Jan. 7, 1958 C. TANCREDI 2,818,679

PUPPETS, DUMMIES, MARIONETTES AND THE LIKE

Filed March 13, 1956

Fig. 1.

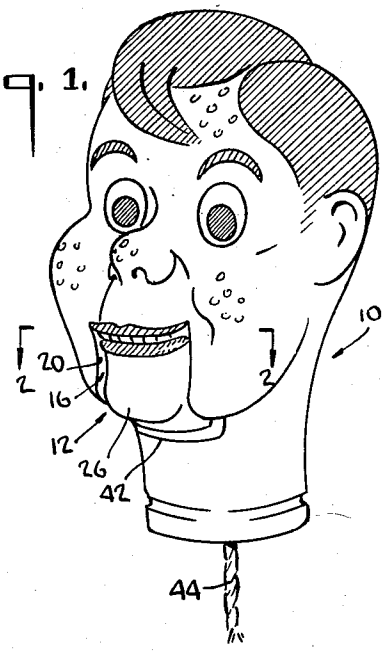


Fig. 4.

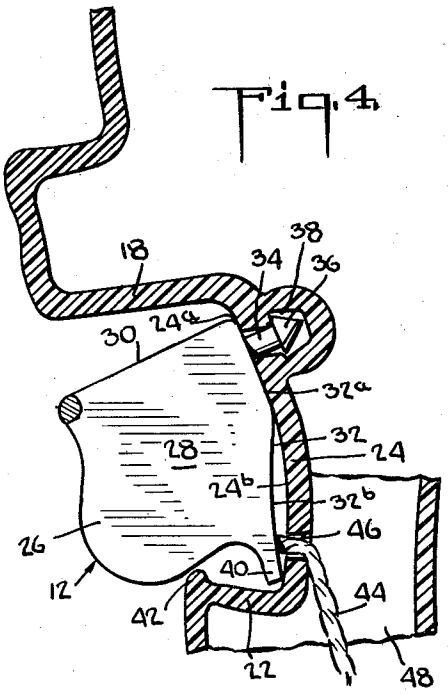


Fig. 3.

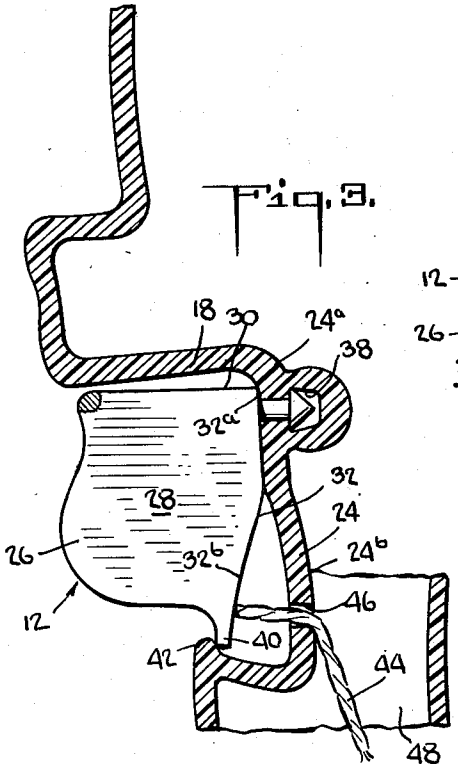
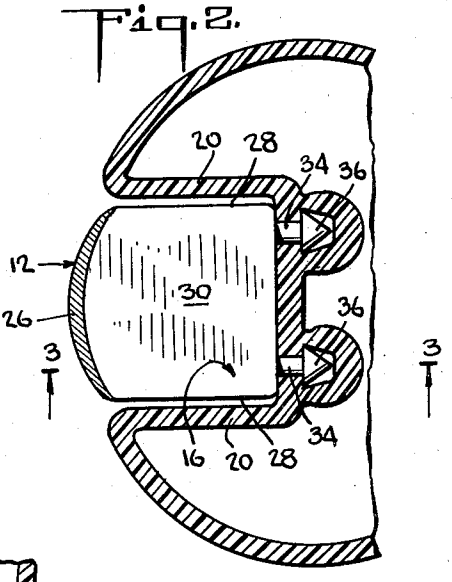


Fig. 2.



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PUPPETS, DUMMIES, MARIONETTES AND THE LIKE

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5 Claims. (Cl. 46—135)

This invention relates to puppets, dummies, marionettes and the like, and, more particularly, pertains to a remotely manipulatable jaw construction therefor.

