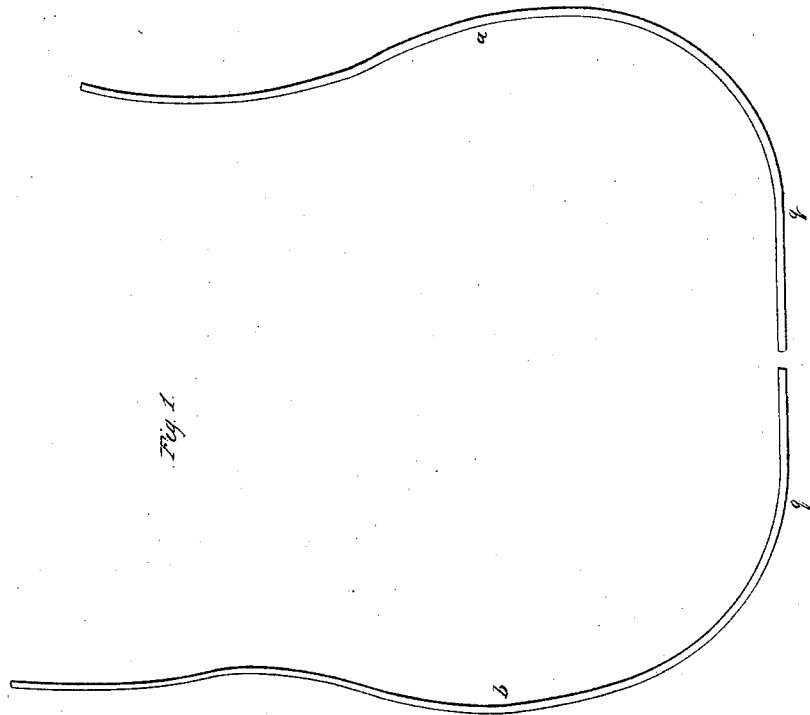
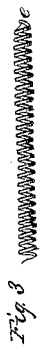
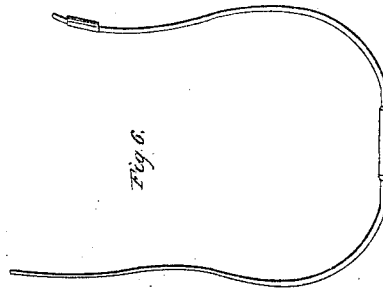
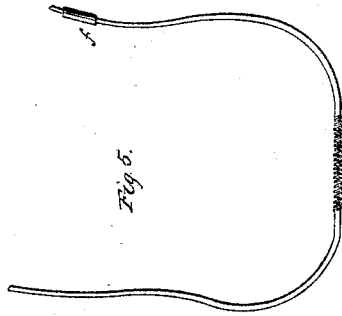


L. A. Hall,

Truss.

N^o 6,425.

Patented May 8, 1849.



UNITED STATES PATENT OFFICE.

LEWIS A. HALL, OF NEWARK, NEW JERSEY.

TRUSS.

Specification of Letters Patent No. 6,425, dated May 8, 1849.

To all whom it may concern:

Be it known that I, LEWIS A. HALL, physician, of the city of Newark, in the county of Essex and State of New Jersey, have invented a new and useful truss for the retention and cure of all cases of reducible hernia, which I designate the "Inverted arch spiral-spring truss," 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 drawing, making a part of this specification, in which—

Figure 1, letter *a*, is the anterior rod; letter *b*, is the posterior rod. Fig. 2, letter *c*, is a canula with its movable ends *d*, *d*, which surrounds a spiral spring, Fig. 3, letter *e*, a spiral spring of steel or other metal; Fig. 4, letter *f*, a nut, or bur, to be fastened on the superior ends of the rods *a*, *b*, or near their ends; Fig. 5 the two rods connected properly by the spiral spring, letter, *e*, showing also the attachment of a nut, letter, *f*, at its anterior, and superior portion. Fig. 6 the inverted spiral spring truss complete with the exception of a nut on the end of the posterior rods, ready for use, by the application of proper pads, straps, &c.

