July 25, 1933. R. WILHELM 1,920,027

FIGURE

Filed May 1, 1931

Fig. 1

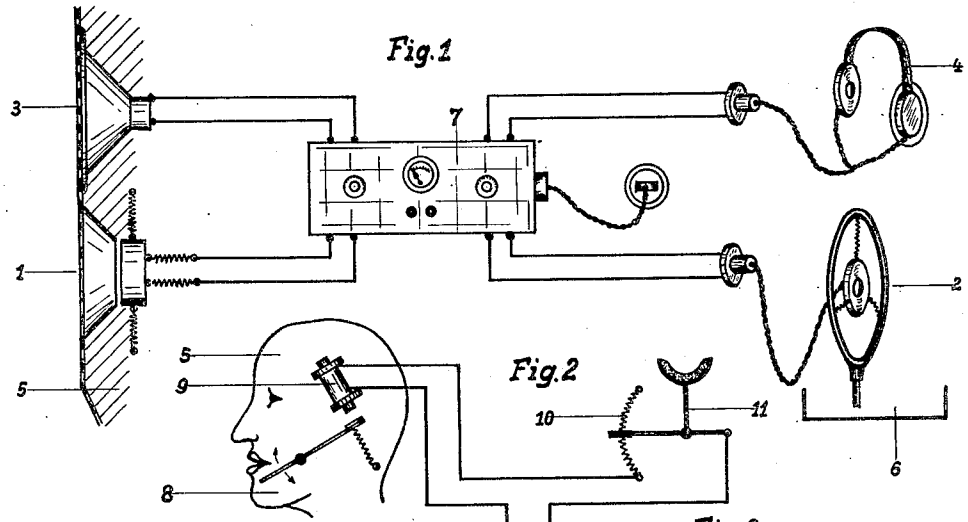


Fig. 2

Fig. 3

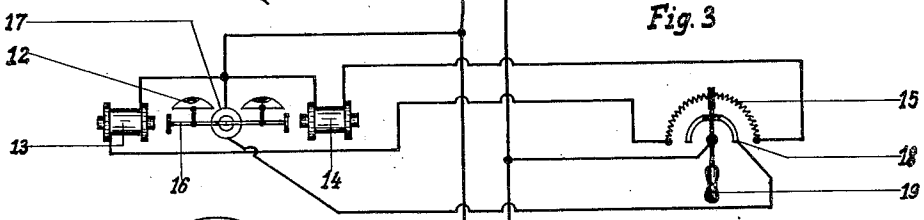


Fig. 4

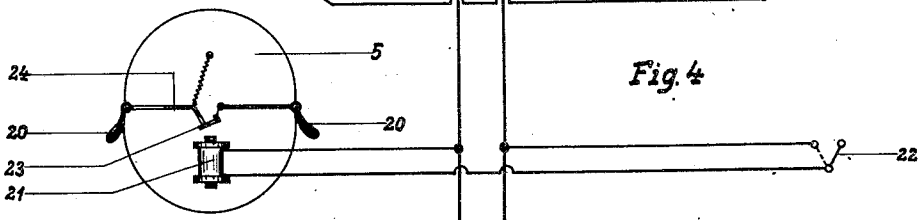
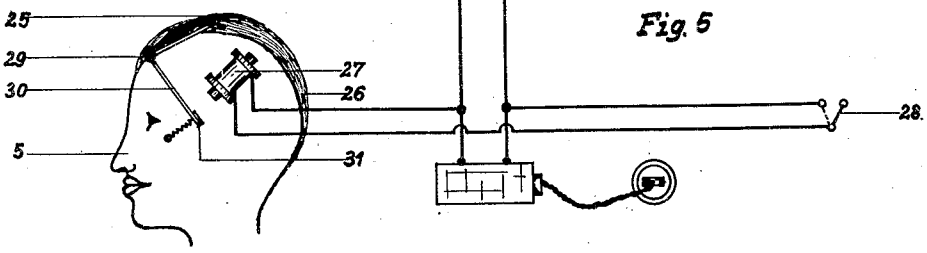


Fig. 5



Witnesses:

Inventor:

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UNITED STATES PATENT OFFICE

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FIGURE

Application filed May 1, 1931, Serial No. 534,426, and in Germany May 21, 1930.

