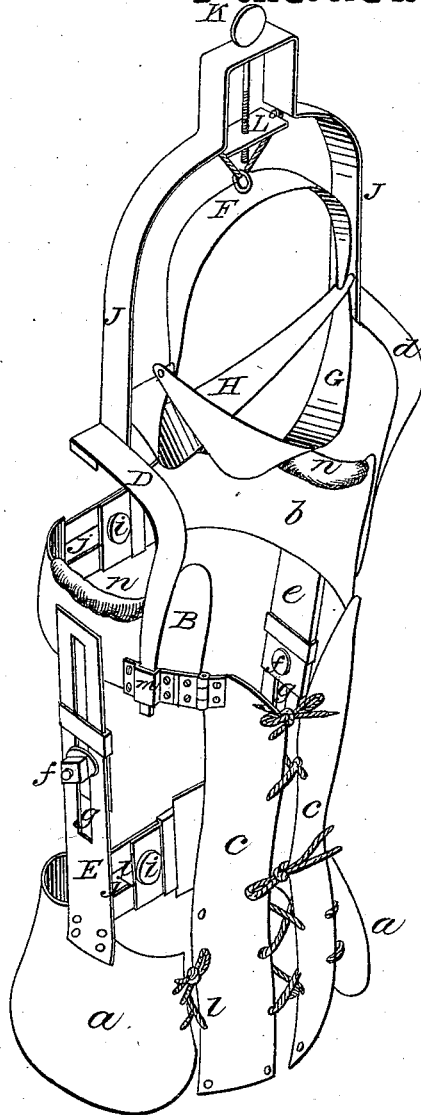


*C. Knapp,*

*Fracture Apparatus.*

*N<sup>o</sup> 4,968.*

*Patented Feb. 13, 1847.*



*Witnesses:*

*Thos. H. Smith*

*Isa. B. Denton*

*Inventor:*

*Cyrus Knapp*

# UNITED STATES PATENT OFFICE.

CYRUS KNAPP, OF CINCINNATI, OHIO.

## SPINAL ELEVATOR.

Specification of Letters Patent No. 4,968, dated February 13, 1847.

*To all whom it may concern:*

Be it known that I, CYRUS KNAPP, doctor of medicine, of Cincinnati, in the county of Hamilton and State of Ohio, have invented a new and useful Apparatus for the Cure of Lateral Curvature of the Spine, which apparatus I denominate the "Spinal Elevator;" and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawing, which makes a part of this specification and represents the instrument in perspective divested of its covering of soft leather or other suitable material.

A, *a*, is the lower part, or hip piece, which consists principally of two pieces of copper, or other sheet metal, which must be nicely adapted to the form of the patient, so as to fit accurately to the upper portion of the hips, or the integuments of the ilia, which constitute the lower support of the instrument. The two parts A, and *a*, are connected together at the back, so as to be adjustable, in a manner to be presently described.

B, *b*, are what I denominate the arm pieces, made like the hip pieces of sheet metal. These are so formed as to fit the integuments of the upper part of the chest, and are made adjustable where they unite together at the back.

E, *e*, are standards which rise vertically from the hip pieces, to which they are united by rivets, or otherwise, at their lower ends; their upper ends are in like manner made fast to the arm pieces B, *b*; they are each formed of two plates that slide on each other, and made adjustable in length by means of screws and nuts *f f*, and slots *g, g*; these standards I prefer to make of sheet metal, or hammer-hardened iron. They are usually from 1½ inch, to 2 inches in width and in length such as to suit the patient; they are situated at each side of the person immediately under the axillæ. The arm pieces are made somewhat concave at their upper edges where they are in contact with the axillæ, and are covered by pads *h, h*.

The adjustment of the hip pieces, and of the arm pieces, is made at the back of each by means of screws and nuts *i, i*, confining the two parts at any required point, by the aid of the slots *j, j*.

C, *c* are stomachers, or front pieces, which I have made of strips of sheet tin about two inches in width; they are shown as attached to the arm pieces by means of hinges

*k, k*; and by cords at *l, l*, to the hip pieces; these are, of course, adapted to the form of the trunk, and they are to be connected together in front by cords, or lacing. They serve to draw the instrument forward, and to keep it duly in place.

To this apparatus I attach a head piece, F, furnished with bands G, H, to pass under the chin and behind the head, D *d*, are supports to the head piece, which are made of metal, and are attached to the arm pieces by the passing of their lower ends into sockets, *m*, from which they may be removed at pleasure. The pieces D, *d*, are so curved as to sustain the arch piece J, J through which passes a screw K, that is tapped into a plate L, which may be attached by cords to the head piece F. The head piece, and its screw, serves to draw the head up, as it is raised by the diminishing curvature of the spine, and sustains it in an easy position by the elastic action of the parts of which it is composed.

The portion of the apparatus first described may be, and frequently is, used without the aid of the head piece; the latter being employed occasionally, the former worn constantly, as its action on the distorted spine, below the axillæ is independent of the head piece as will be manifest from the foregoing description, the extension, and counter extension being made by the bearing of the hip pieces, and of the arm pieces in the manner set forth.

Having thus fully described the manner in which I arrange and combine the respective parts of my spinal elevator, what I claim therein as new, and desire to secure by Letters Patent is—

1. The combining, in the manner herein shown, of the adjustable hip and arm pieces, by means of the adjustable standards so as to establish an extension and counter extension of the vertical column, between the integuments of the hips, and of the axillæ; the respective parts being combined, and operating, subsequently in the manner, and for the purpose, herein described and represented.

2. I also claim the combining of the head piece with the main body of the elevator said head piece being constructed and connected as set forth.

CYRUS KNAPP.

Witnesses:

THOS. P. JONES,  
LEML. WILLIAMS.