

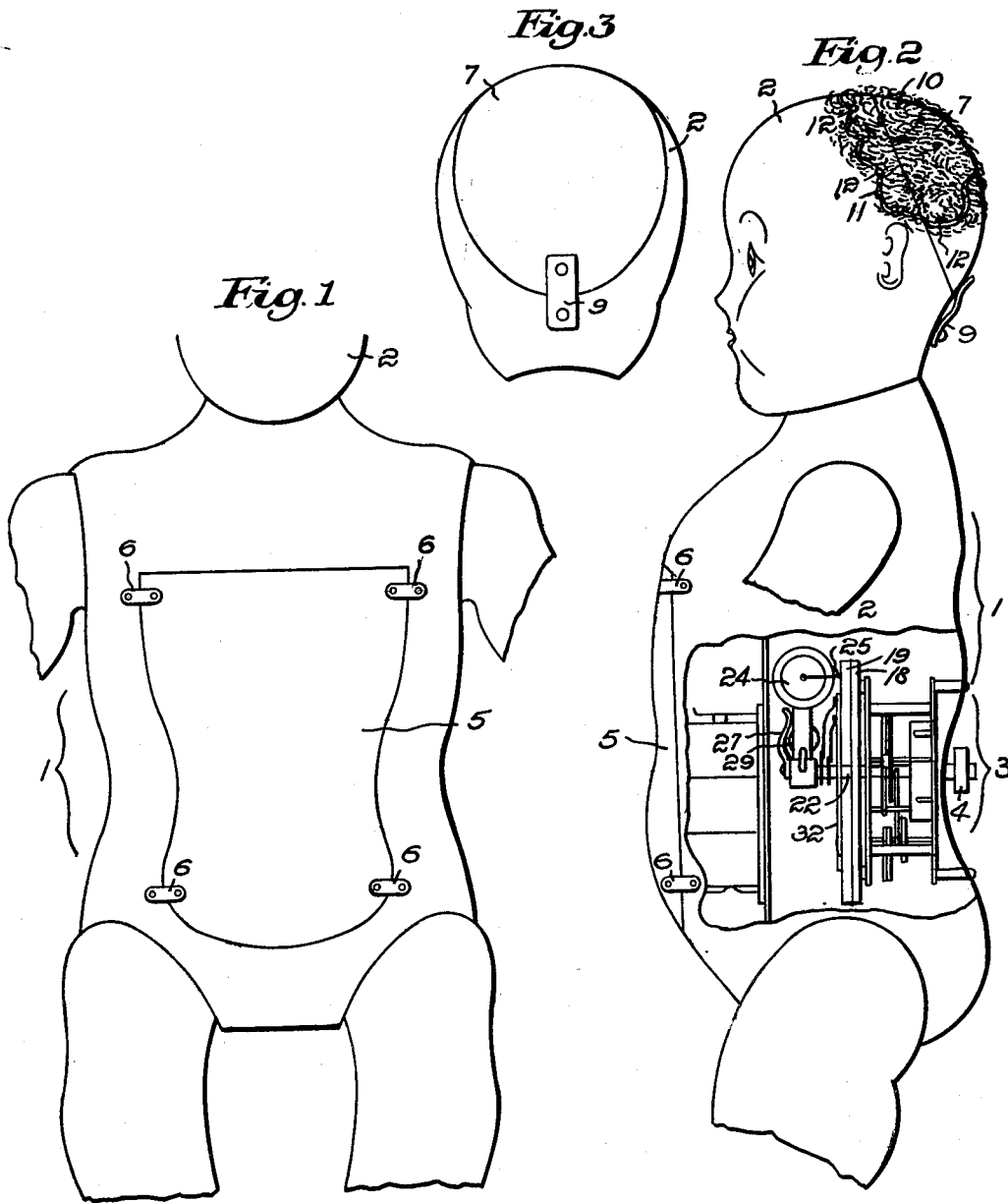
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E. A. BROWN ET AL
WINKING SOUNDING DOLL

