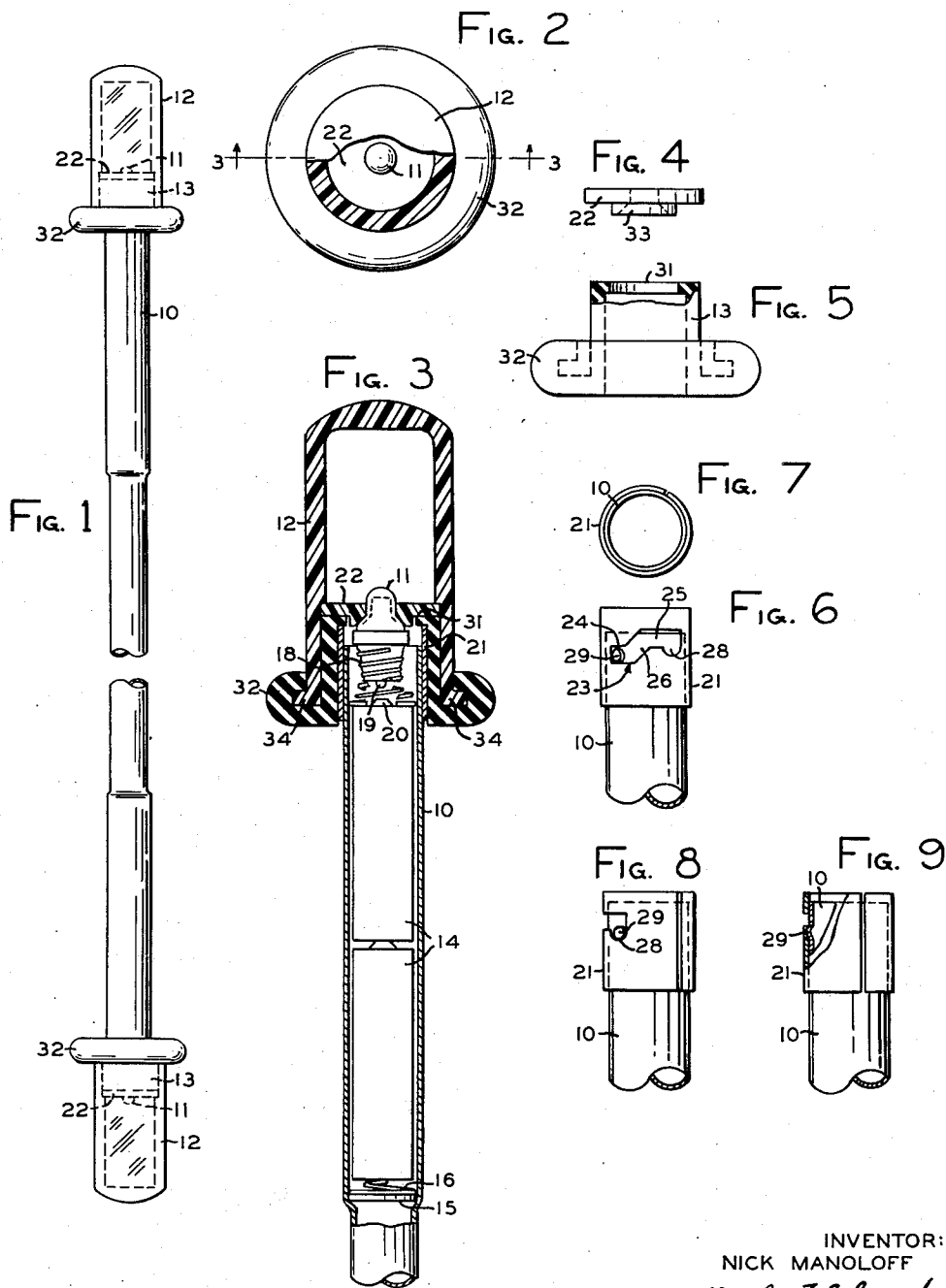


June 22, 1954

N. MANOLOFF
ILLUMINATED BATON
Filed Jan. 15, 1951

2,681,979



INVENTOR:
NICK MANOLOFF
BY *Charles F. Schroeder*
AGENT

UNITED STATES PATENT OFFICE

2,681,979

ILLUMINATED BATON

Nick Manoloff, Chicago, Ill.

