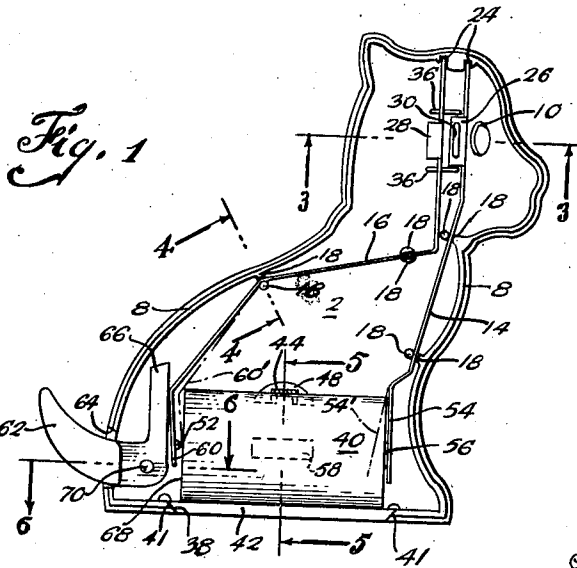
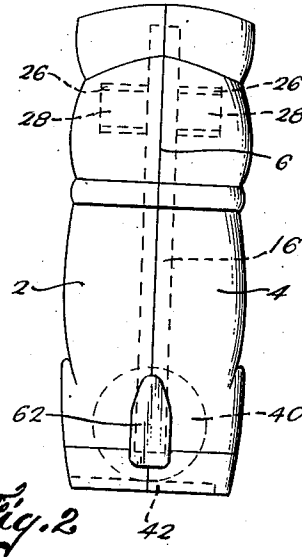
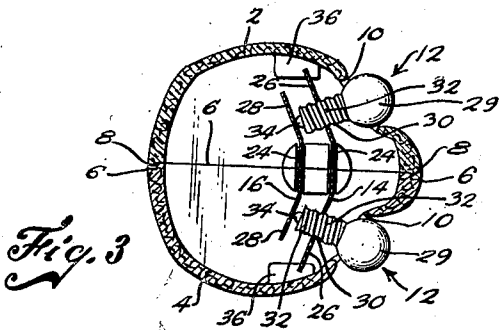
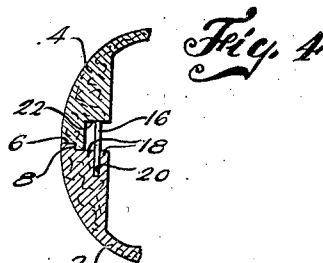
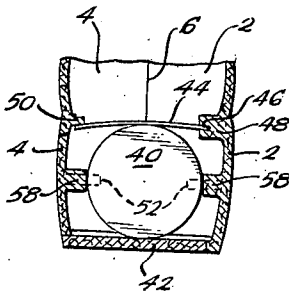
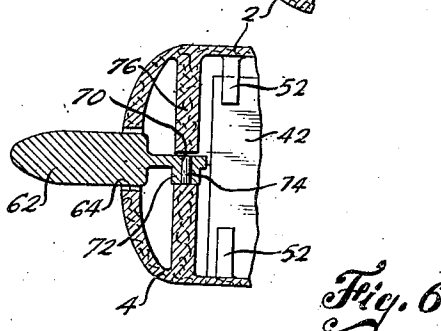


July 29, 1952

B. L. LEVINSON
ILLUMINATED TOY FIGURE

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INVENTOR
BENJAMIN L. LEVINSON
BY *James and Franklin*
ATTORNEY

UNITED STATES PATENT OFFICE

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ILLUMINATED TOY FIGURE

Benjamin L. Levinson, New York, N. Y., assignor,
by mesne assignments, to Levinson Manufacturing Company, Inc., Pawcatuck, Conn., a corporation of Connecticut

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8 Claims. (Cl. 240—10)

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The present invention relates to an illuminated object and more particularly to one in which the socket for receiving the light bulb is formed integrally with the connections between said socket and the battery which furnishes the electrical energy.

Illuminated objects assume an infinite number of forms and the present invention is here illustrated in the form of a toy dog, but it will be understood that this is by way of exemplification only.

