Oct. 6, 1970 M. CITRON 3,531,890

SWITCH MEANS FOR CONTROLLING AN ANIMATION DEVICE IN A FIGURE TOY

Filed Feb. 8, 1968 5 Sheets-Sheet 1

FIG. 1

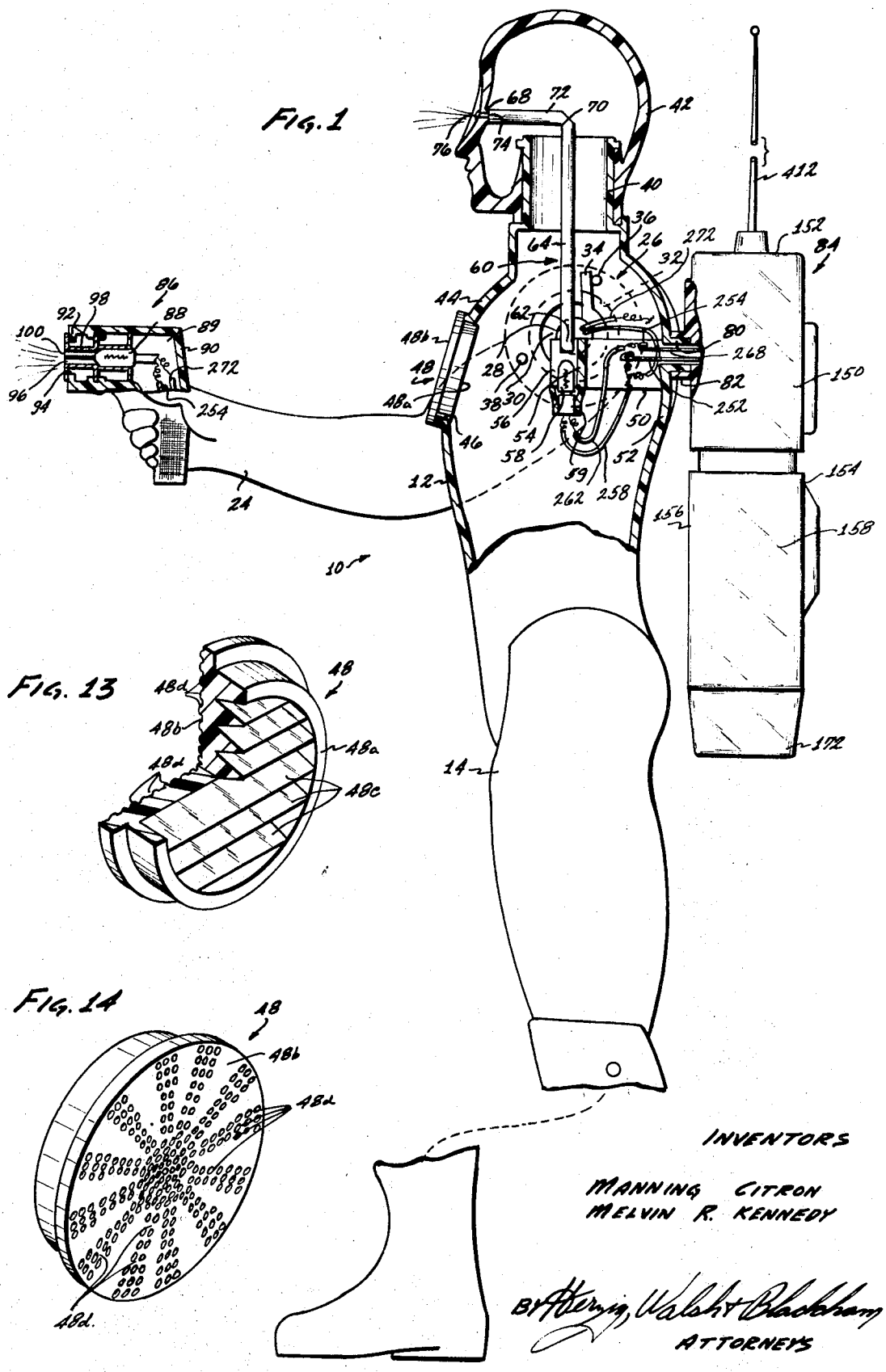


FIG. 13

FIG. 14

