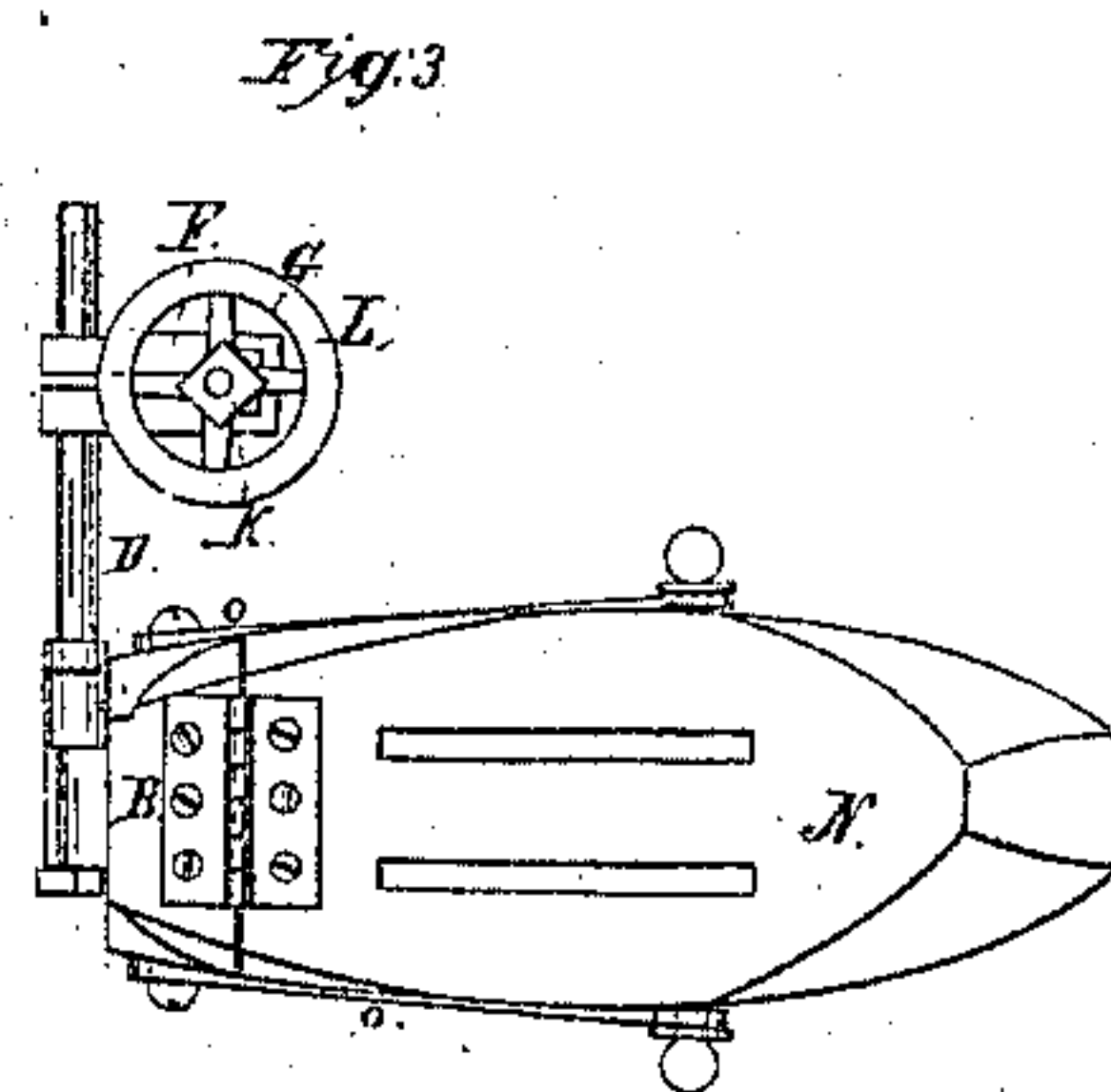
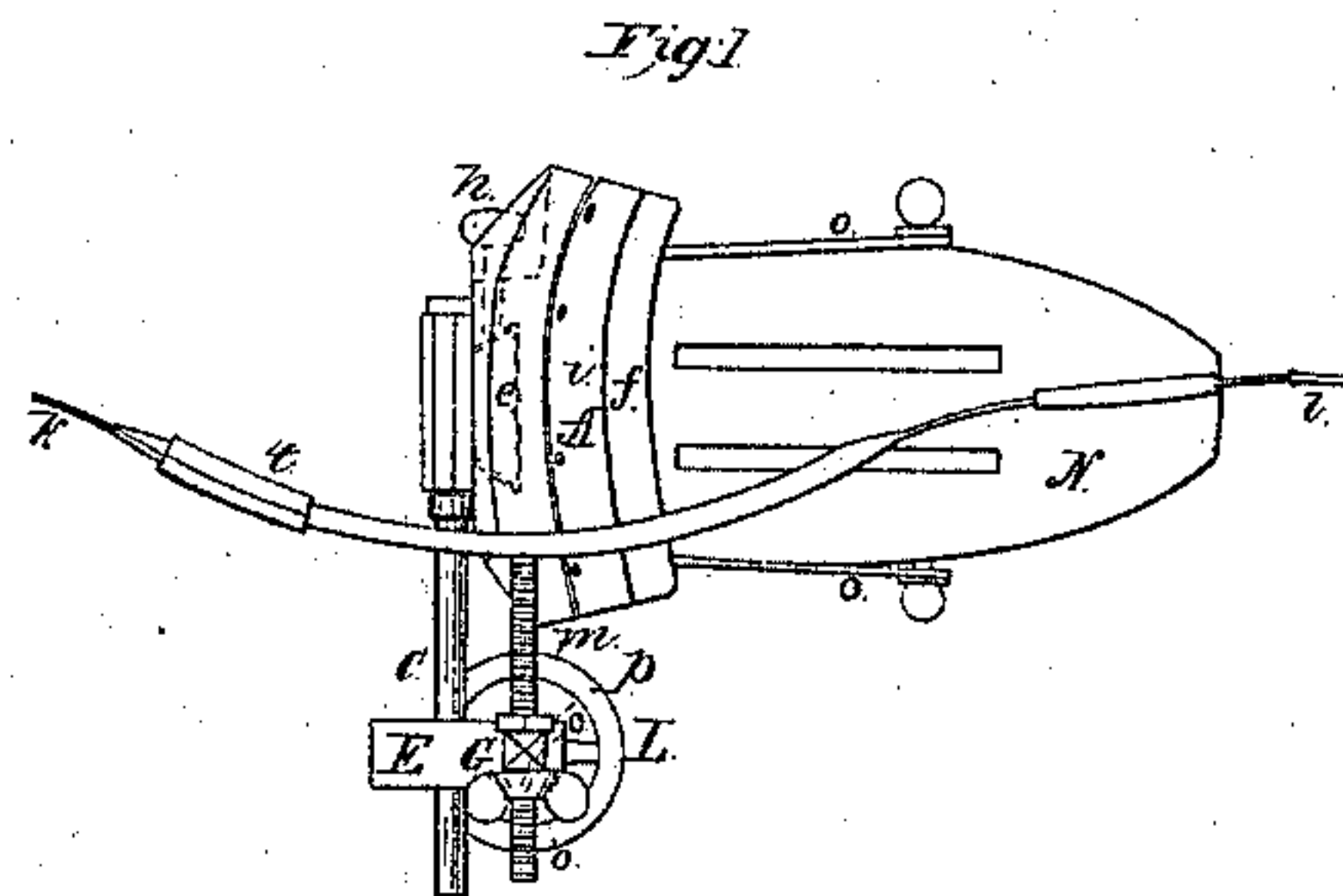
