

Nov. 2, 1937.

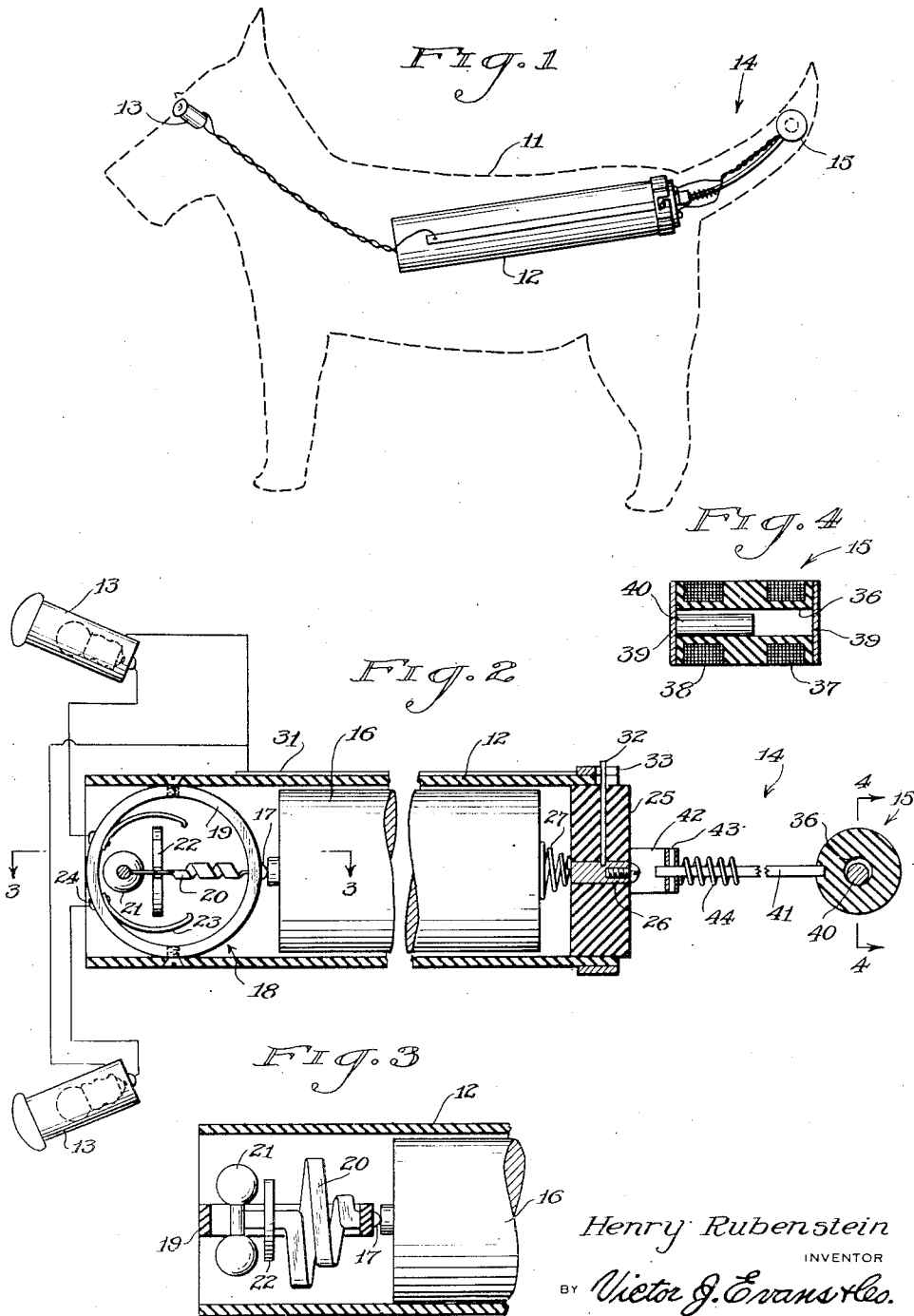
H. RUBENSTEIN

2,098,166

TOY EYE-BLINKING AND TAIL-WAGGING DEVICE

Filed July 30, 1936

2 Sheets-Sheet 1



Nov. 2, 1937.

