Sept. 5, 1939. W. S. MOORE 2,172,252

MOUTH-CLOSING DEVICE

Filed April 4, 1938

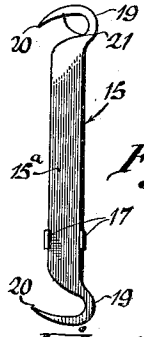


Fig. 1

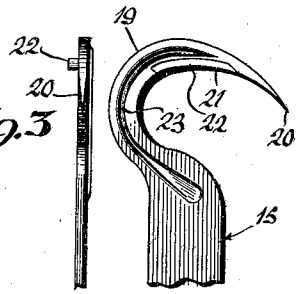


Fig. 2

Fig. 3

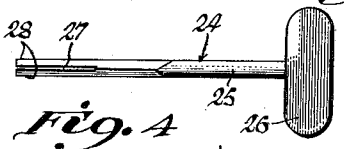


Fig. 4

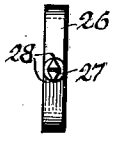


Fig. 5

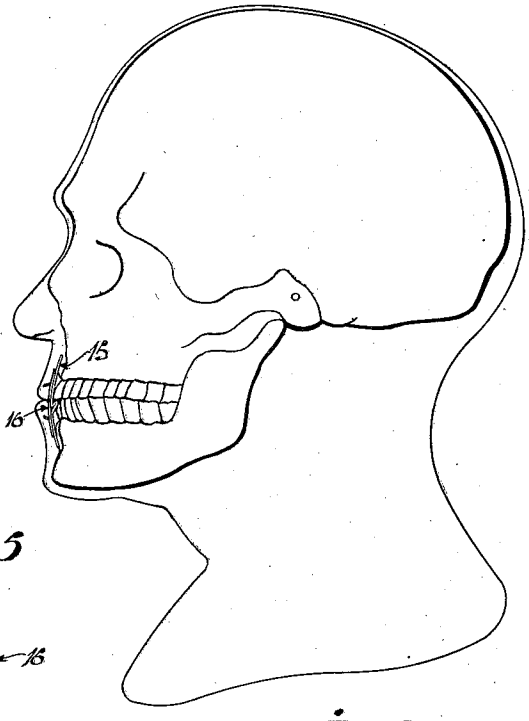


Fig. 8

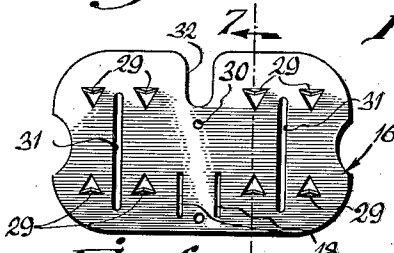


Fig. 6

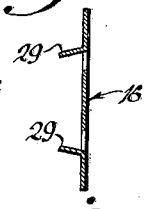


Fig. 7

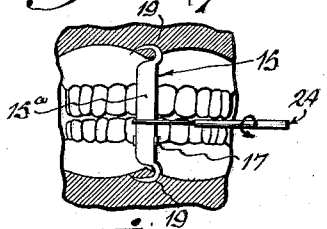


Fig. 9

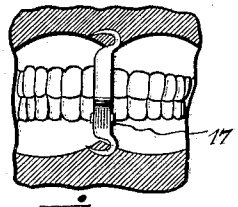


Fig. 10

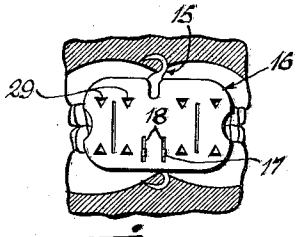


Fig. 11

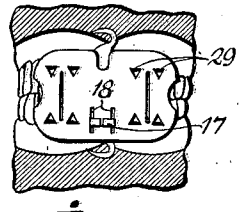


Fig. 12

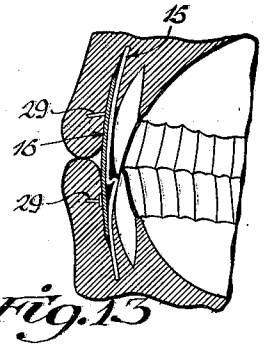


Fig. 13

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MOUTH-CLOSING DEVICE

William Stirling Moore, Batavia, Ohio

Application April 4, 1938, Serial No. 199,744

8 Claims. (Cl. 27—1)

This invention relates to devices to be utilized by undertakers and embalmers for holding the jaws and mouth of a corpse in place, and also for holding the lips closed and in proper position. More specifically, the present invention is directed to an improved device of this nature which more securely holds the jaws and lips in position and helps the embalmer to impart a more natural expression to the mouth.

In preparing a corpse for burial, it usually is necessary to employ some means for holding the jaws closed. The jaw securing operation is performed before embalming so that the jaws and mouth are held in position during the embalming process, after which the jaws become permanently set in position because of stiffening of the joints.

One of the customary practices employed for securing the jaws has been the use of pointed devices driven into the bony structure of the jaws or between the teeth. The anchoring devices are applied to the upper and lower jaw and hold the jaws together by means of a cord or wire wrapped or snubbed around the two projecting instrumentalities. Another expedient commonly employed has been to secure the jaws by a line of sutures or stitching in the gum tissue at the front of the jaws. This procedure, for obvious reasons, necessitates a very tedious and unpleasant operation.

While the use of pointed fastening devices has been reasonably successful, the operation necessarily is a difficult one. Moreover, the use of projecting devices in the jaws forms protruding areas under the lips which are difficult to conceal and because of which it is difficult to impart the proper expression to the mouth.

A similar difficulty prevails with respect to the stitching method of fastening, since the soft tissues readily bunch between the loops of thread formed in stitching. In addition to this, the result of this method is uncertain since the moisture which is present eventually saturates the thread and permits it to stretch.

