March 22, 1955 S. H. EVANS 2,704,417

PUPPET ACTUATING APPARATUS

Filed May 24, 1952

Fig. 1.

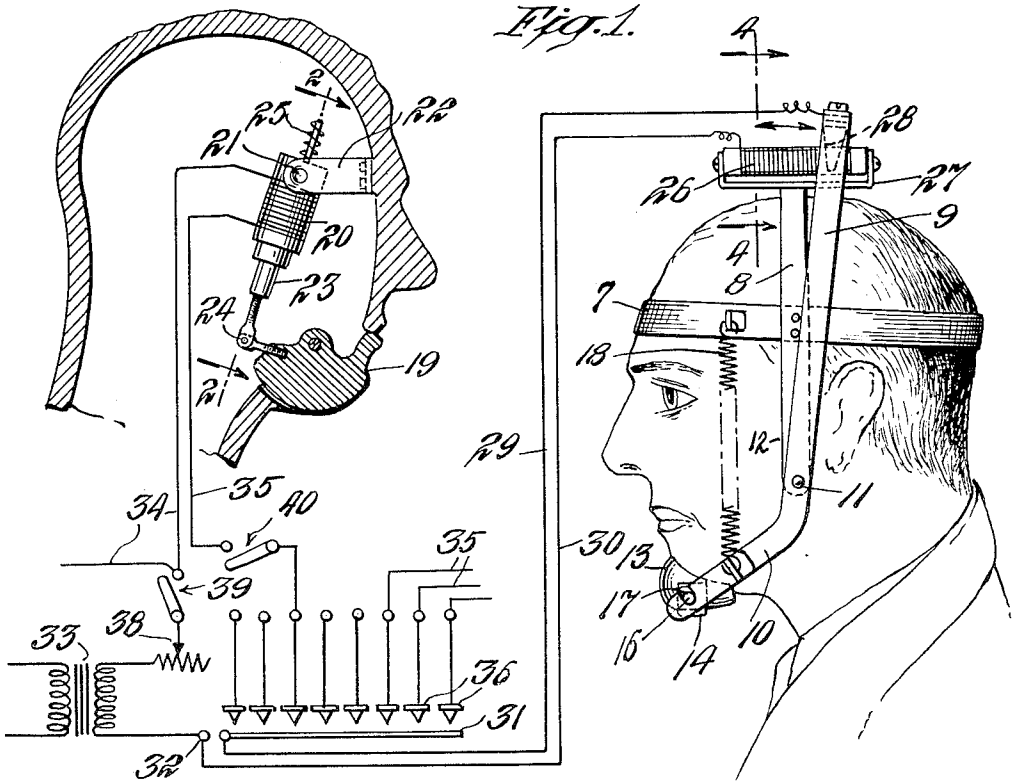


Fig. 2.

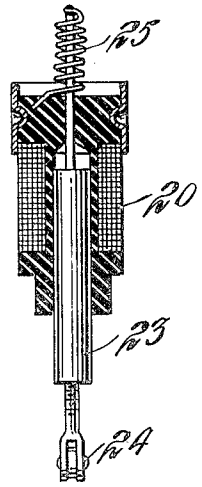
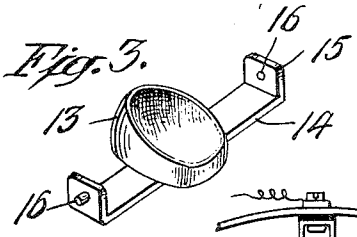


Fig. 3.



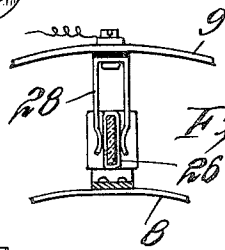
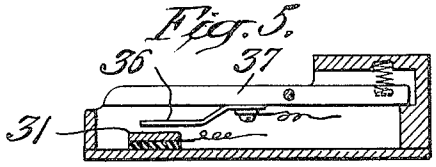


Fig. 4.

Fig. 5.



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United States Patent Office 2,704,417 Patented Mar. 22, 1955

2,704,417

PUPPET ACTUATING APPARATUS

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Application May 24, 1952, Serial No. 289,738

1 Claim. (Cl. 46—247)

The invention herein disclosed relates to puppets and the objects of the invention broadly are to provide an organization by which a puppet will be made to closely or exactly follow and, in effect, "imitate" the action of a live model, such as an actor or puppeteer.

This is accomplished by the provision of what may be termed a "harness" fitted to the model and articulated to the movement of a member of the body, such as the jaw, an arm or a leg or the like, and operating a controller connected to an actuating device on the puppet, arranged to reproduce similar movements in a corresponding articulated member of the puppet.

Special objects of the invention are to provide such apparatus in a simple, practical, readily usable form.

Further special objects of the invention are to enable a single actor or model to selectively impersonate or animate a number of different puppets.

This is accomplished under the invention by providing switching means, under control of the impersonator, for connecting the harness control apparatus with the actuating devices of different puppets.

Other desirable objects attained by the invention and the novel features of construction, combinations and relations of parts by which the objects are attained, are set forth or will appear in the course of the following specification.

The drawing accompanying and forming part of the specification illustrates a present practical embodiment of the invention. Structure and arrangement, however, may be modified and changed in various ways, all within the true intent and broad scope of the invention as hereinafter defined and claimed.

