

No. 607,666.

Patented July 19, 1898.

C. S. SMITH.
SURGICAL APPARATUS.
(Application filed Dec. 2, 1897.)

(No Model.)

Fig. 1.

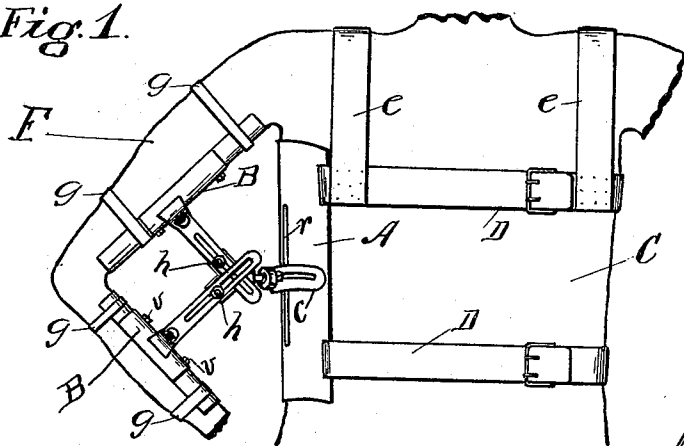


Fig. 3.

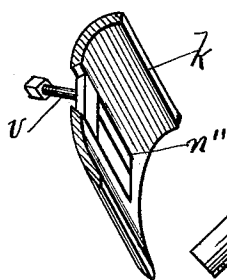
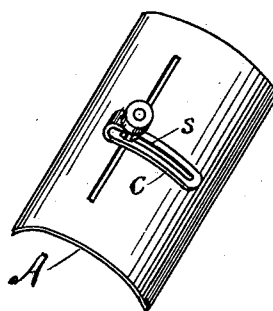


Fig. 4.

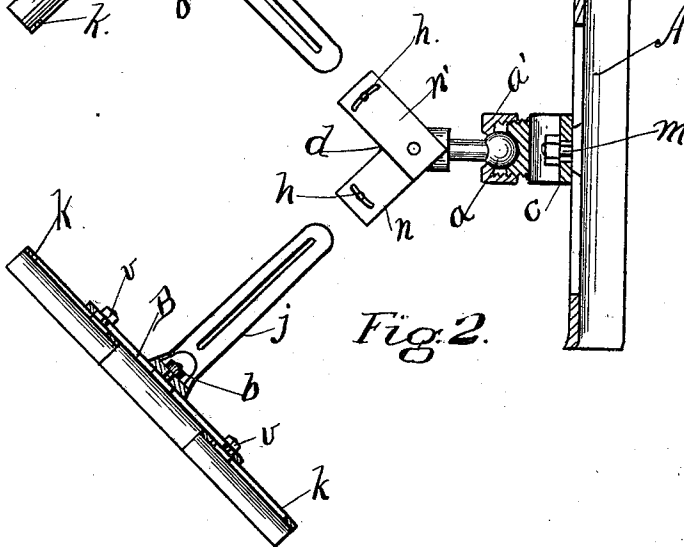
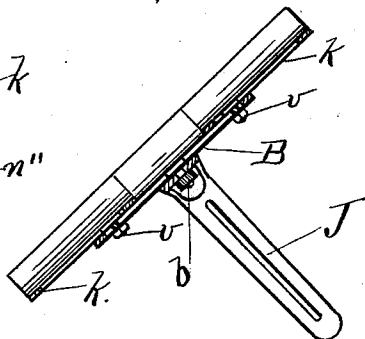


Fig. 2.

Witnesses.

M. C. Cleveland
Amey R. Stone

Inventor.
Charles Sherman Smith.

by
Arnold & Barlow
Attorneys.

UNITED STATES PATENT OFFICE.

CHARLES SHERMAN SMITH, OF PROVIDENCE, RHODE ISLAND.

SURGICAL APPARATUS.

SPECIFICATION forming part of Letters Patent No. 607,666, dated July 19, 1898.

Application filed December 2, 1897. Serial No. 660,470. (No model.)

