Dec. 23, 1930. C. J. PILLING 1,785,745

SURGICAL SUCTION AND PRESSURE APPARATUS

Filed May 5, 1927 2 Sheets-Sheet 1

Fig. 1.

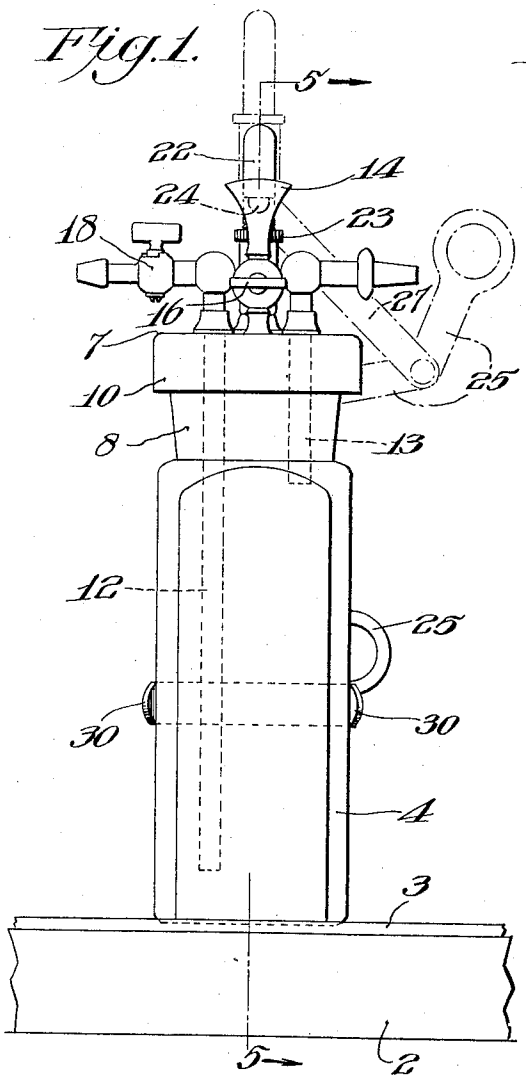
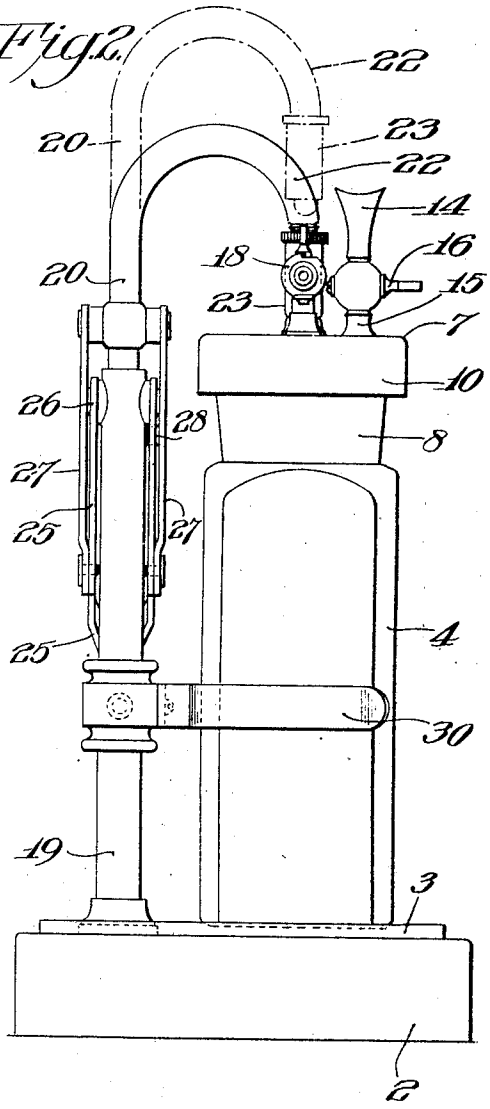


Fig. 2.



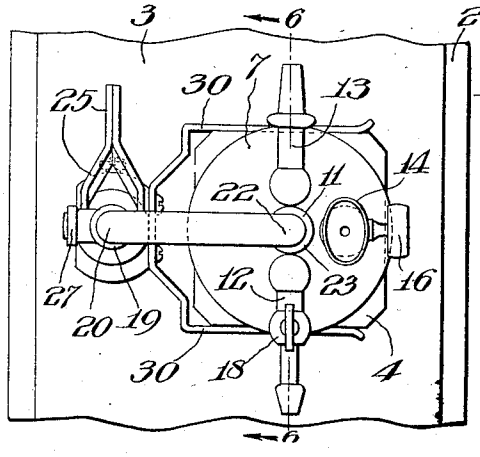


Fig. 3.