Fig. 1 in the drawing is a broken part sectional and part diagrammatic view showing the head, and particularly the jaw portion, of a puppet connected with and controlled by the pivoted jaw section of a control harness mounted on the head of an actor or speaker for the puppet;

Fig. 2 is an enlarged vertical sectional view of the solenoid forming the jaw actuator in the puppet head, as taken on substantially the plane of line 2—2 of Fig. 1;

Fig. 3 is a detached perspective view of the pivoted jaw pad carried by the jaw lever of the control harness;

Fig. 4 is a broken sectional detail of the control device as taken on substantially the plane of line 4—4 of Fig. 1;

Fig. 5 is a broken sectional view of a piano keyboard type of control for switching from one puppet to another.

The form of the articulated control harness may vary according to the body movement which is to be reproduced. In general it will consist of a supporting portion fitted to a relatively stationary part of the body, and a movable portion shaped to be engaged and actuated by the relatively movable body part.

In the illustration the fixed portion of the harness comprises a head band 7 and overstanding arch 8 arranged to closely fit over the top of the head of the actor or "activator," and the movable part of the harness comprises a member 9 arched to extend clear over the top of the head and having its side portions 10 pivoted at 11 to the dependent side extensions 12 of the fixed inner arch and forwardly extended to carry a chin engaging member 13.

The pivots 11 are located at the approximate centers of articulation of the jaw and the forward extensions at the lower ends of the arch 9 approximate the length of the jaw so that the device may be worn without binding

or impeding the jaw action, and thus without tiring the operator.

To allow for variations and a certain amount of compensation between different centers, the chin pad may be pivotally supported on the jaw lever extensions 10, as by being supported on a bar 14 having upwardly angled ends 15 carrying pivot pins 16 resting in pivot notches 17 in the upper edges of the jaw levers.

This ready removability of the chin bar is of special advantage in placing the harness over the head and in removing it, possibly for periods of rest in using the apparatus.

The jaw levers may be held with the pad lightly pressed against the chin, as by light, flexible, coiled springs 18 connected between the forwardly extended portions of these levers and the head band 7, where they are out of the way at opposite sides of the face.

The actuating device for the corresponding body member on the puppet, in this case the jaw 19, is shown as a solenoid coil 20 pivotally supported at 21 between the arms of a bracket 22 and having a core 23 pivotally connected with the jaw at 24.

A spring is shown at 25 lightly tensioning the solenoid core in the jaw closing relation to keep the solenoid sensitive to control exercised by the control device.

The control device consists in this particular disclosure, of a resistance winding 26 carried by a bracket 27 on the stationary arch 8, and a U-shaped brush element 28 slidable over the resistance winding and carried by the movable jaw actuated arch 9.

The variable resistor is shown connected in series relation with the solenoid by wires 29, 30, extending from the sliding contact 28 and resistance 26 to a bus-bar 31 and terminal 32 of supply transformer 33, with wiring 34 extending from the other side of the transformer to the solenoid, and a return wire 35 to a contact 36 engageable with the bus-bar 31.

The special switching arrangement shown in Figs. 1 and 5, is provided to enable the operator to selectively actuate a number of different puppets. This apparatus comprises a piano keyboard type of switch with the contacts 36 carried by piano keys 37 and connected by the wires 35 with the activating solenoids of different puppets, these solenoids having return wires 34 back to the supply transformer.

With this construction an operator, by pressing the proper piano key, may shift the activation immediately from one puppet to any other puppet connected with the keyboard.

The movements applied to the puppets with this invention are particularly life-like in that the action at the puppet follows exactly the action of the operator, the movements being fast or slow, continuous or interrupted, full length or only part stroke and stopped and held at any intermediate point and the like, so that the puppet will appear to actually imitate or mimic the operator.

This can be true for practically all desired bodily movements, the solenoid actuators simulating the action of live muscles and small enough for mounting where required in the puppets.

The solenoids may all be electro-mechanically identical so that each will give the same results from the headgear action.

A variable resistance is shown interposed in one of the main supply lines at 38, which may be adjusted to compensate for increase of impedance in the solenoids with rise in temperature occurring during long continued periods of use.

Cut-off switches such as indicated at 39, 40, may be interposed in the supply lines.

A particularly important advantage of the invention is that it enables an operator, using the prerecorded sound, to "animate" a puppet or puppets according to the sound as the motion pictures of the puppets are being taken, and to carry on continuously without any stop action.

What is claimed is:

Apparatus for enabling a live actor to mouth the words of a script and to impart corresponding mouth action to a selected one or more puppets having pivoted jaw members and electromagnets for actuating the same,

said apparatus comprising a head harness constructed to snugly fit and to be wholly carried by the head of the actor, said harness including a head-band, a stationary arch supported on said head-band and extending down to opposite sides of the jaw of the operator, a controller including a resistance coil mounted on said arch and a brush slidably engageable therewith, and a jaw lever arch extending over said stationary arch and having opposite side portions of the same pivoted to the lower ends of said stationary arch in approximate alignment with the pivot center of the jaw of the operator, said brush being carried by the top of said jaw lever arch and the lower ends of said jaw lever arch being extended forwardly, a chin pad carried by the forwardly extended ends of said jaw lever arch and spring means connected between a forwardly extended end portion of said jaw lever arch and said head-band yieldingly holding said jaw lever arch with said pad engaged with the chin of the operator, said chin pads having a pivotal mounting

on the forwardly extended ends of said jaw lever arch and freely removable from the jaw lever arch to facilitate engagement of the harness over the head of the operator and electrical connections adapted to extend from said brush and resistance coil to an electromagnet or electromagnets of a selected puppet or puppets to be controlled.

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