To all whom it may concern:

Be it known that I, CHARLES SHERMAN SMITH, of Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Surgical Apparatus; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to that class of surgical appliances for reducing and retaining in place the parts of fractured limbs and other parts during the process of healing.

It is fully explained and illustrated in this specification and the accompanying drawings.

Figure 1 represents the apparatus applied to a fracture of the upper arm. Fig. 2 shows a section taken vertically through the center, with some of the parts separated. Fig. 3 is an outside view of the body-plate with its adjusting-clip. Fig. 4 represents one of the arm-plates separate.

The object of this invention is to construct an apparatus that will hold a fractured limb in place and enable one to secure the best position for it and a correct fixation or adjustment of the parts of the bone in relation to each other; also, to make the extension necessary to counteract the tendency of the muscles to draw the parts out of place.

The construction is as follows:

A plate A, curved to approximately fit the side of a person's body C, has a longitudinal slot *r* made in it. This plate is provided with straps D D, that pass around the body and have buckles to adjust them by. Shoulder-straps *e e* are attached to the upper body-strap to support them. A clip *c*, curved to fit the plate A, has a slot *s* to receive an adjusting-bolt *m*, that has a nut fitted to slide in the slot *r* in the plate and a head on the outer side of the slot *s* to secure the clip to the plate whenever adjusted. One end of the clip *c* is curved over and has a cupped recess made in it to receive a part of a ball *a*, and a cap *a'*, having an opening in its top to receive the stem to the ball, is fitted to screw on over the ball and form a ball-and-socket joint.

The outer end of the ball-stem is made flat

and has a hole made in it and an angle-plate *d*, having one part, *n*, higher in plane than the other part, *n'*, to allow one of the bars, J, to slide over the other, *j*, to facilitate their adjustment. These bars J *j* have slots made lengthwise of them to receive bolts *h h*, by which they are secured to the angle-plate *d*. (See Fig. 1.) The bars J *j* are made with one end bent to a right angle to which plates B B are fastened by screw-bolts *b b*. These plates B B are curved to receive a plate each, *k k*, which plates are curved to accommodate the shape of the limb F. One of the plates *k* is shown separately in Fig. 4. A slot *n''* is made in each plate *k*, in which a bolt *v*, with a head beveled under on each side, is fitted to slide level with the inner surface of the plate, and a nut on the bolt on the outside of the plate B serves to secure it to that plate. The plates for the lower or fore arm are alike in construction to those for the upper arm, and the plates *k k* on both are furnished with straps *g g* to bind the limb to the support.

The apparatus forms a triangle having its base resting against the body, and the fastenings of the parts allow the other two sides of the triangle to be set in most any desired position.

The ball-and-socket joint allows the limb to be raised in front, and the clip admits of its being brought around in front. The attachment for the forearm serves as a brace against the body, by means of which a proper amount of extension can be exerted on the upper arm, so that a fracture in the upper part of that bone, which is considered one of the most difficult to manage, becomes one of the easiest.

Having thus described my improvements, I claim as my invention and desire to secure by Letters Patent—

1. A surgical apparatus consisting of a body-plate, two bars adjustably attached thereto, with means for securing the outer end of one of said bars to the upper arm, and means for securing the outer end of the other of said bars to the forearm, substantially as described.

2. In an apparatus for securing a fractured limb, the combination of a plate adapted to be attached to the body and having a vertical slot made therein, a clip having a slot made

in it, a bolt to pass through the two slots and hold the clip to said plate, an angle-plate attached to said clip by a ball-and-socket joint, means attached to said angle-plate to hold
5 the forearm and the upper arm, substantially as described.

3. In an apparatus for the purpose described, the combination, of a plate fitted to the body, plates curved to fit the upper arm
10 and having slots to receive bolts to attach them to a plate having a slotted bar attached,

a like set of plates for the forearm also attached to a slotted bar, with means for adjustably securing said slotted bars, to said body-plate substantially as described. 15

In testimony whereof I have hereunto set my hand this 1st day of December, A. D. 1897.

CHARLES SHERMAN SMITH.

In presence of—

BENJ. ARNOLD,

M. E. CLEVELAND.