

(No Model.)

2 Sheets—Sheet 1.

O. CLAUSSEN.
FRACTURE APPARATUS.

No. 570,085.

Patented Oct. 27, 1896.

Fig. 1.

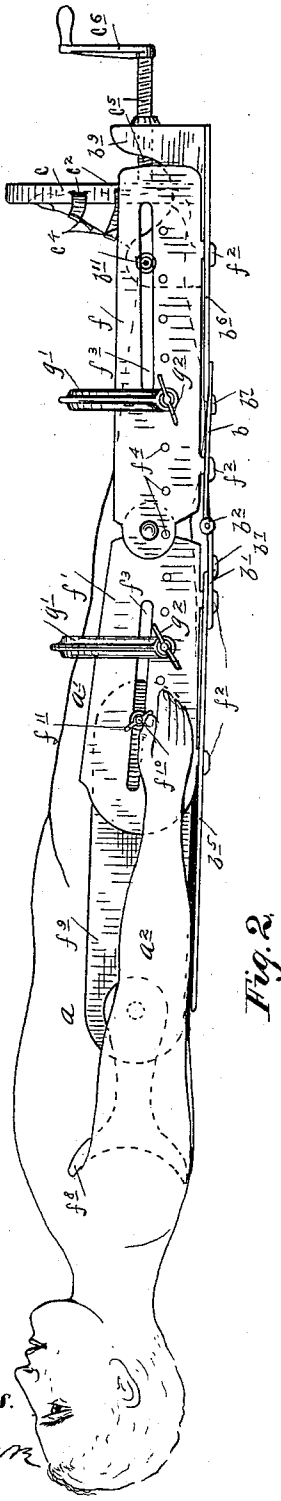
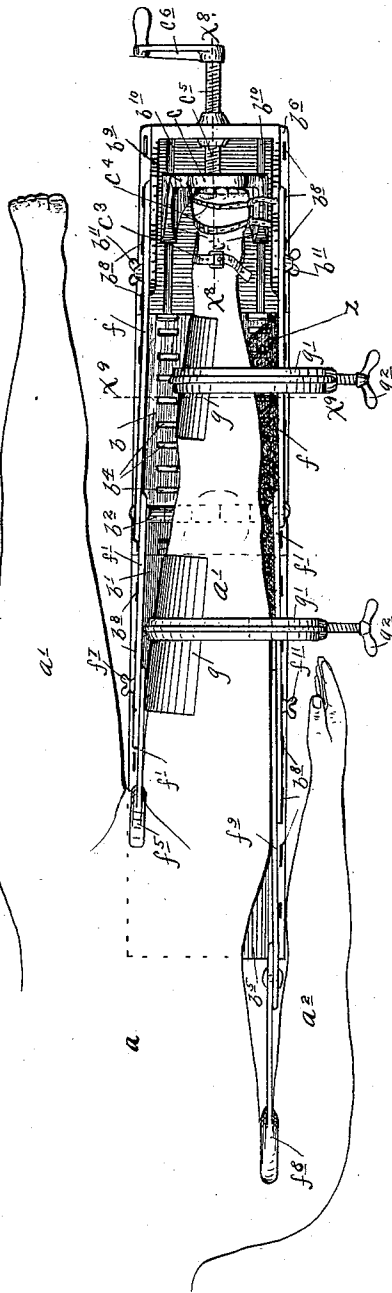


Fig. 2.



Witnesses.

C. F. Kilgus

R. D. Merchant.

Inventor
Ole Clausson.

By his Attorney.

Jas. F. Williamson.

