

- [54] **SPLINT FOR IMMOBILIZATION OF THE MANDIBLE**
- [76] Inventor: **Joseph E. O'Malley**, 95 W. Gore St., Orlando, Fla.
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- [51] Int. Cl. **A61f 5/04**
- [58] Field of Search..... 128/89, 75, 164, 128/163, 76, DIG. 15, 83, 87

[56] **References Cited**

UNITED STATES PATENTS			
3,359,976	12/1967	Laval	128/75
106,091	8/1870	Stowe	128/164 X
3,118,443	1/1964	Dykinga.....	128/75
1,643,090	9/1927	Rogers.....	128/164 X
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FOREIGN PATENTS OR APPLICATIONS			
389,777	8/1922	Germany	128/163

577,276 3/1932 Germany 128/164

Primary Examiner—Richard A. Gaudet
Assistant Examiner—J. Yasko
Attorney—Duckworth and Hobby

[57] **ABSTRACT**

A simplified splint for precise immobilization of the mandible or lower jawbone in mandibular injuries having a main or supporting harness of a single piece of material with a chin support and an occiput engaging support connected by curved portions passing over the ears on either side of the patient's head. A top-of-the-head strap connects the curved portions of the supporting harness together with a quick connect Velcro connection and a pair of posterior straps connect the occiput engaging portion and the chin support portion of the supporting harness together below the ears, each strap having a quick connect Velcro connection so that a splint is provided which may be rapidly placed on a patient without interference with the patient's ears and forehead.