2,633,667

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2 SHEETS—SHEET 1



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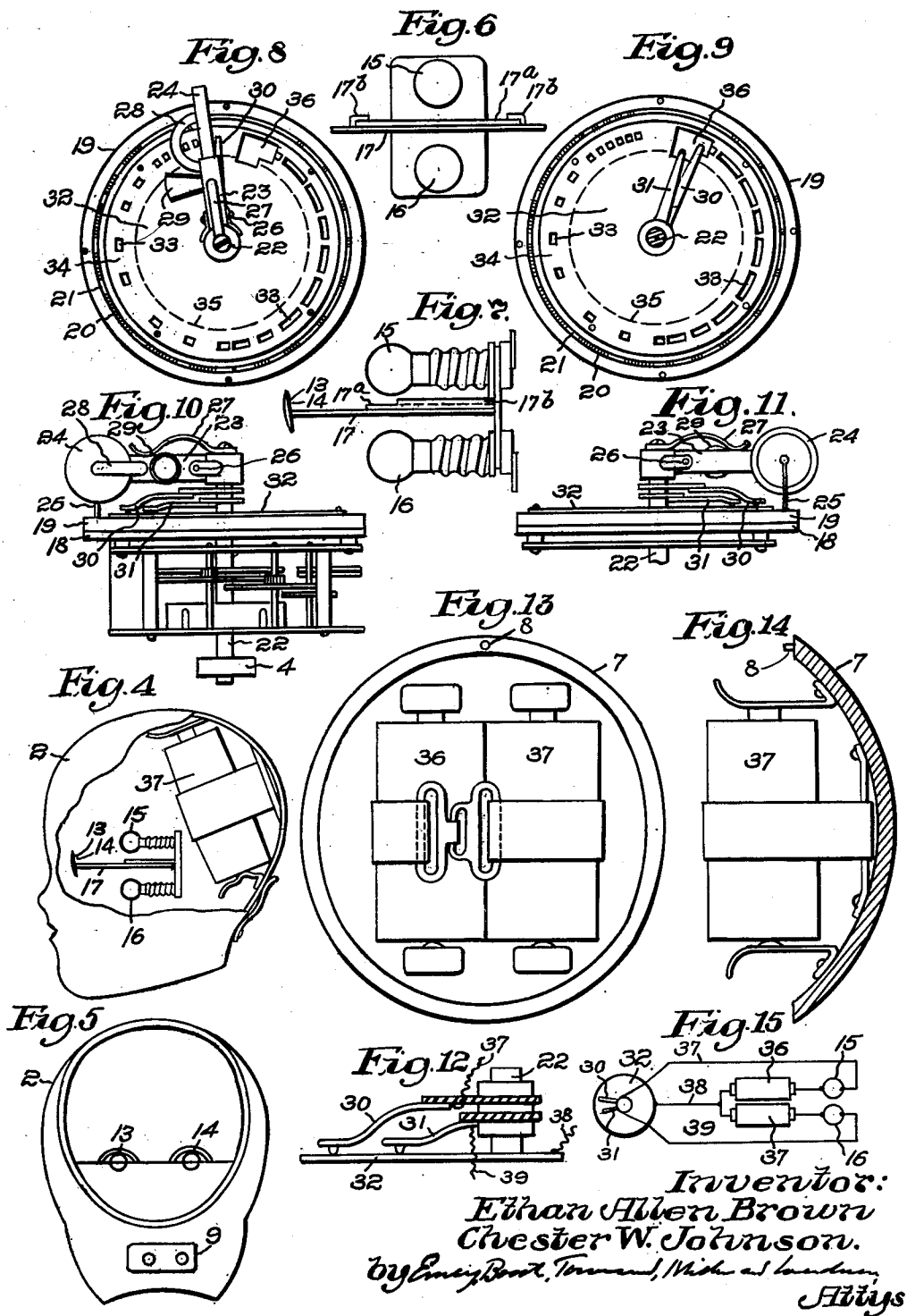
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2 SHEETS—SHEET 2



UNITED STATES PATENT OFFICE

2,633,667

WINKING SOUNDING DOLL

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8 Claims. (Cl. 46—117)

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The disclosed embodiment of our invention comprises a winking, sounding doll. Such doll, more specifically stated, has means for electrically creating winking-eye simulation and inarticulate sounds.

