

July 28, 1953

R. T. NIESET

2,647,222

TOY

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2 Sheets-Sheet 1

Fig 1.

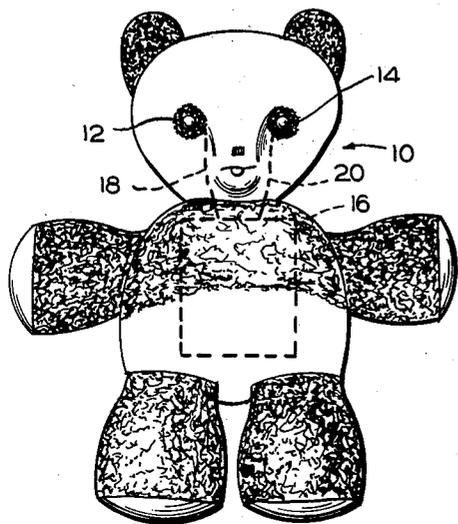


Fig 2.

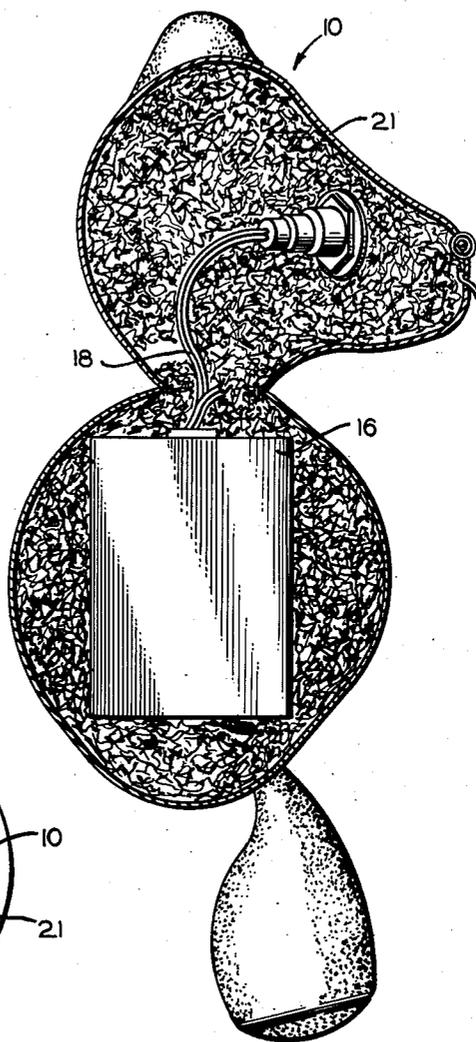
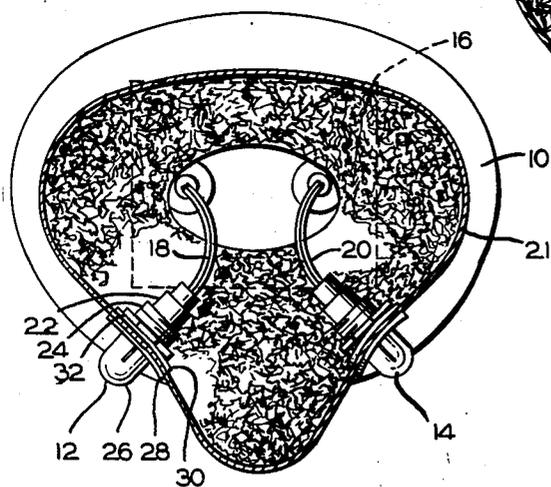


Fig 3.