3 Claims, 3 Drawing Figures

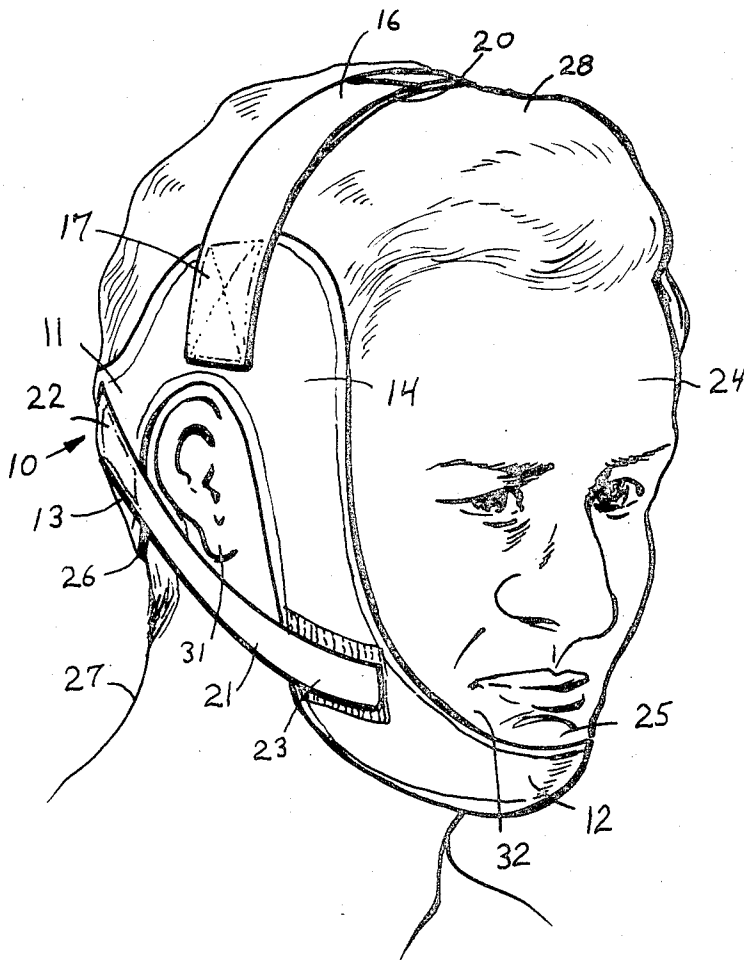


Fig. 1

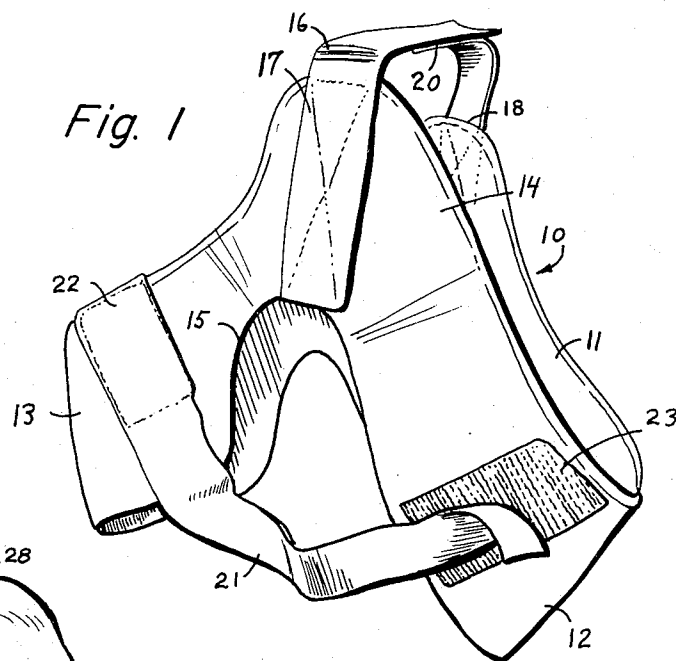


Fig. 2

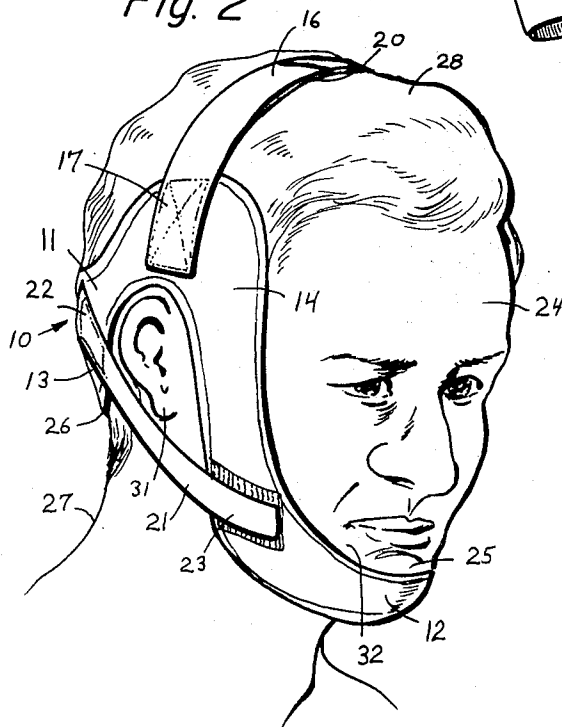
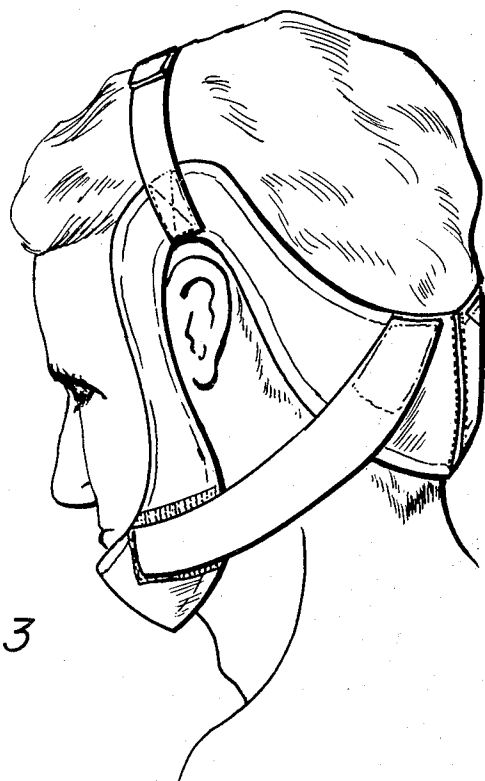