The device of the present invention provides a thin metallic two-piece structure which is quickly and easily applied to the mouth between the jaws and lips and conforms to the curvature of the laws so that its presence is readily concealed. The device includes a pair of anchoring hooks or spurs and is anchored simply by inserting the anchoring hooks into the tissue of the upper and lower jaws at the point where the tissue of the gums joins with the lips. The structure adjustably draws and holds the jaws together and provides a tenacious securing means both for the lips and for the jaws which has no protruding parts and which does not cause bunching of the tissue at the points of anchorage.

The mouth adjusting device, in addition to holding the lips and jaws in closed position, is provided with means for adjusting the lips in proper position relative to the jaws. After a body has been embalmed, there is a tendency for the tissues to shrink. This is especially true of the fleshy portions of the lips and occasionally when this occurs, the lips become parted. The present device not only sets the lips in position in the first instance, but permits the embalmer to readjust the lips should parting or sagging occur after the device has been applied.

The present device is made up of two cooperating parts, a jaw closing unit and a lip securing unit. The jaw closing unit comprises a thin ductile strip of metal having anchoring hooks at opposite ends which are adapted to be embedded in the connecting tissues between the gums and lips of the upper and lower jaws. After having been anchored in position, a portion of the strip is then doubled or folded over by manipulation of a crimping key which is applied over the strip for this purpose. The folding or crimping of a portion of the strip shortens its length, thereby drawing the jaws closely together, with the lower jaw firmly in position.

The lip securing device comprises a plate which is applied over the jaw clamping member and clinched thereto. The lip clamping plate includes a series of tangs which are pressed into and embedded in the lips from the inside, with the plate lying against the teeth. In applying the plate, the lips are placed over it so as to appear as nearly natural as possible and the lips are then pressed down over the anchoring tangs and impaled in this position.

It has been an object of the present invention to provide a jaw and mouth fastening device which is easily applied and adjusted and which serves to hold the jaws and lips respectively in properly related position.

It has been another object to provide a device which not only holds the mouth and lips in position, but which additionally permits adjustment of the lips (relative to each other) after the body has been embalmed.

Another object of the invention has been to provide a device for closing and securing the jaws, and a cooperating lip closing member extended the full width of the mouth which is

secured and adjustably related to the jaw clamping element to permit the set of the mouth to be adjusted relative to the jaws after the jaws has been closed and fastened.