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SWITCH MEANS FOR CONTROLLING AN ANIMATION DEVICE IN A FIGURE TOY

Filed Feb. 8, 1968 5 Sheets-Sheet 2

FIG. 2

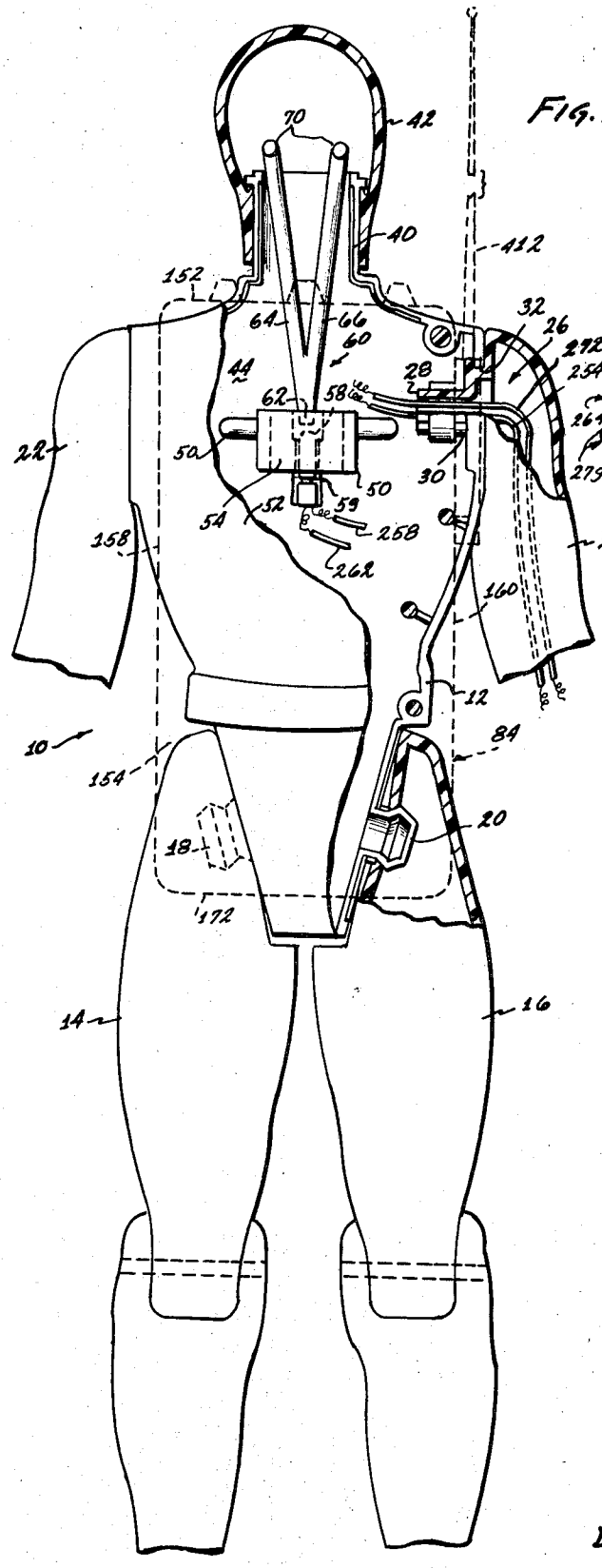
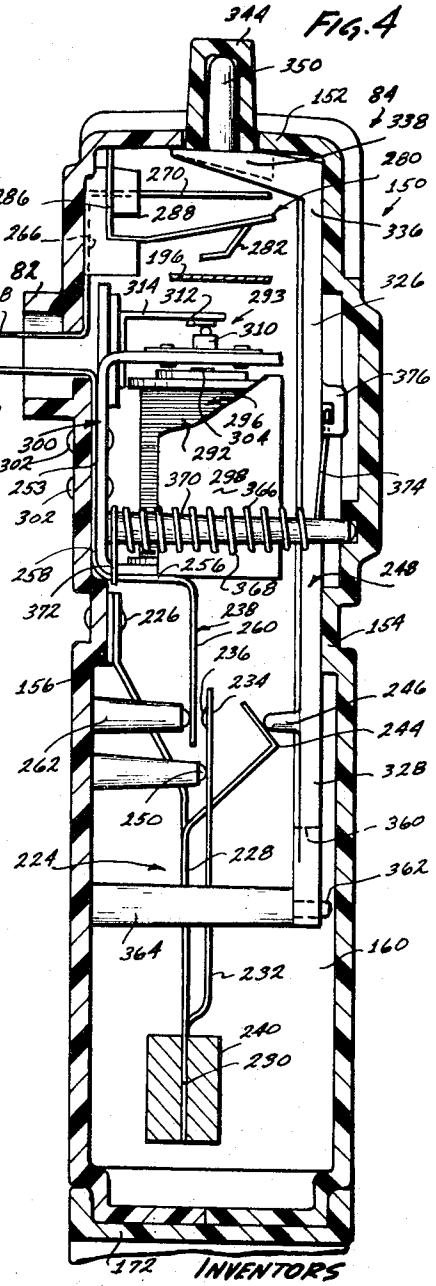


