

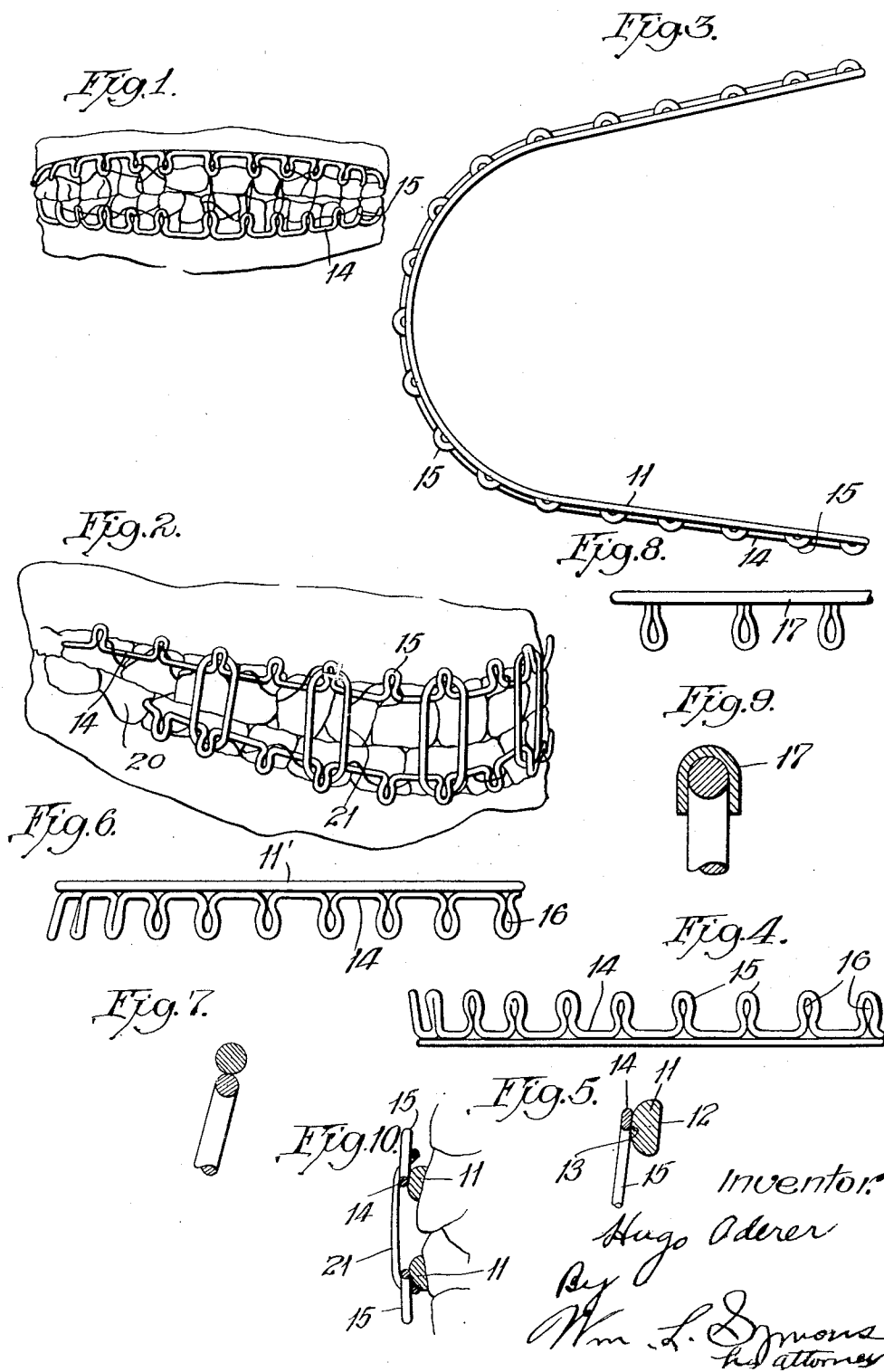
Aug. 9, 1927.

1,638,006

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FRACTURE SPLINT

Filed Feb. 26, 1926



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## UNITED STATES PATENT OFFICE.

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## FRACTURE SPLINT.

Application filed February 26, 1926. Serial No. 90,894.

My invention relates to improvements in fracture splints or orthodontic appliances.

An important object of my invention is to provide a device of this character adapted for use in treating broken jaws or for straightening and aligning teeth.

Another object of my invention is the provision of a device of the above mentioned character which is formed from two pieces of material.

A further object of my invention is the provision of a device of this character which is easily applied, which is convenient and inexpensive to manufacture, comfortable to wear, and strong and durable in use.

Other objects and advantages of my invention will be apparent during the course of the following description.

