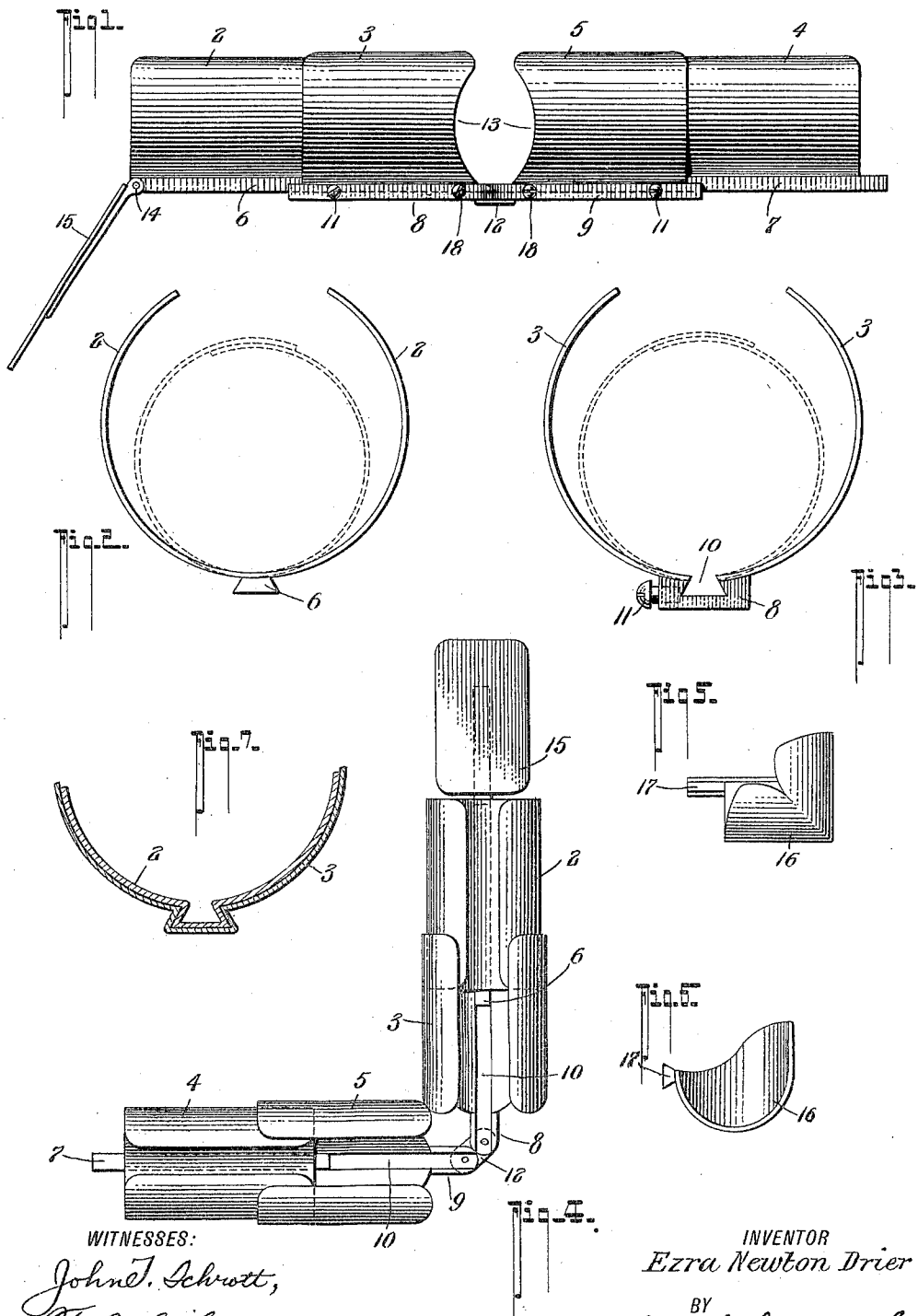


No. 821,619.

PATENTED MAY 29, 1906.

E. N. DRIER.
SURGICAL ARM SPLINT.
APPLICATION FILED SEPT. 28, 1905.



WITNESSES:

John T. Schrott,
E. C. Gibson

INVENTOR
Ezra Newton Drier

BY
Fred G. Dietrich
ATTORNEY.

UNITED STATES PATENT OFFICE.

EZRA NEWTON DRIER, OF VANCOUVER, CANADA.

SURGICAL ARM-SPLINT.

No. 821,619.

Specification of Letters Patent.

Patented May 29, 1906.

Application filed September 25, 1905. Serial No. 279,949.

To all whom it may concern:

Be it known that I, EZRA NEWTON DRIER, a citizen of the Dominion of Canada, residing at the city of Vancouver, in the Province of British Columbia, Canada, have invented a new and useful Improvement in Surgical Arm-Splints, of which the following is a specification.

This invention relates to a surgical arm-splint designed to be adaptable for either right or left arm or forearm and adjustable in size to the requirements of either youth or adult.

It is further provided with a means for support from the chest of the patient, and this feature, taken in conjunction with the endwise-slidable adjustability of the arm members, permits on their application to a fractured limb an extension being obtained between the joint of the arm-fracture after setting, an advantage which will be readily understood and appreciated by surgeons.