A further object has been to provide a device of the character indicated, substantially universal as to fit and adaptability, and applicable to various types and sizes of jaws, with natural as well as artificial teeth, and brought easily to the desired contour after installation to achieve and maintain a natural and desirable positioning of the lips and jaws.

Still another object of the invention has been to provide a device for the specified purposes which may be formed by a dieing operation for inexpensive production, and in addition, which is formed of two cooperating members, one or the other of which may be dispensed with should its application be unwarranted or undesirable in a given case.

Further objects and advantages of the invention will be more fully set forth in the drawing and description forming a part of the specification in which:

Figure 1 is a front view of the jaw closure and locking member.

Figure 2 is an enlarged fragmentary view detailing the structure of one of the hook portions of the jaw closure member.

Figure 3 is a view looking toward the pointed edge of the hook portion.

Figure 4 is a side elevation of the crimping or locking key.

Fig. 5 is an end view of the same.

Figure 6 is a front view of the lip securing plate.

Figure 7 is a sectional view taken on line 7—7, Figure 6.

Figure 8 is a general view showing the jaw clamping device and the lip securing plate positioned in the mouth of the corpse.

Figures 9 to 12 inclusive illustrate the various successive steps in applying the devices.

Figure 13 is an enlarged detailed view in cross section showing the device applied to the mouth.

Referring specifically to the drawing, the jaw clamping element is indicated generally at 15 and the lip clinching plate at 16. These two members are applied to the mouth separately, but after application are clinched together to form a unitary element. For this purpose, the jaw clamping element is provided with a pair of clamping tangs 17 which are adapted to register with a pair of slots 18 in the lip clamping plate. The tangs 17 are adapted to project through the slots 18 and be folded or clinched over the outer surface of the lip clinching plate, thus holding the two members together.

The jaw clamping member comprises a relatively narrow strip of ductile metal which may be of soft steel or aluminum or any other appropriate material which is easily bent or folded. The clamping element, as illustrated, is formed of a single strip of metal by a dieing or stamping operation although, if desired, the hooks could be formed separately, and later attached to the strip. The specific construction of the members is not essential to the present invention, as any appropriate design having a pair of jaw engaging members and a bendable shank member could be utilized without departing from the spirit of the invention.

The hooks indicated at 19 are adapted to be embedded in the tissues as described in the foregoing paragraphs and for this purpose, are provided with sharpened points indicated at 20. The proper hook, or piercing element, constitutes a relatively straight anchoring spur 21 so as to avoid bunching of the tissues which might otherwise occur if the edge 21 of the spur were rounded. The spur edge may be provided with a slight flange 22, as indicated on Figures 2 and 3, to avoid cutting the tissues when pressure is applied on the hook. In order further to stiffen the hook, a rib 23, coextensive with the rounded portion of the hook and extended into the shank of the strip, may be applied. This rib is in the nature of a corrugation in the cross section of the hook and therefore adds a degree of stiffness to the hook. The shank portion 15A of the jaw clamping device, as previously mentioned, is a soft or ductile metal strip, readily bent or deformed. This bending or deforming occurs after the clamping element has been applied.

Referring to Figure 9 of the drawing, which illustrates the first step in applying the device, the opposite end hooks are shown embedded in the tissues adjacent the gums and the clinching key in place on the strip prior to the folding or crimping of the strip. The key, which is indicated at 24, comprises a shank 25 and a finger gripping portion 26. The end of the shank is slotted as at 27 for insertion over the strip.

