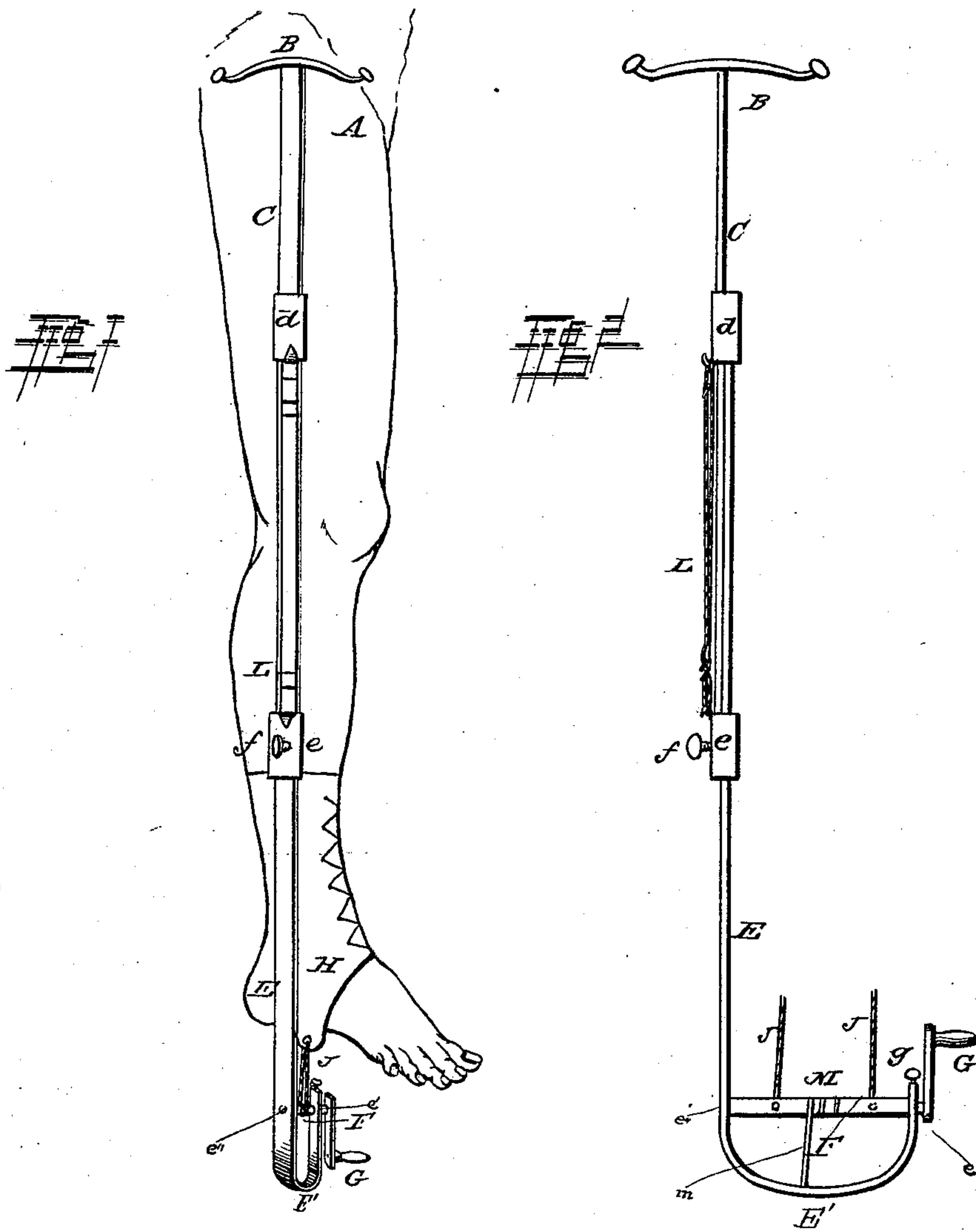


(No Model.)

W. BUNCE.
FRACTURE APPARATUS.

No. 350,526.

Patented Oct. 12, 1886.



WITNESSES
Geo. G. Arthur
James S. Torrey

INVENTOR
William Buncer
By *Geo. L. Davies*
Attorney

UNITED STATES PATENT OFFICE.

WILLIAM BUNCE, OF OBERLIN, OHIO.