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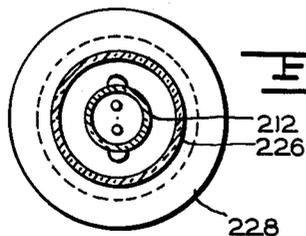
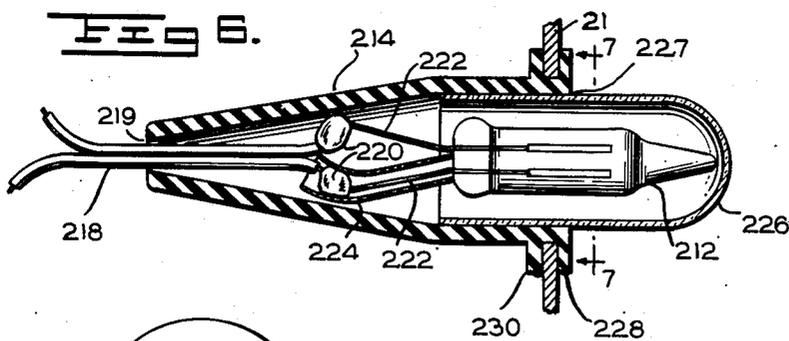
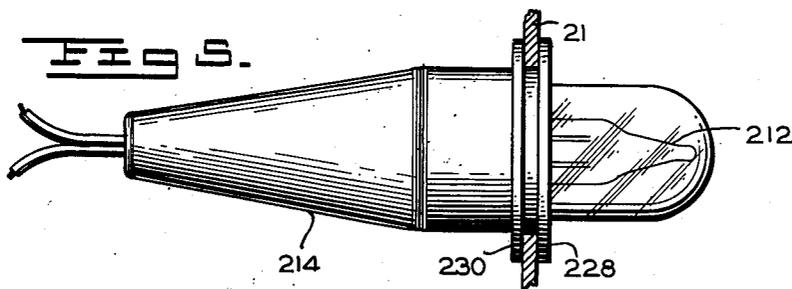
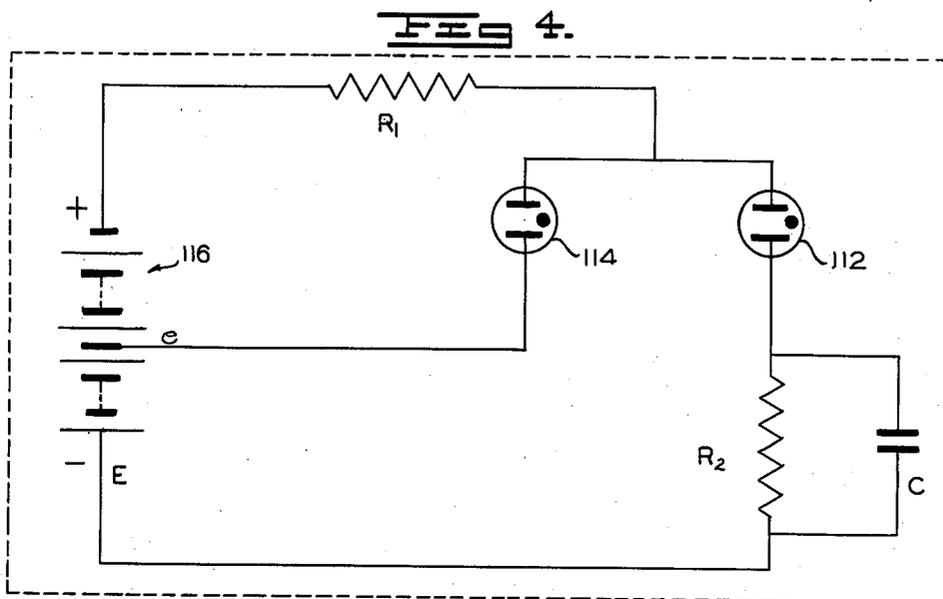
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2 Sheets-Sheet 2



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# UNITED STATES PATENT OFFICE

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## TOY

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1 Claim. (Cl. 315—228)

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This invention relates to toys, and particularly to toys having periodically illuminated members.

I have discovered that fascination for relatively simple toys is greatly enhanced if parts thereof blink or otherwise attract attention. To cite a very few examples, I have discovered that if the eyes of a teddy bear or bunny or the like are caused to periodically illuminate, the toys are much more in demand than a similar non-animated toy.

In further developing my invention, I have found that the utmost interest is directed to periodic illumination which will continue for very extended periods of time unattended. To this end, I have adapted certain electrical circuits for periodic illumination purposes, these circuits comprising arrangements whereby very little power is consumed. By my arrangements, a toy may operate from an ordinary dry-cell battery, for example, and the circuit will continue to function for very nearly the shelf life of the battery. By shelf life I refer to the life of a battery when never connected to an external load.

My invention is not limited to illuminating only the eyes of toy animals, but also extends to such illumination of selected parts of mechanical toys. For example, wing-tip lights or toy airplanes may be caused to alternately blink, or toy automobiles may be equipped with blinking lights.

It is therefore a primary object of my invention to provide toys having periodically illuminated parts.

It is a further object of my invention to provide toys having members which will be periodically illuminated for extended periods of time.

It is a further object of my invention to provide electrical means for causing periodic illumination.

Further objects and the entire scope of my invention will become clear from the following detailed description and from the appended claim.

