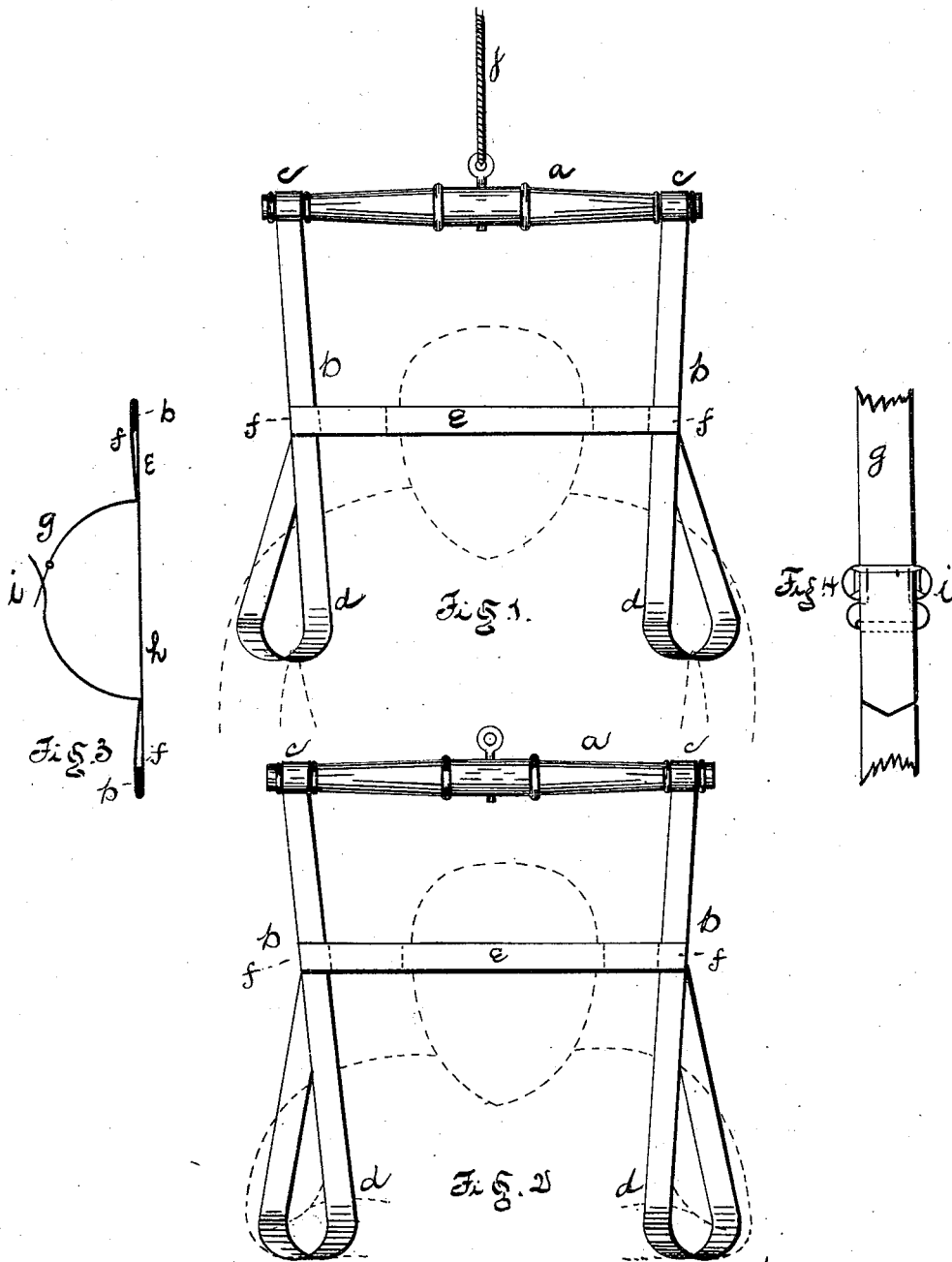


G. F. FRENCH.
RESPIRATORY BRACES.

No. 191,042.

Patented May 22, 1877.



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IMPROVEMENT IN RESPIRATORY BRACES.

Specification forming part of Letters Patent No. 191,042, dated May 22, 1877; application filed April 5, 1877.

To all whom it may concern:

Be it known that I, GEO. F. FRENCH, of Portland, in the county of Cumberland and State of Maine, have invented certain new and useful Improvements in Respiratory Braces; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

Figures 1 and 2 are views of the brace. (In Fig. 1 the dotted lines indicate the position of the head and body, with the loops passing under the armpits. In Fig. 2 the loops are indicated as passing around the fore-arms.) Fig. 3 is an edge view of the cross-piece or head-band. Fig. 4 is a view of a piece of the cross-piece, with the buckle.