The particular construction of the device by which these several results are attained and the manner of application and use of the splint are fully set forth in the following specification and illustrated in the drawings which accompany it, in which—

Figure 1 is a side elevation of the splint; Fig. 2, an end view, to an enlarged scale, of the inner telescopic portion of each arm member; Fig. 3, a similar view of the outer portion; Fig. 4, a plan view of the splint with chest-plate extended; Fig. 5, a similar view of the elbow-cap attachment; Fig. 6, an end elevation of the same, and Fig. 7 a cross-section showing an alternative means of slidably connecting the two portions of each arm member.

The elements of the splint structure consist of a thin material flexible circumferentially, so that it will readily encircle and adapt itself to the circumference of an arm and that when bent to that approximately cylindrical form will afford when bandaged the necessary rigidity and support for the purpose required. The arm and forearm splint are each composed of two of these arm-encircling portions slidable telescopically one within the other, 2 and 3 being for the arm and 4 and 5 for the forearm, and to facilitate the slidable movement and afford a means by which the portions may be secured in any desired lengthwise position a relatively stout longitudinal bar is secured to each arm-encircling portion, the bars 6 and 7 of the por-

tions 2 and 4 being slidable in dovetailed grooves 10 in the bars 8 and 9 of the portions 3 and 5, respectively. By this means the two portions of each arm-splint are retained in slidable alinement, and a means is provided for securing them in any desired position of endwise extension by the screws 11, tapped through the members 8 and 9, so that they may be tightened against the bars 6 or 7.

The bars 8 and 9 are extended beyond the arm-encircling portions 3 and 5 toward the elbow-joint and are provided with an articulated joint 12, permitting movement of the arm and forearm splints in a plane parallel to the axes of their arm-encircling portions, and the adjacent edges of the portions 3 and 5 are shaped in the manner illustrated at 13 to afford a sufficient amount of movement in the plane of that of the joint.

To the upper end of the bar 6 of the upper arm portion 2 is hinged or otherwise flexibly connected the chest-plate 15, the hinge 14 of which is as close as practicable to the adjacent edge of 2, and the plane of the joint movement is approximately at right angles to that of the elbow-joint.

In the alternative design illustrated in Fig. 7 the retention and alinement of the telescopically-slidable arm-encircling portions is insured by a dovetailed flute or groove extending the length of each, such groove being bent in the material of the portions themselves and designed to fit one within the other in the manner shown.

A splint is thus provided for either arm or forearm, each arm portion being adjustable lengthwise to the size requirements of either youth or adult, and the arm-encircling portions, which are intended to be wrapped to the arm by bandages, are flexibly adaptable to the arm circumference.

The articulation 12, provided at the junction of the arm-sections, enables the forearm to be brought up to any desired angle, where it may be sustained by sling in the usual manner, while the chest-plate 15, being bandaged close up under the armpit of the patient, will afford an ample support from the trunk. This relation of the opposing resistance between the armpit and forearm attachments is a most important feature of this invention, as it enables in the case of application of the splint to an arm-fracture the desired "extension" to be readily obtained between the joint of the fracture after setting, for the slid-

able elements 2 and 3 of the splint may be extended the desired amount and secured there by the screw 11 in the bar 8. Similarly, when applied for fracture of the forearm the hand of the patient may be fastened in a suitable splint and the parts 4 and 5 extended between wrist and elbow and secured at the desired extension by the screw 11 in the bar 9.

When required, an elbow-cap 16 (see Figs. 5 and 6) is provided, having a dovetailed bar 17 designed to fit the groove 10 of either portion 3 or 5 and secured in any desired position therein by a screw 18.

Having now particularly described my invention and the manner of its application, I hereby declare that what I claim as new, and desire to be protected in by Letters Patent, is—

1. In a surgical arm-splint; circumferentially-flexible arm-encircling portions slidable telescopically one within the other and means for securing said portions at any desired position of lengthwise adjustment.

2. In a surgical arm-splint; circumferentially-flexible arm-encircling portions for arm and forearm hinged at the elbow by a joint the plane of movement of which is parallel to the axes of the arm-encircling portions, and a chest-plate hinged to the extreme end of the arm member the plane of joint movement of which is approximately at right angles to that of the elbow-joint.

3. A surgical arm-splint comprising telescopically-slidable arm-encircling structures of circumferentially-flexible material for arm

and forearm, said structures being hinged at the elbow by a joint the plane of movement of which is parallel to the axes of the arm-encircling portions, a chest-plate secured to the upper end of the arm portion and adapted to be bandaged under the armpit of the patient, and means for securing the telescopically-slidable arm-encircling portions in any desired position of endwise movement.

4. A surgical arm-splint comprising the circumferentially-flexible members 2 and 3 for the arm, the bar 6 secured to 2 and endwise slidable in the groove 10 of the bar 8 secured to 3, the forearm members 4 and 5, the bar 7 secured to 4 and endwise slidable in the groove 10 of the bar 9 secured to 5, the screws 11 in 8 and 9, the articulated joint 12 between 8 and 9, the plate 15 connected to the bar 6 by the hinge 14, and the blow-cap 16 having dovetailed attachment 17 designed to fit the groove 10, and the screw 18 in 8 or 9.

5. In a surgical arm-splint; an arm-encircling member having endwise-slidable movement and adjustment, a chest-plate secured to the upper end of said arm-encircling member, and a forearm-splint hinged to the lower end.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EZRA NEWTON DRIER.

Witnesses:

ROWLAND BRITAIN,
FREDA QUINN.