A more complete understanding of my invention may be had with reference to the accompanying drawings, in which:

Figure 1 shows a toy panda equipped with illuminated members according to my invention.

Figure 2 shows a cross-sectional view of Figure 1.

Figure 3 shows an additional cross-section of Figure 1.

Figure 4 shows one embodiment of a circuit which is a part of my invention.

Figures 5-7 show details of an alternative bulb mounting for use in my invention.

With reference to Figure 1, an example of a

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toy comprising my invention is shown as a stuffed animal 10 having eye members 12 and 14 adapted to be periodically illuminated by a circuit within a container indicated by dash lines at 16. The leads 18 and 20 extend from the circuit 16 to the eyes 12 and 14, respectively.

The circuit to be included in the block 16 will be described more fully hereinafter.

Figure 2 is a cross-sectional view of the toy shown in Figure 1 and gives a more complete understanding of the construction involved.

Figure 3 further shows a cross-section looking down upon the toy as shown in Figure 1. The toy 10 is made up of an outer cover 21 which will be of relatively heavy cloth, plastic, or suitable flexible material. The actual construction of the toy itself is not a part of this invention, however, and no detailed description will be made, such articles being well-known on the market. The eye members 12 and 14 which I show in these drawings comprise an eye body 22 which comprise a threaded section 24. The glass envelope 26 is mounted upon the eye body 22 extending internally of the threaded section 24. This envelope 26 is gas filled and contains spaced electrodes. This construction is the conventional arrangement for gaseous discharge devices, and one electrode will glow or illuminate when sufficient potential is applied across the electrodes. The threaded section 24 has attached at the outer end thereof an outer diaphragm 28. Diaphragm 28 is made considerably larger than the opening in the cover 21 through which the threaded section 24 extends.

After the threaded section has been inserted through the cover 21 and before the lead 18 is connected to the circuit 16, an inner diaphragm 30 and a retaining nut 32 are placed upon the threaded section 24 and the nut run up to clamp the cover 21 between the diaphragms 28 and 30. The eye 12 is thus firmly mounted on the cover 21 but will be capable of moving with the cover 21 generally. The toy will be normally stuffed with cotton or the like to permit flexing of nearly all areas of the cover 21. As previously mentioned, eye 14 is in all respects identical with eye 12. The block or container 16 may be generally located within the major portion of the body of the toy, as best shown in Figure 2.

According to my invention, as I have previously mentioned, an important feature is that the eyes or other illuminated members, if the toy is other than a doll or animal, are comprised of gaseous discharge tubes. With this type of bulb, extremely low power drain is experienced,

as contrasted with the power consumed by filament bulbs. There are many electrical circuits available to cause the gaseous discharge devices to be periodically illuminated and I do not intend by this description to limit the practice of my invention to the particular circuits which I will hereinafter mention. The circuit shown in Figure 4, however, is one which, to the best of my knowledge, has not been heretofore known and which may be particularly desirable in the practice of the remainder of my invention. This is a circuit which is based on relaxation oscillator principles but which will alternately illuminate the discharge devices. In this circuit, one light is off while the other is on, and vice-versa, which makes the circuit desirable not only in toys such as stuffed dolls or animals, but also in mechanical toys such as airplanes. In the latter, a realistic effect is obtained by having miniature wing tip lights alternately blink.

My circuit is comprised of two gaseous discharge devices 112 and 114. The device 112 is connected in a series-circuit relationship with a source of potential indicated generally at 116; a main resistance  $R_1$  and a second resistance  $R_2$ . This series-circuit is further characterized by a capacitance  $C$  connected across the resistance  $R_2$ . In the circuit thus far described, the potential of the source 116, which may be designated  $E$ , is initially applied across the discharge device 112 when the circuit is completed. The circuit is further characterized by having the other discharge device 114 interconnected at one side to the tube 112 and at its other side to a tap in the source 116 to provide a potential  $e$ .

The arrangement of the tube 114 just described is obviously the equivalent of having the tube 114 connected to the negative side of source 116 and having a second source of potential between said negative side of source 116 and the tube 114, where this source  $e$  is connected in opposition to source  $E$ .

In operation, when the circuit is initially connected, the full value  $E$  will appear across the device 112, and with  $E$  selected to be above the striking potential of device 112, the latter will illuminate. The resulting current through  $R_1$ , however, brings the potential across device 114 below the striking potential. The result is that, initially, device 112 will be illuminated, and 114 will not be illuminated.