FIG. 4



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SWITCH MEANS FOR CONTROLLING AN ANIMATION DEVICE IN A FIGURE TOY

Filed Feb. 8, 1968 5 Sheets-Sheet 3

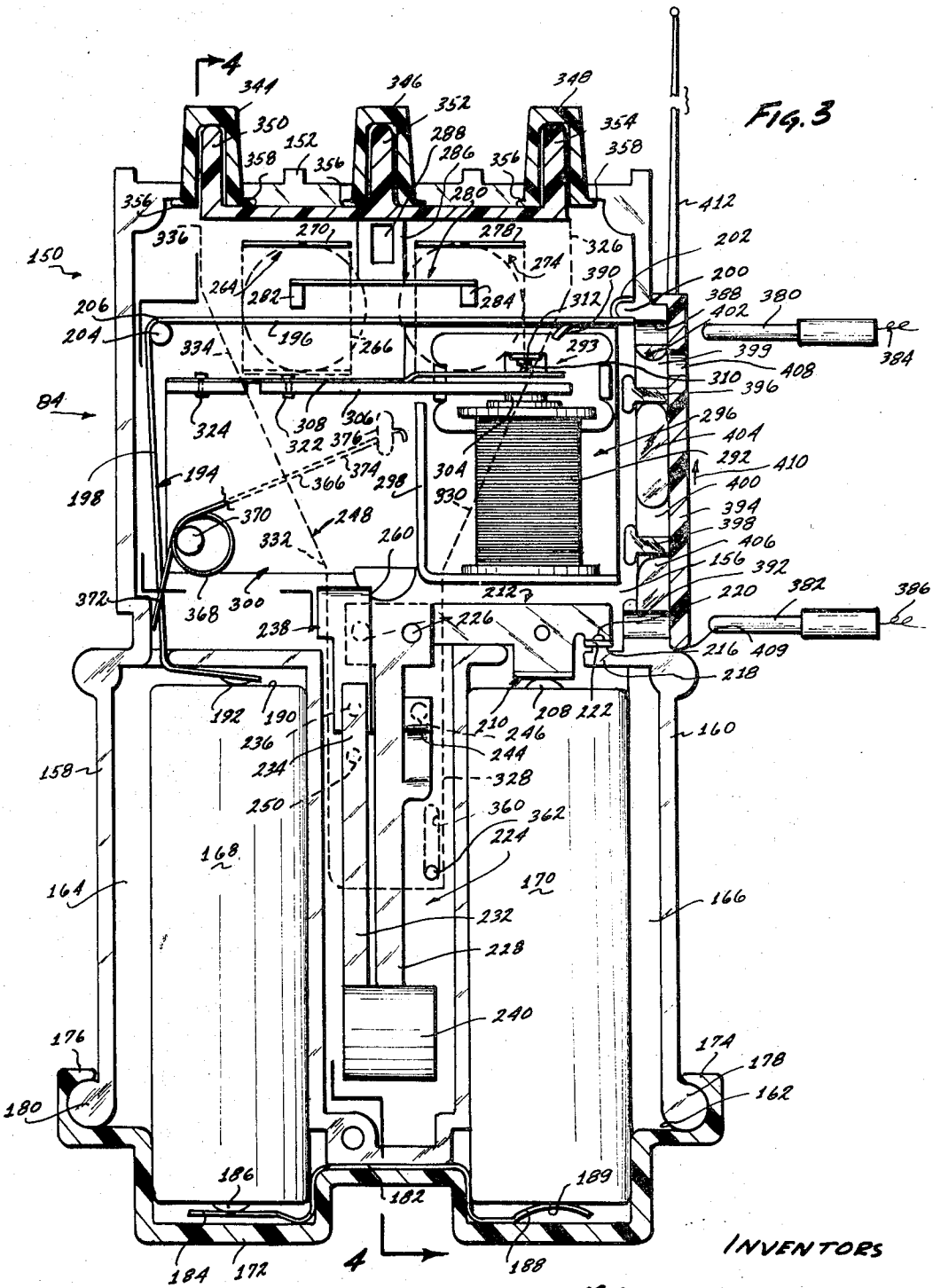


Fig. 3

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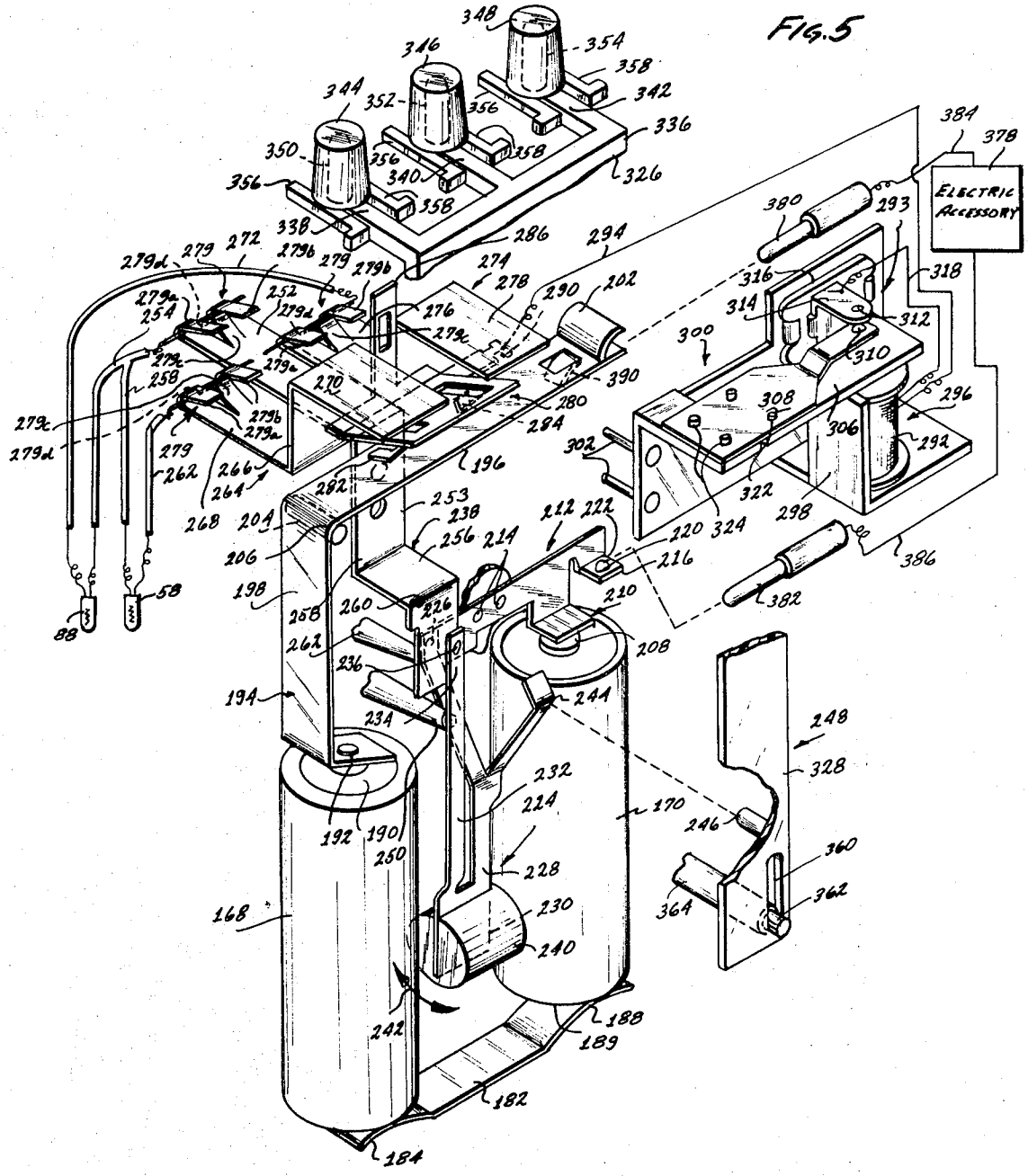
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SWITCH MEANS FOR CONTROLLING AN ANIMATION DEVICE IN A FIGURE TOY

