No. 7,626. PATENTED SEPT. 3, 1850.

B. WELCH.
SPLINT.

Fig. 1

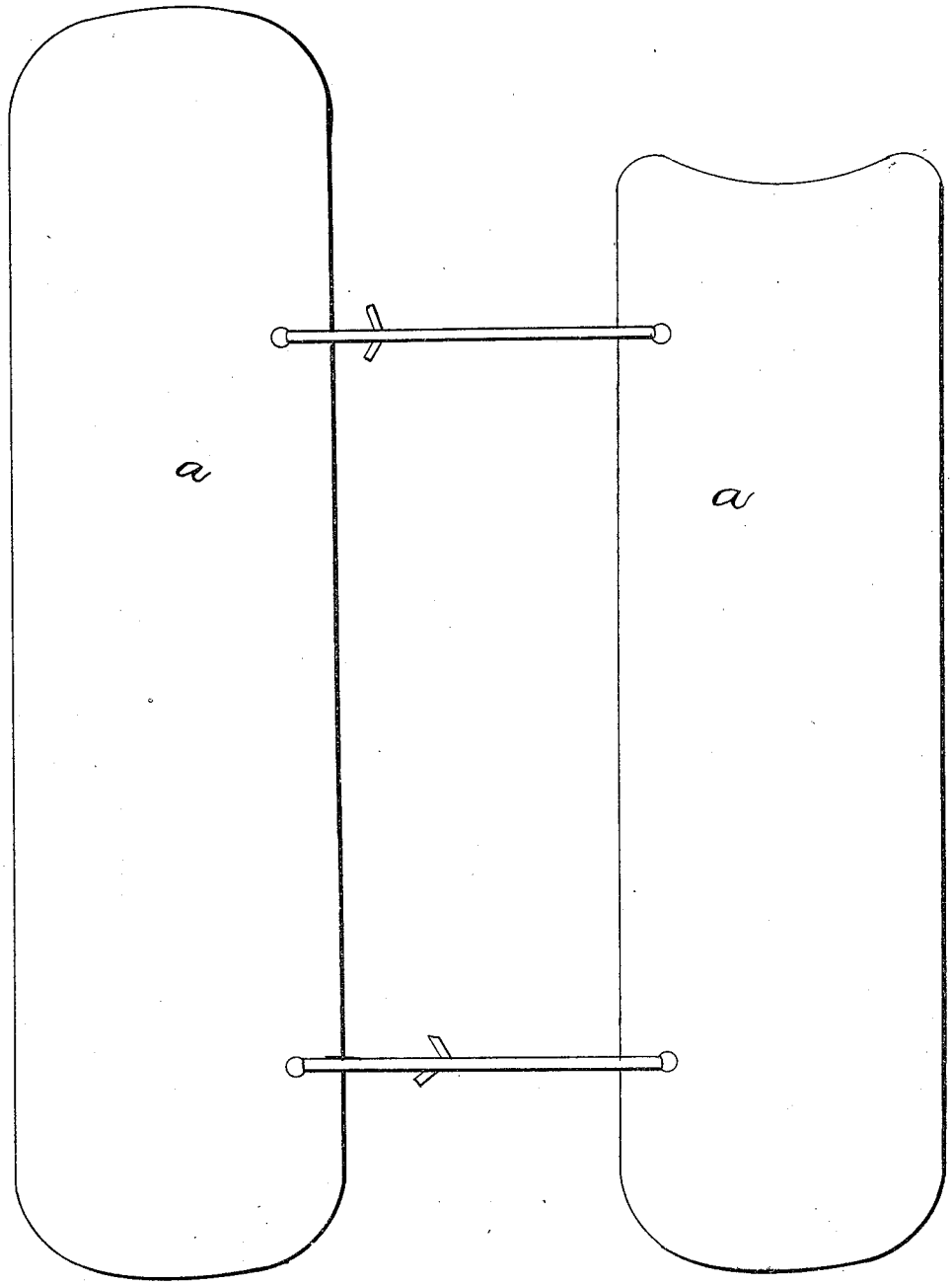
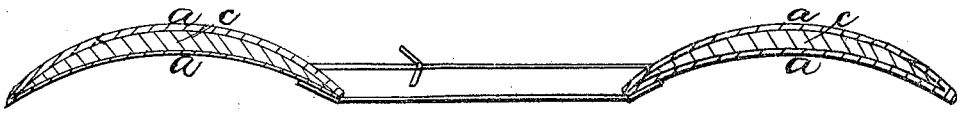


Fig. 2



UNITED STATES PATENT OFFICE.

