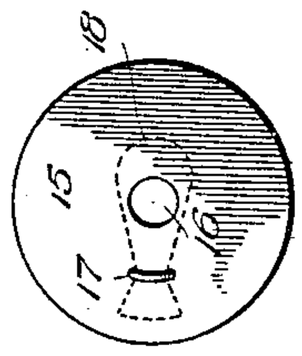


Fig. 5.

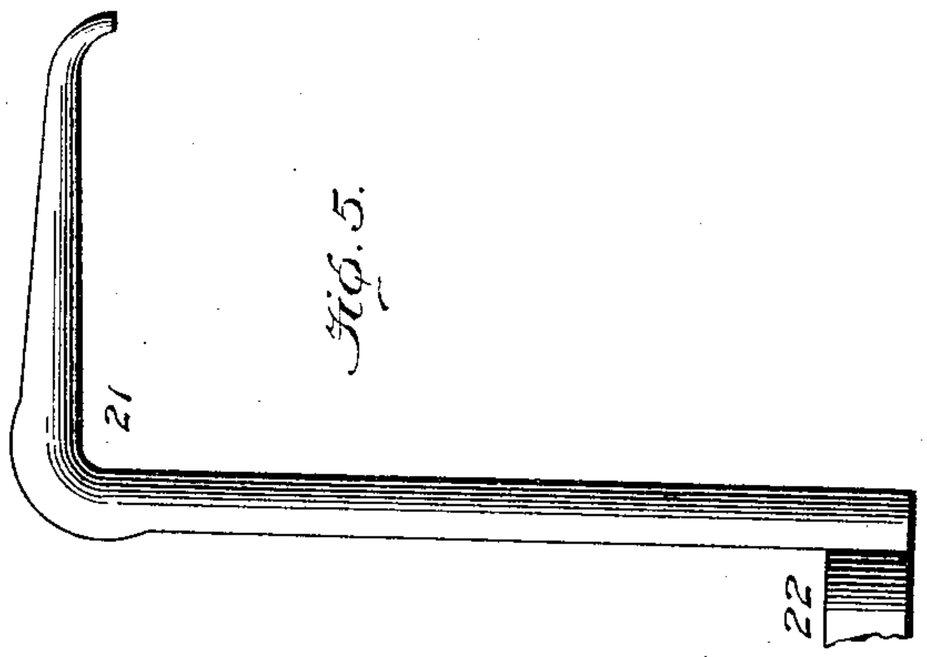


Fig. 4.

