May 1, 1951 F. G. SALISBURY 2,550,869

CLAMP FOR FRACTURED JAW

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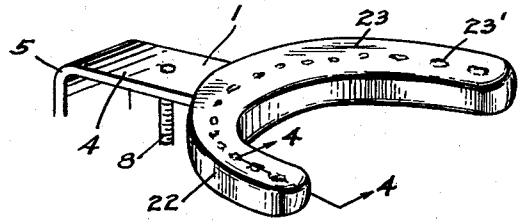


Fig 3

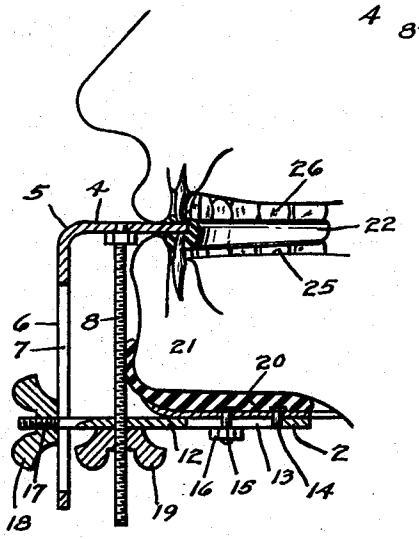


Fig 1

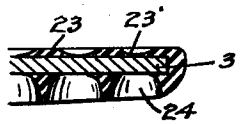


Fig 4

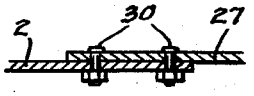


Fig 5

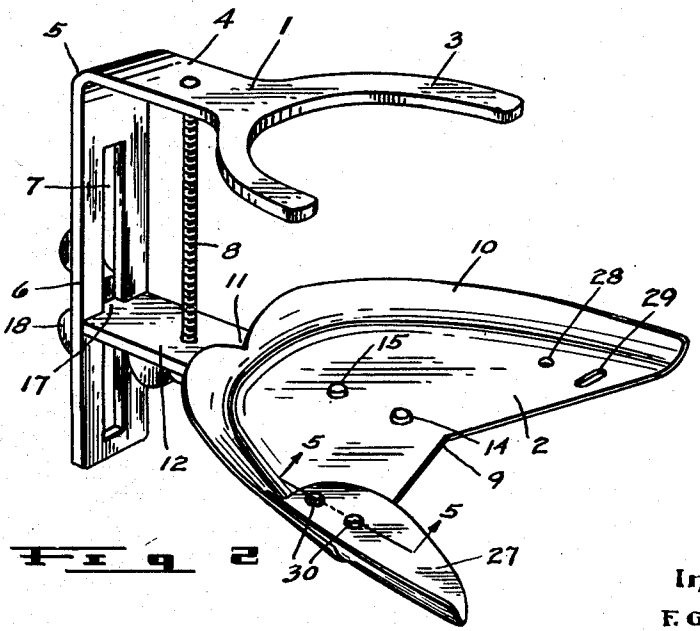


Fig 2

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CLAMP FOR FRACTURED JAW

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3 Claims. (Cl. 128—89)

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The present practice of treating a broken jaw bone is to connect wires from the upper set of teeth of the patient to the teeth in the jaw bone, the wires criss-crossing back and forth so as to maintain the jaw bone in its proper position for knitting together. If the patient has a full set of teeth, one tooth is extracted so that the patient can be fed through a tube. The result of this method is that the patient has his jaw locked tight for a matter of three or four weeks while the bone is healing, the mouth cannot be cleansed or rinsed out and it is usually necessary for an attendant to be on hand to cut the wires if for any reason the patient begins to choke.

Other methods used for the same purpose consists in supporting the jaw from a skull cap or tapping holes in the jaw bone for the securing of exterior clamping members. The skull cap method maintains the jaw closed in the same manner as the wiring while the exterior jaw clamps, secured by screws, results in mutilation of the face.

The principal object of the present invention is to devise a clamping device which will hold the broken jaw bones in position for the natural knitting process, without injury in any manner to the patient.