Referring to Figure 5, it will be noted that the split portion of the key is of diamond configuration in cross section. The opposite edges of the diamond configuration at right angles to the axis of the slot, are sharpened as at 28. The purpose of this arrangement is to facilitate the bending of the strip and to provide for the forming of a substantially flat fold in the strip when the key is twisted. Upon reference to Figures 10 and 13, showing the strip after folding and crimping, it will be noted that this crimped portion of the strip lies upon the surface of the lower teeth. Since the upper teeth usually overhang the lower teeth, the strip is enabled to lie in a relatively flat plane across the teeth with the crimp or fold positioned beneath the overhang of the upper teeth. In order to provide this configuration, the key upon insertion over the strip, is turned in a counter-clockwise direction with the key in place, as shown on Figure 9. In cases where the lower jaw overhangs the upper jaw, the procedure is reversed so as to dispose the fold or crimp on the upper teeth adjacent the protruding lower teeth.

It will be noted, upon reference to Figure 9, that the teeth are slightly parted before clinching or folding of the strip. The winding or turning of the key results in a winding or shortening of the length of the jaw clamping strip, thus drawing the jaws together to bring the teeth firmly into contact with each other as in Figure 10. After this operation, the lip clamping plate 16 is applied over the jaw clamp with the tangs 17 of the jaw clamp in registry and projecting through the slots 18 of the lip clamping plate. After the plate 16 is in place, the tangs 17 are folded toward each other over the outer face of the plate and serve to hold the plate in position. It will be noted that the slots 18 are considerably greater in length than the width of the tangs 17 so as to permit shifting of the plate relative to the jaw clamp.

Once in place, as shown in Figure 12, the plate may be shifted up or down until approximately central to the parting line of the lips. The lips are then closed in place over the plate and pressure is brought to bear upon the outer side of the

lips in the area over the tangs **29** of the plate, thus piercing and securing the lips in place.

Referring to Figure 6, it will be noted that the plate is provided with a number of tangs **29**; in this instance, four on the upper and four on the lower portions of the plate, although the exact number or arrangement may be varied. The tangs are triangular in shape and project from the face of the plate exposing the sharpened point at the apex of the angular side edges. In this instance the tangs are stuck out from the plate and are integral with the body of the plate, although if desired, the tangs could be formed along the edges of the plate to facilitate manufacture and to reduce the size of the plate. The tangs are disposed nearly at right angles with respect to the plane of the plate, however, with a slight angularity toward each other, so that pulling of the lips will cause the tangs to become more deeply embedded. Since the flat sides of the tangs provide the holding surfaces, there is very little tendency for the tangs to tear or cut the tissues upon stretching or pulling of the lips. The body of the plate is provided with a pair of apertures indicated at **30** which may be utilized to hold the plate in position by lacing wires or cords through the apertures when such fastening means for the jaws is desirable.

In order to allow the plate to conform closely to the curvature of the jaws, the plate is provided with cut out portions for the purpose of facilitating the bending of the plate. In this instance the plate is weakened by means of lateral slots **31** and a notch **32** at the upper edge along the central transverse axis of the plate. These weakened portions and the fact that the plate is made of thin ductile metal permit the plate to be pressed in place over the teeth and jaws to conform closely to the outline of the jaws. In this manner, the lip clamping plate and the jaw locking member conform naturally to the shape of the mouth, and also, because they are very thin and readily concealed under the lips, their presence will not be apparent to the casual observer. The disclosure is intended to exemplify a preferred form of lip clamping plate. It will be evident that the shape of the plate and the forms and arrangement of tangs could be varied without departing from the spirit of the invention.

The fact that the lip clinching plate may be shifted or adjusted up or down relative to the jaw clamping member permits the operator to arrange the parting line of the lips relative to the jaws to obtain the most natural effect.

As previously mentioned, shrinkage occasionally occurs in the tissues, sometimes several days after embalming, causing the lips to part slightly. Should this occur, it is a simple matter for the operator to bring the lips to their former position merely by manipulating the tangs **29** from the outside of the mouth. The procedure consists in pinching the tangs toward each other between the fingers to draw the lips together and into contact. The design of the lip clamping plate provides a very effective control over the form of the lips since the holding tangs are in close proximity to the edge or parting line of the lips. The lips are held firmly, and clamped against any change in position.