H. RUBENSTEIN

2,098,166

TOY EYE-BLINKING AND TAIL-WAGGING DEVICE

Filed July 30, 1936

2 Sheets-Sheet 2

Fig. 7

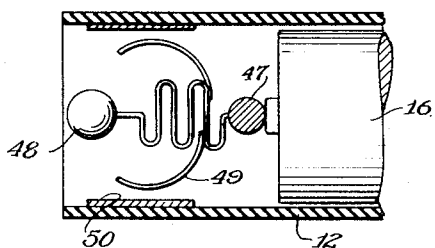


Fig. 8

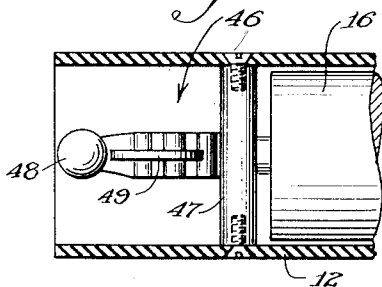


Fig. 10

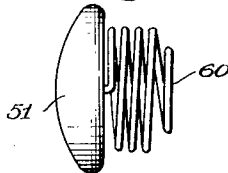


Fig. 9

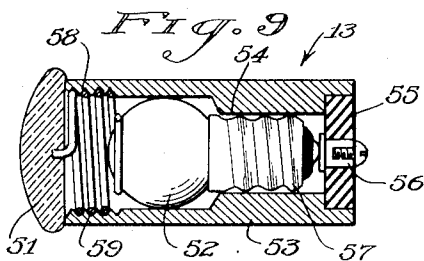


Fig. 5

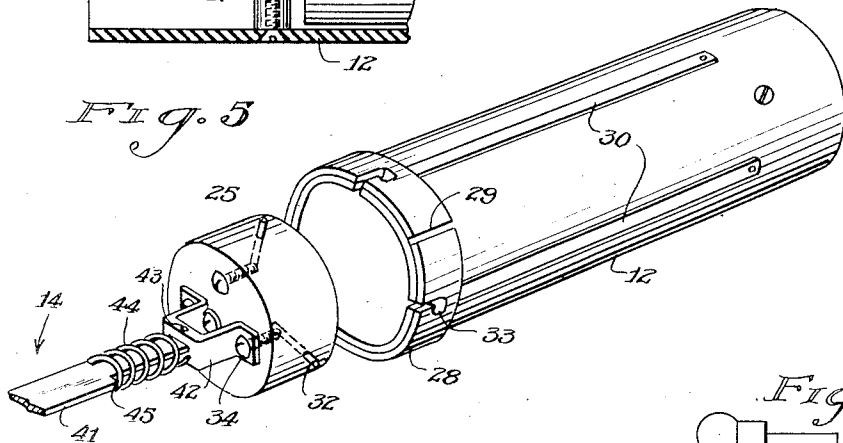


Fig. 6

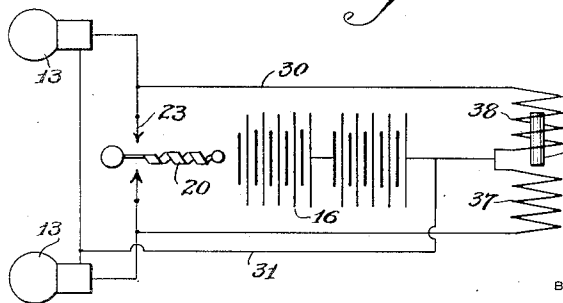
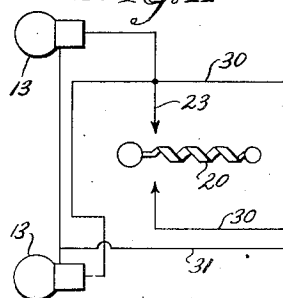


Fig. 11



Henry Rubenstein
INVENTOR
BY Victor J. Evans & Co.
ATTORNEYS

UNITED STATES PATENT OFFICE

2,098,166

TOY EYE-BLINKING AND TAIL-WAGGING
DEVICE

Henry Rubenstein, New York, N. Y.