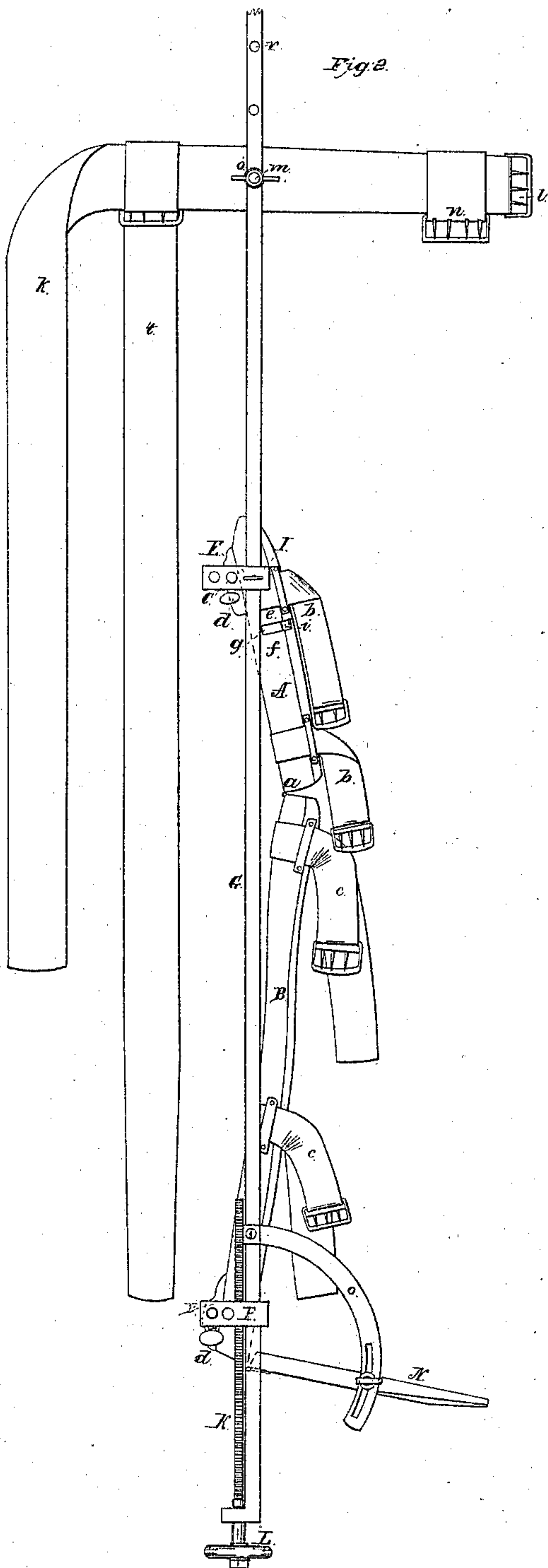