Application January 15, 1951, Serial No. 206,004

5 Claims. (Cl. 240—6.42)

1

This invention relates to twirling batons and more particularly to electrically illuminated twirling batons.

It has long been desired to incorporate electrical illuminating means in twirling batons for purposes of decoration as well as to make such batons more attractive for twirling maneuvers performed in darkness, but certain difficulties arise in regard to the increase in weight and moment of inertia which result from the addition of electrical elements required to accomplish such illumination in the conventional twirling baton. Besides these difficulties, the electrical elements, such as the bulbs and the batteries, used to provide such illumination are usually susceptible to establishment of circuit faults caused by forces exerted on the elements during the normal use of such batons. In other words, the elements available for accomplishing illumination, and the manner of their association, are usually not sufficiently rugged to withstand the various sudden and extreme forces exerted during normal manipulation of twirling batons. Additionally, the weight, as well as the cost of such elements, usually do not readily lend themselves to being adapted to use in batons without making them cumbersome and expensive beyond practical limits.

In view of the foregoing conditions, it is an object of this invention to provide a novel electrically illuminated twirling baton, rugged in structure and having characteristics of weight and moment of inertia within the limits characteristic of conventional twirling batons.

A further object is to provide a novel electrically illuminated twirling baton which is simple and economical to construct, and in which all elements are physically protected against damage from even the most extreme jarring forces that might occur during twirling maneuvers.

A still further object is to provide a novel electrically illuminated twirling baton in which all circuit elements are protected against electrical discontinuities under the jarring forces of twirling maneuvers or accidental falls and contacts with hard surfaces.

A novel feature of the invention is that all of the electrical elements of the baton are arranged to be physically cushioned against shock substantially without adding any weight or affecting maneuverability in other respects.

Another feature is that the baton is provided with electrically illuminated tips, the electrical circuits of which are so arranged that electrical connections therein are actually improved under

2

the forces exerted during twirling maneuvers, rather than tending to become faulty.

The novel features which I believe to be characteristic of my invention are set forth with particularity in the appended claims. My invention, however, both as to its organization and method of operation, together with further objects and advantages thereof, may best be understood by reference to the following description taken in connection with the accompanying drawing, in which:

Figure 1 is an elevational view of an electrically illuminated twirling baton embodying the principles of the present invention with the central portion of the shaft removed to facilitate drawing and also to indicate that it may be made in various lengths;

Figure 2 is a top view of one end of the baton with a portion removed to more clearly reveal the internal elements of an illuminating portion of the baton;

Figure 3 is a cross sectional view of the end of the baton shown in Figure 2 as taken on line 3—3;

Figure 4 is a side elevational view of an annular member adapted to provide a seat for the illuminating bulb incorporated in each end of the baton;

Figure 5 is a side elevational view of the shock absorbing member which is used at each end of the baton with one portion broken away and other portions shown in dotted lines to reveal its internal form;

Figure 6 is a side elevational view of a portion of the baton showing the type of switch which is incorporated in its electrical circuits at each end of the baton;

Figure 7 is a top view of the switch of Figure 6 showing the manner in which it is mounted on the end of the baton;

Figure 8 is a side elevational view of the switch shown in Figure 6, but rotated to an "on" position into which it is locked; and

Figure 9 is a side elevational view of the switch shown in Figures 6 to 8, with a portion of the switch member and a portion of the shaft broken away to reveal the way in which the switch member is retained on the shaft, and by which it may be locked in its "on" position.