Application July 30, 1936, Serial No. 93,502

11 Claims. (Cl. 46—120)

The present invention relates to toys such as stuffed dolls and animals and more particularly to devices associated with articles of this character by which the eyes are caused to be blinked, the device also including means for actuating the tail of a stuffed animal in the manner of wagging.

The general object of the invention is to provide a device adapted to be incorporated in the structure of a stuffed animal or doll equipped with illuminating eyes, the device being so arranged that upon patting or slightly impacting the doll the eyes will be alternately illuminated in a fashion so as to simulate blinking of the eyes.

A further object resides in the provision of an eye-blinking device which, when used in a toy stuffed animal, may be employed as the controlling element for an electro-magnetic tail-wagging device.

Another object is to provide in conjunction with an eye-blinker or a tail-wagging device, an oscillatory contact switch of a novel construction rendering same particularly sensitive to the slightest impact such as is had by lightly patting a stuffed animal.

Another object of the invention is to provide an improved type of electric socket forming the illuminating eye piece of a doll or toy animal, the same being adapted to retain an illuminating element therein and also affording detachable means for the retention of a transparent member forming a lens so arranged as to simulate an eye ball.

A further object of the invention is to provide an electrically operated tail-wagging device, the same being mechanically suspended so that the tail after being actuated in wagging is brought back to its normal central position.

The invention will be fully and comprehensively understood from a consideration of the following detailed description when read in connection with the accompanying drawings which form part of the application.

In the drawings:

Fig. 1 is a side elevational view of the eye-blinking and tail-wagging device applied for example to a stuffed animal, the latter being shown in outline.

Fig. 2 is a vertical central sectional view thru the entire mechanism comprising the eye blinker and tail-wagging device, parts of same being shown in elevation.

Fig. 3 is a horizontal sectional view on line 3—3 of Fig. 2, showing a plan view of the vibratory contact element comprising the device.

Fig. 4 is a central longitudinal section thru the

electro-magnetic element actuating the tail in wagging, being taken on line 4—4 of Fig. 2.

Fig. 5 is a fragmentary perspective view of the tubular casing forming the housing of the device and including an end plug removed from the casing showing portions of the tail-wagging device attached thereto.

Fig. 6 is a schematic wiring diagram of the entire device as shown in Fig. 1.

Figs. 7 and 8 are fragmentary vertical and horizontal sectional views, respectively, of a modified form of the oscillatory contact switch shown in Figs. 2 and 3.

Fig. 9 is a longitudinal section thru the illuminating eye socket including the eye piece thereof; and

Fig. 10 is a side elevational view of the eye piece shown in Fig. 9.

Fig. 11 is a fragmentary wiring diagram showing a different form of switch.

It is preferred to carry out the invention by installing interiorly of the stuffed doll or animal a suitable source of current supply such as a battery, in circuit with which is arranged a vibratory contact switch having one or more contact points. In employing my device as an eye blinker the eyes of the doll are provided with suitable illuminating elements, each of which are arranged in circuit with the respective contact points of the vibratory switch. Thus, upon impact such as by patting the doll the eyes will be illuminated in a manner so as to give the impression of blinking the eyes.

Where the device is applied to such toys as stuffed animals the mentioned battery and vibratory switch may also be employed to effect the wagging of the animal's tail. Briefly stated, the tail-wagging device comprises a resiliently suspended actuating means including a pair of opposed magnet coils and the floating metallic core disposed therein. The respective coils are controlled and alternately energized by the mentioned vibratory switch so that upon patting the animal the tail will be caused to wag.

Reference is now had to the accompanying drawings for a more detailed description thereof and particularly to Fig. 1, wherein the mentioned doll is represented by the outline 11 of an animal. Suitably supported interiorly of the animal, as by inserting into the stuffing thereof, is arranged a tubular casing 12 adapted to contain the batteries and vibratory switch of the device. The eyes 13 of the animal are equipped with illuminating elements, the same being in circuit with the vibratory switch as hereinafter described. The tail-wagging device indicated generally by nu-

meral 14 includes an actuating unit 15, the same being preferably resiliently suspended from an end of the casing 12.