In order that the principle of the invention may be readily understood, we have disclosed a single embodiment only of the invention in the accompanying drawings, wherein—

Fig. 1 is a front elevation of a doll to which our invention is applied;

Fig. 2 is a side elevation of said doll with a portion of the torso broken away to show the operating mechanism;

Fig. 3 is a rear view of the head of the doll showing the removable portion to which a portion of the operating mechanism may be applied;

Fig. 4 is a side elevation of the head of the doll showing the operating mechanism therein;

Fig. 5 is a front elevation of the head of the doll;

Fig. 6 is a front elevation showing the two small electric light bulbs by which the eye-winking simulation is created;

Fig. 7 is a side elevation of the said two electric-light bulbs;

Fig. 8 is a plan view of the mechanism for controlling the lighting of said bulbs and for producing the inarticulate sounds, and including functioning arms which are shown as positioned at the beginning of their five-minute period;

Fig. 9 is a view generally similar to Fig. 8, but showing the functioning arms of the controlling mechanism in a different position, namely, at the position they occupy at the termination of the five-minute period;

Fig. 10 is a side elevation of the spring motor and of the sound producing arm and the two light controlling arms;

Fig. 11 is a side elevation similar to the upper portion of Fig. 10, but with the arms in a different position;

Fig. 12 is a side elevation of the two light-controlling arms and of the conducting disk whereon they travel;

Fig. 13 is an inside view of the detachable portion of the head of the doll and representing the electric batteries secured to said detachable portion;

Fig. 14 is a side view partly in vertical section of the construction shown in Fig. 13; and

Fig. 15 is a diagrammatic view of the wiring circuit wherein said two electric light bulbs and the batteries are included.

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While the specific embodiment of the invention herein illustrated is a doll having electrically controlled means for creating the simulation of winking eyes and for producing sound, preferably inarticulate, the invention may be and desirably is adapted to other uses in toys or like devices, and wherein there is provided a source of electrical current, a circuit extending therefrom, a motor, which is preferably a spring motor, a disk-like member having a controlling or functioning track thereon, an arm in said circuit to engage and travel along the track of said member, operating connections from said motor to cause relative traveling functioning movement of said disk-like member and of said arm, an electric-light bulb and means to cause very frequent interruptions of said electric light so as to convey a series of signals. Instead of employing said arm to cause light signals, we may provide a sound wave producer and means controlled by the arm to cause very frequent interruptions of the sound waves, thereby to create a series of sound signals. We may and preferably do provide at least two arms, one of which controls the illumination of the electric light by interrupting the same at very frequent intervals, so as to convey a series of signals, and another arm is connected with the sound wave reproducer to create a series of sounds, and we may and preferably do, when producing light signals and sound signals, provide means to synchronize the light flashes and the sound waves.

The construction just set forth is actually fully embodied in the mechanism of the doll shown in the drawings, as will be subsequently explained, but the mechanism above described may be used, for example, in a toy electric railroad for flashing on and off signal lights and for starting and stopping the trains; or the mechanism may be used for a telegraph buzzer in a toy boat to send audible Morse code signals as the boat sails around; or the mechanism may be used for a Morse ticker kit with various cut and spaced disks to give audible buzz of the letters A to Z of the Morse code, so that a beginner may easily learn the code by accompanying the device with a hand-operated key, or the hand key may be incorporated as part of the device. Such apparatus would be something more than a toy because of its educational value.

Thus it will be seen that the herein disclosed invention may be embodied in many different apparatus for controlling signal lights or for controlling audible sounds or signals or for synchro-

nizing both light signals and sound signals, when both are employed.

