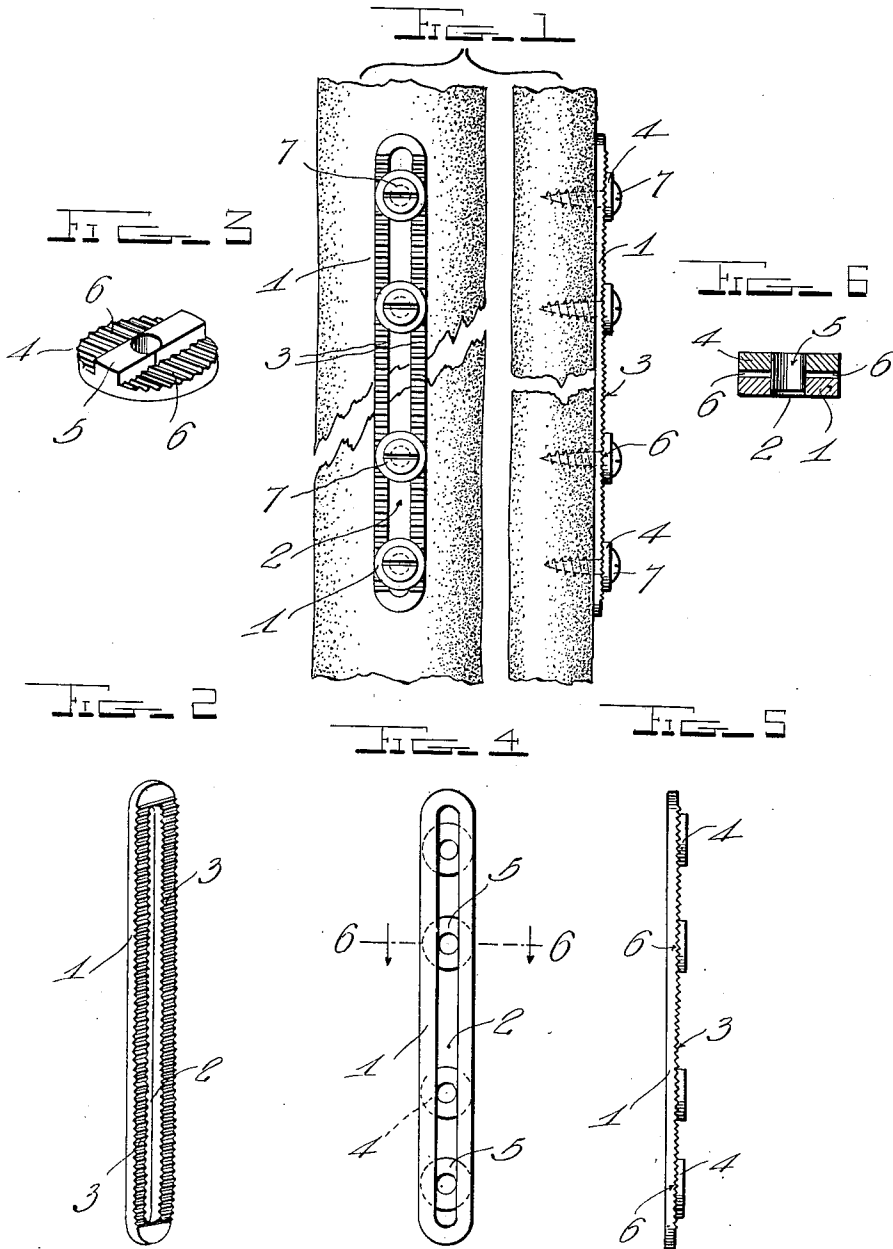


L. L. MINER.
BRACE FOR FRACTURED BONES.
APPLICATION FILED AUG. 7, 1911.

1,025,008.

Patented Apr. 30, 1912.



Witnesses
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UNITED STATES PATENT OFFICE.

LUCIEN LUTTRELL MINER, OF BISBEE, ARIZONA.

BRACE FOR FRACTURED BONES.

1,025,008.

Specification of Letters Patent.

Patented Apr. 30, 1912.

Application filed August 7, 1911. Serial No. 642,674.