Referring now to Figs. 2 and 3, it will be observed that within the casing 12 is disposed a suitable number of batteries 16, one terminal of which is arranged to engage a contact 17 forming part of the mentioned vibratory switch 18. The supporting structure for the switch 18 is preferably formed of a ring 19 to permit the arrangement of the casing 12 in any desired position within the stuffed toy. It will be observed after a detailed description of the switch 18 is had that the proper operation of its resiliently mounted arm 20 requires that the axis of the arm be disposed in a horizontal plane. By supporting the vibratory switch 18 in the ring 19 the position of the switch 18 may be varied so that the arm 20 is horizontal altho the casing 12 be disposed on a vertical axis as would be required by standing dolls. The arm 20 is fixed at one end to the ring 19, being electrically connected to the contact 17, and is provided at its free end with a suitable weight 21 preferably composed of a cross bar having weight elements at each end thereof. The arm 20 is resiliently formed by being fabricated of a spring strip preferably arranged in a tapering helical spring flattened so that portions of the convolutions thereof are brought into parallelism with each other substantially as shown in Figs. 2 and 3. Adjacent the free end of the arm 20 is secured a pair of laterally projecting contact elements 22, the free portions of which are arcuately formed. A pair of contacts 23 are anchored at suitable points on the ring 19 presenting terminals 24. The contacts 23, being resilient, project arcuately from the ring 19 to be disposed for contact by the respective elements 22, substantially as shown in Fig. 2. The terminals 24 are electrically connected to the respective eye sockets 13 in the manner illustrated in the wiring diagram shown in Fig. 6. It will be seen from this that as the doll is patted the slight impact will cause the arm 20 to vibrate, thereby alternately energizing, thru the elements 22 and the contacts 23, the respective eye sockets 13 and thus illuminating the elements therein. It will be apparent that a single element 22 and a single contact 23 may be employed, in which case both eye sockets 13 may be controlled by the single contact 23. Such an arrangement would effect the intermittent illumination of both of the eyes 13 at the same time, as shown in Fig. 11.

The opposite end of the casing 12 is closed by a removable plug 25, the same including a central terminal 26 to which is secured a spring 27 adapted to bear against the end of one of the batteries 16 to hold the foremost battery in contact with the terminal 17. The plug 25 forms a detachable support for the tail-wagging device 14 and includes electrical means for connecting two conductors issuing from the vibratory switch 18, specifically the terminals 24, to the tail-wagging device. This arrangement is preferably carried out in the manner shown in Fig. 5 by affixing to the end of the casing 12 a metallic ring 28 cut into a plurality of sections as by a saw cut 29. The ring 28, thus divided, presents three conductor terminals, two of which are connected to the respective terminals 24 thru bus bars 30. The third section of ring 28 is connected to the neutral wire of the circuit including the eye sockets 13 thru a third bus bar 31.

It will be observed after a detailed description of the tail-wagging device 14 is had that the actu-

ating element 15 thereof has three wire connections issuing from same. The mentioned wire connections are brought into circuit with the vibratory switch 18 thru a series of radial pins 32 extending from the plug 25. Intermediate the respective sections forming the ring 28 are cut L-slots 33, into which the respective pins 32 are inserted, thereby holding the plug 25 in place and at the same time forming electrical connections to the respective terminals of the switch 18. Terminal screws 34, being threaded into the plug 25, are disposed to contact the respective radial pins 32 and thus provide terminals for connection of the wires issuing from the tail-wagging actuating element 15.

Reference is now directed to Figs. 2 and 4 for a description of the tail-wagging device. The actuating element 15 comprises a tube 36 on which is wound in axial alignment a pair of magnetic coils 37 and 38. The ends of the tube 36 are each closed by a resilient disc 39 and the tube 36 has within its bore a floating core 40. The respective coils 37 and 38 are oppositely wound so that upon being energized alternately the floating core 40 is attracted to either end of the tube 36. In so moving, the core 40 impacts one of the resilient discs 39 and is thus rebounded toward the opposite end of the tube 36 to which it is brought by energizing the opposite coil. As shown in Fig. 1, the actuating element 15 is formed within the tail structure of the stuffed animal adjacent the end thereof and as the floating core 40 is reciprocated within the element 15, as described, the resultant alternate impact will cause the tail to move in a wagging fashion.