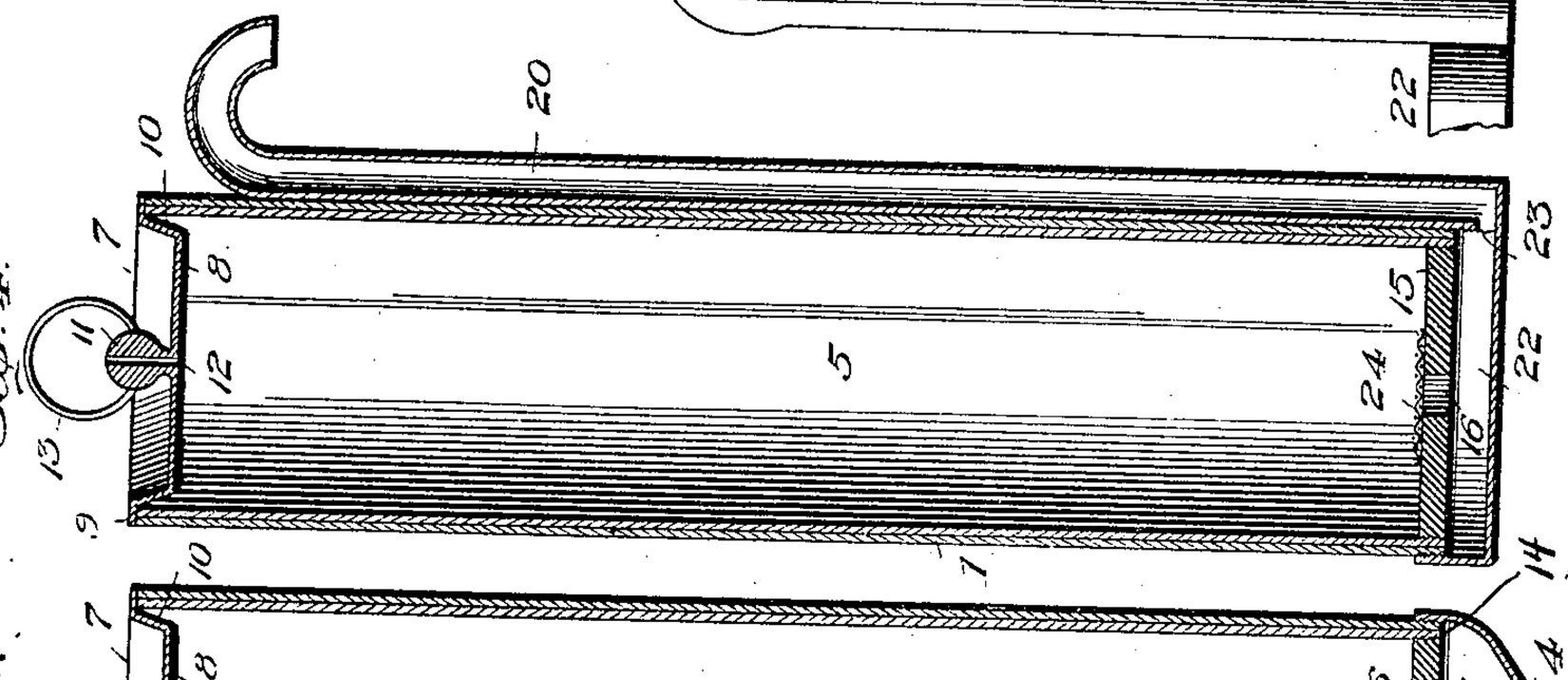


Fig. 2.

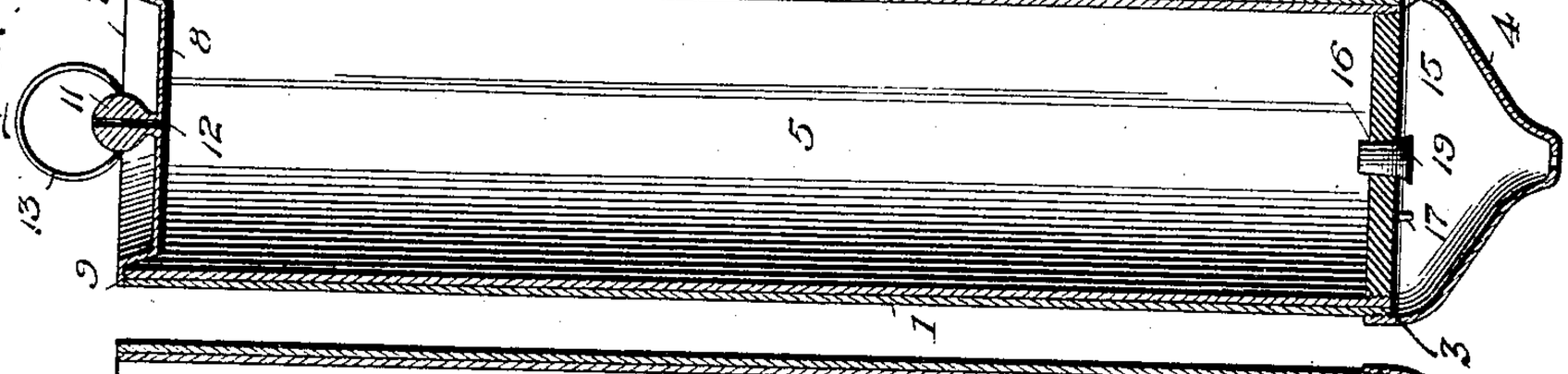


Fig. 3.