I construct of metal of proper tenacity, ductility, and malleability, a rod, *a*, of proper size and length, to reach from a point, two or more inches above the aperture through which the rupture escapes, passing from thence downward over the os pubis bone or bones, to the center of the perineum and of such a size as may be of adequate strength to bear the necessary pressure sufficient to retain the rupture, within the pelvis, or abdomen, in its proper place; at which point it is to meet; and be in contact with a second rod, *b*, of the same size diametrically; the two *a*, *b*, are bent to correspond to the shape of the parts over and under, which they pass; forming an arch, in close contact with the skin of the patient, where the truss is applied. The back portion of the rod letter *b*, passes over the remaining portion of the perineum and over the os coccyges and sacrum, up to the last lumbar vertebra, and as much higher along the spinal column as may be found useful. At the center of motion, where the rods *a*, *b*, meet under the perineum; I construct a spiral spring of steel or other metals, Fig. 3, letter, *e*, coated with silver or gold, or other material to prevent oxidization, of power sufficient to

hold the two rods *a*, *b*, in contact at their ends, when the body of the wearer is erect and at rest and yet, so elastic, as to allow motion, both longitudinally, and laterally, in all cases, where an enlargement or contraction of the muscles take place from any cause whatever in stooping, sitting, dancing, coughing, and in every species of movement incident to locomotion. This mass of coiled metal Fig. 3, letter *e*, is fastened by one of its ends to the anterior rod, *a*, near its end in the vicinity of letter, *g*, Fig. 1, under the pubis; and when thus securely fastened as above described, the posterior rod Fig. 1, letter, *b*, is introduced into the coiled spring, *e*, until it comes in contact with the end of the anterior rod, *a*, and then, and there, retained until the posterior end of the spring is fastened to the inferior portion of the posterior rod, *b*, at or near, *q*, Fig. 1, as seen in Fig. 5, letter, *e*, constituting in its form, and finish a spiral spring varying in length, from a few inches, to any distance I may find requisite to adopt, graduating its size, length, and strength, and caliber to the different trusses manufactured.

I construct and place around this spiral spring a metal canula Fig. 2, letter *c*. This canula is a simple tube with each of its ends containing a female screw to receive a movable screw, that stops, (when in its place) the spring within the canula from elongating unduly—see the ends of Fig. 2, *d*, *d*. These screws are also two canulae, having a hole in their center through which the rods, *a*, *b*, move with every breath, or inspiration the wearer makes, or commensurate to the movements allowed them by the spiral spring. It must be so long as to admit sufficient motion of the spring without at the same time allowing too much play to the spring; the medium length for an adult will be about four inches. Its internal caliber must be so large as not to bind the spiral springs and not so large as to be too loose, but set so close as to keep the spring from forming a curve, unless the same curve is given to the canula. If constructed to be an inch and a quarter longer than the spring it will answer. I sometimes alter the caliber, length, shape and composition of this canula at my option. The canula will admit all the longitudinal motion required to keep the rods from hurting the pubis and sacrum in stooping and allow of all the lateral motion necessary for

moving the depending arch right or left, to be out of the way in any evacuation that nature requires, in either sex. It will also afford permanence, to the center of the depending arch; in the sustension of force equal to a continuous rod. Thus all the separate parts having been completed and the two rods *a, b*, being united by the spiral spring as we see in Fig. 5, I unscrew one end of the canula, and introduce indifferently the superior end of either rod Fig. 1, letter *a, b*, into the open end of the canula and direct it so that the hole in the screw *d* that remains in the canula may receive the rod through it in its descent pressing it down to its place over the spiral spring, then taking the displaced screw I introduce it on the end of the antagonizing rod pressing it down until I can screw it into its place; rendering it secure as may be seen in Fig. 6.

To the frame as above described pads of

any form may be applied and I have a great variety which need no particular description as they are required to vary with almost every case in size and shape. The pads are affixed to the rods near the upper ends of which are straps that pass around the body to confine it and which are so obvious that I have not drawn them. The form and application of the pads and bands will be understood by any practical surgeon.

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

Two rods of metal of a proper size and shape, Fig. 1, letters *a, b*, and meeting under the perineam when in use in combination with the metallic spiral spring, or springs, or other analogous device.

LEWIS A. HALL.

Witnesses:

THOMAS ADAMS,
WM. GREENOUGH.