Referring now to the single illustration or embodiment of the invention, a doll, to which the invention is herein shown as applied, is indicated at 1 in Figs. 1 and 2, the arms and the legs being broken away to save space. The head of the doll is indicated at 2 in Figs. 1 to 5. The doll is made of any suitable material and may be made in different sizes, as, for example, a large size of twenty-eight to thirty inches, or a smaller size of twenty inches, or some other suitable size. If a large doll is used, there may be batteries only in the torso thereof. We may, in using a medium size doll, use two batteries in the head and two in the torso, connected in series, or we may in suitable sized dolls use a battery or batteries only in the head thereof. In any case the motor is in the torso, and it is herein indicated generally at 3 in Fig. 2. It is mounted in any suitable manner. The motor is preferably a spring motor and is wound by a key 4. At the front of the torso there is a plate or member 5, shown in Fig. 1, and which is secured to the body of the doll by any suitable fastening means, as at four points indicated at 6. In Fig. 2 the parts are not sufficiently broken away to show the actual mounting of the spring motor 3 upon the plate or member 5.

Referring next to the structure of the head, there is provided at the back thereof a replaceably removable piece 7, shown in inside view and in section in Figs. 13 and 14.

Desirably the removable section 7 is provided with one or more edge pins or projections 8 to be fitted into the main portion of the head in such manner as to hold the removable section 7 in place, there being employed, if desired, a securing member 9 for aiding in attaching the removable section to the head.

The head is provided with a wig 10, about the edge of which is a cord or strand 11 that engages suitable projections upon the main portion of the head so that the wig is held in place thereby, but so as to be removable.

The eyes of the doll are both indicated at 13, 14, in Fig. 5. In order to create the simulation of winking eyes, there are provided two small electric-light bulbs 15, 16, one above the other, as shown in Fig. 7, and also in position in Fig. 4. Between the said two small electric-light bulbs 15, 16 is provided a transversely extending partition 17 that is opaque so that the light rays are separately conveyed to the upper portions and to the lower portions of the two eyes 13, 14. That is to say, the light rays from the upper electric light bulb 15 are conveyed only to the upper half or portion of both of the said two eyes and the light rays from the lower electric light bulb 16 are conveyed only to the lower portion of both of the two eyes. For convenience of construction, the two light bulbs 15 and 16 are carried on a flat plate-like member 17a, which is received under cleats 17b at opposite edges of the partition 17, so that the two bulbs 15, 16, with their attached member 17a, slide in and out on the partition 17 when it is desired to remove or replace the said bulbs. So long as the operating mechanism is running, the lower electric-light bulb 16 is constantly illuminated, so that continuous light rays issue through the lower portions of both of the two eyes. The illumination of the upper bulb 15 which transmits its rays only through the upper portions of both of the two eyes is, however, constantly interrupted for short, preferably regular intervals, as, for example, every one or two sec-

onds so long as the mechanism is in operation. This creates a very effective simulation of winking, the illusion being produced by interrupting the light rays through the upper portions of both eyes.

As will be explained in detail, we provide means including a disk record, shown in detail in Figs. 8 and 9, for causing the constant illumination of the lower bulb 16, and the very frequent interruptions in the illumination of the upper bulb 15, and we provide means for producing sounds to issue from the doll and apparently through the mouth thereof, which sounds are desirably inarticulate, as, for example, a sort of cooing, gurgling or other low sound, and preferably, as will be described, we provide means for synchronizing the sounds and the winking, so that the sounds are produced when the eyes seem to wink, and when the eyes seem to be both closed and unwinking, the sound ceases.

In order to produce and control the eye-winking and the sounds, there is provided upon the upper portion of the spring motor, viewing Fig. 10, a plate or flat member 18, upon which is secured a record disk 19 of the usual material of which sound records are formed and which, as shown in Figs. 8 and 9, is provided with grooves or formations 20 to create the sounds and intervening spaces 21 at which no sound waves are created. The driven shaft 22 of the motor has secured upon the upper end thereof, viewing Figs. 10 and 11, or the inner end thereof, viewing Fig. 2, an arm 23 having a sound reproducer 24 provided with a needle 25 to engage the sound track 20, 21. The arm 23 constituting a pick-up member has the necessary up-and-down vibration, being pivoted for that purpose, as indicated at 26, and provided with a spring 27 to keep the needle 25 in contact with the sound track 20, 21. The said arm 23 is provided with a hollow tube 28 by which the sound waves are carried to a small horn 29 from which the sound issues as through the mouth of the doll.

