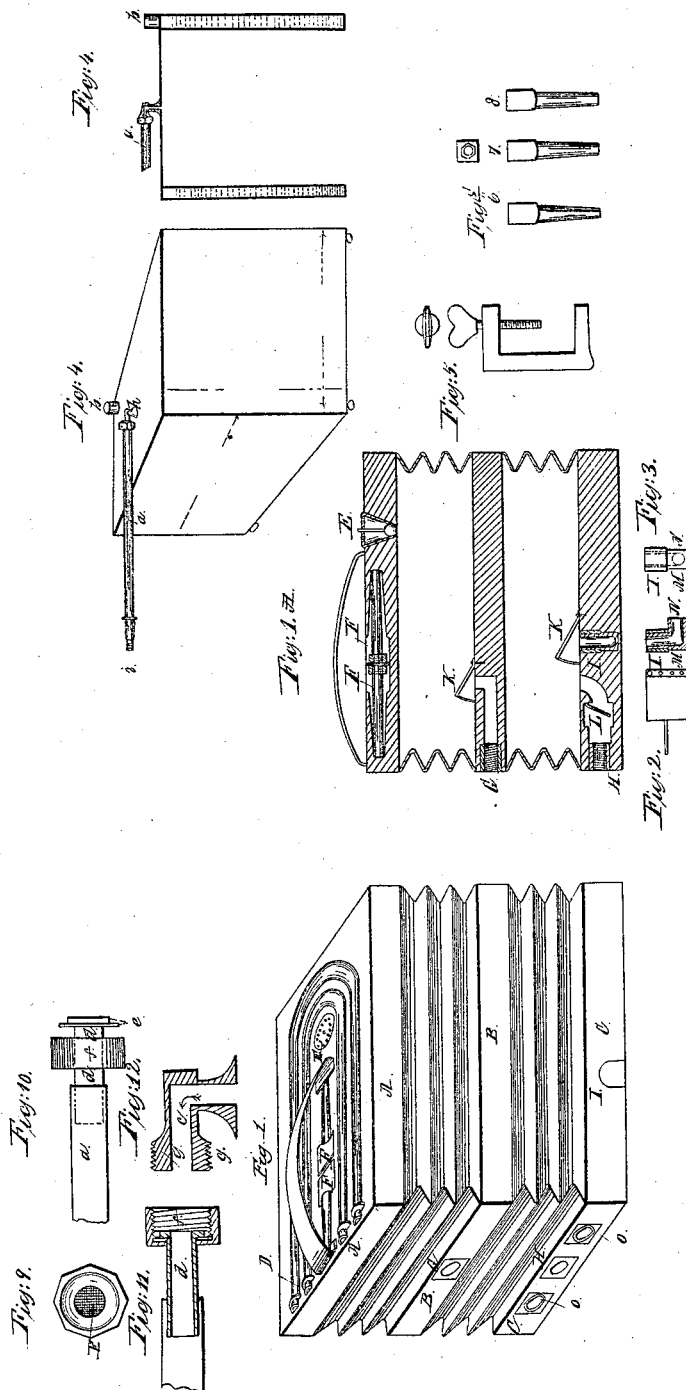


E. Welchman,
Resuscitating Apparatus,
Patented Apr. 11, 1842.

No. 2,547,



UNITED STATES PATENT OFFICE.

EDWARD WELCHMAN, OF COLD SPRING, NEW YORK.

APPARATUS FOR RESUSCITATION.

Specification of Letters Patent No. 2,547, dated April 11, 1842.

To all whom it may concern:

Be it known that I, EDWARD WELCHMAN, of Cold Spring, in the county of Putnam and State of New York, have invented a new and useful Improvement in the Apparatus for the Resuscitating of Persons from Suspended Animation; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a perspective view; Fig. 1 A is a longitudinal section; Fig. 2, valves in the interior of bellows; Fig. 3, view of air passage into inferior bellows, and transverse section of the same; Fig. 4, warm air vessel, and section of the same; Fig. 5 one of the hold-fasts; Figs. 6, 7, 8 three different nostril pipes; Figs. 9, 10, 11, 12 union joint.

The above resuscitating apparatus consists of a double bellows, placed one above the other; the inferior one is for the purpose of inflating the lungs; the superior one for withdrawing the air previously introduced, thereby preparing the lungs for another inflation. Both of the bellows are filled at the same time, and by the same movement; the inferior one with atmospheric or other air, the superior one with air from the lungs. Both are discharged at the same time and by the same movement.

To facilitate the operation of resuscitation, and for rendering fewer hands necessary, the instrument is fastened down to a table, so that one hand only may be employed in working the two bellows.