It is an object of the present invention to provide a device of the character described wherein the lower jaw is very simply mounted in the head for opening and closing of the mouth.

It is another object of the invention to provide a device of the character described wherein the mounting means biases the lower jaw to a closed position.

It is another object of the invention to provide a device of the character described which comprises few and simple parts, and which is durable, easy to operate and inexpensive to manufacture.

Other objects of my invention in part will be obvious and in part will be pointed out hereinafter.

My invention accordingly consists in the features of construction, combinations of elements, and arrangements of parts which will be exemplified in the device hereinafter described and of which the scope of application will be indicated in the appended claims.

In the accompanying drawings in which are shown various possible embodiments of my invention,

Fig. 1 is a front perspective view of a puppet head having a jaw constructed in accordance with the instant invention;

Fig. 2 is an enlarged sectional view taken substantially along the line 2—2 of Fig. 1;

Fig. 3 is a vertical sectional view taken substantially along the line 3—3 of Fig. 2; and

Fig. 4 is a view similar to Fig. 3 showing the mouth open.

Referring now in detail to the drawings, the reference numeral **10** denotes a puppet head having a mouth fabricated in accordance with the instant invention and including a lower jaw **12** and a jaw cavity **16**.

The head **10** is fabricated from any suitable resilient plastic material, as by injection molding, slush molding or rotation molding, and is conventional except for the jaw cavity. Said jaw cavity **16**, the skull, the nose, the ears, the cheeks, the neck, etc., may be formed during the molding operation and the eyes may be added separately. The plastic is of such character that any section of the head portion has enough rigidity to retain its own shape and to support in any given position a light object secured thereto, but still has enough resiliency to allow such an object to be moved without permanently deforming the head. The elastomers are suitable for this purpose, the most satisfactory plastics for said head being a polyvinyl ester resin or a vinyl plastisol.

The lower jaw **12** is fabricated from a preferably non-resilient plastic such as cellulose acetate, although it can be made from wood, papier mache, light metal, or even a resilient plastic if desired.

The jaw cavity **16** includes a roof **18** that is approximately level with the teeth or upper lip and spans the distance therebetween, vertical side walls **20** that extend

downwardly from the sides of the roof, a bottom wall **22** at about the level of the larynx, and a back wall **24**. In its relaxed condition an upper part **24***a* of the back wall is forward of the lower part **24***b* thereof for a reason which will become apparent hereinafter.

The lower jaw **12** includes a conventionally shaped chin **26**, vertical parallel sides **28**, a flat top **30** perpendicular to the sides, and a back **32** which is perpendicular to the sides and is roughly perpendicular to the top. The jaw is shaped to be received in the jaw cavity **16** and, when said cavity is relaxed, to have the top of the jaw adjacent and substantially parallel to the roof of the cavity (see Fig. 3), the upper part **32***a* of the back of the jaw against the upper part **24***a* of the back wall of the cavity, and the sides of the jaw adjacent the side walls of the cavity. The exposed portion of the jaw is suitably shaped and dimensioned to complete a conventional exterior appearance for the puppet head **10**, that it is to say, it will have a properly shaped lower lip, it optionally will have a set of lower teeth, and the chin will be suitably contoured. The upper part **32***a* of the back **32** is disposed rearwardly of the lower part **32***b* thereof for a reason which becomes apparent hereinafter.

Pursuant to the invention, means is provided on the lower jaw and in the jaw cavity to mount said lower jaw in the cavity with the parts thereof in the relative positions just described so that with the jaw so disposed the puppet's mouth will be closed. The aforesaid mounting means is constructed and arranged to permit a natural articulated movement of the lower jaw with the flat top **30** swinging down away from the roof of the jaw cavity when the mouth of the puppet head is opened. Moreover, said mounting means is of such nature that it biases the jaw to closed position. Thus, the mounting means functions in two capacities, serving both to properly support the jaw for articulated movement and to urge it to closed position after it has been pulled to open position by a suitable mechanism which will be described hereinafter.