In the accompanying drawings, which form a part of this specification and wherein like characters of reference denote like or corresponding parts throughout the same,

Figure 1 is a front elevation of a set of teeth showing one method of applying my new splint,

Figure 2 is a perspective view showing the preferred method of applying my splint,

Figure 3 is a top plan view of the preferred form of splint,

Figure 4 is a side elevation thereof,

Figure 5 is a detail section thereof,

Figure 6 is a side elevation of a modified form of my invention,

Figure 7 is a detail sectional view thereof,

Figure 8 is a fragmentary view of another modified form of my invention,

Figure 9 is an enlarged detail thereof, and,

Figure 10 is a detail view of the preferred form of invention shown in Figure 2.

In the drawings, wherein for the purpose of illustration is shown a preferred embodiment of my invention, the numeral 11 designates the metal arch shaped to fit the dental arch and preferably semi-circular in cross section, as shown in Figure 5, the plane surface 12 being adapted to fit against the teeth of the wearer, and the opposite side is preferably flattened at 13, as also shown in Figure 5.

In place of the usual separately formed prongs soldered to the arch 11, I provide a piece of rounded wire or the like 14 which

is bent upon itself to form a plurality of regularly spaced loops 15, the portion of the wire between the loops being soldered to the arch 11 on the flattened surface 13, as illustrated in Figure 5. The loops are large at their ends and their sides come together at their juncture with the arch 11, thereby forming a series of regularly spaced closed eyes 16.

In the form shown in Figures 6 and 7 the looped wire 14 is secured to the under side of the arch 11, as clearly shown in Figure 7. In the form shown in Figures 8 and 9, the arch 17 is formed of channel metal which is inverted U-shaped in cross section.

In this form the wire 18 is received within the channel arch 17 and the loops 19 extend out of the open side thereof.

In applying my improved splint, the arch is arranged about the teeth of the patient and ligatures passed around certain of the teeth and about the arch 11. When it is desired to secure the upper and lower jaws together, an arch is secured to the teeth of each jaw, either with the loops of one arch directed towards the loops of the other arch, as shown in Figure 1, or directed away from each other as in Figures 2 and 10. When arranged as in Figure 1, ligatures or wires may be passed through the loops of the arches to draw them together and hold them in this position. When arranged in the position shown in Figures 2 and 10, rubber bands 21 may be placed over corresponding loops and so secure the arches, and consequently the jaws, together.

It will be seen that in the form of the invention shown in Figures 1, 2, 3, 4, 5 and 10, the loops stand away from the teeth and so allow rubber bands to be passed behind them, without irritating the gums. The loops are not only spaced from the teeth by the width of the arch 11 but are also slanted away from the teeth. The flat surface 12 of the arch rests against the teeth.

The rubber bands are readily kept in place by reason of the loops being larger away from the arches, and the loops being rounded at their ends, will not chafe the gums. If for any reason the patient wishes to release himself, he may easily and quickly remove the rubber bands and as easily replace them. He may be fed, as usual, by

means of a tube placed in the opening left by a lost tooth, as shown at 20.

The shape of the arch 11 may be readily adjusted to fit the shape of the dental arch, and is consequently easily applied.

In making the splint, an ordinary wire, round in cross section, is suitably flattened as at 12 in Figure 4, leaving the wire substantially semi-circular in cross section and the rounded edge is then slightly flattened at 13. A piece of dental wire is then crimped and bent upon itself to form the loops 15, and soldered or otherwise firmly secured to the wire arch on the flattened portion 13. It will be seen that this method is such as to form an improved splint, having distinct advantages over other splints, in the simplest and most economical manner.

While I have shown and described the preferred embodiment of my invention, it is to be understood that various changes in the size, shape and arrangement of parts may be resorted to without departing from the spirit of my invention or the scope of the subjoined claims.

Having described my invention what I claim and desire to protect by Letters Patent is:

1. A fracture splint or orthodontic appliance comprising an arch shaped to fit the dental arch, and a wire bent upon itself

to form a series of loops, said wire between the loops being secured to the arch.

2. A device of the character described comprising an arch shaped to fit the dental arch, said arch comprising a wire flattened on one side to render it substantially semi-circular in cross section, and having its round side flattened slightly, and a wire bent upon itself to form a series of loops, said wire between the loops being secured to the slightly flattened portion of the arch.

3. The method of making a fracture splint or orthodontic appliance comprising flattening a piece of round wire and bending it into an arch substantially semi-circular in cross section, the round portion of the wire facing outwardly, flattening a small part of the rounded portion of the arch to form a flat surface extending the length of the arch, crimping a second piece of wire and bending it upon itself to form a plurality of spaced upstanding loops and securing the portions of the second wire between the loops to the flat surface of the arch.

4. A fracture splint or orthodontic appliance comprising an arch shaped to fit the dental arch, and an element bent upon itself to form a series of loops, said element between the loops being secured to the arch.

In testimony whereof I affix my signature.

HUGO ADERER.