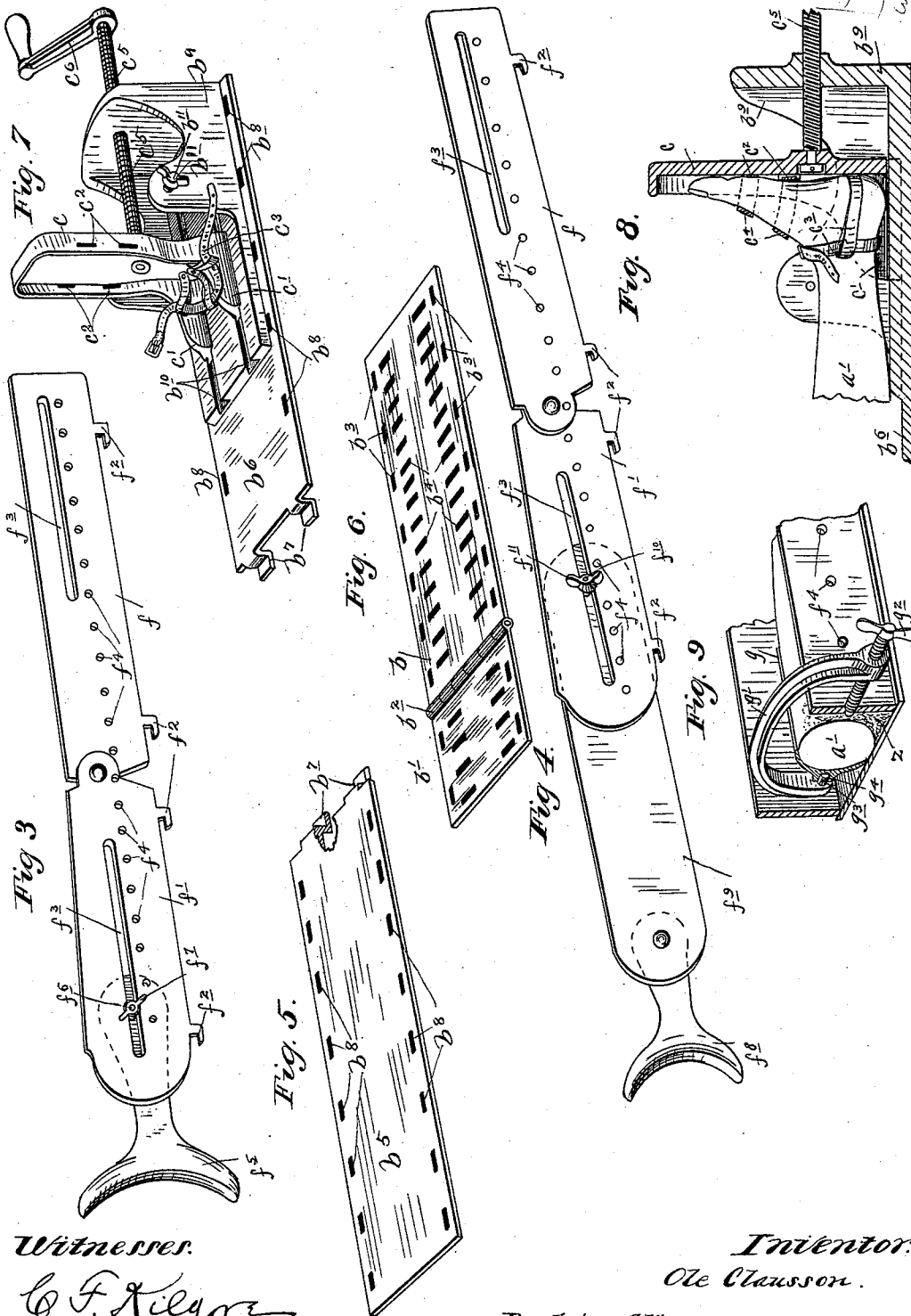
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2 Sheets—Sheet 2.

O. CLAUSSEN.
FRACTURE APPARATUS.

No. 570,085.

Patented Oct. 27, 1896.



Witnesses.

C. F. Kiege
R. D. Merchant,

Intention.

Ole Clausson.

By his Attorney,
Jas. F. Williamson

UNITED STATES PATENT OFFICE.

OLE CLAUSSEN, OF NASSAU, MINNESOTA, ASSIGNOR OF ONE-HALF TO
WILLIAM M. CRONAN AND AXEL LARSON, OF SAME PLACE.