To all whom it may concern:

Be it known that I, LUCIEN LUTTRELL MINER, a citizen of the United States, residing at Bisbee, in the county of Cochise and State of Arizona, have invented certain new and useful Improvements in Braces for Fractured Bones; and I do 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.

This invention relates to improvements in metal bracing plates for fractured bones.

One object of the invention is to provide a plate of this character having means whereby the same may be adjusted to bring the ends of the fractured bone into proper relative positions without necessitating the removal of the fastening screws of the plates should said screws have been improperly placed.

Another object is to provide a fracture bracing plate in which the fastening screws may be placed at any desired position along the plate, thus avoiding weak places or loose fragments of the bones and permitting the screws to be placed at points where the bone is strongest.

With these and other objects in view, the invention consists of certain novel features of construction, combination and arrangements of parts as will be hereinafter more fully described and afterward specifically claimed.

In the accompanying drawings: Figure 1 is a side view of two bones of a limb showing the application of the invention; Fig. 2 is an enlarged perspective view of one of the bracing plates; Fig. 3 is a similar view of the inner side of one of the washers used in connection with the plates; Fig. 4 is an inner side view of the plate and washers; Fig. 5 is an edge view of the same; Fig. 6 is a cross sectional view on the line 6—6 of Fig. 4.

My improved bracing and splicing plate comprises a flat metal bar 1 of suitable length and of the proper width and thickness, said bar having formed therein a longitudinally disposed slot or passage 2 which extends throughout the entire length of the bar as shown. The inner surface of the plate is preferably smooth, while the outer surface is serrated or provided with a continuous series of transverse notches 3, the

purpose of which will be hereinafter described.

Employed in connection with the plates or bars 1 are washers 4 of which any desired number may be provided, said washers having a centrally disposed rib 5 which fits in and is adapted to slidably engage the slot 2 in the bar 1. The inner surface of the washers 4 on each side of the rib 5 is notched or serrated as at 6, said notched or serrated surfaces of the washers being adapted to contact with the serrated or notched outer surface of the plate or bar, thereby firmly holding the washers in their adjusted positions on the plates. With the washers are engaged fastening screws 7 by means of which the bracing plates or bars are secured to the fractured ends of the bones and said ends thus securely fastened together and braced. By providing the adjustable washers 4 for the screws, the latter may be applied to the strongest parts of the fractured ends of the bone and the brace thus made more secure.

Experience has shown in applying bracing plates to two parallel fractured bones where one of the bones has sustained a slanting or spiral fracture that when one plate has been fastened to the bone the screwing tight of the second plate will cause the bones held by the first plate to separate, thus necessitating the removal and changing of the screws and plates to get the ends of the bones properly adjusted. Instances have often occurred where repeated changing of the plates is necessary before the bones have been properly set. By means of my improved adjustable bracing plates the necessity of thus removing the screws is entirely obviated. Furthermore in the ordinary construction of bracing plates the screw holes frequently come at points opposite loose fragments of the bones or weak places therein where the placing of a screw will be impractical if not impossible whereas by providing the plates with adjustable screws having washers such as herein shown and described the positions at which the screws are placed may be varied to conform to the break in the bone.

From the foregoing description taken in connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion

and the minor details of construction may be resorted to without departing from the spirit or exceeding the scope of the invention as defined and claimed.

5 I claim as my invention:

1. A bracing plate for fractured bones having formed therein a longitudinal slot and having a serrated outer surface, screw receiving washers having on their inner sides centrally disposed ribs adapted to slidably engage the slot in said plate and having on each side of said rib serrated surfaces adapted to engage and coact with the serrated surface of the plate, whereby said washers are secured in adjustable engagement with the plate and fastening screws adapted to be inserted through said washers and slot in the plate to fasten the plate to the ends of the bone.

2. A bracing plate for fractured bones having a longitudinal slot therein and provided with serrations, screw receiving washers having ribs adapted to enter said slot in said plate and provided with serrations adapted to engage and co-act with the serrations of the plate whereby the washers are secured in adjustable engagement with the plate, and fastening screws adapted to be inserted through said washers and slot in the plate to fasten the plate to the ends of the bone.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

LUCIEN LUTTRELL MINER.

Witnesses:

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