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1,609,659

G. PANIS

APPARATUS FOR PRODUCING ARTIFICIAL RESPIRATION

Filed June 24, 1924

2 Sheets-Sheet 1

Fig.3.

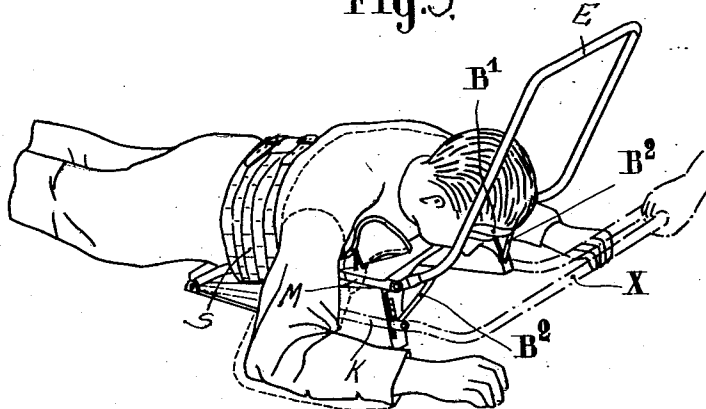


Fig.1

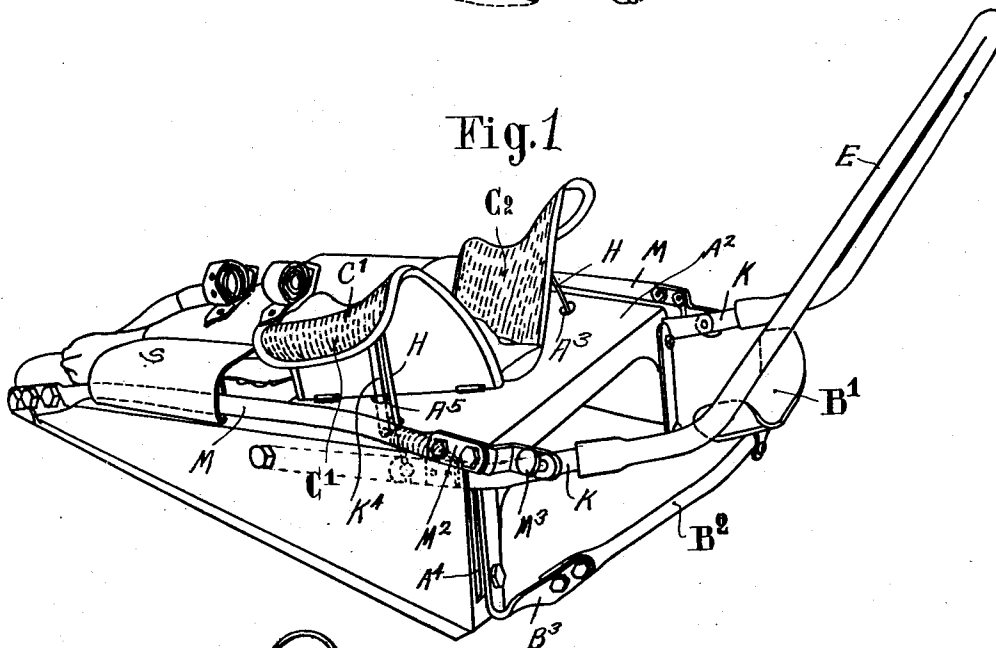
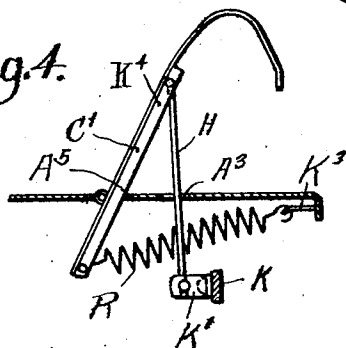


Fig.4.