In greater detail, Figure 1 shows a baton made of a hollow metal shaft 10 each end of which is fitted with an illuminating bulb 11 encased within a transparent plastic globe 12 which is supported and secured to the shaft end by means of a resilient bushing 13 made of material such as rubber.

The shaft is of relatively small diameter at its central portion, but has end portions of slightly larger diameter arranged to accommodate batteries for the bulbs incorporated in the baton.

As shown in Figure 3, the shaft ends are enlarged in diameter for a length slightly greater than the length of a pair of conventional pen-light type dry cell batteries, each having a positive terminal at the top and a negative terminal at the bottom. The batteries are placed end for end in series circuit relation and are supported by a metal slug or washer 15 which is press-fit into the bottom of the enlarged shaft portion where it is backed by the internal shoulder formed at the end of the smaller diameter portion. A spiral spring 16 of short length is inserted between the slug 15 and the lower-most battery 14 to provide a cushion support for the batteries. This spring has an outer dimension substantially equal to the inside diameter of the enlarged shaft portion so as to provide a snug fit for the spring within the shaft in its abutting relation with the slug 15. Besides acting as a lower cushion for the batteries, the spring 16 also acts as a means for establishing an electrical contact between one end of the series connected batteries and the body of the shaft.

A helical spring 18, having a smaller diameter at one end than the other, is also formed with its largest diameter substantially equal to the inside diameter of the expanded shaft portion so that it may be seated on top of the upper-most battery 14, in contact with the inside surface of the body of the shaft without making contact with either the positive or negative electrodes of the battery on which it is seated. The smaller end of this spring is curled about the socket or screw portion of the bulb 11, thus electrically joining one side of the bulb with the body of the shaft, and consequently connecting it to the negative side of the series connected batteries through the spring 16. The length of the spring 18 is sufficient to support the central terminal 19 of the bulb a distance above the positive electrode 20 of the upper battery 14. Thus, by exerting a force on the bulb to compress the spring 18, electrical contact can be made between the bulb terminal 19 and the positive electrode 20, so that a complete electrical circuit is established through the bulb 11.

The switching mechanism for selectably turning the bulb on and off comprises a circular sleeve or band 21 which snugly surrounds the end of the shaft in cooperative association with the bushing 13, and a transparent bulb seat 22 fixedly held within the globe 12. The band 21 is made of thin sheet material having a length slightly less than the circumference of the shaft, and is formed into a circle as shown in Figures 6, 7 and 8 with the ends of the sheet confronting each other. An irregularly shaped slot 23, provided in the side of the band is formed by two horizontal straight cutout sections 24 and 25 of short length, spaced a short distance apart about the circumference of the band at different levels, and joined by a diagonal section 26. To enable the switch to be locked in its "on" position, a notch 28 is provided in the lower edge of the slot at the extreme end of the straight section 25.

A projection 29, provided on the outer surface of the shaft to make engagement with the slot, is formed by an indentation or semi-perforation on the inner surface of the shaft, as shown in Figure 9. The projection has a width slightly less than that of the slot and fits therein to retain

the band on the end of the shaft as well as to act as a guide and positioning means therefor. The height of the projection is such that it is no greater than the thickness of the band, yet sufficiently great that it will retain the band in place on the end of the shaft. The projection 29, besides being formed by an indentation of the inner surface of the shaft, also may be formed by a rivet fixedly secured to the shaft through an aperture in the wall and mushroomed on the outer as well as the inner surface, or some form of nut and bolt arrangement might be made to provide a projection, but the projection formed by the indentation or semi-perforation on the inner surface is preferred since with such arrangement no projections exist on the inner surface to obstruct the insertion of batteries and springs within the shaft. The band 21 is mounted on the end of the shaft by using the confronting ends of the band as a keyway, into which the projection 29 slides when the band is placed over the shaft end, and then forcibly rotating the band so that the projection will snap into the retaining slot 23.