FRACTURE APPARATUS.

SPECIFICATION forming part of Letters Patent No. 350,526, dated October 12, 1886.

Application filed June 17, 1884. Serial No. 135,194. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM BUNCE, of Oberlin, county of Lorain, and State of Ohio, have invented a new and Improved Self-Extending Adjuster; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being made to the accompanying drawings, and to letters of reference marked thereon.

My invention relates to improvements in devices for holding dislocated or fractured limbs and maintaining a tension upon them while in the process of uniting or healing.

My device, which I call an "adjuster," is at once simple, durable, easy of application, adjustable to a limb in any position, and its power of extension is practically unlimited. Its power can be applied in variable degrees, as desired, and at any time during treatment without disturbance of the dressings. It allows of a constant elastic tension during the entire treatment, and can be applied conveniently to arm or leg, and to a child as well as to an adult.

In the drawings, Figure 1 is a view of the adjuster attached to a leg as it would appear while performing its function. Fig. 2 is a perspective view of the adjuster separate from the limb.

Yoke B is detachably connected with the upper end of bar C, and is preferably made of metal, and of inwardly-curved shape, about as shown. Bar C, passing through sleeve *d*, extends downward about one-half or two-thirds of the entire length of the adjuster, and at its lower end is fastened in sleeve *e* by means of screw *f*. Said sleeve *e* is perforated to receive said set-screw *f*. A perforation also exists through said lower end of bar C, covered by said sleeve, through which perforation said screw passes. Bar E, passing upward through sleeve *e*, has its upper end fastened to sleeve *d* in close contact with bar C. Said two bars, so fastened, respectively, in said respective sleeves, are adapted to slide by each other to and fro longitudinally.

Attached to sleeves *d* and *e* is the elastic device L, extending between and connecting them, and which is adapted to draw them longitudinally toward each other. Against the

contracting pull-power of said device L, the bars C and E may be held rigidly together against a sliding movement when desired, and at any desired point, by means of the said set-screw *f*, which passes through bar C and impinges on bar E. When said screw is relaxed, the contracting force of device L is adapted to slide bar E downward, and so extend the longitudinal dimension of the adjuster. The lower portion of bar E is bent upwardly into hook E', having perforation *e'* at its extreme end. Through said perforation, and in a corresponding perforation, *e''*, located on the opposite section of bar E, is journaled spindle F, provided with crank G. Set-screw *g* is adapted to lock said spindle against rotations. Said spindle has fastened to it one end, respectively, of cords J J, the other end, respectively, of said cords being fastened to gaiter H, adapted to be applied to the foot of the patient. The winding up of these cords upon the spindle tends to draw the foot down, and so extend the limb.

M is a spring coiled on spindle F and attached to it, and has the outreaching arm *m*, which impinges on hook E'. The function of said spring, with its said arm, is to afford a yielding tension to the cords J J, thus providing limited relief to the patient from a fixed and unyielding pull.

The function of device L being, as described, to extend the longitudinal dimension of the adjuster by means of bars C and E, and said extension being exposed to arrest and limitation by means of spindle F and cords J J, it is apparent that the set-screw *f* might be dispensed with, if desired; but as it may be at times desired to have the said two bars locked together against the pull of device L, I therefore introduce said screw into my invention.

What, therefore, I claim is—

1. The combination of sliding bars C E, sleeve *d*, rigid with bar E, sleeve *e*, set-screw *f*, threaded through a perforation in bar C, and having end bearing against bar E, spindle F, journaled in angular bar end E', and cords J, substantially as set forth.

2. The combination, with bars C and E, sliding in sleeves *d* and *e*, and connecting elastic device L, of spindle F, journaled in end E' 100

of bar E, and provided with cords J J, crank G, and set-screw *g*, substantially as set forth.

3. The combination, with bar E and spindle F, provided with cords J J, of spring M, attached to said spindle, and provided with arm *m*, whose free end engages with arm E', substantially as set forth.

4. In an adjuster for the purposes specified, the combination of arm B, rods C and E, elas-

tic connection L, spindle F, spring M, with arm *m*, and cords J J, substantially as set forth.

This specification signed and witnessed this 17th day of August, 1883.

WILLIAM BUNCE.

Witnesses:

GEO. C. TRACY,

GEO. C. DAVIES.