A further object of the invention is to design the clamp for attachment to the jaw bones so that it will work in conjunction therewith and the patient will be able to open the mouth for the insertion of food or cleansing and be able to masticate the food so taken in, without any extraction of teeth.

A still further object of the invention is to design the device in a simple and compact manner, so that it can be dismantled, and also provide adjustments thereon for drawing the jaw bone into the original position.

With the above important and other minor objects in view which will become more apparent as the description proceeds, the invention consists essentially in the construction, assembly and the method of using the device hereinafter more particularly described, references being had to the accompanying drawings of which:

Figure 1 is a profile view of the lower part of the face showing an X-ray view of the teeth and with the clamp installed in position and in vertical section.

Figure 2 is an enlarged perspective view of the assembled clamp and showing an extension on one side.

Figure 3 is a perspective view of the upper part of the clamp with the finished vulcanized rubber attached thereto.

Figure 4 is a vertical section taken on the line 4—4, Figure 3.

Figure 5 is an enlarged vertical section taken on the line 5—5, Figure 1.

The clamp, shown in Figures 1 and 2, is com-

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posed of two arms 1 and 2. The arm 1 comprises a semi-circular horizontal fork member 3 which is formed integral with a horizontal strap member 4, bent at right angles at 5 to form a leg 6. The leg is centrally provided with a slot 7 having square cornered ends. A threaded rod 8 is centrally secured to the horizontal member 4 and projects downwardly in front of the slot 7.

The arm 2 is formed from flat material and of a relative heel-shape. The front portion of the heel is shaped in a shallow inverted V-shape 9 while the sides are dished upwardly as at 10 with the rear part of the sides curving inwardly and together at the back to form a nick 11 for a purpose later described. A strap-shaped member 12 passes centrally under the arm 2. The front of this member is centrally provided with a slot 13 while the arm 2 is centrally provided with a front stud 14 and a rear bolt 15 which are both received in the slot 13. As the stud and bolt are closer together than the length of the slot, they can slide up and down therein for adjustment while a nut 16 on the bolt 15 can be tightened to hold the two together in the required adjusted position. The rear portion of the strap member 12 is formed with a rearwardly extending central tongue 17 which is threaded to receive a wing nut 18.

When the two arms are connected together the tongue 17 is passed through the slot 7 while the threaded rod 8 is passed through a central hole in the strap member 12 and the lower end of the rod receives a wing nut 19. The wing nut 18 is then threaded on the tongue 17.

From the above disclosure it will be seen that the arm 2 can be adjusted forwardly or rearwardly by the use of the slot 13 and the stud and bolts 14 and 15 respectively. In the rear position the threaded rod 8 is received by the nick 11 and by turning the wing nut 19 the arm 2 can be moved up and down toward or away from the arm 1. When the two are in the proper position, the wing nut 16 can be tightened to lock the two arms firmly together.

In using the clamp for repairing a fractured human jaw the wing nuts 18 and 19 are loosened to allow full play of the arms 1 and 2. Impression compound 20, such as used by dentists, is placed in the heel-shaped part of the arm 2 while impression wax, (not shown) used by dentists, is placed completely around the fork member 3 of the arm 1. The broken jaw bones are first manually set into position. The fork member 3 is then placed in the mouth and by pressing the heel-shaped arm 2 up and under the human jaw 21, the pressure forces the teeth together so that they press into the impression wax until they contact the fork member 3 while at the same time the impression compound is molded to the shape of the exterior surface of the human jaw 21. It might be mentioned at this time that a sheet of

cellophane (not shown) is placed over the impression compound before the clamp is used to prevent any hair on the outer surface of the jaw from becoming imbedded in the impression compound. The clamp is held in this position until the impression compound sets. The pressure is then released so that the mouth opens and the teeth leave the wax with the impression of their shape therein. The clamp is then removed from the face.