As the conduction through 112 continues, the potential on the capacitance  $C$  will obviously increase and in due time, depending upon the total resistance of the circuit, will cause sufficient decrease in current through  $R_1$  to cause device 114 to illuminate, notwithstanding the potential difference  $E - e$ . When 114 glows, however, the increased current through  $R_1$  brings the voltage across device 112 below its extinction potential. When device 112 goes out, the voltage on capacitance  $C$  is slowly discharged through  $R_2$  until it falls to a point where potential appears across device 112 sufficient to restrike the latter. When 112 restrikes, the added current flowing through resistance  $R_1$  then brings the potential across device 114 below the extinction value, and 114 goes out and the cycle is repeated.

It will be further apparent that device 114 could be directly connected to  $-E$  if its striking and cut-off potentials were sufficiently different from device 112.

It will be obvious to those skilled in the art that many combinations of circuit parameters will be usable to render the circuit of Figure 4

operable. For example, with  $E$  at 135 volts and  $e$  at 95 volts, and with devices 112 and 114 of  $\frac{1}{4}$  to  $\frac{1}{2}$  watt capacity,  $R_1$  may be 1.2 megohms,  $R_2$  1.5 megohms, and  $C$  0.25 mfd. Alternatively,  $R_1$  may be 0.33 megohm,  $R_2$  0.47 megohm, and capacitance  $C$  again, 0.25 mfd. It will be understood that these representative values are given for purposes of example only, and are not intended to limit the invention.

In Figures 5 to 7, I show an alternate method of mounting gaseous discharge devices as parts of a toy. In particular, this arrangement is adaptable to the stuffed animal, as shown in Figures 1 to 3. In this modification, the gaseous discharge device 212 assumes a shape which is quite inexpensive in manufacture, but does not particularly simulate an eye. A sheath 214 is provided; however, to enclose a portion of the device 212 and leads extending therefrom inwardly of the cover 21. Lead 218 extends through a constricted aperture 219 in the sheath 214 and solder joints 220 connecting lead 218 with the bulb leads 222 act as means to prevent withdrawal of the device 212 through the end 219 of sheath 214. An insulating tube 224 may be employed to maintain the leads 222 electrically separated. To closely simulate an eye, the device 212 is then surrounded by a smoothly contoured transparent cover 226 which is inserted into the open end 227 of the sheath 214. The sheath 214 may preferably be made of flexible rubber and the cover 226 maintained in position within the sheath 214 by means of friction. The connection may be further established by extruding ridges (not shown) on the outer surface of cover 226 which would embed in the sheath 214.

The assembled eye may be mounted on the cover 21 of the toy 10, or may be mounted in any panel member of a mechanical toy by means of an outer flexible lip 228 and an inner flexible lip 230. It will be obvious that with these lips made flexible, and with some tolerance between the aperture in the cover 21 and the diameter of the sheath 214, the assembly may be pushed into position until the lips resume the position shown in the drawings.

With respect to suitable electrical circuits for incorporation into toys, it will be appreciated that various power sources will be usable. Preferred circuits, however, will probably involve power sources contained within the toy itself. Such power source may be in the form of a so-called "B" battery wherein suitably high potentials may be directly derived for operation of gaseous discharge devices, or, alternatively, low voltage "A" batteries may be employed with vibratory power packs.

The foregoing description of my invention has been made only for purposes of illustration. It is expected that many other embodiments of my invention will occur to others, and therefore I desire that the scope of the invention be determined from the appended claim.

I claim:

In a circuit for alternately illuminating two gaseous discharge devices, first and second discharge devices each having first and second terminals, the first terminals of each discharge device being connected together at a common point, a first resistance connected at one side to said common point and at its other side to the positive terminal of a source of potential, the second terminal of the second discharge device being connected to a mid tap on the source of potential, the second terminal of the first dis-

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charge device being connected through a second resistance to the negative terminal of the potential source, and a capacitance connected in shunt across said second resistance.

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References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
1,292,105	Shoenberg	Jan. 21, 1919

Number
1,773,834
1,877,940
2,040,439
2,140,840
2,310,328
2,434,065
2,448,389

6

Name	Date
Wilson	Aug. 26, 1930
Morgenstern et al.	Sept. 20, 1932
Langer	May 12, 1936
Langer et al.	Dec. 20, 1938
Swift	Feb. 9, 1943
Courtney	Jan. 6, 1948
Powell	Aug. 31, 1948