In general, the jaw mounting means comprises an element projecting from the rear of the lower jaw and an opening in a corresponding part of the jaw cavity in which the element is snugly fitted. The element desirably is captively secured in the opening and preferably is stiff and is so fastened to the wall of the jaw cavity as to be movable therewith, whereby any movement experienced by the jaw will be accompanied by a flexing movement of the associated portion of the cavity. The element and opening constituting the mounting means are so placed as to locate the jaw in its desired closed position when the walls of the cavity are unstressed. Thus, if the jaw is pulled to open position and then released, the flexed walls of the cavity will restore the jaw to closed position as soon as the jaw is released. The location of the mounting means simulates the natural articulation of a human jaw.

The puppet's mouth is opened by swinging the bottom of the jaw rearwardly. This movement causes a temporary deformation of the walls of the jaw cavity as well as a slight alteration in position of the element in the opening. The tendency of the material of the walls of the jaw cavity and of the walls of the opening to resume their original shapes automatically closes the mouth and moves the lower jaw upwardly when manual pressure on said jaw is released.

More specifically, in the embodiment of the invention shown in the drawings, a pair of transversely aligned horizontal studs **34** have their shanks embedded in the back of the lower jaw adjacent the top rear edge thereof. Said studs project rearwardly and are substantially perpendicular to the back of the jaw. Each stud includes an enlarged cone-shaped head **36**, the apex of the cone

facing away from the jaw. The base of the cone faces the jaw and has a diameter in excess of the diameter of the stud of the shank so as to form a shoulder between said shank and head. The exposed length of the shank from the head of the stud to the back of the jaw is slightly greater than the thickness of the wall of the jaw cavity for a reason which will become apparent hereinafter.

Horizontally extending wells **38** are formed near the top of the back wall **24** of the mouth cavity, being shaped and dimensioned to receive and grip the heads of the studs. The mouths of the openings are constructed whereby to form a shoulder interiorly of each well against which the shoulder adjacent the head of the associated stud is seated. Moreover, each well is slightly smaller in at least one dimension than the head and shank of the stud it is to receive so that the well has to stretch to accommodate the stud and therefore will resiliently grip the same. The wells and studs are so oriented and disposed that when no manual pressure is exerted, the top **30** of the jaw is adjacent the roof of the jaw cavity.

When mounting the jaw in the jaw cavity the heads of the studs are forced through the constricted mouths of the wells. This assembly can be carried out because the resiliency of the material forming the walls of the jaw cavity permits the mouths of the wells to stretch in diameter in order to pass the heads of the studs. Once the heads are fully seated in the wells the mouths thereof constrict to approximately their original size and the studs thereby are held in the wells in their fully inserted condition. It will be observed that in such condition the bases of the heads abut against the internal shoulders in the wells so that the studs are quite securely locked in the jaw cavity. It was mentioned earlier that the exposed length of the shank of each stud from the base of the head to the back of the jaw slightly exceeded the thickness of the back wall of the mouth cavity; this relative dimensioning of the parts is employed to enable the heads of the studs fully to enter the wells while still firmly attaching the jaw to the jaw cavity. It thus will be appreciated that any movement experienced by the jaw will be imparted to the back wall of the jaw cavity. That is to say, movement of the jaw will be accompanied by flexure of the back wall of the jaw cavity, the flexure taking place in the region of the studs so that the articulation of the jaw resembles natural articulation of the human mouth. The flexure of the walls of the jaw cavity is a deviation from their normal idle condition whereby when the pressure which opens the mouth is relieved, the restoration of the walls of the cavity to their idle position will close the lower jaw.

A flange **40** formed in one piece with the lower jaw extends downwardly from the bottom thereof adjacent the back of the jaw. Said flange cooperates with and to a large extent is concealed by a lip **42** which protrudes upwardly from the forward edge of the bottom wall **22** of the mouth cavity. The flange and lip aid in lending a lifelike and realistic appearance to the puppet head by preventing the jaw from appearing to be spaced too far from the bottom of the jaw cavity. The actual spacing is necessarily considerable for various reasons and would create a grotesque appearance, which, however, is avoided by the concealing action of the flange and lip. Moreover, an operating mechanism which will be described hereinafter is located behind the jaw near the bottom of the mouth cavity. This mechanism might be exposed under certain conditions of operation. Such possibility is entirely avoided by the concealing action of the flange and lip.

It will be observed by reference to Fig. 3 that due to the construction of the back walls of the jaw and jaw cavity, the lower portions of these two walls are remote from one another when the jaw is in closed position, even though the upper portions of said walls at this time are in juxtaposition. Such arrangement leaves sufficient clear space for the jaw to be swung rearwardly, the full

open position of the jaw being defined by abutment of the flange **40** against the back wall of the jaw cavity. The closed position of the jaw is defined by abutment of the flange **40** against the lip **42**. This enables a closed position to be provided for the jaw in which the top of the jaw does not abut against the roof of the mouth cavity and thus enables a particularly pleasing and lifelike appearance to be created.