Filed Feb. 8, 1968 5 Sheets-Sheet 4

FIG. 5



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SWITCH MEANS FOR CONTROLLING AN ANIMATION DEVICE IN A FIGURE TOY

Filed Feb. 8, 1968 5 Sheets-Sheet 5

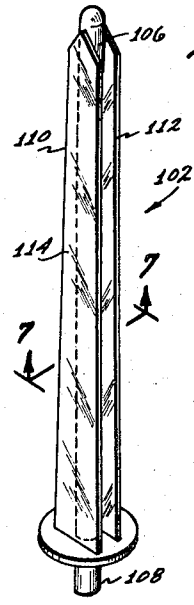


FIG. 6

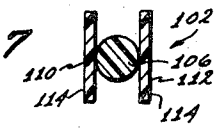


FIG. 7

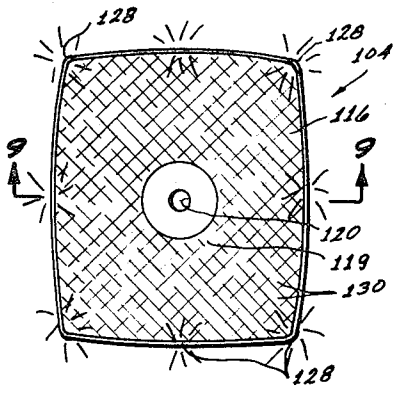


FIG. 8

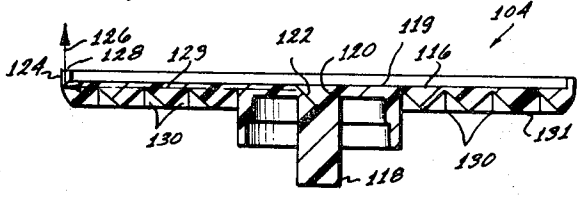


FIG. 9

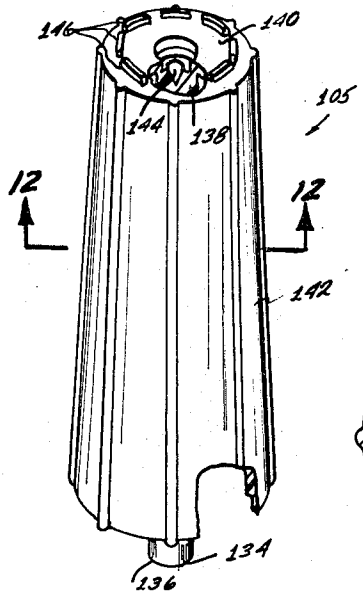


FIG. 11

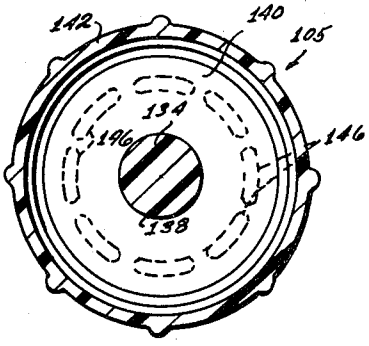


FIG. 12

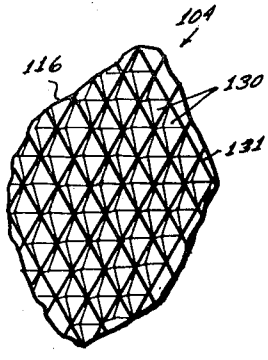


FIG. 10

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United States Patent Office

3,531,890

Patented Oct. 6, 1970

3,531,890

SWITCH MEANS FOR CONTROLLING AN ANIMATION DEVICE IN A FIGURE TOY

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Filed Feb. 8, 1968, Ser. No. 704,056

Int. Cl. A63h 33/26

U.S. Cl. 46—227 12 Claims

ABSTRACT OF THE DISCLOSURE

Flow of electric current to electrically-operated animation means, such as light bulbs and a buzzer, is controlled by switch means including a vibratile contact which is caused to vibrate by movement of a switch-closing member.

BACKGROUND OF THE INVENTION

The background of the invention will be set forth in two parts:

Field of the invention

The present invention pertains generally to switch means in figure toys and more particularly to switch means for controlling an animation device in a figure toy.

Description of the prior art

One example of the switch means for controlling an animation device in a figure toy may be found in U.S. Pat. No. 2,794,298 wherein neon tubes are mounted behind eye-simulating windows in a figure toy. The neon tubes are caused to "blink" by capacitors which take a considerable period of time to charge to the ionization potential of the neon tubes. The charge on the capacitors drops quickly. Thus, the period when the neon tubes are not glowing is very long, while the period of glow is very short.

One disadvantage with switches of this type resides in the fact that neon tubes and capacitors are somewhat complicated and expensive for use in a figure toy.

Another disadvantage resides in the fact that this type of switch means does not readily adapt itself to the rough usage to which the figure toy may be subjected by child users thereof.

Another example of switch means for controlling an animation device in a figure toy may be found in U.S. Pat. No. 2,933,853 wherein a light bulb supplies light to simulated eyes, a simulated nose and a simulated carrot through light piping. A bi-metallic strip is provided in the light bulb to periodically interrupt current flowing to its filament.

