E. Daniels,

Invalid Bedstead,

No. 12.944, Patented May 29, 1855.

Fig. 1

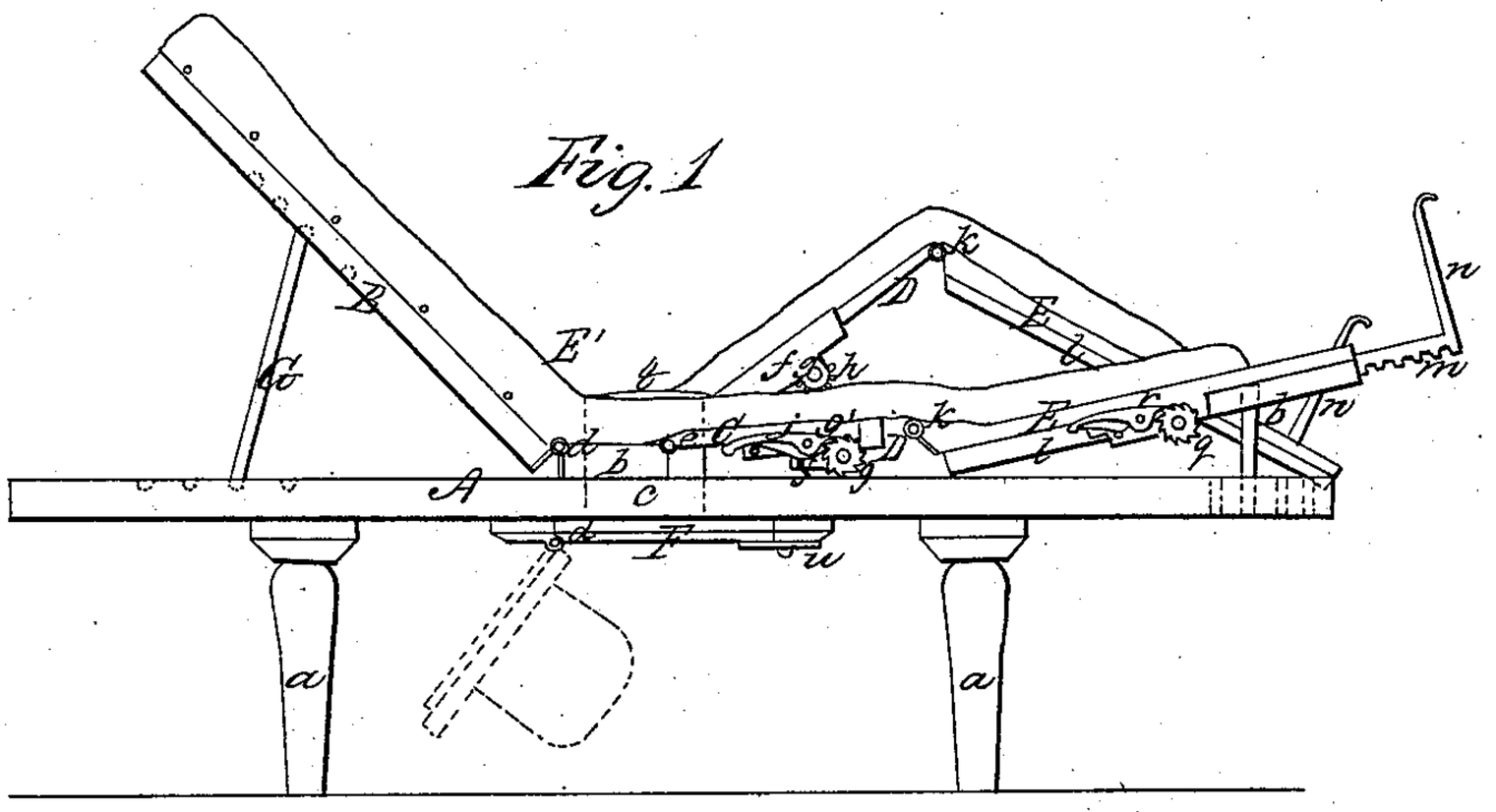


Fig. 2

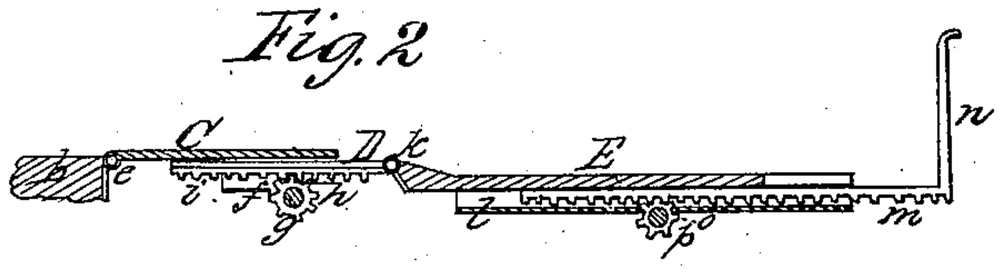
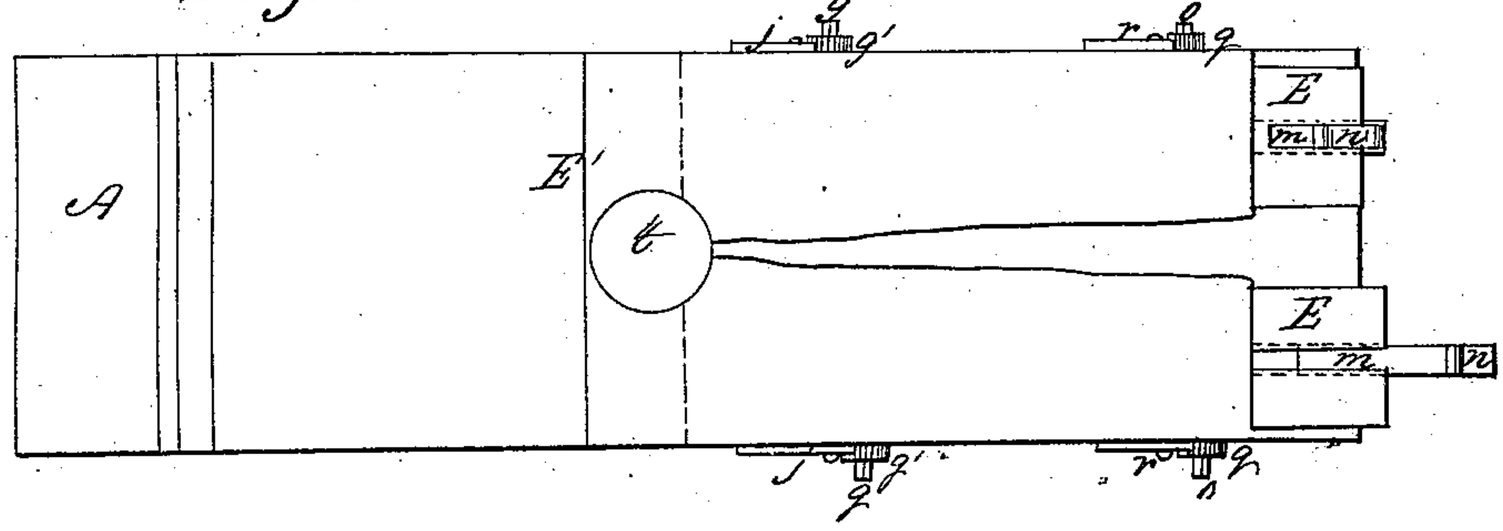


Fig. 3



UNITED STATES PATENT OFFICE.

E. DANIELS, OF UNION, NEW YORK.

INVALID-BEDSTEAD.

Specification of Letters Patent No. 12,944, dated May 29, 1855.

To all whom it may concern:

Be it known that I, E. DANIELS, of Union, in the county of Broome and State of New York, have invented a new and Improved Adjustable Bedstead to be Used in the Treatment of Fractures of the Lower Limbs; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1, is a side view of my improvement. Fig. 2, is a detached longitudinal section of the thigh and leg planes. Fig. 3, is a plan or top view of ditto.

Similar letters of reference indicate corresponding parts in the several figures.

The nature of my invention consists in the peculiar construction of the bedstead as will be presently shown and described whereby the position of the patient may be changed as often as desired without any annoyance or inconvenience and the lower limbs operated upon with the greatest facility.

To enable others skilled in the art to fully understand and construct my invention, I will proceed to describe it.

