

KARL ANTON (ALLAN) EMANUEL FRIES.
 APPARATUS FOR PRODUCING ARTIFICIAL RESPIRATION.
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1,057,633.

Patented Apr. 1, 1913.

Fig. 1.

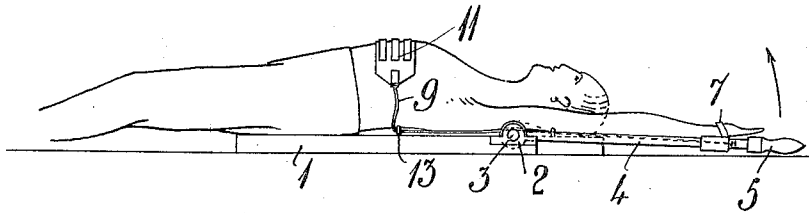


Fig. 2.

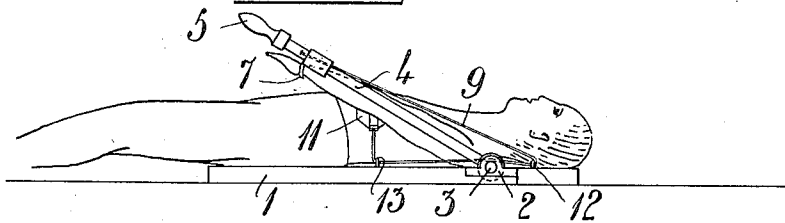


Fig. 3.

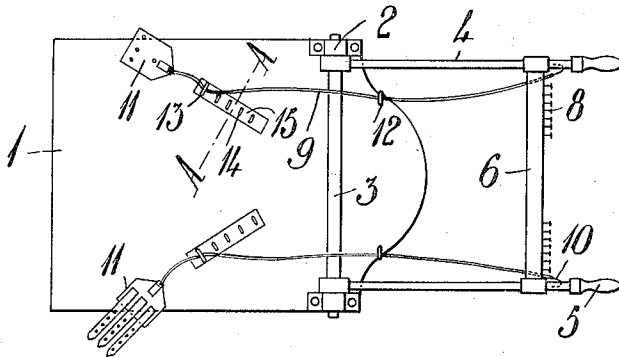
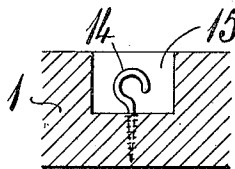


Fig. 4.



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UNITED STATES PATENT OFFICE.

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APPARATUS FOR PRODUCING ARTIFICIAL RESPIRATION.

1,057,633.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, KARL ANTON (ALLAN) EMANUEL FRIES, a subject of the King of Sweden, and residing at Stockholm, Sweden, have invented certain new and useful Improvements in Apparatus for Producing Artificial Respiration, of which the following is a specification.

The present invention refers to an apparatus for producing artificial respiration in persons who have been nearly drowned or suffocated by smoke, gas or steam, or who for some other reason are in need of artificial respiration. The apparatus may also be used for gymnastic purposes.

An apparatus, constructed according to this invention, is chiefly characterized by the combination of an arrangement, by means of which the arms of a person, treated with the apparatus, are brought in such movement as is necessary for producing artificial respiration in the person, and an arrangement which, while the arms occupy, or move in a certain position, exercises a pressure on a proper part of the person's chest.

The apparatus is arranged in such a manner that it can be applied to persons of different sizes.

On the accompanying drawing, for example, is shown an apparatus constructed in accordance with this invention.

Figures 1 and 2 show the apparatus in side view; in these two figures the main parts of the apparatus are shown occupying various positions. Fig. 3 shows the apparatus in plan view, while Fig. 4 shows a section, taken along the line A—A in Fig. 3.

On a plate 1, which serves as a support for the body of the person to be treated with the apparatus, there are fixed bearings 2 for a shaft 3, running right across the plate 1. From this shaft emanate, close to the bearings 2, two arms 4, parallel to each other, which at their ends are fitted with handles 5 and between which there runs a cross-piece 6, which can be removed to the arms 4, so that its distance from the shaft 3 can be altered. Two straps 7 (Figs. 1 and 2), which are attached to the person's wrists and are fixed to the cross-piece by means of buttons 8, are fastened to the cross-piece, and the said buttons are fixed to the cross-piece in two rows lying in a line with each other.