The element 15 is resiliently mounted to the plug 25, preferably in the manner shown in Figs. 2 and 5, by having a rod 41 affixed to the element 15 at one end, the other end being pivotally connected to a bracket 42 secured to the plug 25, the pin 43 forming the pivotal connection.

To return the tail to its central normal position as the actuating element 15 is deenergized a spring 44 is provided. The rod 41 is reduced adjacent its pivotal end to form shoulders 45. The spring 44 surrounds the reduced portion of rod 41 to have its respective ends engaged under pressure against the bracket 42 and the shoulders 45. The neutral connection to the magnetic coils 37 and 38 is carried thru the rod 41 and the bracket 42, one of the holding screws of the bracket being in contact with a radial pin 32 to complete the circuit.

Reference is now directed to Figs. 7 and 8, in which is illustrated a modified form of the vibratory switch 18 shown in Figs. 2 and 3. In this form the resilient arm 46 is anchored at one end on a cross bar 47, the latter being secured to the walls of the tube 12 and disposed to contact a terminal of the battery 16. This form of vibratory switch is modified particularly in the manner of forming the resilient arm 46 which is fabricated of a strip of spring metal bent into a zig-zag shape, as shown in Fig. 7. The free end of the arm 46 is provided with a suitable weight 48 adapted to cause the arm 46 to vibrate when subjected to impact. A pair of arcuate contact elements 49 extend from intermediate portions of the arm 46 and are disposed upon movement of the arm to engage appropriate contacts 50 mounted on the tube 12. The contacts 50 function in a similar manner to the terminals 24 of the first form and are accordingly respectively connected to the eye sockets 13 in the manner shown in Fig. 6.

Attention is directed to Figs. 9 and 10 for a de-

scription of the preferred arrangement of the eye sockets 13. The unit forming the eye piece of a doll or stuffed animal preferably comprises a lens 51 shaped and colored to simulate an eye ball and an illuminating element 52 disposed behind the lens. The supporting structure of the eye socket 13 presents a tube 53, the interior walls 54 of which are formed to closely engage an electric bulb presenting the illuminating element 52. The inner end of the tube 53 is closed by an insulating disc 55 at the center of which is provided a terminal 56 disposed to contact one terminal of the bulb 52. The screw base 57 of the bulb 52, being inserted endwise into same, contacts the tube 53 to form the other circuit of the illuminating element. The underside of the lens 51 has secured thereto a helical form of wire 58, the same being arranged to engage an internal thread 59 cut in the tube 53. The free end of the helical wire 58 terminates in a ring 60 of a size to press against the glass end of the bulb 52.

The structure of the eye socket 13, as just described, presents an arrangement of economic manufacture in that the tube 53 is of simple form and provides a recess for the reception of the bulb 52 and also a holding means for the lens 51. By forming the helical wire 58 in a ring 60 the same functions both to hold the lens 51 in place and also to hold the bulb 52 in contact with the terminal 56.

It is to be understood that this improvement is capable of extended application and is not confined to the exact showing of the drawings nor to the precise construction described and, therefore, such changes and modifications may be made therein as do not affect the spirit of the invention nor exceed the scope thereof as expressed in the appended claims.

What is claimed as new is:

1. In a toy doll having illuminating eye elements, the combination of a source of electric current and a vibratory switch in circuit with said current source and said illuminating eye elements, said vibratory switch comprising a resilient arm anchored at one end and weighted at its opposite end and adapted to alternately close and open an electric circuit including said eye elements upon being impacted to simulate the blinking of said eye elements, said arm being rendered resilient by being formed of metal under torsion.

2. In a toy doll having illuminating eye elements, the combination of a source of electric current and a vibratory switch in circuit with said current source and said illuminating eye elements, said vibratory switch comprising a resilient arm anchored at one end and weighted at its opposite end and adapted to alternately close and open an electric circuit including said eye elements upon being impacted to simulate the blinking of said eye elements, said resilient arm being formed of an irregularly directed metal strip intermediate the ends thereof.

3. In a toy doll having illuminating eye elements, the combination of a source of electric current and a vibratory switch in circuit with said current source and said illuminating eye elements, said vibratory switch comprising a resilient arm anchored at one end and weighted at its opposite end and adapted to alternately close and open an electric circuit including said eye elements upon being impacted to simulate the blinking of said eye elements, said resilient arm comprising a spring strip bent into a tapering helix having intermediate portions thereof in parallelism with each other.