Assembly of such objects is an exceedingly important element in the manufacture thereof, particularly because of the relative difficulty involved in securing the electrical connections between the battery and the light bulb socket in proper and fixed position therein. This difficulty is reflected in increased time consumed in assembly and in the employment of a relatively large number of separate electrical units such as switches, contacts, wires and sockets. The use of these additional elements adds to the cost of the completed article and, which is perhaps more important, the increase in time of assembly materially reduces the productivity of a workman and consequently materially increases the cost of production of the object. The significance of this latter factor will be appreciated from a realization of the fact that labor costs are one of the prime cost elements in the manufacture of objects of this nature.

It is the prime object of the present invention to devise a construction which avoids the above disadvantages by utilizing a minimum number of parts so related to the remainder of the structure that they may be assembled in an exceedingly rapid manner.

It is another object of the present invention to employ connectors between the battery and the light bulb which have socket parts integrally formed therewith, so that the employment of separate sockets is rendered unnecessary and so that the time consumed in the step of soldering or otherwise securing the connectors to the sockets is eliminated.

Yet another object of the present invention is to devise a construction in which the light bulbs are conveniently placeable in and removable from the apparatus from the exterior thereof.

Another aim of the present invention is to devise a construction in which the connectors are formed of resilient metal strips which not only function as electrical connectors but are also active upon the battery to retain it in its proper position in the object.

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Yet another aim of the present invention is to devise a novel structural arrangement for retaining a battery in the object in fixed position, the battery being easily removable from the object for replacement purposes.

A more specific aim of the present invention is to devise such an object which, in its normal condition, does not light up but which, through manipulation from the exterior of the object, can be made to light up at will.

To the accomplishment of the foregoing objects and such other objects as may hereinafter appear, the present invention relates to the constructional details of an illuminated object as defined in the appended claims and as set forth in this specification, taken together with the accompanying drawings, in which:

Fig. 1 is a side view of one of the halves of the toy showing the battery and the conductive strips in position;

Fig. 2 is a rear view of the toy in assembled condition;

Fig. 3 is a view taken along the line 3—3 of Fig. 1 with the toy in assembled condition;

Fig. 4 is a view taken along the line 4—4 of Fig. 1 with the toy in assembled condition;

Fig. 5 is a view taken along the line 5—5 of Fig. 1 with the toy in assembled condition; and

Fig. 6 is a view taken along the line 6—6 of Fig. 1 showing the toy in assembled condition but with the battery omitted therefrom.

The body of the toy is here shown as composed of two mating halves 2 and 4 adapted to meet on the line 6, the two halves being provided with shoulders 8 to ensure accurate interfitting. The halves may be formed of any suitable material, preferably a molded plastic, and may be secured together in any convenient manner such as by the use of adhesive. The body is provided with one or more apertures 10, here shown as two in number, each positioned to correspond to the eyes of the dog defined by the body parts 2 and 4, the apertures 10 being of a size sufficient to permit entry therethrough of at least a portion of light bulbs 12. Conductive strips 14 and 16 are appropriately secured inside the body, said strips 14 and 16 being preferably formed of resilient metal which may be stamped integrally from sheet stock and bent to appropriate shape. One of the body halves, here shown as the body half 2, is provided with guides in the form of projection pairs 18 extending inwardly from a portion of the body 2, each of the pairs defining between them a slot 20 within which the strip 14 or 16 is receivable and the opposed body half 4 is provided with

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a cooperating guide in the form of a shoulder 22 which, when the body halves are placed in assembled condition, bears against an edge of the strips 14 or 16 so as to retain them in position in the slots 20 (see Fig. 4). The upper ends of the strips 14 and 16 are secured within slots 24 formed in the upper portion of each of the body halves 2 and 4 (see Figs. 1 and 3). If desired, for purposes of economy, the slots 24 may be provided in only one of the body halves 2 and 4, and the other body half may have a shoulder engageable with the edge of the strip to retain it within the slot 24.

Those portions of the strips 14 and 16 which extend into the upper part of the toy, in which the apertures 10 are located, pass between the apertures 10, and each of the strips is provided with a pair of lateral extensions on strip 14 being designated by the numerals 26 and the extensions on the strip 16 being designated by the numerals 28. It will be noted from Figs. 1 and 3 that each extension 26 is opposed to an extension 28 and that each pair of extensions 26, 28 is positioned opposite an aperture 10 and is appropriately bent so as to be substantially parallel to one another. Each of the extensions 26, these being the extensions closest to the apertures 10, is itself provided with an aperture 30 of such a size as to threadedly receive the base 32 of the light bulb 12, the spacing between the extensions 26 and 28 being such that when the bulb base 32 is received in the aperture 30 of the extensions 26 so as to be supported by said extension 26, the tip 34 of said base 32 will engage the extension 28. This is preferably accomplished while the bulb portions 29 of the bulbs 12 still partially project out through the apertures 10 so that the bulbs 12 are rendered capable of replacement from the exterior of the toy.

