

[54] **SKATE WHEEL ATTACHMENT**

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[58] Field of Search 240/6.4 W, 2 R, 7.55, 58, 8.12; 272/70; 280/11.37 E; 248/206 A

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[57] **ABSTRACT**

A roller skate wheel attachment which is removably attachable to a wheel at the axle thereof. The device includes a connector which removably affixes to the wheel axle and a rotary member which is rotatable about the connector and which rotates when the wheel rotates. In one embodiment of the invention, the rotary member incorporates a switch which serves to alternately energize and de-energize lamps as the wheel rotates. In a second embodiment, the rotary member includes a reflecting surface to rotatively reflect light from exterior lighting sources when the skate wheel rotates.

7 Claims, 9 Drawing Figures

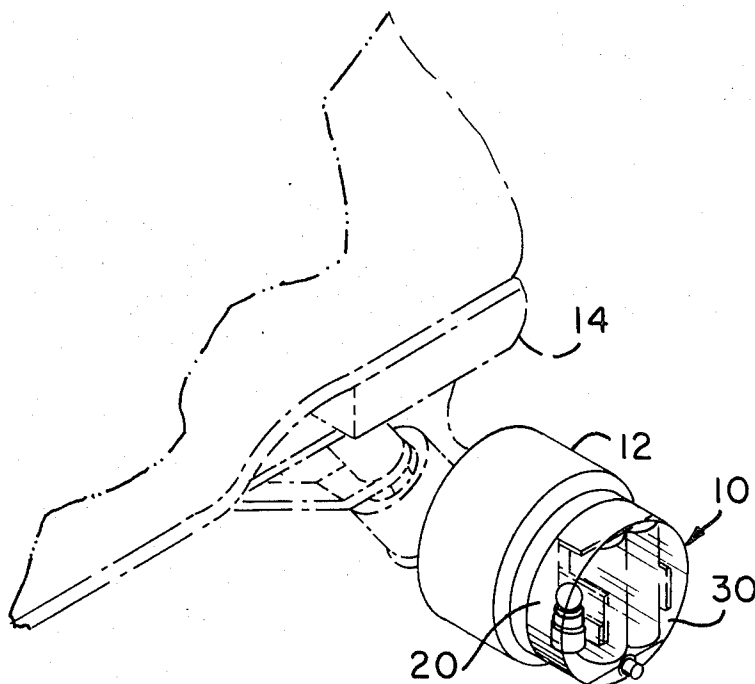


FIG. 1

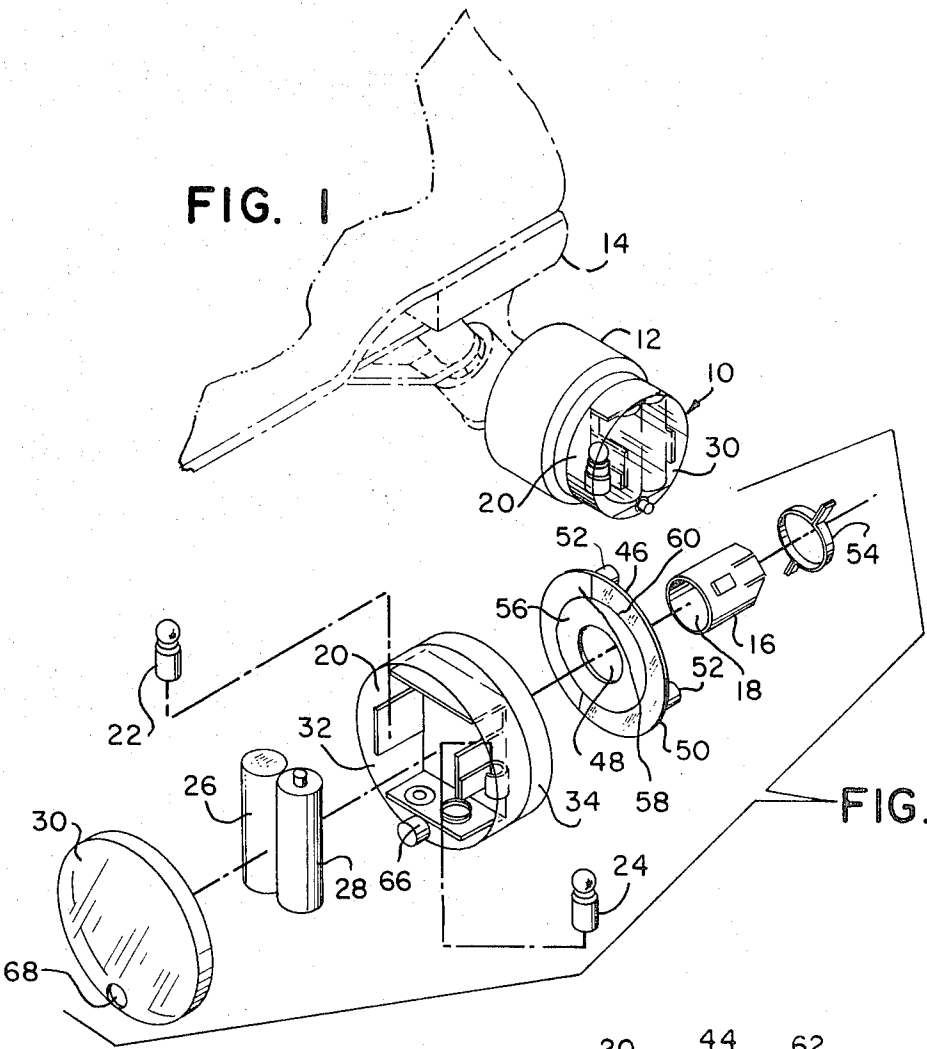


FIG. 2

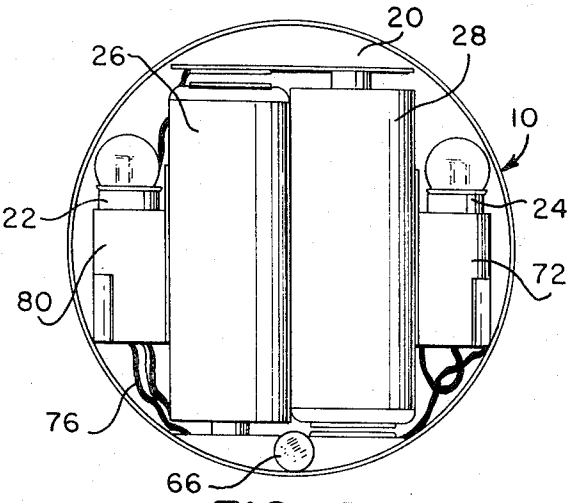


FIG. 3

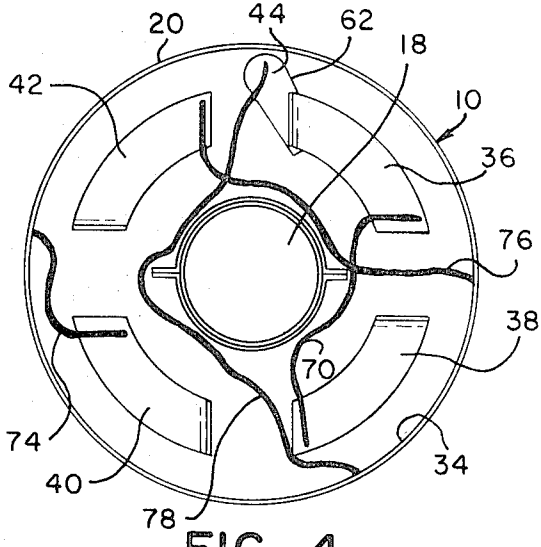


FIG. 4

SKATE WHEEL ATTACHMENT

BACKGROUND OF THE INVENTION

The present invention relates generally to the field of entertainment devices, and more particularly, is directed to a novelty attachment for use with roller skate wheels.