Fig. 3



SPLINT FOR IMMOBILIZATION OF THE MANDIBLE

BACKGROUND OF THE INVENTION

The present invention relates to splints for mandibular injuries and especially to such splints which may be used for prompt treatment while providing precise immobilization of the mandible. In mandibular injuries prompt treatment may be necessary to assure a clear airway. In many instances this can be accomplished by holding the mandible forward until actual operative treatment can be undertaken. In most cases of mandibular fracture, either recent ingestion of food or beverages or concomitant injuries rule out general anesthesia for intermaxillary wiring or other operative repair for several hours or days. One common type of available bandage provides a beneficial dressing for some mandibular injuries and helps to stabilize a fractured jaw, to minimize further damage, and to allow the patient to swallow more easily. This prior art bandage referred to as the Barton bandage, adds to the comfort of the patient and holds a sterile dressing on soft tissue wounds or a pressure pack, if needed, to control bleeding. However, there are important drawbacks to this type of dressing especially when an inebriated patient is being treated and this kind of injury is commonly sustained by inebriated patients. One difficulty is in the application of the bandage especially in cases where cervical injury is suspected, and that during application, slippage of the bandage frequently occurs and it usually requires reapplication almost daily. In addition, undue pressure may result on the forehead and frequently on the ears which seem to manage to become incorporated in the dressings. The problems are even more severe in cases of children and young adults.

It is accordingly one object of the present invention to provide a mandibular immobilization splint without the disadvantages of the Barton bandage and which may be easily washable and adapted for patients of all different size heads and chins and which may be easily applied or removed, such as for shaving by male patients, or for changing dressings on soft tissue. It is another advantage of the present invention to provide a splint which may be applied in seconds without undue manipulation of the head or neck thus avoiding possible further injury.

Other prior art bandages for supporting the lower jaw may be seen in U.S. Pat. No. 84,965 which illustrates a sanitary brace to keep the mouth closed during sleep, and in U.S. Pat. No. 106,091, which illustrates an apparatus for the treatment of a fracture of the lower jawbone, adapted to hold the jawbone from the top of the head; and in U.S. Pat. No. 2,507,617, which illustrates a jaw or chin support for holding the lower jaw in its upper or closed position in cases of jaw fracture, as does U.S. Pat. No. 1,110,772. Each of these patents, however, utilizes the forehead in the support of the chin and generally provides a circular bandage for fitting on the head with additional straps over the head and attached to the chin support. Finally, U.S. Pat. No. 2,827,896 illustrates a head halter for use in traction devices during cervical traction and engages all of the bottom of the head from the chin around the back of the head, then connects with a snap fastener to a traction line.

The present invention, on the other hand, is directed towards maintaining a splint away from the forehead

and away from the ears of the patient and to provide one splint which can be very rapidly connected to a patient without undue manipulation of the head or neck and without having to make adjustments in the device for the patient.

SUMMARY OF THE INVENTION

The present invention relates to splints for the immobilization of the mandible and has a one-piece harness having a chin support on one portion thereof and an occiput engaging support on another portion thereof. The supporting harness fits over the head and engages the chin and the occiput and is curved along the side of the head over the ears. A strap is made to pass over the crown or top of the head for attaching the two curved portions passing over the ears together and are rapidly connected with a Velcro connection so as to pull the patient's chin anterosuperiorly and bring the teeth into occlusion. Then a pair of posterior straps connect the occiput engaging support portion with the chin support portion of the supporting harness by means of Velcro connections, with the straps passing under the ears. The harness is made out of nylon tricot that may be washable and requires only two sizes, one pediatric and one in adult sizes.

BRIEF DESCRIPTION OF THE DRAWINGS

Other objects, features and advantages of this invention will be apparent from a study of the written description and the drawings in which

FIG. 1 is a perspective view of a splint in accordance with the present invention;

FIG. 2 is a perspective view of the splint in accordance with FIG. 1 placed on the head of a patient; and

FIG. 3 is a perspective view as seen more from the rear of the patient showing the embodiment in accordance with FIGS. 1 and 2.