Inward projections 36 from each of the body halves 2 and 4 may be provided between which the extensions 26 are receivable, the projections 36 serving to locate said extensions 26 with respect to the apertures 10 and to prevent displacement thereof in a vertical direction as viewed in Fig. 1. The extensions 28 are located in a vertical plane by virtue of the projection pair 18 located directly therebelow, the slot in said projection pair being substantially horizontal so as to impart the desired vertical support to the extensions 28.

From the above description it will be apparent that each pair of extensions 26, 28 defines a light bulb socket formed integrally with the conductive strips 14 and 16 and adapted to make electrical connection with the terminals of the bulb 12, the threaded side of the base 32 of the light bulb 12 defining one terminal in said bulb, and the tip 34 defining the other terminal thereof.

Thus, the extensions 26 and 28 not only serve to support and locate the bulb 12 in the toy but also serve to complete electrical connection between the bulb and the conductive strips 14 and 16, the strip 14 being electrically connected to the side terminal 32 of the bulb 12 and the strip 16 being electrically connected to the tip terminal 34 thereof.

The base of the toy is provided with an aperture 38 of a size such that the battery 40 may pass therethrough, the sides of the aperture 38 being bevelled as at 41 and a slidable closure plate 42 being receivable therein. Positioned above the aperture 38 is a spring strip 44 one end of which is secured inside a groove 46 formed in an inward projection 48 from one of the body halves, here shown as the body half 2, and the other end of

which is limited in its upward movement by engagement with a ledge 50 projecting inwardly from the other body half 4 (see Fig. 5). The spacing of the spring strip 44 from the bottom of the toy is so related to the size of the battery 40 that the spring 44 will be active to eject the battery 40 through the aperture 38, the slidable closure plate 42 positively preventing such ejection when it is in its closed position. The spring 44 and the closure plate 42 therefore position the battery 40 in the vertical direction of Fig. 1. In addition, the downward pressure of the spring 44 forces the closure plate 42 into relatively tight frictional engagement with the bevelled sides 41 of the aperture 38, thus preventing accidental dislodgment of the closure plate 42.

Stops 52 projecting inwardly from each of the body halves 2 and 4 will limit the motion of the battery 40 to the left as viewed in Fig. 1 or into the plane of the paper as viewed in Fig. 5. The end 54 of the resilient conductive strip 14 is active on the battery 40 to move it into engagement with the stops 52, the end 54 tending to assume its normal position indicated by the broken line 54'. Hence, cooperation between the resilient end 54 and the stop 52 will prevent undesired motion of the battery 40 in a direction to the right or left as viewed in Fig. 1 or into or out of the plane of the paper as viewed in Fig. 5. At the same time, the resilient end 54 of the conductive strip 14 will preferably make contact with a terminal 56 of the battery 40, thus completing a circuit from the terminal 56 to the side terminal 32 of the light bulb 12.

Additional stops 58 project inwardly from the two body halves 2 and 4 so as to snugly receive the battery 40 therebetween (see Fig. 5) and thus prevent motion of the battery in a direction to the right or left as viewed in Fig. 5.

The location of the battery 40 is thus fixed in all directions so that it will remain properly located in the toy no matter in what position the toy is held or to what vibratory influences it is subjected. As soon, however, as the closure plate 42 is removed, the spring 44 will eject the battery 40 from the toy so that replacement of the battery is rendered exceedingly convenient.

The end 60 of strip 16 normally assumes the position illustrated in Fig. 1 in which it is spaced from, and therefore does not make electrical contact with, the battery 40. An actuator 62 projects out through an aperture 64 in the body so as to be manipulatable from the exterior thereof, the actuator 62, when manipulated, being active upon the strip end 60 via the lever arm 66 so as to cause it to assume the position illustrated in the broken line 60' in which the end 60 is brought into engagement with and consequently makes electrical connection with the second terminal 68 of the battery 40. When this occurs, the electrical circuit from the battery 40 through the light bulbs 12 is closed, the circuit being defined by the battery 40, the contact 56, the end 54 of strip 14, the strip 14 itself, the extension 26, the side terminal 32 of the bulb 12, the filament in the bulb, the tip terminal 34 of the bulb, the extension 28, the strip 16, the strip end 54, and the other terminal 68 of the battery 40, thus causing the bulbs 12 to light up.