The straight section 25 of the slot 23 is disposed a distance above the section 24 slightly greater than the distance that the bulb 11 must be moved from its normal "off" position to an "on" position in contact with the positive electrode 20 of the upper battery 14. The section 25 is also disposed a distance below the upper edge of the band 21 slightly greater than the distance that the projection 29 is located below the upper edge of the shaft 10, so that upon rotation of the band for selective "on" and "off" positioning thereof, the upper edge of the shaft never projects beyond the upper edge of the band. It will be seen that when the upper straight section 25 of the slot 23 is located to the right of the lower section 24, as illustrated in Figure 6, a clockwise rotation of the band 21 results in the band being lowered a distance equal to the vertical distance between the two straight sections 24 and 25. A clockwise rotation of the band to its extreme position, places the projection 29 above the notch 28 so that the band 21 may be slid upwardly to lock it in place as shown in Figure 8.

The circular bushing 13 has an inner diameter equal to the outer diameter of the band 21 so that it fits closely thereover. Its length is such that it may be slid over the band 21 so that its lower edge is at approximately the same level as the lower edge of the band 21, while its upper edge, provided with an inwardly projecting ridge 31, overhangs the upper edges of both the band and the shaft 10. A tire-like shock absorbing bumper 32 is unitarily formed with the bushing and extends from the lower edge thereof. When the bushing is mounted on the band 21, the bulb 11, in being supported by the spring 18, resiliently projects through the aperture formed by its overhanging ridge 31.

A seat for the bulb is provided by a transparent apertured disk or washer 22 which is fit tightly into the globe 12 and forms an upper illuminating chamber where light from the bulb may be displayed. The disk has a circular projection 33 on its lower surface, of such size that it fits closely within the aperture surrounded by the upper ridge 31 of the bushing 13, as shown in Figure 3. Thus, the ridge 31 is made to function as a cushion between the bulb seat and the shaft end. The position of the washer 22 within the globe 12 is determined by a shoulder formed on the inner

surface of the globe at a distance above the lower edge of the globe. This distance is such that when the washer 22 makes its engaging relation with the upper surface of the bushing 13, the lower edge of the globe, which is provided with a securing ridge 34, fits inside the tire-like bumper 32. Additionally, the washer is so located along the length of the globe as to give it more strength by way of reinforcement.

The bulb 11 is preferably of a type commonly used in pen-type flashlights having a narrow elongated tip with a wider shoulder portion provided close to its base. The end of the elongated tip is provided with a lens through which a portion of the light emitted from the bulb is concentrated into a beam which is directed toward the end of the globe. When the bulb is seated in the transparent disk 22, a portion of its tip, including the lens, projects through the aperture in the disk while its ridge-like shoulder portion rests against the under surface of the aperture which is beveled to fit the contours of the bulb. When the bulb is lit, the light from the portion below the disk, plus the light from the tip portion projecting above the disk, provides illumination in all directions within the globe 12. Although the type of bulb shown in the drawing is preferred, it is apparent that the construction disclosed is not necessarily limited to the particular bulb illustrated, but that other bulbs, such as the common spherical envelope type, might also be incorporated readily within the structure by merely changing the size and contour of the aperture in the disk 22, so that a substantial portion of the bulb and the light emitted therefrom will project into the illuminating chamber of globe 12.

To add to the decorative effect of the illuminating structure, the globe 12 can be made in a variety of colors and plastic materials. Further, the end of the globe 12 is arranged to form a light beam like that formed by the lens tip of the bulb 11, by constructing it so that its central portion is thicker than the edges, thereby providing a lens for the light emitted from the illuminating chamber.

When the globe 12 is mounted over the bushing 13, the bushing is held more tightly in contact with the band 21, thereby establishing more friction between the band and bushing to prevent the bushing from accidentally slipping from the band. Consequently, the globe itself, which is held in place by the bumper 32 is also prevented from accidentally slipping from the end of the shaft.