Roller skating has long been a favorite sport and popular recreation in this country for both children and adults. Roller skates have been employed for use both outdoors on paved surfaces such as streets and yards and indoors in well established facilities such as roller skating rinks. In both indoor and outdoor skating activities, roller skates are employed which have wheels which contact the ground surface and which are freely rotatable to permit the participant to propel himself to roll over the surface. In indoor skating rinks, it is common practice to employ roller skates of well known design which employ a shoe portion and wheels affixed directly to the shoe portion in a more or less permanent fashion. The wheels for indoor use are generally wooden in construction and are freely rotatable about fixed axles by means of ball bearings.

SUMMARY OF THE INVENTION

The present invention relates generally to the roller skate art and more particularly, is directed to an attachment which is removably connectable to roller skating wheels for light display or reflection purposes.

The present skate wheel attachment includes a stationary socket which removably affixes to one end of the wheel axle in a manner to rotatively journal a movable member thereon. The wheel attachment incorporates a rotary member and means to rotate the rotary member when the skate wheel rotates. In one embodiment, the said rotary member includes movable switch contacts, to alternately energize and de-energize lamps when the wheel rotates. In a second embodiment, the rotary member includes means to reflect light from sources external of the wheel attachment itself.

It is an object of the present invention to provide an improved skate wheel attachment of the type set forth.

It is another object of the present invention to provide a novel skate wheel attachment which includes a stationary socket which removably affixes to the wheel axle and a rotary member journaled about the socket, the said rotary member incorporating a rotary reflecting surface to reflect in a rotary manner light received from external, stationary light sources.

It is another object of the present invention to provide a novel skate wheel attachment including a stationary socket which removably affixes to the wheel axle and a rotary member journaled about the socket, the said rotary member rotating when the skate wheel rotates.

It is another object of the present invention to provide a novel skate wheel attachment for removably affixing to a skate wheel at the axle thereof, said attachment including a rotating member which rotates with the skate wheel, said rotating member including at least one lamp and switch means to alternately function and de-energize the lamp as the wheel rotates.

It is another object of the present invention to provide a novel skate wheel attachment that is simple in design, rugged in construction and trouble free when in use.

Other objects and fuller understanding of the invention will be had by referring to the following description and claims of the preferred embodiments thereof, taken in conjunction with the accompanying drawings, wherein like reference characters refer to similar parts throughout the several views and in which:

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of a first embodiment of the invention as applied to a skate wheel.

FIG. 2 is an exploded, perspective view of the device of FIG. 1.

FIG. 3 is a top plan view of the device of FIG. 1.

FIG. 4 is a bottom plan view of the device of FIG. 1.

FIG. 5 is a schematic electrical wiring diagram of the device of FIG. 1.

FIG. 6 is a perspective view similar to FIG. 1, showing a second embodiment of the invention.

FIG. 7 is a cross-sectional view taken along Line 7—7 of FIG. 6, looking in the direction of the arrows.

FIG. 8 is a top plan view taken along Line 8—8 of FIG. 7, looking in the direction of the arrows and partially broken away to expose details of interior construction.

FIG. 9 is a bottom plan view taken along Line 9—9 of FIG. 7, looking in the direction of the arrows.

DESCRIPTION OF THE PREFERRED EMBODIMENTS OF THE INVENTION

Although specific terms are used in the following description for the sake of clarity, these terms are intended to refer only to the particular structure of my invention selected for illustration in the drawings and are not intended to define or limit the scope of the invention.

Referring now to the drawings, I show in FIGS. 1—4, a skate wheel attachment 10 which is removably attachable to a conventional wheel 12 of a roller skate 14. The attachment 10 includes a concentric socket 16 which is adapted to be removably mounted upon the end of the skate wheel axle (not shown) in a readily removable manner, such as by employing a magnet 18. Inasmuch as the wheel axle itself does not rotate, it follows that the socket 16 which is affixed to the axle also does not rotate when the wheel 12 rotates.

Connected to the socket 16 is a housing 20 within which are mounted the lamps 22, 24 and the batteries 26, 28 as hereinafter more fully set forth. The housing 20 is preferably of hollow, cylindrical configuration and as seen in FIG. 1, is mounted in concentric relationship with the wheel 12 when in use. A transparent cover 30 overfits the open end 32 of the housing 20 in a manner to permit the lamps 22, 24 to be visible there-through. The housing terminates inwardly in a peripheral, inwardly extending skirt 34 which covers the spring contacts 36, 38, 40, 42 and the switch contact 44 in the manner hereinafter more fully set forth.