As here illustrated, the actuator 62 is in the form of a dog tail provided, on a portion thereof adapted to be received inside the toy body, with an aperture 70 and a collar 72, both adapted to fit over a post 74 projecting inwardly from the

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body half 4. The body half 2 is provided with a stop 76 adapted, when the two body halves 2 and 4 are assembled together, to prevent the actuator 62 from becoming disengaged from the post (see Fig. 6). The resilient strip end 60 is active upon the lever arm 66 so as to rotate the actuator 62 in a counter-clockwise direction as viewed in Fig. 1, and when it is desired that the light bulbs 12 light up, the actuator 62 is moved upwardly so as to pivot in a clockwise direction about the post 74, thus positively moving the resilient strip end 60 into engagement and electrical connection with the terminal 68 of the battery 40.

The advantages, both from a constructional and assembly point of view, of the above construction will in the main be apparent. The strips 14 and 16 together with their extensions 26 and 28 respectively may be integrally formed in a single stamping operation, the apertures 30 in the extensions 26 being simultaneously formed, and for assembly all that is necessary is to insert the prebent strips 14 and 16 into the appropriate slots 20 and 24 formed in the body half 2, the body half 2 itself having been formed in one piece in a simple molding operation. By the simple insertion of the strips 14 and 16 in the slots 20 and 24, not only is the light bulb socket defined and located, and not only is the purchase and installation of individual sockets eliminated, but the sockets are already electrically connected to the conductive strips so that no soldering or any other connective operations are necessary.

The next step in assembly is the placing of the actuator 62 over the post 74. Thereafter, the two body halves 2 and 4 need merely be placed into mutual engagement and secured by adhesive or the like, the shoulders 22 on the body half 4 securing the strips 14 and 16 inside the slots 20 and the stop 76 on the body half 2 securing the actuator 62 on the post 74. Once this has been done, the toy is completely assembled and the parts thereof are positively maintained in proper position.

It will therefore be clear that the construction described above results in an object which is not only formed of a minimum number of parts, thus reducing expense, but which also may be assembled by completely unskilled help in a minimum amount of time.

By virtue of the arrangement and location of the extensions 26 and 28, particularly with respect to the apertures 10, light bulb sockets of exceedingly simple construction are defined into which light bulbs 12 may be screwed or removed without having to open up the toy, the bulbs 12 being at all times accessible from the exterior of the toy. By virtue of the arrangement for receiving and securing the battery 40, replacement of the battery is facilitated while, once the battery has been inserted, it is fixed in position. By utilizing one of the resilient conductive strips, specifically the end 54 of the strip 14, to assist in maintaining the battery 40 in its proper position by urging the battery against the stops 52, while at the same time making electrical connection with the terminal 56 of the battery the employment of a separate battery locating member is avoided.

Only one embodiment of the construction is herein illustrated, that embodiment being in the form of a toy dog, but it will be apparent that objects of any desired shape or size could embody my invention. Therefore, a great many variations may be made in the details thereof without

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departing from the spirit of the invention as defined in the following claims.

I claim:

1. An illuminated figure comprising a two-piece hollow rigid self-supporting housing defining a body portion and a head portion having an aperture therethrough simulating the eye of said figure and through which a light bulb having a base with two terminals may be inserted, said housing parting along a central line, said head aperture being to one side of said line, a battery having two terminals secured within said body portion, strip guides in the form of projections and recesses integral with said housing pieces and on the interior thereof, at least some of said strip guides being arranged in opposite pairs, one on each piece of said housing, and a pair of conductive strips in said housing engaging said guides and being supported thereby along said parting line from said battery toward said head aperture so that portions of said strips make electrical connection respectively with the terminals of said battery, each of said strips having a lateral extension maintained opposite said head aperture inside said housing and spaced from one another substantially axially with respect to said head aperture, the strip portion closer to said head aperture itself being apertured so as to receive the base of said light bulb therethrough and make electrical connection with one terminal thereof, the other of said strip portions being adapted to make electrical connection with the other terminal of said bulb.