DESCRIPTION OF THE PREFERRED EMBODIMENT

The present invention deals with a machine-washable reusable jaw splint which can be manufactured in nylon tricot with Velcro closures and which has soft padding thereon with slight inherent stretch for use in mandibular injuries for the precise immobilization of the mandible. The splint may be slipped over the chin and occiput and a Velcro strap closed over the top of the head to pull the chin anterosuperiorly and bring the teeth into occlusion. A posterior Velcro strap is then fastened on each side of the mandible and attached near the chin with the ears and forehead remaining undisturbed.

As seen in FIG. 1, a splint 10 is illustrated having a single harness piece 11 which includes a chin support 12 and an occiput engaging support 13 on the opposite end of the harness 11 from the chin support 12 and adapted to fit over the occiput of the patient's head. The chin support is adapted to fit over the chin of a patient and the two are connected in a complete encircling harness 11 having curved portions 14 and producing an arcuate surface 15 adapted to fit over a patient's ears. The harness 11 may be made of nylon tricot with a soft padding to provide a very slight inherent stretch and also for holding saline or other wet dressings when needed. A head strap 16 is formed in two parts, each side attached to the harness 11 at 17 and 18 and may be connected or disconnected from each other at the

Velcro connection 20 which can be easily connected to fit different heads in accordance with where the two surfaces are brought together. This top-of-the-head or crown strap 16 provides the chin support 12 with the necessary support for bringing the patient's teeth into occlusion and a pair of posterior straps 21 are connected to the occiput engaging portion 13 of the harness 11 at 22 and have Velcro connections 23 for connecting each strap 21 to the chin support section 12 on either side of the mandible of the patient's head.

FIGS. 2 and 3 illustrate the harness as in FIG. 1 on a patient's head, each having the chin support 12 and the harness 11 placed on the chin of a patient's head 24. The patient 24 has a chin 25 and occiput 26, nape of his neck 27 and the crown on top of his head 28 along with his ear 31 illustrated to show the connection of the splint 10 for holding the mandible or lower jawbone 32 in position. The harness 11 has the curved portion 14 and the occiput engaging portion 13 engaging the patient's occiput 26 and has the straps 21 connected by connection 22 and removably connected by connection 23 to hold the harness 11 chin support 12 in position. The crown strap 16 is removably connected at 20, and fixedly connected to either side at 17 and 18 (FIG. 1). In operation the main harness 11 is slipped over the patient's 24 head with the chin cup portion 12 over the chin 25 of the patient 24 and the occiput engaging portion 13 over the occiput 26 with the curved portion 14 passing over the ears. The strap 16 is then connected simply by pressing the Velcro members together for the necessary fit and support of the chin 25. The posterior straps 21 are then fastened by the Velcro connection 23 to fit the particular patient to give the necessary support.

It should be clear at this point that a new jaw splint is presented which is especially advantageous for the immediate emergency immobilization of a fractured mandible but which may be used in non-emergency situations. Accordingly, this invention is not to be construed as limited to the particular forms disclosed

herein since these are to be regarded as illustrative rather than restrictive.

I claim:

1. Splint for immobilization of the mandible, comprising in combination:
 - a. one-piece supporting harness having a chin support and an occiput engaging support, said supporting harness being curved to pass over each ear of a patient to connect the chin support and the occiput engaging support on both sides of a patient's head;
 - b. top-of-the-headstrap means being attached to said support harness on each side thereof on the portion curved to pass over a patient's ears, said strap means having a quick attaching means for attaching said strap means over the crown of the head when said harness is on a patient and being adapted to pull the patient's chin anterosuperiorly and bring the teeth into occlusion;
 - c. a pair of posterior straps connected to the occiput engaging support portion of said supporting harness and having quick attaching means for attaching each said posterior strap to the chin support portion of said supporting harness, said posterior straps being adapted to pass below said patient's ears; whereby a patient's mandible is supported with his ears and forehead being undisturbed; and
 - d. said top-of-the-head strap means quick attaching means having a Velcro connection formed between two portions of the strap.
2. The apparatus in accordance with claim 1 in which each said posterior strap quick attaching means includes a Velcro connection for attaching each strap on one side of the patient's mandible near the chin portion of said supporting harness.
3. The apparatus in accordance with claim 2 in which said supporting harness, head strap means and posterior straps are made of nylon tricot.

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