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Fig. 4.

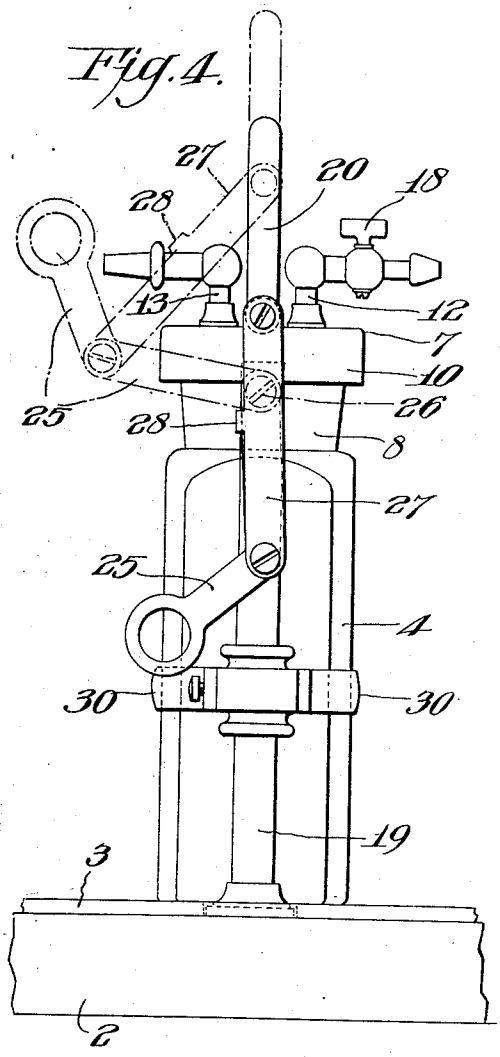


Fig. 5.

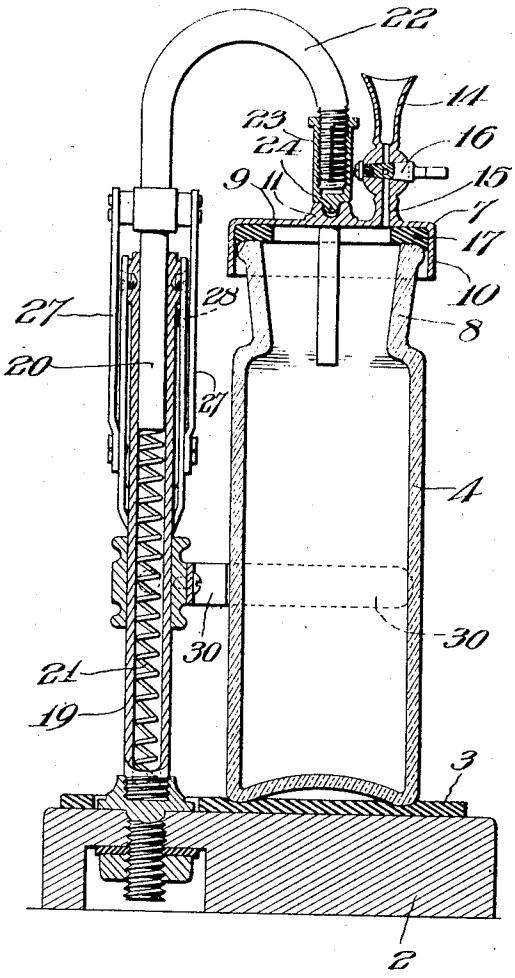
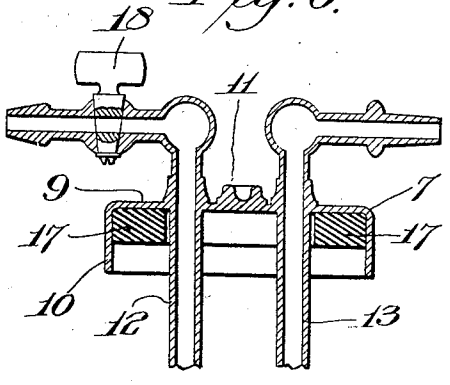


Fig. 6.



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UNITED STATES PATENT OFFICE

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SURGICAL SUCTION AND PRESSURE APPARATUS

Application filed May 5, 1927. Serial No. 188,943.

This invention relates to improvements in surgical suction and pressure apparatus for vaporizing ether, providing pressure for sprays, and providing negative pressure for suction for drawing fluids from the body.