The jaw clamping element is simple and easy to apply, and will function equally well with natural or false teeth since the anchoring element is embedded, or anchored, in the tissue rather than in the teeth or bony structure of the jaws. The folding or crimping of the strip facilitates the operation of drawing the jaws together and, additionally, makes the strip inherently adjustable. As the strip is wound or crimped, a shortening occurs which draws the jaws together. This may be varied according to the size of the mouth or the length of the teeth by varying the number of folds given to the strip, or, in other words, by varying the amount of winding or turning of the crimping key. After having been crimped, the folded or crimped portion of the strip is flattened by pressure of the finger against the strip, smoothing it out against the lower teeth.

Although this is the preferred method of application, in some cases, it may be more convenient to fold the strip with the fingers after application. This may be done by forming a partial fold centrally of the strip and then anchoring or embedding the strip in the tissues, and, after this has been done, placing the partially bent portion of the strip between the fingers and completing the fold or crimp, then folding the same flatly against the lower teeth. From the foregoing, it will be evident that in either case the operation is quite simple and furthermore is mechanically expedient since the jaw clamping means is distinct from the lip holding plate, permitting adjustment between the two parts, independent of each other so that the lips may be positioned relative to the jaws in order to procure the desired appearance. In some instances either the jaw closing element or the lip clamping device may be unnecessary. In such cases, the unnecessary element may be dispensed with since the elements will function equally well either in combination, or independent of each other.

Having described my invention, I claim:

1. A device for closing the jaws and lips of a corpse comprising an anchoring element adapted to be engaged in the tissue of the upper and lower jaws, means for shortening said anchoring element to draw the jaws together, a lip clamping plate, means for securing said lip clamping plate to said jaw closing device, and means on said lip clamping plate adapted to be engaged in the tissue of the lips.

2. A device for closing the jaws and lips of a corpse comprising a ductile strip of metal, anchoring means on opposite ends of said strip, said means adapted to be engaged in the tissue of the upper and lower jaws and a member secured to said strip and adapted to be engaged in the tissue of both upper and lower lips.

3. A device for clamping the jaws and lips of a corpse comprising an elongated ductile strip of metal, anchoring hooks at opposite ends of said strip, said hooks adapted to engage the jaws, one or a plurality of clamping tangs on said strip, a lip clamping plate, said plate being engaged by said clamping tangs, and means on said plate to engage the lips.

4. A device for clamping the jaws and lips of a corpse comprising the combination of a jaw clamping element and a lip clamping element, said jaw clamping element having anchor means at opposite ends adapted to engage the tissue of the upper and lower jaws, means for drawing said anchoring elements together, securing means on said lip clamping element, said means adapted to secure said jaw clamping element and lip clamping element together, and means on said lip clamping element for piercing and securing the lips.

5. A jaw clamping element for securing the

jaws of a corpse comprising an elongated strip of ductile metal, a pair of anchoring elements, one at each end of said strip, whereby upon engagement of said respective anchoring elements with the upper and lower jaws, respectively, said strip is adapted to be crimped or folded to draw the jaws permanently together.

6. A device for closing and clamping the jaws and lips of a corpse comprising a jaw clamping device and a cooperating lip clamping device, said jaw clamping device adapted to be engaged in the upper and lower jaws respectively to secure the same, and said cooperating lip clamping device adapted to be engaged in the upper and lower lips to secure the lips, cooperating fastening means on said jaw clamping device and said lip clamping device, said means adapted to adjustably secure said lip clamping device to said jaw clamping device to permit adjustment of the lip clamping device relative to said jaw clamping device.

7. A device for closing and clamping the jaws of a corpse comprising a body formed of a strip of ductile material, a pair of anchoring spurs on said body, said spurs located at opposite ends of said body and adapted to be engaged in the upper and lower jaws respectively, and said body strip adapted to be crimped or folded to shorten the length of the same and thereby draw and clamp the jaws together.

8. A device for closing the jaws of a corpse and maintaining them in closed position, comprising a thin strip of ductile material, anchoring elements positioned at either end of said strip and adapted to engage in the tissue of the upper and lower jaws respectively, said strip being adapted to be distorted around the middle portion thereof to shorten the same and thereby draw the jaws toward one another.

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