Switch means of this type have the disadvantage that the bulb may become damaged when the toy is subjected to rough treatment. Additionally, this type is not readily available in a small enough size.

SUMMARY OF THE INVENTION

In view of the foregoing factors and conditions characteristic of switch means for controlling an animation device in a figure toy, it is a primary object of the present invention to provide a new and useful switch means not subject to the disadvantages enumerated above and having a vibratile contact means engageable by a switch-closing means for rapidly energizing and deenergizing an animation device in a figure toy efficiently, safely and expeditiously.

Another object of the present invention is to provide a switch means of the type described which is comparatively inexpensive to manufacture, is of rugged construction and has a long life.

Yet another object of the present invention is to provide a switch means of the type described which includes a vibratile contact which is caused to vibrate by movement of a switch-closing member for rapidly energizing and deenergizing an animation device in a figure toy.

A further object of the invention is to provide a new and useful wire clip for connecting an electric lead in a circuit.

According to the present invention, a figure toy includes electrically-operated animation means and means for supplying electric current to the animation means. Flow of current from the supply means to the animation means is controlled by a new and useful switch means including a fixed contact means, a vibratile contact means engageable with the fixed contact means, circuit means connecting the contact means to the animation means and to the current supply means and switch-closing means engageable with the vibratile contact means for moving it against the fixed contact means. The switch-closing means includes means for vibrating the vibratile contact means into and out of engagement with the fixed contact means so that the animation means is rapidly energized and deenergized.

The animation means is shown for purposes of illustration, but not of limitation, as including a first light bulb mounted in an accessory holder simulating a ray gun carried by one arm of the figure toy, a second light bulb mounted in the torso of the figure toy behind a lens mounted in the chest of the figure toy. The second bulb is in communication with elongated light-conducting, object-illuminating rods carrying light from the second bulb to simulated eyes in the figure toy. The animation means may also include an electric buzzer.

The figure toy is shown herein for purposes of illustration, but not of limitation, as comprising a doll simulating an explorer of other planets. The switch means of the present invention is mounted in a back-pack connected to the doll. This back-pack also carries a pair of dry cells for energizing the animation means and includes a simulated antenna carried by a plate which may be slid to a position exposing apertures adapted to receive electrical jacks for connecting accessory means to the dry cells.

The features of the present invention which are believed to be novel are set forth wtih particularity in the appended claims. The present invention, both as to its organization and manner of operation, together with further objectives and advantages thereof, may best be understood by reference to the following description, taken in connection with the accompanying drawings in which like reference characters refer to the like elements in the several views.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a side-elevational view, with parts broken away to show internal construction, of a figure toy of the present invention;

FIG. 2 is a rear-elevational view of the toy of FIG. 1, with parts broken away to show internal construction;

FIG. 3 is an enlarged, cross-sectional view of an electrical supply and control means forming part of the toy of FIG. 1;

FIG. 4 is a reduced, cross-sectional view taken approximately along line 4—4 of FIG. 3 and having certain parts removed for clarity;

FIG. 5 is an enlarged, partial, exploded perspective view of the device of FIG. 3;

FIG. 6 is a perspective view of a first illuminateable accessory means which may be connected to the toy of FIG. 1;

FIG. 7 is a cross-sectional view taken along line 7—7 of FIG. 6;

FIG. 8 is a plan view of a second acessory means which may be connected to the toy of FIG. 1;

FIG. 9 is an enlarged, cross-sectional view taken along line 9—9 of FIG. 8;

FIG. 10 is an enlarged, partial perspective view of the accessory means of FIG. 8;

FIG. 11 is a perspective view of a third accessory means which may be connected to the toy figure of FIG. 1;

FIG. 12 is an enlarged, cross-sectional view taken along line 12—12 of FIG. 11;

FIG. 13 is an enlarged, partial perspective view of a chest lens of the toy of FIG. 1; and

FIG. 14 is a perspective similar to FIG. 13 looking in at the side opposite that shown in FIG. 13.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring again to the drawings, a figure toy constituting a presently preferred embodiment of the invention, generally designated **10**, is shown herein for purposes of illustration, but not of limitation, as comprising a doll having a torso **12** to which a pair of legs **14**, **16** are swingably mounted on plugs **18**, **20**, respectively, provided on torso **12**. A left arm **22** and a right arm **24** are also swingably connected to torso **12** by any suitable means, such as the connecting means **26** shown for the right arm **24**. Connecting means **26** includes a hollow pin or boss **28** which is formed integrally with arm **24** and which is rotatably received in a hollow cylindrical member **30** provided on torso **12** adjacent a shoulder opening **32**. Pin **28** carries a finger **34** engageable with a first stop pin **36** (FIG. 1) and a second stop pin **38** limiting movement of arm **24** from the position shown in FIG. 1 to a downwardly-directed position.

Torso **12** is provided with a cylindrical neck post **40** non-rotatably receiving a doll head **42**. Torso **12** includes a chest portion **44** which is provided with an aperture **46** in which a light-transmitting lens **48** may be mounted. The play value of toy **10** may be enhanced by imparting suitable colors, such as red, blue, green or the like, to lens **48**, as will become apparent hereinafter. A hollow bracket **50** extends from the rear wall **52** of torso **12** forwradly toward lens **48** in alignment therewith and includes a free end **54** which carries a holder **56** receiving a small light bulb **58** maintained in position therein by a clip **59**. A substantially v-shaped, light-conducting illuminating rod **60** has its apex portion **62** received in holder **56** and includes a pair of arms **64**, **66** extending upwardly through neck post **40** to a position behind a pair of eye sockets, like the one shown at **68** in FIG. 1, provided in head **42**. Arms **64**, **66** are each bent forwardly at a substantially right angle, as shown at **70** for arm **64**, providing an extension **72** having an end **74** positioned immediately behind an associated eye socket **68**. A light-transmitting button **76** may be connected to each end **74** simulating eyes in head **42**. Bracket **50** includes a chamber **78** which communicates with a hollow boss **80** formed on rear wall **52** for frictionally receiving a hollow boss **82** connecting a simulated backpack **84** to torso **12**.