The object of my invention is to produce a device to hold the body erect by support applied to the shoulders, arms, and head of invalids or others in a sitting or reclining posture.

The invention is designed especially for the use of those who have difficulty of breathing while in a horizontal posture, caused by disease of the heart, lungs, spine, &c. The effect of my apparatus is to hold the body in an attitude most favorable for efficient respiration without any expenditure of muscular exertion.

The device consists of a bar, which is to be suspended in the proper position over the patient's body, and in proper relation thereto. This may most conveniently be done by extending a cord or other support from the center of the bar to the ceiling or other support directly over the head and body of the patient.

a shows the bar. Extending downwardly from the two ends of this bar are two elastic bands or braces. The bands may, however, be non-elastic, and the requisite elasticity obtained by a spiral spring above the cross-bar, connected with it, and so arranged as to impart its spring to the bar. The bands may each be made double, or of two strands or bands each. In such case they may be made to pass around the bar *a* in grooves or depressions made at each end of the bar to receive

them, and then confined tightly around the bar on the under side, so as to keep them in position. If the bands are made double, then the two parts will form loops or open places at their lower ends, the use of which will be hereinafter explained. The loops may be made non-elastic, if desired—as, for instance, of rings of non-elastic substance. *b* shows the bands or braces; *c*, where they pass around and are confined to the bar *a*. *d* shows the loops at the lower ends of the bands or braces.

A cross-piece extends from one to the other of the bands or braces *b*, as illustrated at *e*. This may be called a head-band. This cross-piece or band has on its ends loops or openings *f* to pass around the braces *b* tightly enough to hold the cross-piece at any desired point, and, at the same time, free enough to allow the cross-piece to be slipped up and down, as the comfort, form, or size of the user may require.

The cross-piece may be made of two parts or pieces, or single, as required. It is, like braces *b*, elastic. At the center it is composed of two parts, *g h*, with a space between them to receive the head of the patient.

I will now describe, with more particularity, the intended uses of the invention.

It is intended to be employed in sick-rooms, hospitals, ambulances, &c., or whenever a support to the shoulders and head of a sick person will add to the comfort or aid in the breathing of the patient. Asthmatic persons are often compelled, during protracted attacks, to forego lying down at all in consequence of the difficulty—indeed, in some cases, impossibility—of breathing while in such posture. Great fatigue results from this necessity, and great pain and depression from the consequent loss of restoration by sleep. My device has particular application to such persons. The bands or braces *b*, in the first place, support the body by passing under the arms or shoulders. They permit of a slight forward inclination of the body, and lift up the shoulders a little above their natural position. Both of these positions are aids to the respiration of the patient. At the same time the weight of the upper part of the body is sustained, and the patient, unlike when simply sitting up, is not compelled to sustain by his own strength the upright position.

The bands can simply pass under the armpits, or the user can place the fore-arms through the loops *d*. In such case one part of the loops would pass up in front, and the other or back part would pass up across the middle of the back parts of the two arms. The arms would then be somewhat in the position as if folded across the breast. The head is placed in the space between the two parts of the cross-piece *e*. One of the bands or parts crosses the forehead from side to side. The other extends around the back of the head. When thus placed or partially suspended in the device described, the shoulders, head, and upper parts of the body, from the hips upward, are supported in an easy natural position, one favorable to respiration and the performance of other bodily functions, and one permitting of refreshment by sleep.

The loop or opening to receive the head may be made adjustable, as by a buckle or other arrangement, as seen at *i*. So may all the bands or braces.

The body is not held rigidly, but it is obvious that changes of position can be taken by the patient, as the device is capable of swaying backward and forward and from side to side. *j* is a cord, by which the device can be suspended.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A respiratory brace or rest for invalids or others, as herein described, in which the body is supported in an upright posture by bands passing under the arms or armpits and around the head, the same being attached to a bar suspended over the user, as herein described.

2. The combination of the bar *a*, braces *b*, having loops *d* and cross-piece or head-band *e*, with an opening formed by the parts *g h*, the said cross-piece or head-band being adjustable on the braces *b*, as set forth.

3. The combination, with the bar *a*, of the elastic braces *b*, elastic or non-elastic cross-piece or head-band *e*, made adjustable to the wearer's head, and also to the braces *b*, as herein set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

GEO. F. FRENCH.

Witnesses:

WM. HENRY CLIFFORD,
CHARLES E. CLIFFORD.