FRACTURE APPARATUS.

SPECIFICATION forming part of Letters Patent No. 570,085, dated October 27, 1896.

Application filed April 10, 1896. Serial No. 586,998. (No model.)

To all whom it may concern:

Be it known that I, OLE CLAUSSEN, a citizen of the United States, residing at Nassau, in the county of Lac Qui Parle and State of Minnesota, have invented certain new and useful Improvements in Limb-Setting Devices; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention has for its object to provide an improved limb-setting device by the use of which certain accidents and imperfections which are liable to occur in setting broken limbs in the customary manner are effectually prevented.

It is a well-known fact that the bones of a limb, when broken, are almost invariably broken diagonally or on an angle or splintered on irregular lines. To set the limb thus broken, it is of course necessary to stretch the limb until the broken portions of the bone are drawn into their proper places with respect to each other. The natural contraction of the muscles of the limb will tend to cause the angular broken portions of the bone to overlap or draw by each other, and thus form a bad joint. It is therefore desirable that some more positive and more efficient device than the customary splints and bandages be provided for setting these broken limbs. I accomplish the above desirable results in my present invention.

The preferred form of my invention, shown as constructed and adapted for setting broken legs, is illustrated in the accompanying drawings, wherein, like letters referring to like parts throughout the several views—

Figure 1 is a side elevation showing my improved leg-setting device applied to the right leg of a person. Fig. 2 is a plan view of the parts shown in Fig. 1. Fig. 3 is a view in perspective showing one of the sectional side plates of the device. Fig. 4 is a view in perspective showing another of the sectional side plates of the device. Fig. 5 is a view in perspective showing one of the sections of the sectional base or bottom plate of the device. Fig. 6 is a view in perspective showing a second section of said bottom plate. Fig. 7 is a view in perspective showing a third

section of said bottom plate, having secured thereon an adjustable foot-block. Fig. 8 is a view in longitudinal vertical section, taken substantially on the line $x^8 x^8$ of Fig. 2; and Fig. 9 is a view in perspective, showing a portion of the device cut transversely on the line $x^9 x^9$ of Fig. 2, some parts being broken away.

a a' a^2 indicate, respectively, the body portion, legs, and arms of a person to whom my improved leg-setting device is shown as applied.

It may be here premised that in the preferred form of my leg-setting device, hereinafter described in detail, I employ a base or bottom plate made up of adjustable sections and a pair of side or thrust plates also made up of adjustable sections, which side plates are adjustably and interchangeably securable to said base or bottom plate. The base or bottom plate is provided at its foot end with an adjustable foot-block and the said thrust or side plates are provided at their upper or head ends with head-pieces, adapted for engagement one with the under arm-crotch and the other with the leg-crotch. As will later more fully appear the adjustable features of the side and bottom plates enable the device to be adjusted to a leg of any length, while the interchangeable feature of said thrust or side plates enables the device to be applied either to the right or to the left leg.

Referring now to the specific construction shown and directing attention, first, particularly to Fig. 6, b b' indicate the central section of a base or bottom plate. This central section d is formed by a pair of leaves connected by a hinge-joint b^2 . This central section b b' is provided with a double row or series of longitudinal slots b^3 , running along its side margins, and also with a double row of transverse slots b^4 , arranged in series just inside of the rows of longitudinal slots b^3 .

Directing attention particularly to Figs. 5 and 7, it will be noted that the head-section b^5 and the foot-section b^6 of the bottom plates are provided with downturned hook-like projections b^7 , formed on their inner ends. These hook-like projections b^7 are adapted, by angular movement of the plate-sections b^5 and b^6 , to be engaged with any of the series of transverse perforations b^4 of the central sec-

tion $b\ b'$. By means of these hook portions b^7 and the series of transverse slots b^4 the sections of the bottom plate may be given any longitudinal adjustment in respect to each other. The said bottom sections b^5 and b^6 are also provided with two rows or series of longitudinal slots b^8 , which constitute continuations of the series of slots b^3 in the central section $b\ b'$. The foot-section b^6 is provided with a flanged bracket b^9 , which is either formed integral with or rigidly secured to said section b^6 . The bracket b^9 is provided with a pair of longitudinal dovetailed grooves or guideways b^{10} .