The arms 4 serve as holds for one end of

the ropes 9 (suitably of steel-wire), while these ends are provided with hooks 10, which are attached to holes, arranged in the arms. In each arm there are several such holes situated one after the other, reckoned from the shaft 3, so that the distance between the shaft and the point for attaching the ends of the ropes can be altered. The other ends of the ropes 9 are attached to their respective part of a pressure piece 11 of cloth, leather or other suitable material. This pressure piece 11 is intended to exercise pressure upon the person's chest or a part thereof, such as for example the lowest part, situated nearest the diaphragm. The two parts of the pressure-piece 11 are provided with an arrangement (for example straps and buttons or clasps) for stretching them over the desired portion of the body. Each one of the ropes 9 passes through two eyes 12 and 13, fastened to the plate 1 (for the sake of simplicity eyes are shown in the drawing, but it is obviously more suitable to use blocks or such like). The eyes (or blocks) 12 are fixed in certain places on the plate, while the eyes (or blocks) 13 are fixed to one pair or another of hooks 14, arranged in two converging rows. The hooks 14 are fastened in grooves 15 in the plate 1, so that they do not interfere with the person lying on the plate. For the same reason the shaft 3 ought to be placed more or less deep in the plate.

When a person is to be treated with the apparatus described, he is placed on plate 1 in the manner seen in Figs. 1 and 2, his arms are made fast, when they occupy the position given in Fig. 1, to the cross-piece 6, and the pressure-piece 11 is stretched across the lower portion of the chest. When the arms are moved in the direction of the arrow (Fig. 1), the ropes 9 are, on account of the position of the eyes (or blocks) 12 in relation to the shaft 3, drawn through the said eyes, which causes the pressure-piece to exercise a pressure upon that part of the body against which it is resting, which pressure increases as the arms 4 approach their second position (*i. e.* move toward the plate 1). After that, the arms 4 are swung back and the operation mentioned is repeated as long as necessary.

As result of the arrangement of several holes in the arms 4 the rows of buttons 8, situated behind each other, and the converging rows of hooks 14, the apparatus can, as

will easily be seen, be applied to various sizes of bodies. Even the manner of connecting the parts of pressure-piece 11 with each other is arranged with regard to this object.

The apparatus can be constructed in such a manner that it is collapsible and can therefore be easily transported.

With an apparatus, constructed in accordance with this invention, it is possible (according to what experiments made have proved) to produce artificial respiration in a very effective manner. Furthermore, the apparatus is easy to handle; one person, even an inexperienced one, can without exertion perform the same amount of work for a long time as two or more practiced persons have to perform with great exertion and with frequent relieves when producing artificial respiration in the manner hitherto employed.

The invention can clearly be carried out in other ways besides the one given as an example by retaining its characteristics. The connection between the two main parts, for example, the arrangement for moving the arms and the pressure arrangement, may be other than those described.

Having now particularly described and ascertained the nature of my said invention and in which manner the same is to be performed I declare that what I claim is:

1. An apparatus for initiating respiration in the human body, comprising in combination, swinging means arranged for attachment to the arms of the subject, and a pressure device actuated by said means for engaging a portion of the body, substantially as described.

2. An apparatus for initiating respiration in the human body, comprising in combina-

tion, a platform for the subject, means pivoted on the platform and adapted for attachment to the arms of the subject, a two-part pressure strap adapted to embrace abdominal portions of the subject, and devices connecting said strap with the two compressed strap portions when said strap is swung in one direction.

3. An apparatus for initiating respiration in the human body, comprising in combination, a platform for the subject, a shaft on the platform adjacent the shoulders of the subject, means mounted on the shaft and adapted for connection with the arms of the subject, a two-part pressure strap adapted to embrace abdominal portions of the subject, cords connected with said strap, means located on one side of said shaft and slidably engaging said cords, and means located upon the other side of said shaft and slidably engaging said cords.

4. An apparatus for initiating respiration in the human body, comprising in combination, a platform for the subject, means pivoted on the platform and adapted for attachment to the arms of the subject, a strap for embracing abdominal portions of the subject, recessed converging means arranged on the platform and adapted for connection with cords attached to said strap, said cords being connected with said means, and devices on one side of the pivotal mounting of said means for slidably engaging said cords.

In testimony whereof I have signed my name to this specification in the presence of two witnesses.

KARL ANTON (ALLAN) EMANUEL FRIES.

Witnesses:

HEDWIG MELINDER,
A. SPÄNG.