An accessory holder **86** may be provided on the end of arm **24** for both simulating a ray gun and for receiving accessories which may be illuminated by a light bulb **88** provided in accessory means **86**. Accessory means **86** includes a housing **89** having a closed rear wall **90** and a front wall **92**. Front wall **92** is provided with an aperture **94** in which an accessory receiver **96** is mounted. Receiver **96** includes a rear cylindrical portion **98** receiving light bulb **88** and a front, open portion **100** adapted to receive suitable accessory means, such as a spear **102**, a shield **104** and a simulated gun barrel extension **105** (FIGS. 6–12).

Spear **102** includes a cylindrical member **106** having light-trnasmitting capability and a reduced-diameter portion **108** adapted to be engaged in open end **100** of receiver **96** so that spear **102** may be illuminated by energizing light bulb **88**. The cylindrical member **106** is flanked by a pair of plates **110**, **112** which may be made from a suitable clear plastic material so that the light emitted by cylindrical member **106** will be visible through plates **110**, **112**. The outer surface **114** of each plate **110**, **112** is frosted in well known manner for subduing the light emitted by cylindrical member **106**.

Shield **104** may be made from any clear plastic material having light-transmitting capability and includes a body portion **116** and a pin **118**. Pin **118** may be engaged in open end **100** of receiver **96** for connecting shield **104** to accessory holder **86** so that shield **104** may be illuminated by energizing light bulb **88**. Body portion **116** includes a face **119** of front-reflecting material and is provided with a conical cavity **120** which is aligned with pin **118** for receiving light therefrom. Approximately half of this light will be refracted through the encompassing side wall **122** of cavity **120** while the remaining light is reflected from side wall **122**. This reflected light is transmitted along predetermined paths within body portion **116**, as indicated by arrow **123** for one path, to a peripheral lens **124** forming an integral part of body portion **116**. Reflected light from side wall **122** is then reflected by lens **124** to the upper surface thereof, as indicated by arrow **126**. Light issues from the surface of lens **124** as a tiny, concentrated beam **128** for each path provided in body member **116**. These paths are formed in body member **116** by molding pyramid shaped recesses **130** into the rear face **131** thereof. These recesses are like the recesses provided in reflectors of the type commonly used on bicycles, except that the recesses **130** are positioned 45° out of phase with respect to the position of such recess in well known bicycle reflectors.

The simulated gun barrel extension **105** includes a light-transmitting rod **134** having a first end **136** engageable in open end **100** of receiver **96** and a second end **138** affixed to an end wall **140** forming part of a hollow, substantially cylindrical housing **142** encompassing rod **134**. End wall **140** is provided with a conical cavity **144** and a plurality of sausage-shaped lands **146**. Housing **142** is made from a clear plastic so that the encompassing wall **148** of cavity **144** will transmit approximately 50% of the light issuing from end **138** of rod **134** and will reflect approximately 50% thereof in such a manner that lands **146** are illuminated.

Referring now to FIGS. 1, 13 and 14, the lens **48** may be made from a clear plastic material, such as Lucite, and includes a rear face **48***a* and a front face **48***b*. A plurality of louvers **48***c* are molded into rear face **48***a* for directing light from bulb **58** upwardly at a slight angle from a substantially horizontal plane passing through lens **48**. In addition, a plurality of hemispherical lenses **48***d* may be formed on face **48***b* for concentrating light passing through lens **48**. Lenses **48***d* may be arranged in radial rows **48***e* like spokes of a wheel and may have alternating rows painted in different colors giving the illusion to some observers that lens **48** rotates when subjected to a flashing light.

Referring now more in particular to FIGS. 3–5, back pack **84** includes a housing **150** having a top wall **152**, a front wall **154**, a rear wall **156**, a pair of side walls **158**, **160** and an open bottom **162**. Housing **150** is provided with a pair of battery chambers **164**, **166** adapted to receive a pair of dry cells **168** and **170**, respectively, which may be retained in position by a removable lid **172** having resilient flanges **174**, **176** which may be snapped over beads **178**, **180**, respectively. An electrical conductor **182** is mounted in lid **172** and includes a first end **184** engageable with the positive terminal **186** on dry cell **168**. Conductor **182** also includes a second end **188** engageable with the negative terminal **189** on dry cell **170**.

The negative terminal **190** on dry cell **168** is engaged by an electrical contact **192** provided on a bus bar **194**

having a first leg **196** mounted in a substantially horizontally plane in the upper portion of housing **150** and a second leg **198** extending downwardly into housing **150**. Bus bar **194** is supported within housing **150** by a lug **200**, which is formed on side wall **160** and which engages a clip **202** provided on leg **196**, and by a pin **204**, which is affixed to rear wall **156** of housing **150** and which engages bus bar **194** at the intersection **206** of legs **196** and **198**.