The top, Fig. 1, A, middle, Fig. 1, B, and bottom, Fig. 1, C, made of wood, are of the same length and breadth, viz: 9 inches long by $4\frac{1}{2}$ wide. The thickness of the top and middle are $\frac{7}{8}$ of an inch, the bottom is one inch and $\frac{1}{8}$ thick. The top is cut out for the reception of two flexible tubes of $\frac{1}{2}$ an inch in diameter, Fig. 1, D D; a funnel shaped hole for a ball valve, Fig. 1, E; and for two small pipes for the nostrils, Fig. 1, F F; a rabbet is also cut around the lower edge of the wooden top $\frac{1}{16}$ of an inch deep, by $\frac{3}{16}$ wide, into which the sides of the superior bellows are to be glued. The middle or wooden septum between the two bellows has a similar rabbet to the above around both edges, into which the sides of

both the superior and inferior bellows are glued. Into the center of one end, a square piece of brass, Fig. 1, G is let into the wood, which has a female screw, into which, the longest of the two elastic tubes, is to be screwed, with a suitable sized nostril pipe adapted to the other end. This hole leads to the interior of the superior bellows, which withdraws the deoxidized or carbonized air from the lungs, in the elevation of the bellows. It has a common clap-valve within K section, Fig. 1, A, and Fig. 2, to prevent egress in that direction, so that in the depression of the bellows, the air must escape by the ball valve at the top, Fig. 1, E. The bottom has a rabbet like those of the middle and top, around the top edge, into which the sides of the inferior bellows are to be glued; at Fig. 1, H, there is a similar piece of brass to Fig. 1, G, let into the end, just below the other, for the insertion of the other flexible tube, and corresponding nostril pipe. Within the passage there is a clap valve hanging perpendicularly L section, Fig. 1, A, which prevents ingress but allows egress when the instrument is depressed. This bellows is supplied with air through the archway I, Fig. 1, which extends through, presenting a like opening on the opposite side; midway between the two openings, a square mortise hole is cut through the remaining thickness of the bottom, for the reception of the brass collar I section of Fig. 1, A; I, Fig. 3; and I transverse section of the same; which collar surrounds the brass canal M of the same figures as far down as the elbow, section of Fig. 3; so that the orifice N may be turned to either side of the instrument, as may be most convenient, for the insertion of the flexible tube a Fig. 4 of the warm air vessel. At each end of the instrument there are two holes O O, Fig. 1, and two similarly situated at the other end of the instrument, into which are inserted, two pairs of different sized nostril pipes. The same holes when the pipes are taken out, are also intended for the ends of the hold fasts, which are let into the bottom of the instrument; one of them is shown Fig. 5. If it were more convenient to have the instrument fixed to the same table as the one on which the subject to be resuscitated is placed, the ends of the hold-fasts must be put into the holes at the opposite end to the tubes; if on another table

standing by, then the holes at the same end of the instrument to which the tubes are attached must be used.

The warm air vessel Fig. 4 is a tin box
 5 10 $\frac{3}{4}$ inches square in the interior, and 12 inches deep, having a hole in the center of the top, into which the union joint is soldered. The union joint consists of a male and female brass screw. Fig. 12, which is
 10 a section of the male screw, has a canal through it *c*; it is soldered on to the top of the warm air vessel *h*, Fig. 4; the female screw is a hollow nut, with a hole through the center *F*, Fig. 9, for the short brass pipe
 15 *d d*, Fig. 10, and section, Fig. 11, to pass through; it is partly out in Fig. 10, to show the flange and leather washer *e*, to prevent leakage around the border of the hole, when the nut *f*, Fig. 10, and section *f*, Fig. 11 is
 20 screwed up tight over the male screw, *g g* section Fig. 12. *a*, Fig. 10, is part of the flexible tube *a*, Fig. 4, provided with a screw at the end *i*, Fig. 4, to connect the warm air vessel with the bellows at *N* Fig. 3 situated
 25 within the archway *I* Fig. 1. The warm air vessel is open at bottom, and a little raised from the ground, or stand for it, by a knob at each corner, on which it stands. This vessel is surrounded by a tin case, nearly 13
 30 inches square, which gives a space of one inch between the two boxes for hot water, which can be poured in at the cork hole *b*. The superiority of this resuscitating apparatus over those previously employed, will
 35 be apparent, in the use of a second bellows for extracting the carbonized air from the lungs; in the manner of effecting the operation, so as to resemble natural breathing; and of the saving of hands, and of time in

accomplishing the same. The means for 40 using warm air, the inventor considers an important improvement.

For the operation of the apparatus, the double bellows should be firmly fixed to a table by means of the hold-fasts; those ends 45 of the elastic tubes marked *I* screwed into their respective holes, and a pair of nostril pipes selected, suitable to the person to be resuscitated; wrap pieces of soft rag around the latter, to make them fit accurately, one 50 into each nostril. Close the patient's lips by applying a bandage over the mouth, then cross it at the back part of the head, and tie it on the forehead. Fill the walls of the warm air vessel with hot water, and place 55 it conveniently for being adapted to the bellows (after slackening the screw of union joint) by screwing the elastic tube *a* Fig. 4 into the hole *N* Fig. 3 situated within the archway *I* Fig. 1 turning the orifice to the 60 most convenient side.

I do not claim as my invention, the use of a pair of bellows for inflating the lungs, but the combination of the two bellows; one 65 for the purpose of inflating the lungs, and the other for extracting the same; and also, the further combination of them, with an apparatus for warming the air or airs introduced into the lungs. I do not claim the materials of which the apparatus is constructed, as new, as they may be made of 70 various materials, but the mode or manner of their arrangement.

Cold Spring 25th Feby. 1842.

EDWARD WELCHMAN.

Witnesses:

B. H. BARTOL,

E. WELCHMAN, Jr.