In order to illuminate one end of the baton, the globe 12 and the shock absorber member 32, either singularly or together, are grasped in one hand and rotated clockwise, while the shaft is held stationary in the other hand. This rotates the band 21 on the shaft and causes it to be lowered a distance governed by the shape of the irregular slot 23 therein. This distance, as explained above, is that which is required to bring the bulb terminal 19 in contact with the electrode 20 of the battery 14 plus a slight additional distance which causes the batteries to compress the spring 16 upon which they are supported. When the band reaches a point where the notch 28 is directly under the projection 29, the spring 16 pushes the band 21 upwardly so that the band is locked in position by engagement of the projection 29 in the notch 28. Any vertical movement of the band 21 effected by the rotation of the globe 12 and the

shock absorber member 32, along with a bushing 13, is transmitted to the bulb 11 by the disk 22. The globe, bushing and the shock absorber in effect ride on the band 21 so that when the band is lowered, the disk 22 which is fixedly mounted inside the globe rotates slidably about the glass shoulder surface of the bulb 11 and at the same time exerts a force downwardly thereon to bring the bulb into contacting relation with the battery 14. A complete circuit for the bulb thereby results; the negative electrode of the lower battery 14 being connected to the screw socket terminal of the bulb through the electrical path formed by the spring 16, the shaft 10 and the helical spring 18; while the central terminal 19 of the bulb makes direct contact with the positive electrode 20 of the upper battery 14.

During twirling maneuvers, centrifugal forces are exerted on the batteries 14 so that the positive electrode 20 of the upper battery 14 presses more tightly against the central terminal 19 of the bulb 11, while the spring 16 elongates responsive to any movement of the batteries so that a complete circuit will always be maintained. Thus, it is apparent that during periods when the baton is being twirled, the contacts of the electrical circuit incorporated therein are actually improved.

The baton is so designed that if during twirling maneuvers it is accidentally dropped, the jarring contact of the fall will be taken up by either one or both of the shock absorbers 32, or by one of the globes 12 without danger of damage occurring. If contact is made with the shock absorbers 32, the jarring forces are absorbed by both the bushing 13 and shock absorber. In addition, the resiliency of the entire globe assembly causes the baton to bounce so that it can be easily caught on a rebound of the fall. If the baton falls so that the globe 12 makes the contact, the jarring forces exerted thereon are also absorbed by both the resilient member 32 and the bushing 13 since the globes are suspended entirely upon the resilient member incorporating the bushing and shock absorber.

When a bulb 11 is to be replaced, the entire bushing and globe assembly may be removed for such operation by pulling on the globe and shock absorber and simultaneously rotating them in either direction. This causes the bushing 13 to slip off the band 21 gradually so that access may be had to the bulb directly in order that the replacement may be made with facility.

While I have shown a particular embodiment of my invention, it will, of course, be understood that I do not wish to be limited thereto since many modifications, both in the elements employed and their cooperative structure, may be made without departing from the spirit and scope of my invention. I contemplate, by the appended claims to cover any such modifications as fall within the true spirit and scope of my invention.

I claim as my invention:

1. In combination with a baton shaft at least one end of which is to be illuminated, a transparent globe, means for resiliently supporting said globe on said end, said resilient support means including a resilient projecting portion surrounding said shaft to provide a shock-absorbing bounce ring therefor, a lamp supported and arranged for adjustable positioning on said shaft-end, means fixedly associated with said globe for engaging said lamp in seated relation,

a source of voltage incorporated in said shaft having connections accessible to said shaft-end for energizing said lamp, and means for positioning said resilient support means and globe with respect to said shaft-end, whereby said lamp may be selectively positioned in connected relation with said source of voltage to illuminate said globe.