A rotary disc 46 is provided with a central opening 48 which rotatively journals upon the exterior of the socket 16 to permit free rotary action of the disc 46 to the housing 20 within the skirt 34. The exterior side 50 of the disc 46 is provided with a plurality of projections 52 which contact the wheel 12 in a manner to cause the disc 46 to rotate simultaneously with the wheel 12. It will be appreciated that the housing 20 affixes to the wheel axle (not shown) and accordingly, does not rotate when the wheel 12 rotates. A collar 54 overfits the

socket 16 exteriorly of the disc 46 and serves to retain the disc 46 in close association with the housing 20 within the skirt 34.

As best seen in FIGS. 2 and 5, the interior side 56 of the disc 46 is provided with a peripheral band comprising an arcuate electrically conductive strip 58 and an arcuate electrically non-conductive strip 60 which function with the spring contacts 36, 38, 40, 42 for lamp operation purposes as hereinafter more fully set forth. As shown in FIGS. 4 and 5, the switch contact 44 is movable from circuit energizing position 62 (FIG. 4) wherein the switch contact 44 touches the spring contact 36 to a circuit open position 64 wherein the switch contact 44 is pivoted away from the spring contact 36 (FIG. 5). A switch operating rod 66 is affixed at one end thereof to the switch contact 44 and has its exposed end projecting exteriorly of the housing through the opening 68 which is provided in the cover 30. The switch contact 44 is operable by means of the exposed end of the rod 66. As best seen in FIGS. 3, 4, and 5, the spring contacts 36, 38 are interconnected by a circuit wire 70 in a manner to interconnect the switch contact 44 and the spring contacts 36, 38 when the switch is moved to its operating position 62 (FIG. 4). The spring contact 40 connects to one side of the lamp socket 72 by means of the circuit wire 74. Similarly, the spring contact 42 connects to one side of the lamp socket 80 by means of the circuit wire 76 to provide circuit continuity to activate the lamp 22 upon circuit energization. A circuit wire 78 interconnects the switch contact 44 with the electrical circuit 82 in a manner to receive circuit current from the batteries 26, 28.

As best observed in FIG. 5, it will be noted that the spring contacts 36, 38, 40, 42 are arcuately arranged in a concentric circle and are spaced discreetly for cooperating operation with the rotary disc 46. It will be noted that the electrically conductive strip 58 registers over the circular arrangement of spring contacts 36, 38, 40, 42 and is in intermittent contact with the spring contacts when the disc 46 is rotated relative to the housing 20 upon rotation of the skate wheel 12. The conductive strip 58 is fabricated to an arcuate length that is less than one-half the circumference of the disc and is fabricated long enough to form an electrically conductive path between the spring contact 38 and the spring contact 40 or the spring contact 36 and the spring contact 42. However, the conductive strip 58 is fabricated to a length that is insufficient to contact both spring contacts 40, 42 and an additional contact 36 or 38. In this manner, the lamps 22, 24 are energized intermittently so that when one lamp is lit, the other is not.

When the switch contact 44 is moved to its circuit open position 64 by means of the rod 66, as in FIG. 5, the electrical circuit 82 is open and no current flows. Accordingly, neither lamp 22 nor lamp 24 will illuminate under any circumstances. When the switch contact 44 is moved to its operating position 62 as in FIG. 4, current from the batteries 26, 28 is conducted through the circuit wire 78, through the switch contact 44, to the spring contacts 36, 38 to form an elongate, energized area. With the rotary disc 46 held tightly against the contacts 36, 38, 40, 42 in sliding engagement thereover by means of the collar 54, electrical energy can be bridged across the gaps between the various spring contacts by means of the conductive strip 58. Thus, when the disc 46 rotates to cause the conduc-

tor strip 58 to contact both the spring contact 40 and the spring contact 38, current will flow from the batteries 26, 28 through the spring contact 40, the circuit wire 74 to energize one side of the socket 72 for lamp 24 illumination purposes. Similarly, when the disc 46 rotates its conductive strip 58 to bridge between the spring contact 36 and the spring contact 42, electrical current from the batteries 26, 28 is caused to flow through the spring contact 42, the circuit wire 76 to one side of the lamp socket 80 to thereby energize the lamp 22. Continued rotation of the disc 46 causes intermittent, alternate operation of the lamps 22, 24.