S. A. Skinner,
Fracture Apparatus.

N^o 10,909.

Patented May 16, 1854.



UNITED STATES PATENT OFFICE.

SMITH A. SKINNER, OF BROWNINGTON, VERMONT.

SURGICAL SPLINT.

Specification of Letters Patent No. 10,909, dated May 16, 1854.

To all whom it may concern:

Be it known that I, SMITH A. SKINNER, of Brownington, in the county of Orleans and State of Vermont, have invented an
5 Improved Surgical Apparatus for Curing Fractures of the Thigh and Leg; and I do hereby declare that the same is fully described and represented in the following specification and the accompanying drawings, letters, figures, and references thereof.

10 Of the said drawings Figure 1, denotes a top view of my said apparatus. Fig. 2, is a side elevation of it, and Fig. 3, is an underside view of it.

15 In the said drawings A, and B, denote two rests or rest boards which are employed to support the thigh and leg. They are formed to the shape of the lower parts of the limb and are hinged together at *a*, and
20 provided with straps and buckles, as seen at *b b*, *c c*, for confining them to the leg and thigh. They are respectively supported by and made to turn on two rods C, D, each of which passes through one of two slides
25 E, F, which are so adapted to a long metallic bar G, as to be capable of being freely slid or moved longitudinally thereon, and fixed in any desirable position by screws, as seen at I, and K, the latter screw being
30 arranged parallel to the bar and to work on a female screw formed through the slide F. The screw K, is to be so attached to the bar G, that when it (the screw) is rotated by the hand of a person grasping a head or
35 wheel L, affixed on the outer end of the screw, it (the said screw) will cause a movement of the slide F, on the bar G. Set screws *d, d*, are screwed into the slides E, F, and respectively against the rods C, D, in
40 order to enable these rods to be fixed in position in their slides.

For convenience of adapting the thigh rest A, to different thighs, as they vary in size, it may be made in two parts *e, f*, and so
45 connected by a lever or bar *g*, projecting from one and entering a mortise formed in the other and having a set screw *h*, applied to the mortise, such will enable a person to adapt the thigh rest to any thigh. In
50 order to cover the space between the two parts *e, f*, a thin metallic plate *i*, may be made to overlap it and be attached to one of the parts.

55 The leg rest B, has a foot rest N, hinged to it and made capable of being adjusted

to any angle with respect to it, the same being effected by curved slotted bars *o, o*, and set screws or the equivalent therefor.