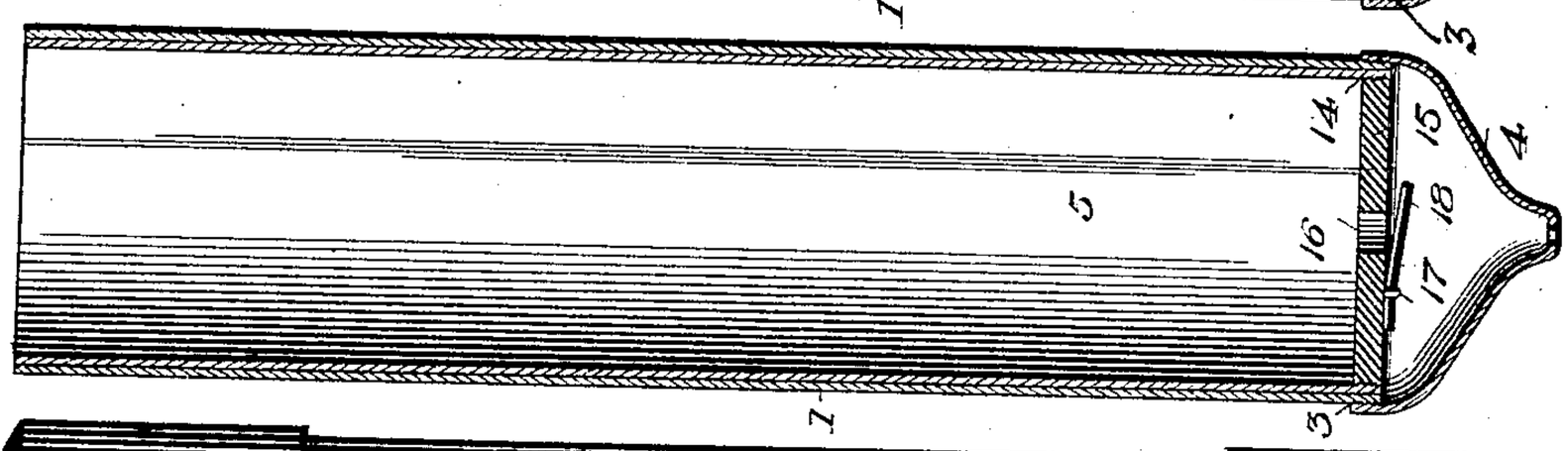
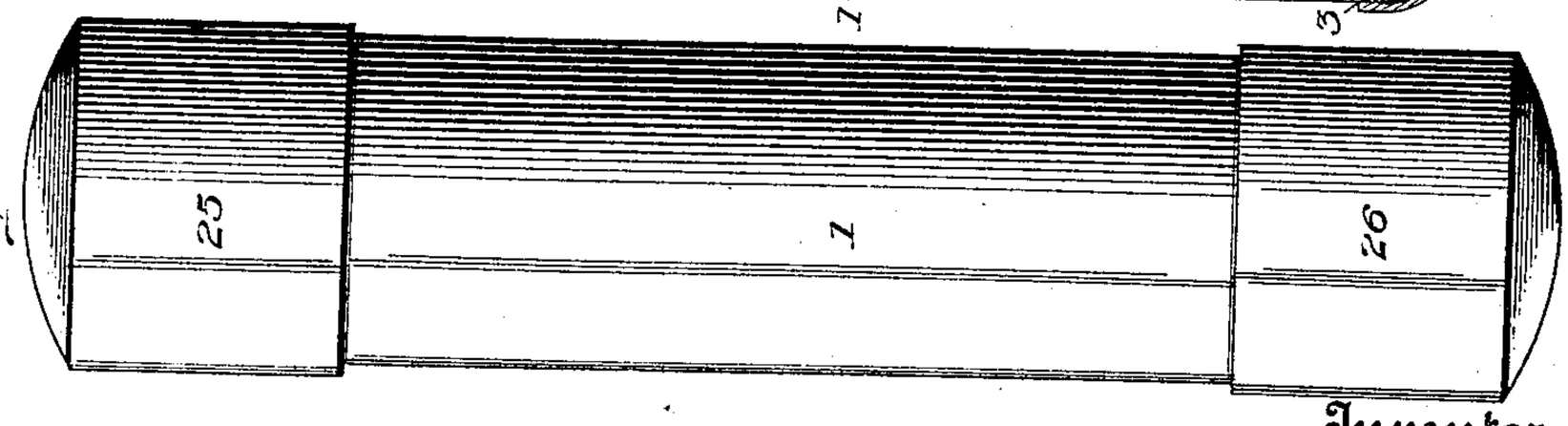


Fig. 1.



Witnesses

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JOHN N. RANGER, OF EVANSVILLE, INDIANA.

SURGICAL INSTRUMENT.

SPECIFICATION forming part of Letters Patent No. 681,975, dated September 3, 1901.

Application filed April 6, 1901. Serial No. 54,671. (No model.)

To all whom it may concern:

Be it known that I, JOHN N. RANGER, a citizen of the United States, residing at Evansville, county of Vanderburg, State of Indiana, have invented certain new and useful Improvements in Surgical Instruments, of which the following is a specification.

This invention relates to surgical instruments.

The object of the invention is the provision of an improved surgical instrument, and more particularly a syringe adapted for different uses which will be of compact form, durable, portable, and capable of easy cleansing.

Having the foregoing object in view, the invention consists in certain improved features and novel combinations of parts set forth in detail hereinafter and recited in the appended claims.

In the accompanying drawings, Figure 1 is an exterior view of the invention when closed up and ready to be carried about; Fig. 2, a sectional view of the invention; Fig. 3, a similar view of a modification, illustrating the device used as a "cupper" or "developer;" Fig. 4, a sectional view of a modification for use as a "cooker;" Fig. 5, a detail view of a modified form of nozzle for adapting the invention for use as an oil-can; and Fig. 6, a detail of the bottom of the piston, illustrating the use of a flap-valve.

The numeral 1 designates a hollow cylindrical shell or barrel provided with exterior screw-threads 3 at one end, over which is screwed the blunt nozzle 4.