The fork member 3, with the wax impression of the teeth thereon, is then placed in a mold form (not shown) which is known as a dental flask and an impression in plaster of Paris (not shown) is made therefrom. This plaster of Paris would then be in the form of the patient's teeth. The impression wax is then removed from the fork member and impression rubber 22 is inserted in its place. The fork member is again placed in the dental flask and the plaster of Paris therein is pressed thereon which forms the rubber into the same shape of the previous impression wax. This rubber is then vulcanized to a relatively hard consistency and secures the rubber to the fork member. The supper surface of the vulcanized member is then ground off so that the rubber looks as shown at 23 in Figures 3 and 4 with the teeth impression shown as slight indents 23'. The impression of the lower teeth is left deep as shown at 24 in Figure 4. The transfer of the impression in wax to the vulcanized rubber is a well known dental operation and therefore not shown in the drawings.

The clamp is then adjusted to the human jaw 21 as shown in Figure 1, the lower teeth 25 being received in the deep indents 24 of the vulcanized rubber while the upper teeth 26 are received in the indents 23'. The cellophane has been removed from the impression compound and it perfectly fits the outer surface of the jaw 21. When the wing nut 19 is tightened up the jaw is clamped between the hard rubber and the impression compound. When firmly in the correct position holding the bones in place, the wing nut 18 is tightened to lock the clamp rigid.

According to the above disclosure it will be seen that the patient will be able to move the lower jaw 21 up and down in a natural movement while the clamp moves therewith. The patient is permitted to eat and the jaw is free to move sideways, due to the slight indents 23' and so grind the food while the mouth can be washed out to maintain it in a sanitary condition. No teeth need to be extracted, no threaded holes are bored in the jaw bone and no skull cap is required. The broken parts of the jaw are firmly held in position for the healing process of nature to knit the bones together and at the end of a period of three or four weeks the clamp can be removed with safety.

The extension, indicated at 27 in Figure 2 is for use when the jaw bone is broken up the sides. On either side of the heel-shaped arm 2 a hole 28 and a slot 29 are provided. The extensions 27 are of a wing-shape with a rolled edge corresponding to the edges 10 of the clamp 2. They are provided with corresponding holes to register with the hole 28 and the slot 29 and bolts 30 pass through these holes and through the holes 29 and slots 29 to secure the extensions to the clamp 2. By providing the slot 29 the extensions can be adjusted to conform to the contour of the face. These extensions permit the impression compound to extend all around the face and up

the sides to hold the broken bones at the side of the jaw in position.

What I claim as my invention is:

1. A clamp for a fractured jaw, comprising: a base plate adapted to bear beneath the chin; a support member extending from said base plate; a U-shaped plate positioned above said base plate and adapted to enter the mouth and be positioned between the upper and lower teeth; an extension projecting horizontally from said U-shaped plate, adapted to pass out the mouth and then extend downwardly as a leg; screw means between said extension and said support member for adjustably varying the distance between said plates, to clamp the fractured parts of said jaw in position therebetween; and means securing said support member to said leg in said adjusted positions of said plates.

2. A clamp for a fractured jaw, comprising: a base plate for reception against the under side of the chin; a support member extending from said base plate and terminating in a threaded tongue; a semi-circular-shaped arm positioned in spaced relation above said base plate and having a centrally positioned handle extending therefrom; said handle bent at right angles toward said base plate as a leg; a central slot formed longitudinally in said leg to receive said threaded tongue therethrough; a nut on said tongue to clamp said support member to said leg; a threaded rod projecting from said handle, adjacent said semi-circular-shaped arm, passing through said support member and provided with a threaded nut, for adjustably drawing said base plate and said semi-circular arm together.

3. A clamp for a fractured jaw, comprising: a base plate, having upwardly curved sides, for reception against the under side of the chin; a support member for said base plate, adjustably secured to the under side thereof, extending therepast, and terminating in a threaded tongue; a semi-circular-shaped arm positioned in spaced relation above said base plate and having a centrally positioned handle extending therefrom; said handle bent at right angles toward said base plate as a leg; a central slot formed longitudinally in said leg to receive said threaded tongue therethrough; a nut on said tongue to clamp said support member to said leg; a threaded rod projecting from said handle, adjacent said semi-circular-shaped arm, passing through said support member and provided with a threaded nut, for adjustably drawing said base plate and semi-circular arm together; and removable extensions swingably and adjustably mounted on either side of said base plate, to form a continuation of the sides of said base plate.

FREDERICK GARFIELD SALISBURY.

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