Also secured upon the said motor shaft 22 are two metallic arms 30, 31 having upon their lower faces projections or pins. The projection or pin of the longer arm 30 rides upon that track portion of a flash or light controlling metal plate 32 of copper or brass (hence conducting) that is represented in Figs. 8 and 9 by a series of holes or openings 33 with intervening unbroken surfaces 34. So long as the arm 30 travels along its track 33, 34, the light rays from the electric-light bulb 15 are very frequently interrupted, namely, at the holes or openings 33 but not at the intervening spaces 34.

The act of winking in a human being is caused by the closing down of the upper eye lids and the quick lifting of them. The simulation of winking (that is, the apparent closing down of the upper eye lids of the doll and the apparent quick lifting of the doll's upper eye lids) is accomplished by each of the holes 33 for as the projection or pin on the lower side of the arm 30 enters any hole 33, the light rays cease from the upper bulb 15, thus simulating the shutting of the doll's eyelids, and when that pin emerges from that hole 33, the light rays again issue from the upper bulb 15, thus giving the effect of the opening of the upper eyelids. This completes one act of winking, and such complete act of winking occurs every time the pin on the lower side of the arm 30 enters and withdraws from any hole 33. The holes 33 may be all of the same length, or as shown they may be of varying

length, and the spacing between them may differ as at the two sides of the disk 32, and if the spaces between the openings 33 differ, the spaces 21 between the sound formations 20 also vary or differ.

The shorter arm 31 travels upon an unbroken portion of the surface 32, as indicated by the dotted circular line 35. Thus the light rays from the lower bulb 16 are continuously transmitted while the light rays transmitted from the upper electric-light bulb 15 are almost constantly interrupted, thus creating the simulation of a winking eye, as already explained.

It will be observed that the sound waves and the intermittent flashing of the light rays from the upper electric-light bulb 15 are synchronized. That is to say, the intermittently occurring periods of emanation of light rays from the upper bulb 15 occur while the cooing or gurgling or other sounds are being produced and while both eyes seem to be open, but when those sounds cease, the light rays cease from the upper bulb 15, but continue from the lower bulb 16, and, of course, they issue at all times from the lower bulb 16 until the motor runs down. When the light rays issue from the upper bulb 15 and the lower bulb 16, the eyes are apparently open, and it is then that the cooing or gurgling sounds are produced.

In Figs. 8 and 9 is represented at 36 a relatively large space or opening into which the two light controlling arms 30 and 31 enter at the end of the five-minute period, or whatever may be the time limit of the spring motor 3.

In Figs. 8 and 9, the spaces 33 are shown as longer at the right hand or running-down side of the disk 32 as the spring motor is or may be then running slower, but the openings 33 may be of the same length and equally spaced throughout.

The circuit for controlling the foregoing operations is shown diagrammatically in Fig. 15. The bulbs are therein indicated at 15, 16, and two batteries are indicated at 36, 37. They may supply about one and a half volts. The metallic plate 32 is indicated and the wiring extending therefrom to include the electric-light bulbs and the batteries is indicated at 37, 38 and 39.

Just preceding the detailed description of the single illustrated embodiment of the invention, we herein above referred to several different apparatus for controlling signal lights or for controlling audible sounds in which our invention may be embodied. In addition to those there referred to, we state that we may employ the sound effect means herein disclosed in a part of a fire alarm system, as in a building wherein there are provided two main signal-conveying cables and each room of the building, or each room of a group of rooms thereof, would have suitably connected to said cables its own sound disk on the general order of that disclosed at 19 and having thereon the sound effect formations 20, 21, and for each room the sound effect to be produced would be that of a number pertaining only to such room, as, for example, room 1 or 2, which number would be constantly repeated as the arm travels along the formations of the disk. When a fire occurs in any one of these rooms there would be produced and transmitted to headquarters in that building, or at an engine house, a sound upon the disk only of that room, and thus the number assigned to that room, as, for example, No. 1 or No. 2, would be instantly conveyed to headquarters by such cables, and such number

would be many times repeated. The result is, therefore, to indicate at headquarters the exact spot of the fire.

Instead of constructing the sound disk 19 as shown in Figs. 8 and 9 and instead of constructing the flash or light-controlling metal plate 32 as therein illustrated, which construction does not permit any alterations in the disks themselves, but requires the substitution of other sound disks and flash plates to get other sound and flash effects, we may provide the following construction.