The positive terminal **208** on dry cell **170** engages an electrical contact **210** provided on an electrical conductor **212** affixed to rear wall **156** of housing **150** by a securement means **214** and to side wall **160** by a small bracket **216** having a protuberance **218** engaged in a hollow, hemispherical member **220** formed on an electrical contact **222** forming an integral part of conductor **212**. A vibratile contact means **224** is electrically connected to conductor **212** by a connector means **226** (FIG. 4) and includes a first leg **228** extending from conductor **212** to a neck portion **230** from which a second leg **232** extends along side leg **228**. Leg **232** includes a free end **234** which carries an electrical contact **236** adapted to engage a fixed electrical conductor **238** intermittently when vibratile contact means **224** is vibrated. A predetermined mass or weight **240** is affixed to neck **230** for continuing vibratile contact means **224** in motion when it is moved in the manner of a pendulum carrying mass **240** through a path defined by arrow **242**. Vibratile contact means **224** may be moved and started vibrating by engaging a branch portion **244** of leg **228** with a pin **246** carried by a switch-closing means **248** during movement of switch-closing means **248** to a switch closing position which moves portion **246** past portion **244**. This causes leg **232** to pivot about a pin **250** so that contact **236** will engage fixed electrical conductor **238**. Vibratile contact means **224** may be made from an electrical-conducting material which is somewhat springy so that vibratile contact means **224** will continue to vibrate under the influence of mass **240** after the pendulum-type swing comes to an end. The leg **232** is free to seek its own nodal point. The pin **250** is located at this point and the leg **232** is biased into engagement therewith so that leg **232** will not float up and down at the nodal point during vibration thereof. This maintains energy in the system for a maximum period of time.

Fixed electrical conductor **238** may be made from a single, flat strip of electrical conducting material bent to the shape shown in FIG. 4 and includes a first portion **252** extending through boss **82** into chamber **78**, a second portion **252** extending along rear wall **156**, a third portion **256** extending forwardly from the lower end **258** of portion **253** toward front wall **154** and a fourth portion **260** extending downwardly in housing **150** in front of a fixed pin **262** and behind contact **236**. Pin **262** furnishes support for the fourth portion **260** when it is contacted by contact **236**. A first electrical lead **254** connects the first portion **252** of conductor **238** to the light bulb **88** and a second lead **258** connects lead **254** (and conductor **238**) to the light bulb **58**. A third lead **262** connects bulb **58** to a fixed electrical conductor **264** having an intermediate portion **266** affixed to rear wall **156**, a lower portion **268** extending rearwardly through boss **82** into chamber **78** and a potrion **270** extending forwardly in housing **150**. A fourth lead **272** connects bulb **88** to an electrical conductor **274** having a portion **276** extending through boss **82** into chamber **78** and a portion **278** extending forwardly in housing **150** to a position above leg **196** of bus bar **194** beside the forwardly extending portion **270** of electrical conductor **264**.

Portions **252**, **268** and **276** of conductors **238**, **264** and **274**, respectively, are flat metal stampings and are each provided with an electrical contact **279** for making an electrical connection with leads **254**, **262** and **272**, respectively, by merely pulling the leads into position between a pair of reversely-bent members **279***a*, **279**B and into engagement with a resilient member **279***c* leaving an end **279***d* biased to a position between, and lying in approximately the same plane as, the members **279***a*, **279**B, whereby the leads are firmly gripped by reversely-bent members **279***a*, **279***b* and resilient member **279***c*.

Leads **254** and **272** for bulb **88** extend through hollow pin **28** on arm **24** passing therethrough to accessory holder **86**. Damage to leads **254** and **272** due to unwanted rotation of arm **24** in boss **30** is prevented by limiting rotation thereof to approximately 180° by the coaction of finger **34** and stops **36** and **38**.

Portions **270** and **278** of conductors **264** and **274**, respectively, are made from a suitable conductor of electricity having sufficient resilience to permit moving portions **270** and **278** into engagement with a moveable contact member **280** for flexing it sufficiently to bring a pair of contacts **282**, **284** provided thereon into engagement with leg **196** of the bus bar **194**. Movable contact member **280** includes a fixed portion **286** which is affixed to a boss **288** extending from rear wall **156**. Moveable contact member **280** includes an extension **290** to which a coil **292** of a buzzer **293** is connected by a lead **294**. Coil **292** forms part of an electro-magnet **296** carried by an L-shaped arm **298** formed on a bracket **300** affixed to conductor **238** and rear wall **156** by suitable fastening means **302**. Magnet **296** includes an armature **304** adapted to attract a buzzer arm **306** when coil **292** is energized. Buzzer arm **306** is affixed to bracket **300** by a resilient contact-carrying conductor **308** provided with an electrical contact **310** normally biased into engagement with a fixed contact **312**. Contact **312** is provided on an arm **314** which is affixed to bracket **300** by an insulator **316**. Fixed contact **312** is connected to coil **292** by a lead **318** and resilient conductor **308** is electrically connected to fixed conductor **238** by fastening means **302**. Resilient conductor **308** is connected to arm **306** by a first fastening means **322** and to bracket **300** by a second fastening means **324**.

Switch closing means **248** is reciprocably mounted in housing **150** and includes a plate portion **326** having a lower, comparatively narrow portion **328** and an upper portion **330**. The upper portion **330** includes a lower end **332** which is approximately the same width as the lower portion **326** at its junction therewith, an intermediate portion **334** increasing in width from end **332** in an upward direction and an upper portion **336**. Three rearwardly-extending fingers **338**, **340** and **342** are affixed to the upper portion **336** of plate **326** for supporting switch-actuating buttons **344**, **346** and **348**, respectively, which are carried by upstanding pins **350**, **352** and **354** affixed to fingers **338**, **340** and **342**, respectively.