BENJ. WELCH, OF LAKEVILLE, CONNECTICUT.

SURGEON'S SPLINT.

Specification of Letters Patent No. 7,626, dated September 3, 1850.

To all whom it may concern:

Be it known that I, BENJAMIN WELCH, of Lakeville, in the county of Litchfield and State of Connecticut, have invented a new and improved method of constructing surgeons' splints used in the treatment of fractures of the bones or for injuries or diseases of the joints; and I do hereby declare the following to be a full and exact description thereof, reference being had to the accompanying drawings making a part of this specification, Figure 1, being a plan of a pair of splints, and Fig. 2, a transverse section of the same.

The nature of my invention consists in the formation of the aforesaid splints by the combination of very thin boards *a*, *a*, by means of some elastic adhesive substance interposed between them. I generally make use of scale-boards for the thin wooden exterior portions of the splints; and for uniting these boards together, I generally employ a strata of gutta-percha interposed between them. In place of gutta-percha, for uniting the scale boards *a*, *a*, to each other, any other elastic material may be employed which is adhesive in its nature; or cloth, leather, or india-rubber, may be saturated or coated with some adhesive composition and then inserted between the scale boards for giving them a slightly elastic combination with each other. It is preferable however, that the adhesive material employed for the above named purpose, should be insoluble in water. Previous to combining the scale boards with each other, they should be cut into the requisite shape to adapt the splints to the limbs or parts of the human system that they are intended to support. The scale boards are softened by steam previous to introducing the elastic cementing substance between them, and they are then placed in a press, between two forming surfaces, that will—when pressure is applied—impart to the splints, thus constructed, any curve or shape that may be desired, and also bring the edges and extremities of the scale boards into close contact—as shown in Fig. 2. More than two thicknesses of scale board may be combined with each other by an elastic cementing substance, in the formation of splints, if deemed expedient. My improved splints of different shapes, may be connected by slides and hinges to each other in such a manner that they can be adapted to fractures and injuries of any extent and of every nature.

Before making use of my improved splints, they must be rendered laterally elastic by the application thereto of heat and moisture, so that they can be accurately fitted to the injured part. When the moisture evaporates from the woody portion of the splints, and the cementing substance that connects the same has had time to assume a lower temperature, the splints will become rigid and unyielding; and consequently will afford the most perfect support to the injured or diseased parts of the body that they may be applied to.

The following are some of the advantages which it is believed that my improved splints possess, over all others now in use.

1st. These splints afford a better and more complete and uniform mechanical support to the fractured, or injured, or diseased bones or joints, for the reason that they can be more accurately fitted to a large extent of surface, than any others possessing the same degree of firmness.

2nd. In cases of emergency, they can be readily and completely adapted to the limbs of different persons—varying in the forms and dimensions of their limbs—for the reason that by the application of warm water to my improved splints, they become very flexible in a lateral direction, while they remain inflexible in a longitudinal direction.

4th. My improved splints are unusually light, and are susceptible of being fitted so closely to a limb, as to occasion but little encumbrance to the patient; and consequently, allow motion or exercise in all cases where from the nature of the injury this is admissible.

5th. There will be vastly less pain and a total absence of cramps, when my improved splints are well applied; as pain—beyond what necessarily attends the injury of the soft parts—is almost entirely the consequence of imperfection in the dressings.

6th. Bandages and cushions—except of the lightest kind—can be dispensed with when my improved splints are made use of;

and consequently, these splints can be applied with advantage and safety in cases of extensive and severe bruisings, or laceration of the soft parts, attended with inflammation; where the usual heating and cumbrous applications would be in the highest degree prejudicial.

7th. My improved splints not being liable to work loose and change their positions, much less labor and care on the part of the surgeon will be required to effect a perfect union of fractured bones, and with greatly less risk of permanent injury or deformity.

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

My improved surgeon's splints, composed of thin strata of wood combined with some elastic adhesive substance interposed between them, substantially as herein set forth.

The above specification of my invention signed and witnessed this 15th day of April 1850.

BENJAMIN WELCH.

Witnesses:

JOHN H. WELCH,

HENRY F. MARSH.