The flash plate 32 may be provided with two concentric rows of a great number of small holes near the outer edge thereof equally and very closely spaced, and we may employ a very fine conducting wire to be laced up and down through any two adjacent holes where it is desired to make an electrical contact or to produce a flash, and at the other holes where the wire is not laced up to the upper side of the plate 32, no contact is made and no flash effect is produced. Such lacing may obviously be changed on such a plate, in accordance with the effect that it is desired to produce, and thus a single plate may be used to get quite different flashes or light effects by lacing the wire through different openings, and hence presenting the wire only at those areas of the upper face of the plate where it is desired to produce the flash effect. Similarly the sound disk may be provided at or near its outer edge with one or two annular rows of closely and uniformly spaced holes and a similar small wire may be laced through the desired holes to get the desired effect by controlling the action of the pin 26 upon the arm 23 or other or equivalent arm.

Having thus described one illustrative embodiment of the invention, it is to be understood that although specific terms are employed, they are used in a generic and descriptive sense and not for purposes of limitation, the scope of the invention being set forth in the following claims.

What we claim is:

1. A doll having a light-transmitting simulation of two eyes and having means for producing the simulation of the winking of at least one of said eyes, such means including a source of electrical current, and including two small electric light bulbs in circuit with said source of electrical current, and located close behind said simulation of two eyes and vertically spaced, and also including means whereby intermittently light from the upper one of said bulbs may be flashed on and off from the upper portion of at least one of said eyes, the said doll having within it a record from the creation of sound waves and a pick-up member in said doll and co-operating with said record for the production of sound waves intermittently the construction and arrangement of the said means for producing the eye-winking simulation and of the record for the creation of sound waves and of the said pick-up member being such that the simulation of eye winking occurs when sounds emanate from said record.

2. A doll having a light-transmitting simulation of two eyes and having within the structure thereof a source of electrical current, two small vertically spaced electric light bulbs in circuit with said source of electrical current and located close behind said eye simulations, a partition between said light bulbs so located that light rays from one of said bulbs are transmitted only through the upper portions of said two eye simulations above said partition and light rays from the

other of said bulbs are transmitted only through the lower portions of said two eye simulations below said partition, and means to interrupt at very frequent intervals the passage of light rays through said upper bulb and hence through said upper portions of said eyes only, thereby to produce the simulation of winking, a spring motor mounted in the torso of the doll, a sound disk and a flasher timing disk mounted in said torso, and recording arms for said sound disk and said flasher timing disk, said arms and said disks being relatively operated in synchronism by said spring motor so as thereby to produce the simulation of eye-winking at the times when sounds are produced by the sound disk, and the said flasher timing disk controlling the functioning of said electric light bulbs and with the recording arm therefor constituting the said means to interrupt at very frequent intervals the passage of light rays through said upper bulb.

3. A doll having a light-transmitting simulation of two eyes and having within the structure thereof a source of electrical current, two small vertically spaced electric light bulbs in circuit with said source of electrical current and located close behind said eye simulations, a partition between said light bulbs so located that light rays from one of said bulbs are transmitted only through the upper portions of said two eye simulations above said partition and light rays from the other of said bulbs are transmitted only through the lower portions of said two eye simulations below said partition, and means to interrupt at very frequent intervals the passage of light rays through said upper bulb and hence through said upper portions of said eyes only, thereby to produce the simulation of winking, a spring motor mounted in the torso of the doll, a sound disk and a flasher timing disk supported in the said torso, and a plurality of arms mounted to be rotated by said spring motor along the surfaces of said disks, thereby to control the sound waves and also the function of said two electric light bulbs the construction and arrangement of said plurality of arms being such and their relation respectively to the sound disk and the flasher timing disk being such that the simulation of winking occurs when sounds emanate from said sound disk, the said flasher timing disk and the recording arm therefor constituting the said means to interrupt at very frequent intervals the passage of light rays through said upper bulb.