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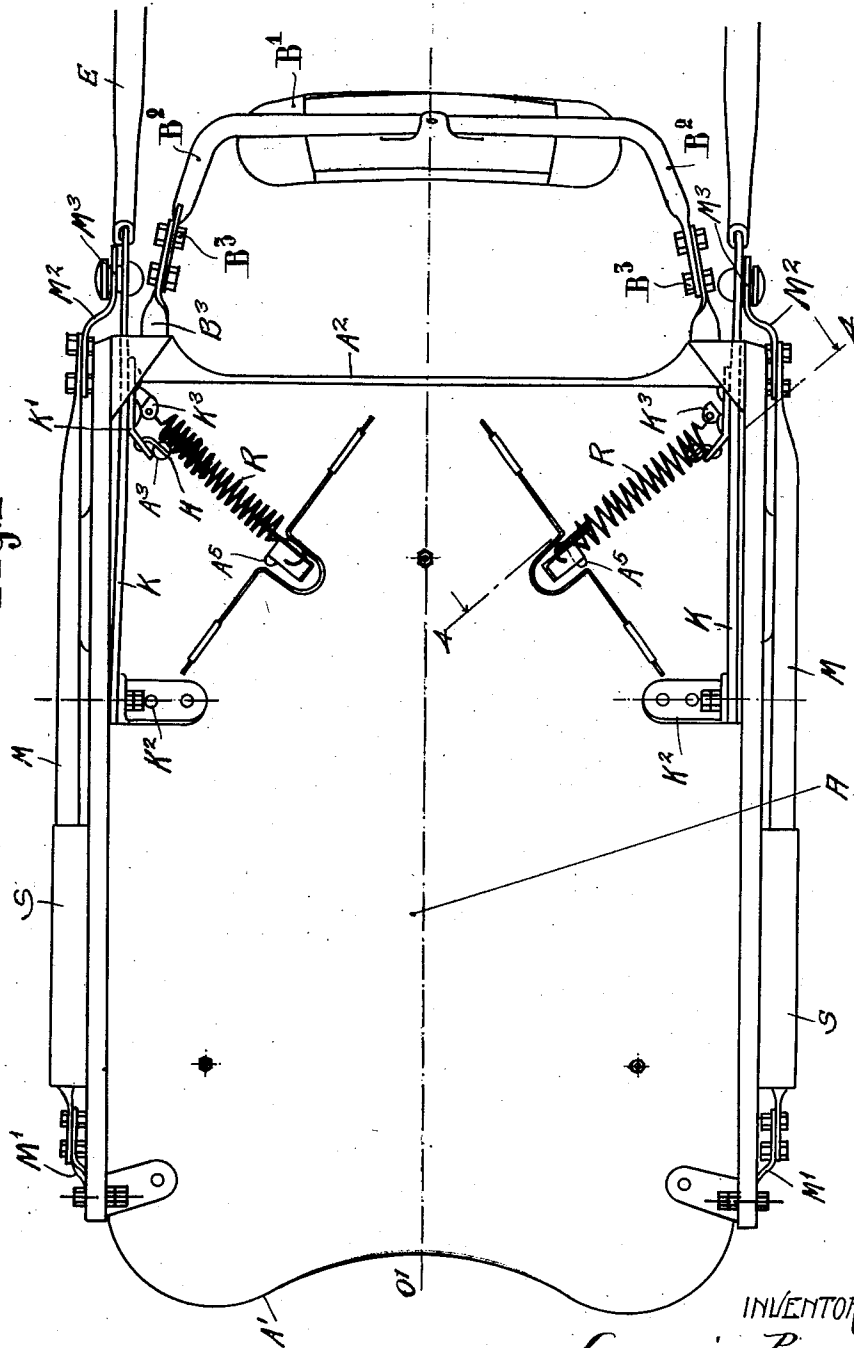
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Fig. 2



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UNITED STATES PATENT OFFICE.

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APPARATUS FOR PRODUCING ARTIFICIAL RESPIRATION.

Application filed June 24, 1924, Serial No. 722,090, and in France November 20, 1923.

The object of my invention is to provide an apparatus for producing artificial respiration with persons electrocuted, apparently drowned or poisoned by carbonic oxide; my apparatus will enable any unskilled or weak person to perform artificial respiration for hours under physiological conditions recognized as the best possible, while doing away with every risk of lesion to bones or viscera.

In order to make my invention more clearly understood, I have illustrated, by way of example, an embodiment thereof in and by drawings appended hereto and wherein:

Figure 1 is a perspective elevation of my apparatus;

Figure 2 is an enlarged bottom plan view thereof;

Figure 3 is a perspective view showing the apparatus in use;

Figure 4 is a detail section on line 4—4 Figure 2, showing the manner of mounting the wings.

The improved apparatus, as shown, comprises primarily an inclined sheet metal bed A for supporting the chest of the patient; the lower end A' of the bed being designed to rest directly on the ground, while the higher end A² is raised about four inches. A supporting plate B', likewise made of sheet metal, is loosely connected to the central part of a metal yoke; the arms B² of which are attached to brackets B³ fastened to the bed end A², and this plate is shaped so as to conformably engage the patient's forehead, so that his head will thus be held in proper position merely by resting it on said support; in which position it will be disposed forward and entirely clear of the bed, thus permitting water to flow out in the case of an apparently drowned person, and also permitting the mouth-piece of an oxygen apparatus or the like, such as has to be employed in certain cases, to be readily attached.

Upon the inclined wall of the bed, at opposite sides of the axis of symmetry O'—O², there is arranged a pair of flaps or wings C', C², which are shaped to fit conformably against the front of the patient's shoulder blades and are hinged or pivoted along their lower edges to said wall in some suitable manner. These wings, which, incidentally, extend beyond the arm pits of the patient when the latter is lying flat on his stomach

and fit closely against his sides, are designed to be swung outwardly and inwardly away from and toward each other along their aforesaid pivoted lower edges, this for the purpose of assisting respiration—particularly, inhalation.