c indicates a foot-block which is provided with dovetailed base-flanges c^1 , which work in the dovetailed guideways b^{10} of the bracket b^9 . The foot-block c is provided in its marginal flange with perforations c^2 and with a strap device c^3 , which, as shown, is secured to said foot-block and is adapted to be placed around the patient's ankles to secure his foot to said foot-block. If desired, the foot may be further secured to the foot-block c by means of straps c^4 , passed through the perforations c^2 . The longitudinal adjustment of the foot-block c is accomplished by means of a screw-rod c^5 , swiveled at its inner end to said foot-block and having screw-threaded engagement with the end flange of the bracket b^9 . The outer end of this screw-rod c^5 is shown as provided with a hand-crank c^6 , by means of which it may be turned to cause the longitudinal movement of said foot-block c .

The thrust or side plates each comprise a pair of pivotally-connected sections $f\ f'$, provided with depending L-shaped hooks f^2 , with longitudinal slots f^3 , and with a series of longitudinally-arranged perforations f^4 . These thrust or side plates $f\ f'$ may be removably and interchangeably secured to the base or bottom plate after the sections b , b' , b^5 , and b^6 thereof have been secured together in their properly-adjusted positions by inserting the L-shaped hooks f^2 through the cooperating series of longitudinal slots $b^3\ b^8$ and then moving said side plates longitudinally, so as to cause said hooks f^2 to engage the under sides of the sections of said bottom plate. When thus interlocked with the bottom plate, the side plates may be held against longitudinal movement by means of clamp-screws b^{11} , which have screw-threaded engagement with the side flanges of the bracket b^9 , and are adapted to work through the longitudinal slots f^3 of the side sections and clamp said side sections f against said side flanges.

One of the side plates $f\ f'$ is provided with a head-piece or crotch end f^5 , the stem of which is connected to the section f' with freedom for pivotal and longitudinal adjustment by means of a short screw-bolt or stud f^6 , working through the slot f^3 and subject to the action of a thumb-nut f^7 . The other member of the side plates $f\ f'$ is provided with a head-piece or crotch end f^8 , the stem of which is pivoted to the upper end of an

extension-plate f^9 , the lower end of which is in turn connected to the section f' with freedom for longitudinal adjustment by means of a short screw-bolt f^{10} , working through the longitudinal slot f^3 of said section f' and subject to the action of a thumb-nut f^{11} .

It will be noted that when the parts of the device are interlocked and secured together, as shown in Figs. 1 and 2, the crotch f^8 is extended far above the crotch f^5 . Obviously this adapts the crotch or head piece f^8 for engagement with the under arm-crotch and the crotch or head piece f^5 for engagement with the leg-crotch, and when thus engaged, as shown in said Figs. 1 and 2, said crotch-pieces f^5 and f^8 give a solid base of resistance to resist the drawing action of the foot-block c .

To set a broken leg, the device should be applied, as shown in Figs. 1 and 2, with the foot secured to the movable foot-block c by means of the straps c^3 and c^4 . By turning the screw-rod c^5 by means of the crank c^6 the foot-block c may be drawn toward the foot end of the device, thereby stretching the patient's leg until the broken portions of the bone are drawn to their proper place. Cotton or some other suitable packing should then be packed between the outer side of the patient's leg and the adjacent side plate of the device, as shown at z in Figs. 2 and 9. One or more splint or clamp plates g may then be applied to the inside of the patient's leg, and these splint-plates g may be held in place and clamped against the patient's leg, so as to hold the broken portion or portions thereof from lateral displacement by means of clamp devices $g'\ g^2$. As shown, the inner end of the clamp-yoke g' is provided with a pin g^3 , which engages a suitable seat g^4 in the splint-plate g , and the inner end of the clamp-screw g^2 is adapted for engagement with any one of the series of perforations f^4 of the side plates $f\ f'$. By this means the splint-plate and clamp device may be secured in any position on the patient's leg, and the leg may be tightly drawn and held against the packing z , so as to securely hold the same from movement in all directions.