The present invention relates to a so-called living figure having a human, animal or fancy shape.

In the known types of living figures capable of speaking without requiring the aid of a ventriloquist or other deceptive means the transmission of sound for both reception and reproduction takes place by means of a tube or the like connected with the observation post of an intermediary who cannot be far away and requires, for example, a soundproof cabinet, as he has to raise his voice considerably in order to render the reproduction of the tone through the medium of the figure audible.

According to the invention, this drawback is eliminated by employing electric receiving and reproducing methods together with amplifiers which can be adjusted so that the living figure attains in its reproductions a volume of sound impossible till now. Furthermore, the parts of the head moved during speaking can be controlled so that reproduction becomes more lifelike.

The invention further provides an electric receiving and reproducing apparatus both in the figure and at the observation post to enable the figure, by means of an intermediary, to carry on a conversation with persons standing before it. Preferably, the electric receiving apparatus within the figure is a microphone and the electric reproducing apparatus a loud speaker, and the microphone may control, by means of an amplifier at the observation post, a headphone or loud speaker or the like, or a microphone may be arranged at the observation post, so that perfect alternate reception and reproduction are insured and, owing to the regulatable amplifier, reproduction through the figure may take place in a very soft or loud manner to enhance its lifelike character.

Another feature of the invention is that the motion of the mouth of the figure is controlled by electromagnets which in turn are controlled again from the chin of the person at the observation point by means of an electric contact, the chin of the figure carrying out approximately the same movements as that of the observer. In the preferred embodiment, the motion of the chin of the observer switches on—more or less—a resistance limiting the supply of current to the magnets, whereby the motion of the mouth portion is effected in a manner resembling nature. The resistance is connected with the chin of the intermediary by a frame carrying a pad and approximately rigidly with his body so that the natural chin motion of the intermediary is transmitted by the frame directly to the resistance and the magnets are controlled so as to produce perfectly natural motion of the mouth.

According to the invention, the motion of the eyes of the figure is controlled by electromagnets also which can be controlled by a contact at the observation post to move the eyes to the right or left. A potentiometer-like resistance, in a preferred form, causes two magnets to receive alternately more or less current, and this difference in the current supply brings about the motion of the eyes in a comparatively simple manner. Motion of the eyes in upward or downward direction can be effected by means of a magnet acting approximately vertically to the connection of the eyes and alternately switching on a contact, or both motions may be combined to bring about rolling of the eyes. The control for the lateral as well as the upward and downward motion of the eyes can be combined also to simplify the plant and make it possible for persons possessing no special skill to handle it. For example, the guide rod controlling the potentiometer-like resistance effecting lateral motion of the eyes may carry out also a motion in opposite direction and touch auxiliary contact plates whereby the magnet group controlling the up and down motion of the eyes is supplied with current and, by turning a handle to the right or left, the eyes may be moved accordingly while the simultaneous raising and lowering of the handle causes contact plates to be touched arranged above or below whereby the other group of magnets controlling the up and down motion of the eyes are actuated also.

The movement of the ears of the figure, according to the invention, is controlled by electromagnets also which respond to a contact arranged at the observation post and the common armature of which is engaged by the ears by means of levers so that both ears can be controlled jointly by simple means, such as a bell button, from the post of observation.

To enhance lifelike action of the figure, a part of the hair of the latter may be controlled by electromagnets which can be controlled again by a contact disposed in the observation post. According to the invention, the hair of the figure may be moved partially by arranging a portion of the hair in tuft-like fashion on a rotary axis carrying a bell crank at the ends of which an armature is disposed cooperating with a group of electromagnets so that by the closing of a contact at the observation stand the magnets may be supplied with current and a part of the hair raised. Preferably, the contacts for controlling the motion of the ears and hair are arranged on the head of the attendant to be actuated by a motion of the latter's head. For example, by employing mercury contacts, the attendant will be enabled to move the ears of the figure by moving his head to the right and left and to actuate the hair of the figure by bowing his head so as to move these parts of the figure partly automatically and in response to the natural impulses of the attendant.

One form of the invention is illustrated in the accompanying drawing partly in elevation and partly in section, Figure 1 showing in diagrammatic form the electric receiving and reproducing device; Fig. 2, the electric control of the motion of the mouth; Fig. 3, the electric control of the motion of the eyes; Fig. 4, the electric control of the motion of the ears; and Fig. 5, the electric control of the motion of the hair.