4. A doll having a light-transmitting simulation of two eyes and having within the structure thereof a source of electrical current, two small vertically spaced electric light bulbs in circuit with said source of electrical current and located close behind said eye simulations, a partition between said light bulbs so located that light rays from one of said bulbs are transmitted only through the upper portions of said two eye simulations above said partition and light rays from the other of said bulbs are transmitted only through the lower portions of said two eye simulations below said partition, and means to interrupt at very frequent intervals the passage of light rays through said upper bulb and hence through said upper portions of said eyes only, thereby to produce the simulation of winking, a spring motor mounted in the torso of the doll, members having sound tracks and flash-controlling tracks fixedly mounted in the torso of the doll, and means co-operating with the said sound tracks and flash-controlling tracks to transmit said waves, and to control the functioning of said two electric lights

in synchronism, so that the simulation of winking occurs when sounds emanate from the sound tracks the member having flash-controlling tracks and the said means co-operating with the flash-controlling tracks to control the functioning of the said two electric lights constituting the said means to interrupt at very frequent intervals the passage of light rays through said upper bulb.

5. A doll having a light-transmitting simulation of two eyes and having within the structure thereof a source of electrical current, two small vertically spaced electric light bulbs in circuit with said source of electrical current and located close behind said eye simulations, a partition between said light bulbs so located that light rays from one of said bulbs are transmitted only through the upper portions of said two eye simulations above said partition and light rays from the other of said bulbs are transmitted only through the lower portions of said two eye simulations below said partition, and means to interrupt at very frequent intervals the passage of light rays through said upper bulb and hence through said upper portions of said eyes only, thereby to produce the simulation of winking, a spring motor mounted in the torso of the doll, members having sound tracks and flash-controlling tracks fixedly mounted in the torso of the doll, and means cooperating with said sound tracks and flash-controlling tracks to transmit said waves, and to maintain the lower of said light bulbs lighted and to effect the rapidly repeated interruption of the upper light bulb in synchronism with the creation of the sound waves so that the simulation of winking occurs when sounds emanate from the sound tracks the members having flash-controlling tracks and the said means co-operating with the flash controlling tracks to control the functioning of the said two electric lights constituting the said means to effect the rapidly repeated interruption of the upper light bulb.

6. A doll having light-transmitting simulation of two eyes, a source of electrical current in said doll, two small vertically spaced electric light bulbs within the doll back of the eyes and in said circuit, means whereby light may be transmitted from the upper one of said bulbs only, to the upper portions of said eyes, and whereby light is transmitted from the lower one of said bulbs, only to the lower portions of said eyes, and means in circuit with said source of electrical current to interrupt at very frequent intervals the transmission of light rays through the upper bulb and hence through the upper portion only of said eyes, thereby creating the simulation of winking, in combination with a sound record in said doll, an arm cooperating with said sound record, motor means to cause said arm to travel along said sound record to create sound waves intermittently and means to cause the eye-winking simulation to occur substantially simultaneously with the production of sound waves by the said sound record.

7. A doll having light-transmitting simulation of two eyes, a source of electrical current in said doll, two small vertically spaced electric light bulbs within the doll back of the eyes and in the said circuit, a substantially opaque transverse partition between said light bulb whereby light rays therefrom are transmitted respectively only through the upper and the lower portions of both of said eyes, and means in circuit with said source of electrical current to interrupt at very frequent intervals the transmission of light rays

through the upper bulb and hence through the upper portion only of said eyes, thereby creating the simulation of winking, in combination with a sound record in said doll, an arm cooperating with said sound record, and motor means to cause said arm to travel along said sound record to create sound waves intermittently, and means to synchronize said sound waves and said eye-winking simulation.

8. For use in a toy or like device, a source of electrical current, a circuit extending therefrom, a motor, a member having at least two controlling tracks thereon, at least two pick-up arms to engage and travel along two tracks of said member respectively, operating connections from said motor to cause relative traveling and functioning movement of said member and said two pick-up arms, an electric-light bulb in said circuit, means controlled by one of said arms to cause very frequent interruptions of said electric light so as to convey a series of signals, a sound reproducer controlled by the other of said arms to cause very frequent interruptions of the sound waves, thereby to create a series of sound signals, and means to synchronize said series of light signals and said series of sound signals.

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