To effect the desired movements, there may be fastened to the under side of the upper part of each wing one end of a link, rod or other suitable connecting element H (Fig. 4) which passes through a hole A³ in the bed and is attached at its other end to a strap K' which, in turn, is fastened to a rod K. The rods K are pivoted at their rear ends to brackets K² secured to the under face of the bed top, and they project outwardly through vertical slots A⁴ provided in the front wall of the bed at opposite sides of the yoke B². These rods constitute extensions of the sides or arms of a U-shaped frame E, which extends upwardly at a comparatively abrupt angle, as shown, and is adapted to be grasped and moved up and down; said frame being normally held in raised position by means of retractile coil springs R (Fig. 4) which are attached at one end to lugs K³ secured to the bed, and at the other end to depending straps K⁴ secured to the under sides of the corresponding wings C', C² and projecting through holes A⁵ in the bed.

In addition to the aforesaid wings, a device is also provided to facilitate exhalation, and is preferably connected to be operated by frame E. This device comprises a belt or strap S of webbing of suitable width and adapted to be fastened around the patient's back about level with the last five dorsal vertebrae and the first lumbar vertebra. The belt is made in two sections which are adjustably buckled together at their inner ends, as shown, and are attached at their outer ends to side bars M. The latter are connected at their rear ends to the side members of the bed by means of pivoted straps M', and at their front ends are provided with offset straps M² which, in turn, are connected by pin-and-slot joints M³ with the projecting parts of the frame extensions K, so that the movements of the frame will thus be transmitted to the bars M and, hence, to the belt or strap S.

Due to the arrangement above described, it will be apparent that when the patient is occupying the position illustrated in Fig. 3, and the frame E is grasped and moved

downward into the dotted-line position X represented in said figure, the downward movement of the rods K will have the effect of pulling wings C', C² with them, through the intermediary of connecting members H, and, consequently, of extending the springs R, whereupon the shoulders of the patient will drop by their own weight. The bars M, at the same time, are likewise forced downward owing to their connection to rods K and, hence, cause the belt or strap S to press down upon the patient's back. When the pressure on frame E is relieved, the latter rises, due to the traction of the springs R which is exerted on the straps K⁴ secured to the wings C', C², so that said wings are moved upward, carrying with them the members H, the patient's shoulders being forced backward in the same direction. The side bars M likewise move upward during the return movement of the frame and thus relieve the pressure of belt S.

The apparatus as a whole thus enables the so-called Schaeffer method of artificial respiration to be readily and effectively practised and to be continued for a comparatively long period, as it overcomes all of the objectionable features ordinarily attendant upon artificial respiration which jeopardize its efficiency and render it exhausting to the patient if not actually dangerous.

While a preferred embodiment has been shown and described, it is to be understood that the invention is not limited thereto but is susceptible of modification and change within its scope.

I claim as my invention:—

1. Apparatus for producing artificial respiration, comprising a supporting bed embodying side, top and front walls, the last-named wall being formed with a pair of vertical slots; a pair of rods pivoted at their rear ends to the inner faces of the side walls and having their front portions projecting outward through said slots; a U-shaped frame connected to the front ends of said rods and adapted to be reciprocated up and

down and to carry the rods with it during such movements; a pair of shoulder-supports mounted for swinging movement on the top wall of the bed; a strap secured to each rod and disposed within the confines of the bed; a link connection between the outer part of each shoulder support and the adjacent strap, said links passing through holes in said top wall; and a pair of springs, one for each rod, connected at one end to the bed and at the other end to the lower part of the shoulder supports to normally hold said rods and frame in raised position.

2. Apparatus for producing artificial respiration, comprising a supporting bed embodying side, top and front walls, the last-named wall being formed with a pair of vertical slots; a pair of rods pivoted at their rear ends to the inner faces of the side walls and having their front portions projecting outward through said slots; a U-shaped frame connected to the front ends of said rods and adapted to be reciprocated up and down and to carry the rods with it during such movements; a pair of shoulder-supports mounted for swinging movement on the top wall of the bed; a strap secured to each rod and disposed within the confines of the bed; a link connection between the outer part of each shoulder support and the adjacent strap, said links passing through holes in said top wall; a pair of springs, one for each rod, connected at one end to the bed and at the other end to the lower part of the shoulder supports to normally hold said rods and frame in raised position; a pair of side bars pivotally connected at their rear ends to the outer faces of said side walls and at their front ends to the projecting portions of said rods to swing up and down with the latter; and an adjustable belt adapted to extend across the back of a patient supported on the bed and connected at opposite ends to said bars.

In testimony whereof I affix my signature.
GERMAIN PANIS.