The longitudinal tension or pull on the leg may, of course, be instantly relieved as soon as the leg is well set and clamped in place, but this would not be the preferred manner of manipulation. Preferably the leg would be left under the tension of the device until the bone had become well knit or grown together, and the tension might be gradually relieved from time to time as the process of healing goes on. By this means all possibility of the joint of the bone becoming displaced while healing is absolutely prevented.

As already stated, by interchanging the thrust or side plates of the device the same device may be made to answer for either the right or the left leg. As must be obvious, the broad features of my device may be embodied into a device adapted to set broken arms.

The knockdown feature of my device is im-

portant. From the above description it is obvious that the bottom and side plates may be separated and that each of these parts may in turn be separated into sections or folded one section upon the other, so that the whole device may be packed into a very small compass. Hence the device may be easily carried from one place to another and at the same time may be quickly set up and adjusted ready for use. It must also be obvious that various alterations in the details of construction of the above-described device may be made without departing from the spirit of my invention.

What I claim, and desire to secure by Letters Patent of the United States, is as follows:

1. In a limb-setting device, the combination with a longitudinal base or bottom plate, of a pair of longitudinal side plates, of different lengths, securable to said bottom plate, head-pieces at the upper extremities of said side plates, applicable, one to the arm-crotch and the other to the leg-crotch, and a foot-block securable to the foot and longitudinally adjustable on the foot end of the channel-box formed by said bottom and side plates, to stretch and set said leg, substantially as described.

2. In a limb-setting device, the combination with a longitudinal base or bottom plate, of a pair of longitudinal side braces or thrust-plates of different lengths, securable to said bottom plate by the hook-and-slot engagement, head-pieces at the upper extremities of said side plates, applicable one to the arm-crotch and the other to the leg-crotch, and a foot-block securable to the foot and longitudinally adjustable on the foot end of the channel-box formed by said bottom and side plates, to stretch and set said leg, substantially as described.

3. In a limb-setting device, the combination with a longitudinal base or bottom plate, of a pair of longitudinal side braces or thrust-plates of different lengths, interchangeably securable to said bottom plate, head-pieces at the upper extremities of said side plates,

applicable, one to the arm-crotch, and the other to the leg-crotch, a foot-block securable to the foot and longitudinally adjustable on the foot end of the channel-box, formed by said bottom and side plates, and clamping devices comprising splint-plates and screw-clamps, for clamping the leg laterally on the device, substantially as described.

4. In a limb-setting device, the combination with a longitudinal base or bottom plate constructed in longitudinally-adjustable sections, of the pair of side plates also constructed in longitudinally-adjustable sections, said side plates being interchangeably secured to said bottom plate, head-pieces at the upper extremities of said side plates, applicable, one to the arm-crotch and the other to the leg-crotch, and a foot-block longitudinally adjustable on the foot end of the channel-box formed by said side and bottom plates, to stretch and set said leg, substantially as described.

5. In a leg-setting device, the combination with the bottom plate formed by sections $b\ b'$, b^5 , b^6 , adjustably united by the joints $b^4\ b^7$, of the bracket b^9 with guideways b^{10} , the foot-block c with dovetailed guide-flanges c' , working in said guideways b^{10} , the screw-rod c^5 swiveled to said foot-block c and working through said bracket b^9 , the side or thrust plates made up of pivotally-connected sections $f\ f'$ and interchangeably securable to said bottom plate by means of the joints $f^2\ b^3\ b^8$, and the longitudinally-adjustable head-pieces f^5 and f^6 ; the head f^5 being secured directly to its cooperating side plate and the head f^6 being indirectly secured to the cooperating side plate through the extension-plate f^9 , substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

OLE CLAUSON.

Witnesses:

K. O. JERDE,

ALBERT CLAUSON.