A, represents a platform of a suitable length and width and supported by four legs (*a*). To the upper surface of the platform A, there is attached a cross piece (*b*) at a short distance from the center, and directly through the center of the platform there is made a circular hole or aperture (*c*), see dotted lines Fig. 1, said hole or aperture leaving a semicircular cut or recess in the cross piece (*b*). To the straight edge of the cross piece (*b*) there is attached by hinges (*d*) a board B, which I term the body plane, the width of the body plane may correspond with that of the platform A, and when depressed its outer edge may be even with the edge of the platform. The sides of the body plane may be elevated or raised so as to be slightly concave on its outer surface. To the opposite side or edge of the cross piece (*b*) and at each side of the semi-circular cut or recess formed by the hole or aperture (*c*) there are attached by hinges (*e*) cast iron plates C, C, which are provided with grooves or ways at their sides in or between which plates D, D, work. The plates C, C, D, D, I term thigh planes, and their edges are provided with ears or projections (*f*) in which a shaft (*g*) works one on each plate C. On each shaft (*g*) there is placed a pinion (*h*) which gears into a rack (*i*) attached to the under surface of the plates D, D. At one end of the shafts (*g*) there are attached ratchets (*g'*) in which pawls (*j*) catch, said pawls being attached to the sides of the plates C, C.

To the outer edges of the plates D, D, there are attached by hinges (*k*) boards E, E, these boards I term leg planes and they are slightly raised at their inner ends where they are connected to the plates D, in order to form depressions to correspond to the shape of the legs. To the under surface of each leg plane there is attached a metal guide (*l*) in which a rack (*m*) works, the outer ends of the racks have bars (*n*) projecting from them at right angles. To each leg plane there is attached a shaft (*o*) having a pinion (*p*) and ratchet (*q*) thereon and pawls (*r*) which catch into the ratchets (*q*) the pawls being attached to the outer sides of the leg planes. The pinions (*p*) gear into the racks (*m*).

The body plane and also the thigh and leg planes are covered by a suitable mattress E', with a hole made through it to correspond with the hole or aperture (*c*) in the platform A, and the mattress is slit or cut to cover properly the thigh and leg planes without interfering with their movements.

To the underside of the platform A, there is attached by hinges (*s*) a flap F, see Fig. 1, having a stuffed pad or cushion (*t*) upon it which when the flap F, is secured upward against the platform A, fits in the hole or aperture (*c*), in the platform and mattress. The flap is secured against the platform by a button (*u*).

Operation: Suppose a person has his thigh fractured, the body, thigh, and leg planes are placed in a horizontal position, and the patient is placed thereon. The body plane B, is then elevated as much as comfort may dictate, and secured at the proper point by a prop G, see Fig. 1. The knees are then elevated upon the thigh and leg planes, by raising the thigh and leg planes, the latter being secured by pins (*v*) see Fig. 1, the leg being brought at a right angle with the thigh or more if desirable. A crank may then be applied to the shaft (*g*) of the thigh plane on which the injured part rests, and the plate D, of said plane is forced outward or extending by the rack and pinion until the fracture is reduced and the plate D, is held at the proper point by

the pawl and ratchet. Now suppose there is a fracture of the same leg below the knee, the ankle is secured to the bar (*n*) at the end of the rack (*m*) and by the use of the pinion (*p*) and rack (*m*) the same result which I have described in the thigh fracture is obtained.

The counter extending force while the thigh is operated upon is the weight of the body, and that for the leg is found in the under side of the thigh in its angular relation to the leg. But if it should be necessary in certain cases to treat or operate upon the limb in an extended position, the plane on which the injured limb is placed is put in a horizontal position and the opposite planes are raised up forming an angle of 70 or 80°, the ankle of the injured limb being secured to the bar (*n*). The necessary extension is then made by moving out the plate D, and the counter extension will be upon the opposite side of the pelvis where it rests against the thigh plane.

The advantages of this improvement are, the extreme simplicity of its application, the accuracy with which the extension may be adjusted, an inch being divided on the ratchets into sixteen parts. No derangement of position is necessary to enable the patient to have the usual passages or evacuations as the flap F, may be let down at any time and a chamber inserted underneath. And the position of the patient's body and limbs may be changed as often as desired and with the greatest facility.

I do not claim the flap F, neither do I claim separately a hinged or swinging body plane for invalid bedsteads have been previously constructed so that their bottoms may be inclined at different angles in order to vary the position of the patient, but

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

The combination of the body plane B, thigh planes formed of two parts C, C, D, D, the parts D, D, being movable and leg planes E, E, provided with adjustable bars (*n*) the movable parts D, of the thigh planes and the bars (*n*) of the leg planes being operated by the racks (*i*) (*m*) and pinions (*h*) (*p*) as herein shown and for the purpose as set forth.

E. DANIELS.

Witnesses:
P. W. HOPKINS,
D. M. ANGELL.