The numeral 5 designates a hollow cylindrical piston snugly fitting the barrel throughout its length. The lower end of the piston is internally screw-threaded at 14 for the engagement of the head 15, Fig. 6, which has a central opening 16 and a loop-fastening 17, which can be used for securing a removable flap-valve 18, (as in the modification shown in Fig. 3,) adapted to close against the bottom of the head and cover said opening. The opening 16 is stopped by a tapered plug 19. The outer end of the piston is closed by a removable cap 7, having a depressed central portion 8 and an annular flange 9, resting against the mouth of the piston. This cap can be connected to the piston in any desired manner; but I prefer to make it tapering at 10 and held in the end of the piston by friction. Its depressed portion is provided with a head 11, having a central air-passage 12 and a finger-ring 13 secured thereto.

This device is adapted for use as a syringe in various connections. The nozzle 4 is made large enough to prevent entry of the syringe in the cavity, and when held firmly against its opening prevents an outflow of the solution employed, thus rendering possible the thorough distension of the cavity and the reaching of every part thereof.

In Fig. 3 I have shown a modification of the invention to adapt it for use as a cupper or developer and as such adapted in the first instance for producing suction on the tissues to which it is applied, thus bringing blood to the surface and relieving the deeper congestion and attendant pressure and pain, and in the second instance adapted to produce a vacuum on the part to which applied, thus increasing the amount of blood and size of the blood vessel, with incident growth of the parts. In this form of the device a flap-valve 18 is inserted in the loop 17 (see Fig. 6) to control the opening or port 16. The outer end of the piston is left open. When in use, the open end of the piston is placed directly against and around the parts, and upon reciprocating the barrel a vacuum will be produced.

Fig. 4 shows a modification adapting the invention for use as a cooker or, if provided with the nozzle shown in Fig. 5, as an oiler. In either instance the nozzle 4 and head 15 are removed and the nozzle 20, Fig. 4, or 21, Fig. 5, screwed on. These nozzles have a base or head 22, provided with an opening 23, leading into the discharge-pipe. On the piston I prefer to employ a head 15, having multiple openings or a single opening covered by wire-gauze 24. The flow of air is governed as before. As a cooker the instrument is useful in drawing off the heavier bottom layers of menstruums, decoctions, infusions, &c., employed without disturbing the superficial portion of the fluid, or all the fluid may be withdrawn without the solid material, or the latter may be freed of liquid. As an oiler it gives the operator complete control of the outflow without tilting with one hand and permits the expelling of ob-

structions from the tip of the pipe without difficulty or delay.

In using the invention with the cap the finger of the operator is inserted in ring 13 and the flow of air through the aperture or duct 12 controlled by the same hand employed to hold the device itself. The flow of air through the said duct and completeness of the vacuum formed by the movement of the piston may thus be governed.

Fig. 1 illustrates the manner in which the instrument may be inclosed and protected and rendered easily and conveniently portable. I employ two removable caps 25 and 26, which fit over the ends of the device and are held by friction on the barrel.

I prefer to make the parts of metal for the sake of lightness and strength, but obviously other suitable materials could be used, as found desirable. I also desire it to be understood that the connections between the detachable parts need not necessarily be such as described, and either screw-threads or friction-joints can be used, as found preferable.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a device of the class described, the combination with a hollow cylinder or barrel and a nozzle connected thereto, of a piston comprising a hollow cylinder in said barrel, a cap for said cylinder which is provided with an air-duct leading into the interior of the cylinder, and having a ring adjacent the duct for the insertion of the finger governing the flow of air through said duct.

2. In a device of the class described, the combination with a hollow barrel or cylinder having a nozzle, of a piston comprising a hollow cylinder movable in the barrel, and a removable cap connected to the outer end of said piston-cylinder and having an outwardly-extending flange overlapping the barrel and also provided with a head having an air-duct leading into the interior of the piston-cylinder, and a ring extending up from said head and adapted to receive the finger of the user governing the flow of air therethrough.

3. In a device of the class described, the combination with a hollow cylinder or barrel and a nozzle attached thereto, of a piston comprising a hollow cylinder movable in the barrel, means for allowing ingress of air to and egress of air from the interior of the piston-cylinder, and a head detachably or removably connected to the inner end of the piston-cylinder which is provided with an opening, or port.

4. In a device of the class described, the combination with a hollow cylinder or barrel and a nozzle attached thereto, of a piston comprising a hollow cylinder movable in the barrel, means for allowing ingress of air to and egress of air from the interior of the piston-cylinder, and a head for the inner end of said piston-cylinder which is provided with an opening and a loop or bail adjacent thereto for the attachment of a valve.

In testimony whereof I hereunto affix my signature in presence of two witnesses.

JOHN N. RANGER.

Witnesses:
JOHN F. HARPER,
Z. T. CONWAY.