Apparatus of this character includes a bottle for containing the liquid to be atomized or sprayed when the apparatus is operated as a pressure device, and for receiving the liquid when the apparatus is used as a suction device, and, in each instance, the bottle is provided with a removable cover having an inlet tube and an outlet tube extending therethrough.

An object of my present invention is to provide a novel, simple and efficient means for holding the bottle in a fixed position which will permit the bottle to be easily and quickly removed and replaced or another substituted for it for filling or emptying purposes. Another object of the invention is to provide a novel and advantageous cover for the bottle; and a further object is to provide a novel and advantageous clamping means which, at one operation, will clamp the cover upon the bottle and clamp the bottle upon its support, and, at another operation, will release the bottle and, at the same time, release the cover thereon for its easy removal therefrom.

The invention consists in the novel construction, combination and arrangement of elements hereinafter described and claimed.

In the accompanying drawings, illustrating the invention,

Figure 1 is a front view of an apparatus ing the invention,

Figure 2 is a side view thereof.

Figure 3 is a top view thereof.

Figure 4 is a rear view thereof.

Figure 5 is a vertical section through the apparatus, on line 5—5 of Fig. 1.

Figure 6 is a vertical section through the bottle cover, on line 6—6 of Fig. 3.

Referring to the drawings, 2 designates a supporting base which may be of any suitable shape and size for its intended purpose. The top of the base 2 is provided with a yieldable, cushion pad 3 of rubber or other material for the reception of a bottle 4 which rests thereon.

The bottle 4 is provided with a cover 7 which rests upon the top of the neck 8 thereof. The cover 7 comprises a body portion 9 having a downwardly extending, annular flange 10 which surrounds the bottle neck 8 and positions the cover centrally thereon. The top of the cover 7 is provided with a centrally located, upwardly extending boss or projection 11 having a socket formed therein to receive a clamping member hereinafter referred to. Extending through the body portion 9 of the cover 7 on respective sides of the boss 11 are inlet and outlet tubes 12 and 13, respectively, and, forwardly of the boss 11 is a filling funnel 14 the lower tubular portion 15 of which extends through and forms a part of the body portion 9 of the cover 7. The tubular portion 15 of the funnel is provided with a suitable valve 16 which may be opened to permit ether or other liquid to be poured into the bottle and which may be closed to prevent air from entering or leaving the bottle through the funnel. The tubes 12 and 13 are fixed in the body portion 9 of the cover, and, as herein illustrated, the inlet tube 12 extends down into the bottle to a point near the bottom thereof so that it will discharge into ether or other liquid contained within the bottle, and the outlet tube 13 extends only a short distance down into the bottle so that its lower end will be above the ether or other liquid contained within the bottle.

Within the flange 10 and secured to the body portion 9 of the cover 7 is a yieldable cushion ring of rubber 17 which is seated upon the top of the bottle neck 8 and which surrounds the tubes 12 and 13 and the passage in the lower end of the tubular bottom 15 portion of the funnel 14.

The upper end portions of the tubes 12 and 13 are turned outwardly in opposite directions and the outwardly turned end portion of the inlet tube 12 is provided with a suitable valve 18 which may be opened and closed as occasion may require. The free end portions of the tubes 12 and 13 are constructed to receive rubber tubes leading to a source of air pres-

sure and to an ether mask, respectively, when the device is used for vaporizing ether.

Rising fixedly from the base 2 rearwardly of the bottle 4 is a tubular post 19, and slidably fitted within the post 19 is a vertically movable rod 20 the lower end of which rests upon a spring 21 within the post. The rod 20 is provided with a downwardly turned upper end portion 22 which overhangs the bottle cover 7 and carries a clamping member 23 the lower end of which is constructed to engage the boss 11 on the bottle cover 7. The lower end of the member 23 has a downwardly extending, rounded projection 24 adapted to enter the socket in the boss 11. The downwardly turned end portion 22 of the rod 20 is screw threaded and the clamping member 23 is screwed on to the same in a manner to permit the member to be adjusted on the rod toward and from the bottle cover 7 by turning the member.

Embracing the upper end portion of the post 19 is a hand operated, bifurcated lever 25 which is fulcrumed, at 26, on the post. The lever 25 is connected by parallel links 27 to the rod 20, as clearly shown in the drawings. The relation of the lever 25 and links 27 to each other and to the post 19 and rod 20 is such that, when the lever 25 is raised to the position shown by dot-and-dash lines in Figs. 1 and 4, the rod 20 and clamping member 23 will be raised to the position shown by similar lines in Figs. 1, 2 and 4; and that, when the lever 25 is lowered to the position shown by full lines in Fig. 4, the rod 20 and clamping member 23 will be lowered to the position shown by similar lines in Figs. 1 and 2.