Means is provided to permit manual manipulation of the lower jaw in order to swing it away from closed to open position against the restoring resilient force exerted by the walls of the cavity as they are flexed during such movement of the jaw. Said means as shown herein constitutes an elongated flexible member such as a string **44** having one end anchored to the back of the jaw adjacent the bottom thereof at that portion of the jaw which is remote from the back wall of the cavity. Said string extends through an opening **46** in the back wall of the jaw and thence to the open bottom **48** of the puppet head where it can be run to any convenient point of manipulation for an operator, as, for example, the hollow interior of the body of the puppet.

The puppet is oerated by pulling on the string **44** and thereby drawing the back of the jaw toward the back wall of the jaw cavity. During such movement the rigid studs slightly shift their orientation with respect to the back wall of the jaw cavity, thereby slightly deforming the walls of the wells and also causing considerable flexure of the back wall of the jaw cavity in the region of the studs. It is such movement which, in effect, provides the pivotal action, i. e., articulation, of the jaw. The flexure of the various parts of the back wall of the jaw cavity, and of the walls of the openings, engenders stress in the resilient material of said walls which, when the deforming stress is moved, enables said walls to restore the jaw to closed position in which the flange abuts the lip. Preferably the configuration of the jaw cavity and of the jaw is such that at this time the jaw flange is pressed against the lip, thus preventing the jaw from trembling. It will be apparent that the maximum open position of the jaw is defined by the abutment of the flange against the back wall of the jaw cavity.

It may be mentioned that although a particular position has been specified for the studs and mating wells, this being a preferred location, the invention is not to be limited thereto inasmuch as some latitude is permitted with regard to such position. For example, the studs can be located at the upper back edge of the jaw or even at the top of the jaw near the back thereof with the wells correspondingly positioned. Indeed, it is within the scope of the invention to have the studs placed at the sides of the jaw, in alignment, and extending outwardly in opposite directions. However, in such event, the heads of the studs should be of non-circular configuration and the wells of a matching configuration, so that movement of the jaw from closed to open position will induce a temporary deformation of the associated portions of the jaw cavities that will furnish a bias necessary to shift the jaw back to closed position when manual pressure on the jaw is released. Thus it will be seen that there is provided a device which achieves the several objects of the present invention and which is well adapted to meet the conditions of practical use.

As various possible embodiments might be made of the above invention, and as various changes might be made in the embodiment above set forth, it is to be understood that all matter herein described, or shown in the accompanying drawings, is to be intrepreted as illustrative and not in a limiting sense.

Having thus described the invention, there is claimed as new and desired to be secured by Letters Patent:

1. A hollow puppet head including a jaw cavity defined by walls disposed internally of the head, the rear upper portion of said cavity constituting a wall of resilient

material in one piece with the head, a jaw located in said cavity, and means articulatedly connecting the jaw to the head, said means including a rigid member having a portion thereof secured to the upper rear part of the jaw and another portion thereof secured to said resilient wall.

2. A hollow puppet head including a jaw cavity defined by walls disposed internally of the head, at least one of said walls adjacent the back of the cavity being of resilient material and being integral with the head, a jaw located in said cavity, and a rigid member having a portion thereof secured to said wall and another portion secured to said jaw.

3. A puppet head as set forth in claim 2 wherein the member includes a portion embedded in the upper rear part of the jaw and another portion captively connected to the resilient wall.

4. A puppet head as set forth in claim 2 wherein the back wall of the jaw and the facing wall of the cavity diverge downwardly away from one another from the member downwardly.

5. A hollow molded puppet head of flexible resilient sheet material, said head including a jaw cavity defined by

walls disposed internally of the head and having a roof, a back wall, side walls and a bottom wall and all in one piece with the head, means providing wells having mouths opening into said cavity at the upper rear portion thereof, a jaw shaped and dimensioned to fill the cavity and be movable with respect thereto, and headed studs having shanks embedded in the jaw and heads received and gripped in the wells, the back of the jaw and back wall of the jaw cavity diverging downwardly away from the studs whereby to permit the jaw to be swung rearwardly with accompanying flexure of the walls of the cavity.

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