If desired, buttons **344**, **346** and **328** may be identical with each having a pair of L-shaped fingers **356**, **358**. The finger **356** on button **344** and the finger **358** on button **348** will then be redundant members. The finger **358** on button **344** and finger **356** on button **346** are each adapted to move portion **270** of conductor **264** into switch-closing engagement with moveable conductor **280** and finger **358** on button **346** and finger **356** on button **348** are adapted to move portion **278** of fixed conductor **274** in like manner when the associated buttons **344**, **346** and **348** are depressed. Depressing the buttons **344**, **346** and **348**, either individually or collectively, moves plate **326** downwardly in housing **150** causing protuberance **246** to strike finger **244** on vibratile switch means **224**. The lower portion **328** of plate **326** is provided with an elongated slot **360** engaging a fixed pin **362** for guiding plate **326** when it is reciprocated within housing **150**. Pin **362** is carried by a post **364** extending forwardly from rear wall **156**. Plate **326** is biased upwardly in housing **150** by a torsion spring **366** having a body portion **368** coiled about a post **370** extending forwardly from rear wall **156**, a first arm **372** engaged against side wall **158** and a second arm **374** engaged under a tab **376** provided on plate **326**.

A suitable electric accessory, such as the one shown diagramatically at **378**, may be electrically connected to back pack **84** by a pair of jacks **380**, **382** which are connected to accessory **378** by leads **384** and **386**, respectively. Jack **380** may be inserted through an aperture **388**, which is provided in side wall **166**, and placed in a circuit with buss bar **194** by engaging a tab **390** depending from leg **196** thereof. Jack **382** may be inserted through an aperture **392**, which is provided in side wall **166**, and placed in electric contact with vibratile switch means **224** by engaging the contact **220** provided on conductor **212**. Apertures **388** and **392** may be normally closed by a plate **394** reciprocably connected to side wall **160** by a pair of tabs **396**, **398** mounted in slots **399**, **400**, respectively, which are formed in side wall **160** between lands **402**, **404** and **404**, **406**, respectively. Plate **394** is provided with a pair of apertures **408**, **409** which become aligned with apertures **388** and **392**, respectively, when plate **394** is slid upwardly in the direction of arrow **410**. Plate **394** may be suitably decorated by a simulated antenna **412** enhancing the appearance of back pack **84**.

In use, moveable conductor **280** will close a circuit to coil **292** for actuating buzzer arm **306** regardless of which button **344**, **346** or **348** is depressed. Additionally, both light bulbs **58** and **88** will be illuminated when button **346** is depressed, light of bulb **58** will be illuminated when button **344** is depressed and light bulb **88** will be illuminated when button **348** is depressed. However, vibratile contact means **224** will cause intermittant operation of bulbs **58** and **88** and buzzer arm **306** because contact **236** vibrates into and out of engagement with conductor **238**.

While the particular figure toy and switch means combination herein shown and described in detail is fully capable of attaining the objects and providing the advantages hereinbefore stated, it is to be understood that it is merely illustrative of the presently preferred embodiment of the invention and that no limitations are intended to the details of construction and design herein shown other than as defined in the appended claims, which form a part of this disclosure.

What is claimed is:

1. In combination with a figure toy having electrically-operated animation means and switch means for supplying electric current to said animation means, said switch means comprising:

fixed contact means;

mechanically vibratile contact means having a nodal point and intermittently engageable with said fixed contact means when vibrating;

fixed pin means engaging said vibratile contact means at its nodal point;

circuit means connecting said contact means to said animation means and to said current supply means; and

movable switch-closing means engageable with said vibratile contact means for initiating vibration thereof and for causing it to pivot on said fixed pin means and continue to vibrate into and out of engagement with said fixed contact means, whereby said animation means is rapidly energized and deenergized.

2. A combination as stated in claim **1** wherein said vibratile contact means carries a weight for increasing the vibration period.

3. A combination as stated in claim **1** wherein said vibratile contact means comprises:

a bifurcated member having a pair of legs and a neck portion, a first one of said legs being affixed to a first portion of said circuit means and a second one of said legs carrying an electrical contact engageable with said fixed contact means, said pin contacting said second leg;

a weight carried by said neck member; and

a finger extending from one of said legs in the path of travel of said switch-closing means for engagement thereby.

4. A combination as stated in claim **3** wherein said finger extends from said first one of said legs.

5. A combination as stated in claim **4** wherein said finger is engageable by a protuberance provided on said switch-closing means.

6. A combination as stated in claim **5** wherein said animation means includes a first light bulb means mounted in said figure toy and a lens provided in said figure toy in alignment with said first light bulb means, said lens means including means for directing light from said first light bulb means away from said toy in a predetermined direction.

7. A combination as stated in claim **6** wherein said figure toy includes an arm and an accessory holder affixed to said arm, said animation means including a second light bulb means mounted in said accessory means.

8. A combination as stated in claim **7** including accesory pieces connectible to said accessory means for illuminantion by said second light bulb means.

9. A combination as stated in claim **8** wherein said animation means also includes an electric buzzer.

10. A combination as stated in claim **1** wherein said switch means is mounted in a housing simulating a back pack for said figure toy, said back pack including means for connecting it to said figure toy.

11. A combination as stated in claim **1** wherein said animation means includes:

a light bulb means;

a light-transmitting elongated element in communication with said light bulb means;

an illuminateable object affixed to said elongated element; and

a conical recess formed in said object at its joinder with said elongated element, said recess reflecting a portion of the light from said bulb means into said object and transmitting a portion of said light through said object.

12. A combination as stated in claim **1** wherein said circuit means includes electrical contact means readily connectible to electric lead means, comprising:

a flat metal conductor having a pair of reversely-bent members and a resilient member disposed between said reversely-bent members, said resilient member being biased to a position lying in approximately the same plane as said reversely-bent members, whereby said lead means may be firmly gripped by said reversely-bent members and said resilient member.

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46—116