2. A baton capable of being illuminated comprising a shaft having at least one hollow end portion, a globe providing an illuminating chamber having an opening therein, a cross-member dividing the inside of said globe into a lower portion adjacent said opening and an upper portion above said cross-member, a sleeve-like insert of resilient material lining the inside of said lower portion, the inner dimensions of said insert being such that said globe and insert may be mounted on said shaft-end in axially positionable relation, said insert having a ridge projecting inwardly from the top thereof overhanging the edge of said shaft-end, thereby providing a resilient separator between said dividing member and shaft-end, a light-bulb resiliently supported within the hollow end of said shaft and projecting therefrom, said dividing member being so shaped that said bulb makes seated engagement with the under portion thereof in such manner that a substantial portion of the light emitted from said bulb is transmitted to the upper portion of said globe, a battery source of voltage for lighting said bulb encased within said shaft, said source of voltage having an associated electrical circuit accessible to said shaft-end arranged to light said bulb responsive to said bulb being axially positioned in connection therewith, whereby said globe may be illuminated responsive to axial positioning thereof on said shaft.

3. A baton capable of being illuminated comprising a shaft at least one end of which is to be illuminated, a transparent globe having an opening therein, a sleeve-like insert of resilient material lining the inside of the portion of said globe adjacent said opening, a cross-member fixed in said globe dividing it into an upper portion and a lower portion, said insert having a portion extending outwardly from the bottom thereof and securably overlapping the edge of said globe adjacent said opening, a sleeve-like band surrounding said shaft-end in snug slidable relation therewith and arranged for selective axial positioning thereon, the inner dimensions of said insert being such as to permit said globe and insert to be mounted in tight-fit relation on said axially positionable band, said insert having a ridge projecting inwardly from the top thereof overhanging the edges of said shaft-end and band, thereby providing a resilient separator between said cross-member and said edges, a light-bulb resiliently supported on the end of said shaft within the lower portion of said globe, said dividing member being so shaped that said bulb makes seated engagement with the under portion thereof in such manner that

a substantial portion of the light emitted from said bulb is transmitted to the upper portion of said globe, and a battery source of voltage for lighting said bulb encased within said shaft, said source of voltage having an associated electrical circuit accessible to said shaft-end arranged to light said bulb responsive to said bulb making connection therewith upon axial positioning of said band and globe.

4. A baton capable of being illuminated comprising a metal shaft of given length, at least one end of said shaft being surrounded by a bushing of resilient material, a transparent globe having an open end fitted over a portion of said resilient bushing enclosing said shaft-end, the open end of said globe being provided with an outwardly projecting ridge, the exposed portion of said bushing extending outwardly to and overlapping said ridge, thereby securing said globe to said bushing and forming a shock-absorber for said shaft and globe, said shaft-end having a hollow portion accommodating a voltage source, a light-bulb capable of being energized by said voltage source resiliently mounted at said shaft-end, means for seating said bulb in a fixed location within said globe whereby light emitted therefrom will be distributed within said globe, said voltage source, shaft, and bulb being so arranged that said bulb will make connection with said voltage source for energization responsive to an axial positioning of said bulb at said shaft-end, means associated with said shaft for enabling said globe and bushing to be adjustably positioned axially on said shaft-end, whereby said bulb may be moved into a position of connection with said voltage source.

5. A baton comprising a shaft of given length, illuminating means at each end of said shaft comprising a bushing of resilient material surrounding the end of said shaft, a transparent globe having an opening therein of such size as to permit said globe to be fitted snugly over said bushing, thereby enclosing said shaft-end, said globe having a projecting portion adjacent said opening, a portion of said bushing extending outwardly to overlap the projecting ridge portion of said globe, thereby securing said globe to said bushing and forming a shock-absorber for said shaft and globe, another portion of said bushing overhanging said shaft-end to prevent movement of said bushing on said shaft beyond said shaft-end, a light-bulb mounted within said globe, and a source of voltage incorporated in said shaft connected to said bulb and arranged to selectively energize said bulb.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
2,099,444	Langdon	Nov. 16, 1937
2,235,864	Brennan et al.	Mar. 25, 1941
2,242,981	Pedersen	May 20, 1941
2,259,443	Geier	Oct. 21, 1941