Referring to the drawing, an electric receiving outfit 1, 2 and an electric reproducing outfit 3, 4 is provided in both the figure 5 and the observation stand 6 from which the figure 5 can thus be vocally controlled.

The electric receiving outfit 1 in the figure 5 is a microphone and the electric reproducing outfit 3, a loud speaker, and the microphone controls, by means of an amplifier 7 at the attendant's stand 6 a headphone 4, a loud speaker or the like, or a microphone may be arranged in the stand 6.

The motion of the mouth 8 of the figure 5 is controlled by the electromagnets 9 which are controlled again from the chin of the attendant in the stand 6 by means of the electric contact 10. The control of the mouth 8 of the figure 5 by means of the electromagnet 9 is preferably effected by causing the chin motion of the attendant at 6 to switch on a resistance 10, more or less, so that the current supply to the magnets 9 is correspondingly varied and the motion of the mouth becomes quite natural.

The resistance 10 is connected almost rigidly with the body of the attendant and, by means of the framework 11, with his chin so that the natural chin movement of the attendant at 6 can be transmitted directly to the resistance 10 and the figure 5.

The lever 19 is provided at the part opposite the handle with a contact which slides over a resistance coil 15 on the stand 6. When the handle of the lever 19 is moved to the right and the contact therefore fully to the left, current will pass over the fulcrum of the lever 19 towards the contact, then to the magnet 13 and, finally, back again into the supply network. The magnet 13 is thus excited and draws the rod 16 carrying the eyes 12 to the left. If, on the other hand, the handle of the lever 19 is turned to the left, the contact sliding on the resistance coil 15 passes to the right and thus shuts off current for the magnet 13 while supplying it to the magnet 14 which draws the rod 16 with the eyes 12 to the right.

The motion of the ears 20 of the figure 5 is controlled by an electromagnet 21 influenced by a contact 22 at the stand 6 of the attendant, the magnet 21 having an armature 23 engaged by the levers 24 of the ears 20, each ear 20 being provided with one lever 24.

The part 25 of the hair 26 of the figure 5 is moved by the electromagnet 27 which is actuated by a contact 28 disposed at the stand 6 of the attendant. The part 25 is arranged in tufts on a rotary axis 29 carrying a bell crank 30 to the end of which an armature 31 is secured which may be attracted by the electromagnet 27.

The contact device 22 for controlling the motion of the ears 20 and the contact device for controlling the hair motion 25 are preferably arranged, in the form of mercury contacts, on the head of the attendant at 6 and can thus be actuated by a motion of the latter's head.

I claim:—

1. A figure comprising a body portion, a head for the said body portion, means for imitating speech and transmitting sound inside the said body portion, motion members inside the said head for moving the mouth and comprising a lever disposed inside the head portion of the figure, one end of the said lever being arranged in the chin of the figure's head, a spring for the said lever, an electromagnet inside the head portion for moving the said lever, an electric contact disposed outside the figure on the chin of the operator, a resistance capable of being influenced by the said contact and conductors

interconnecting the means for moving the mouth, the said contact being actuated by the chin motion of the operator to supply current through the said conductors to the said electromagnet, the current impulses fluctuating in intensity, motion members inside the said head portion for moving the ears and the hair, switching devices outside the figure for influencing the motion members inside the said head portion, and conductors connecting the said switching devices with the said motion members inside the said head portion, the motion of the said members being effected independently from one another by electromagnetic means.

2. A figure according to claim 1, in which the means for moving the hair comprise an electromagnet inside the head, a double lever whose one end moves the hair and whose other end cooperates with the said electromagnet, a spring for the said lever for returning it to its initial position, a switch outside the figure, and conductors between the said switch and electromagnet, the actuation of the said switch supplying the said electromagnet with current and causing the motion of the hair.

3. A figure according to claim 1, in which the means for moving the hair comprise an electromagnet inside the head, a pivot arranged inside the figure, a bell crank on the said pivot carrying tufts of hair, an armature for the said electromagnet disposed at the end of the said bell crank, a switch outside the figure, and conductors for connecting the said switch with the said electromagnet.

ROBERT WILHELM.