The bar G, is to be made so as to extend above the hips of a person and it is to be
60 provided with a padded body rest, which should be made so as to spring and fit against a patient's side and be provided with a confining strap *k*, and a buckle *l*, by which it may be fastened to the body by carrying
65 the strap around the waist and inserting and drawing it through the buckle. This body rest is affixed to a screw arm *m*, that extends through the bar G, and is fastened to it by two screw nuts *o, p*, one being placed on
70 one side of the bar, while the other is disposed on the opposite side of it, as seen in the drawings. The bar is provided with a set of holes *r, r, r*, by which the screw *m*, may be adjusted to any desirable position
75 on it, so as to bring the body rest in the right place above the hips and against the waist of a person. Or instead of the devices above described for adjusting the screw *m*, on the bar G, it may be applied to a slide
80 made to work on the bar and be fastened to it by a set screw. To one extremity of the body rest a perineal strap *t*, is attached. This strap, when the apparatus is in use, is made to pass around the groin and be
85 hooked to a buckle *n*, fixed to the other end of the rest.

For the treatment of fractures of the femur there are two positions, the flexed and straight. The different forms of ap-
90 paratus generally employed for maintaining the straight position are merely modifications of the well known Desaults splint. These are considered as faulty, in the first place, in consequence of counter extension
95 being made with a bandage with different degrees of obliquity around the groin to the outside of the pelvis a considerable degree of power is lost. When thus oblique, the perineal bandage tends in fractures of
100 the neck of the bone, to separate the portion attached to the head from that connected with the shaft and thus to keep at a distance the two broken fragments.

The advantages of my apparatus I be-
105 lieve are numerous. It gives confidence and certainty to the surgeon in the treatment, being applicable to all cases, both fractures of the femur and tibia, male and female, and is very portable. With regard to exten-
110

sion, I would say, and I believe it will be admitted by most surgeons, that the difficulty arises, not so much in reducing a fracture as keeping the parts in place after reduction. With extension there must be counter extension, which requires to be in constant operation, for if withdrawn the apparatus becomes useless. 2nd. The extension or counter extension by my apparatus is made perpendicularly and not obliquely and therefore a much less amount of force is required than by any other apparatus, no power being lost. 3d. No pressure is made on the front of the thigh, which always obstructs circulation in the artery and veins and numerous lymphatics of this region. 4th. The extension can be made very gradually. For the first few days the limb may be left rather shorter than natural and then it may be gradually lengthened by the screw without (as is necessary in Desault's or Liston's splints) the necessity of deranging or removing any part of the apparatus. 5th. The entire limb is exposed to view and should the fracture be compound the bandage may be removed without raising the limb or diminishing the extension and any shortening or deformity is at once detected, which is not the case where the limb is surrounded by two or more splints retained by bandages. 6th. As the extension is made in a direct line, eversion of the foot is entirely prevented. 7th. The apparatus will be valuable in military practice, where a firm support under the limb is of so much importance, and in fractures of the condyles as the femur or tibia it will be equally useful, for while the extension is fully kept up the knee joint will be exposed to view for the application of leeches or other treatment. 8th. In fractures of the tibia, extension and counter extension can be kept up to any amount and flexed to any degree that may be required. It can be used as a double plane for the treatment of fracture of the femur if required and extension kept up as well as in the straight position.

I am aware that thigh, leg, and foot rests have been applied on top of or above a long board made to extend underneath the entire leg, only there being in such no means of producing extension of the thigh, but one

only adapted to produce extension of the lower extremities.

I am also aware, that a long board or bar has been applied to the side of the leg and made to extend above the hip and to have extension and counter extension straps applied to it. I allude to the well known split of Liston.

I am also aware of Ferguson's splint for fractures of the tibia or the femur. I am aware that this had its foot piece made movable in a lateral direction, so as to evert or invert the toes and so that it might be placed at such a distance from the splint at the ankle as might be found best suited to the thickness of a patient's limb. It however had no extension screw, applied to it. My apparatus is fitted to the extension of the whole leg or that part below the knee.

What therefore I claim is—

1. The combination and arrangement of the long bar, G, made to extend above the hips and to have a counter extension strap applied to its upper part, the thigh and leg rests, and the extension screw applied to the bar, the whole being substantially as specified.

2. And in combination with the long bar G and the counter extension strap of the groin, I claim the projecting screw arm, m, and its body rest, the same being for the purpose of obtaining extension in direct line of the leg as stated.

3. I do not claim the application to a simple foot rest and a bar to extend up the leg, of a device for producing lateral movement of the foot rest; but what I do claim is the combining the connected thigh and leg rests with the bar G, by means of two slide rods and slides and their set screws as specified, whereby the whole, the combined thigh and leg rests, may be readily and properly adjusted to any leg whatever may be the degree of projection of the hip thereof.

In testimony whereof I have hereunto set my signature this 9th day of March, A. D. 1854.

SMITH A. SKINNER.

Witnesses:

JAMES H. COOK.

THOMAS T. DUTTON.