Referring now to FIGS. 6, 7, 8 and 9, I show a second embodiment of the invention wherein a strictly mechanical, rather than electrical, skate wheel attachment is illustrated. The modified skate wheel attachment 84 removably affixes to a skate wheel 12 by means of a concentric socket 86 which may have a magnet 88 bottomly positioned therein for magnetic engagement of the wheel axle (not shown). In this embodiment, the concentric socket 86 is associated with the wheel axle (not shown) at the end thereof and does not rotate. The wheel attachment housing 90 is generally cylindrical in configuration and freely rotates about the socket 86 in conventional manner, such as by employing a bushing 92. A plurality of projections 94 are inwardly affixed to the housing inward surface 96. The projections inwardly extend a sufficient distance to engage portions of the wheel construction 12 in a manner to rotate the housing 90 about the socket 86 when the wheel 12 is rotated.

The outward surface 98 is fabricated of translucent material, such as acrylic plastic, to readily permit the passage of light therethrough. Interiorly of the housing 90 is formed a reflecting surface 100 which may be configured to form a transverse rib 102 having sloping sidewalls 104. The rib 102 acts to reflect light from light sources exterior of the housing 90 when the wheel attachment 84 is rotated upon rotation of the skate wheel 12. In this manner, an inexpensive, highly decorative and attractive reflecting attachment can be provided for easy attachment to a skate wheel.

Although I have described the present invention with reference to the particular embodiments herein set forth, it is understood that the present disclosure has been made only by way of example and that numerous changes in the details of construction may be resorted to without departing from the spirit and scope of the invention. Thus, the scope of the invention should not be limited by the foregoing specification, but rather only by the scope of the claims appended hereto.

I claim:

1. In a skate wheel attachment adapted to be removably affixed to a skate wheel at the axle thereof, the combination of

A. a stationary socket associated concentrically with the wheel axle,

1. said socket being removably connected to the axle and nonrotating with respect thereto, said socket projecting outwardly with respect to said wheel to provide a cylindrical surface;

B. a housing journaled on the socket at the cylindrical surface and rotatable about the socket,

1. said housing having inwardly projecting means which extend inwardly a sufficient distance to contact and engage to the skate wheel whereby the housing rotates when the wheel rotates; and

C. light transmitting means contained within the housing

1. said light transmitting means directing light rays exteriorly of the skate wheel attachment.

2. The invention of claim 1 wherein the said light transmitting comprises a reflecting surface, said reflecting surface being diametrically oriented within the housing.

3. The invention of claim 2 wherein the housing has a floor and the reflecting surface is formed to the configuration of a rib which projects outwardly from the floor, the said rib having sloping sidewalls for light reflecting purposes.

4. The invention of claim 3 wherein the transverse rib receives light from a source exterior of the housing and reflects the received light, the sloping sidewalls reflecting the reflected light as the housing rotates.

5. The invention of claim 1 and a magnet positioned within the socket in a stationary manner, said magnet

removably securing the socket to the axle.

6. The invention of claim 1 wherein the said housing carries a plurality of pairs of electrical contacts means for selectively connecting each one of the contacts of a pair to its corresponding contact, a battery, an electrical circuit activated by the battery and a lamp which is energized when the electrical circuit is activated by the battery, the said electrical contacts serving to complete the circuit to energize the lamp when said connecting means connects one contact of a pair to its corresponding contact.

7. The invention of claim 6 wherein said connecting means includes a band having two portions, a first portion of said band being fabricated of electrically conductive material and a second portion of said band being fabricated of electrically non-conductive material, said band being peripherally arranged within the housing and having rotary motion within the housing.

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