2. The illuminated figure of claim 1, in which the one of said housing pieces which includes said head aperture is provided with an integral strip guide on the other side of said head aperture from said parting line, said guide engaging the strip extension closer to said head aperture and positively holding it in position.

3. An illuminated figure comprising a two-piece hollow rigid self-supporting housing defining a body portion and a head portion having an aperture therethrough simulating the eye of said figure and through which a light bulb having a base with two terminals may be inserted, said housing parting along a central line, said head aperture being to one side of said line, a battery having two terminals secured within said body portion, strip guides in the form of projections and recesses integral with said housing pieces and on the interior thereof, at least some of said strip guides being arranged in opposite pairs, one on each piece of said housing, and including a pair of opposed guides on the opposite side of said head aperture from said battery, and a pair of conductive strips in said housing engaging said guides and being supported thereby along said parting line from said battery to a point on the other side of said head aperture from said battery so that portions of said strips make electrical connection respectively with the terminals of said battery, each of said strips having a lateral extension maintained opposite said head aperture inside said housing and spaced from one another substantially axially with respect to said head aperture, the strip portion closer to said head aperture itself being apertured so as to receive the base of said light bulb therethrough and make electrical connection with one terminal thereof, the other of said strip portions being adapted to make electrical connection with the other terminal of said bulb.

4. The illuminated figure of claim 3, in which the one of said housing pieces which includes

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said head aperture is provided with an integral strip guide on the other side of said head aperture from said parting line, said guide engaging the strip extension closer to said head aperture and positively holding it in position.

5. An illuminated figure comprising a two-piece hollow rigid self-supporting housing defining a body portion and a head portion, said housing parting along a central line, each of said housing pieces having an aperture there-
10 through simulating an eye of said figure and through which a light bulb having a base with two terminals may be inserted, a battery having two terminals secured within said body portion, strip guides in the form of projections and re-
15 cesses integral with said hollow housing and on the interior thereof, at least some of said strip guides being arranged in opposed pairs, one on each piece of said housing, and a pair
20 of conductive strips in said housing, said strips engaging said guides and being supported thereby along said parting from said battery toward said head aperture so that portions of said strips
25 make electrical connection respectively with the terminals of said battery, each of said strips having oppositely directed lateral extensions maintained opposite said head apertures inside
30 said housing, each pair of lateral extensions being spaced from one another substantially axially with respect to said head apertures, the extensions of each of said pairs closer to said
head apertures themselves being apertured so as to receive the base of said light bulb there-
through and make electrical connection with one terminal thereof, the others of said exten-
35 sions being adapted to make electrical connection with the other terminal of said bulb.

6. The illuminated figure of claim 5 in which each of said housing pieces is provided with an integral strip guide on the other side of said
40 head aperture from said parting line, said guides engaging the strip extensions closer to said head aperture and positively holding them in position.

7. An illuminated figure comprising a two-piece hollow rigid self-supporting housing defin-
45 ing a body portion and a head portion, said housing parting along a central line, each of said housing pieces having an aperture there- through simulating an eye of said figure and
through which a light bulb having a base with two terminals may be inserted, a battery having

two terminals secured within said body portion, strip guides in the form of projections and re-
cesses integral with said hollow housing and on the interior thereof, at least some of said strip
5 guides being arranged in opposed pairs, one on each piece of said housing, and including a pair of guides on the opposite side of said head aperture from said battery, and a pair of conductive
10 strips in said housing, said strips engaging said guides and being supported thereby along said parting line from said battery to a point on the other side of said head aperture from said bat-
tery, so that portions of said strips make elec-
15 trical connection respectively with the termi- nals of said battery, each of said strips having oppositely directed lateral extensions maintained
opposite said head apertures inside said hous-
20 ing, each pair of lateral extensions being spaced from one another substantially axially with re- spect to said head apertures, the extensions of
each of said pairs closer to said head apertures
25 themselves being apertured so as to receive the base of said light bulb therethrough and make electrical connection with one terminal thereof,
the others of said extensions being adapted to
make electrical connection with the other termi-
nal of said bulb.

8. The illuminated figure of claim 7 in which each of said housing pieces is provided with an
30 integral strip guide on the other side of said head aperture from said parting line, said guides engaging the strip extensions closer to said head aperture and positively holding them in position.

BENJAMIN L. LEVINSON.

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