4. In a toy doll having illuminating eye elements, the combination of a source of electric current and a vibratory switch in circuit with said current source and said illuminating eye elements, said vibratory switch comprising a resilient arm anchored at one end and weighted at its opposite end and adapted to alternately close and open an electric circuit including said eye elements upon being impacted to simulate the blinking of said eye elements, said resilient arm comprising a spring strip bent intermediate its ends into a zig-zag form.

5. In a toy doll having a tail, the combination of a source of electric current and a vibratory switch in circuit with said current source, an electro-magnetic tail-actuating means disposed in said tail and in circuit with said current source and said vibratory switch whereby said tail-wagging actuating element will be alternately energized as said vibratory switch is caused to vibrate as by being impacted, thereby causing the tail to be wagged.

6. In a toy doll having a tail, the combination of a source of electric current and a vibratory switch in circuit with said current source, an electro-magnetic tail-actuating means disposed in said tail and in circuit with said current source and said vibratory switch whereby said tail-wagging actuating element will be alternately energized as said vibratory switch is caused to vibrate as by being impacted, thereby causing the tail to be wagged, said tail-actuating means comprising opposed electric coils having a common bore and a floating core adapted to be alternately attracted by said coils.

7. In a toy doll having a tail, the combination of a source of electric current and a vibratory switch in circuit with said current source, an electro-magnetic tail-actuating means disposed in said tail and in circuit with said current source and said vibratory switch whereby said tail-wagging actuating element will be alternately energized as said vibratory switch is caused to vibrate as by being impacted, thereby causing the tail to be wagged, said tail-actuating means comprising opposed electric coils having a common bore and a floating core adapted to be alternately attracted by said coils, said coils having a resilient means at each end thereof adapted to rebound said core during the oscillatory motion thereof within said coil bore.

8. In a toy doll having a tail, the combination of a source of electric current and a vibratory switch in circuit with said current source, an electro-magnetic tail-actuating means disposed in said tail and in circuit with said current source and said vibratory switch whereby said tail-wagging actuating element will be alternately energized as said vibratory switch is caused to vibrate as by being impacted, thereby causing the tail to be wagged, said tail-actuating means being pivotally suspended from the body of said doll on an arm including a spring surrounding same adjacent the pivotal connection thereof, said spring being adapted to urge said arm to normal position.

9. In a toy animal having illuminating eye elements and a tail, said tail including electro-magnetic actuating means, the combination of a source of electric current and a vibratory switch in circuit with said current source, said circuit including said illuminating eye elements and said tail-actuating means, said vibratory switch comprising a resilient arm anchored at one end and

weighted at its opposite end and adapted to alternately close and open said electric circuit upon being impacted so as to cause said eye elements to be alternately illuminated to simulate the blinking thereof and to alternately energize said tail-wagging means to actuate the tail in wagging.

10. In a toy animal having illuminating eye elements and a tail, said tail including electromagnetic actuating means, the combination of a source of electric current and a vibratory switch in circuit with said current source, said circuit including said illuminating eye elements and said tail-actuating means, said vibratory switch comprising a resilient arm anchored at one end and weighted at its opposite end and adapted to alternately close and open said electric circuit upon being impacted so as to cause said eye elements to be alternately illuminated to simulate the blinking thereof and to alternately energize said tail-wagging means to actuate the tail in wagging, said tail-actuating means comprising op-

posed electric coils having a common bore and a floating core adapted to be alternately attracted by said coils.

11. In a toy doll having illuminating eye elements, the combination of a source of electric current and a vibratory switch in circuit with said current source and said illuminating eye elements, said vibratory switch comprising a resilient arm anchored at one end and weighted at its opposite end and adapted to alternately close and open an electric circuit including said eye elements upon being impacted to simulate the blinking of said eye elements, said illuminating eye elements comprising a tube closed at one end and having a bore adapted to receive an illuminating bulb, said bulb being reciprocable therein, and a lens having a threaded collar, said bore being threaded at its open end to receive said lens collar, said lens collar being arranged to hold said bulb in place in said bore.

HENRY RUBENSTEIN.