It will now be understood that when the bottle 4 with its cover 7 thereon is placed beneath the clamping member 23 and the lever 25 is moved down to the position shown by full lines in Fig. 4, the cover 7 will be clamped upon the bottle 4 and the cover 7 and bottle 4 together will be firmly clamped between the clamping member 23 and the base 2, the pad 3 and the ring 17 yielding, as the clamping number 23 moves to its final clamping position, making a tight joint between the cover and the bottle and protecting the bottle against breakage. It will be understood also that when the lever 25 is raised to the position shown by dot-and-dash lines in Fig. 4, the bottle 4 and the cover 7 will be freed, permitting the bottle easily to be removed from the base and the cover 7 easily to be removed from the bottle.

When the lever 25 is moved down to the position shown by full lines in Fig. 4 to clamp the cover 7 and the bottle 4 a stop projection 28 on one link 27 engaging one side of the lever 25 prevents further movement thereof; and, just before the stop 28 engages the lever 25, the center line passing through the pivoted ends of each link 27 moves from one side of the lever fulcrum 26 to the other side thereof so that the resiliency of the pad 3 and ring 17, tending to continue the movement of the lever 25, will hold the stop 28 against the lever 25 and thereby hold the lever in the down or clamping position. When it is desired to release the bottle 4 and cover 7, it is merely necessary to move the lever 25 back until the center lines of the links 27 pass the lever fulcrum 26, whereupon the spring 21 will raise the rod 20, clamping member 23 and lever 25 to the normal or unclamping position shown by dot-and-dash lines in Fig. 4.

The post 19 is provided with a forwardly projecting, bifurcated arm 30, open at its forward end to receive and properly position the bottle 4 and its cover 17 beneath the clamping member 23 when the bottle 4 is placed upon the base 2.

When the bottle 4 and its cover 17 are clamped between the base 2 and clamping member 23, the projection 24 on the member 23 enters the socket in the boss 11 and thereafter prevents accidental displacement of the bottle and its cover from the clamped position.

I claim as my invention:

1. In a bottle holder and in combination, a base, a tubular post rising from the base, a rod slidable in the post and projecting above the same and having a downwardly turned upper end portion overhanging the base, a clamping member carried by the downwardly turned end portion of the rod and being provided with means for adjusting it vertically thereon, and means associated with the post for moving the rod and thereby moving the clamping member toward the base to clamp a bottle between them.

2. In a bottle holder and in combination, a base, a tubular post rising from the base, a rod slidable in the post and projecting above the same, a clamping member carried by the rod and positioned above the base, a spring within the post acting against the rod to raise it and the clamping member to a normal position, and means associated with the post to move the rod and thereby move the clamping member against the action of the spring and toward the base to clamp a bottle between the clamping member and the base.

3. In a bottle holder and in combination, a base, a post rising from the base, a vertically movable part slidably connected to the post, a clamping member carried by said part and positioned above the base, a hand operated lever fulcrumed on the post, and a link connecting said part and the lever and constructed to move said part and the clamping member toward the base to clamp a bottle between them when the lever is operated.

4. In a bottle holder and in combination, a base, a post rising from the base, a vertically movable part slidably connected to the post, a clamping member carried by said part and positioned above the base, a spring

acting to raise said part and said member, a hand operated lever fulcrumed on the post and extending outwardly therefrom, a link pivoted at its lower end to the lever and at its upper end to said part above the lever fulcrum and constructed to move said part and the clamping member downwardly when the lever is moved downwardly to clamp a bottle between the clamping member and the base, the center line passing through the pivoted ends of the link moving from one side of the lever fulcrum to the other side thereof when the lever is moved to clamping position, and a stop to limit the movement of the lever when it is moved to clamping position.

5. In a bottle holder and in combination, a base, a cover adapted to engage a bottle upon the base, said cover having a part provided with a socket therein, a standard rising from the base, a clamping member above the cover and constructed to engage and to be moved toward and from the same and having a part adapted to enter the socket in the cover when the member is moved toward the same, and means associated with the standard for moving the member toward the base to clamp the bottle and the cover between them.

6. In a bottle holder and in combination, a base, a post rising from the base, a clamping member movable toward the base from a normal position above the same, yielding means tending to move the member toward said normal position, and a part associated with the post and member and movable from a normal position to move the member from its normal position toward the base against the action of the yielding means to clamp a bottle between the member and the base, said part being provided with means to prevent the return of said member to normal position by the yielding means.

In testimony whereof I affix my signature.

CHARLES J. PILLING.