Feb. 26, 1963 C. D. EVANS 3,079,202

ROLLER SKATE HUB CAP

Filed Aug. 8, 1960 3 Sheets-Sheet 1

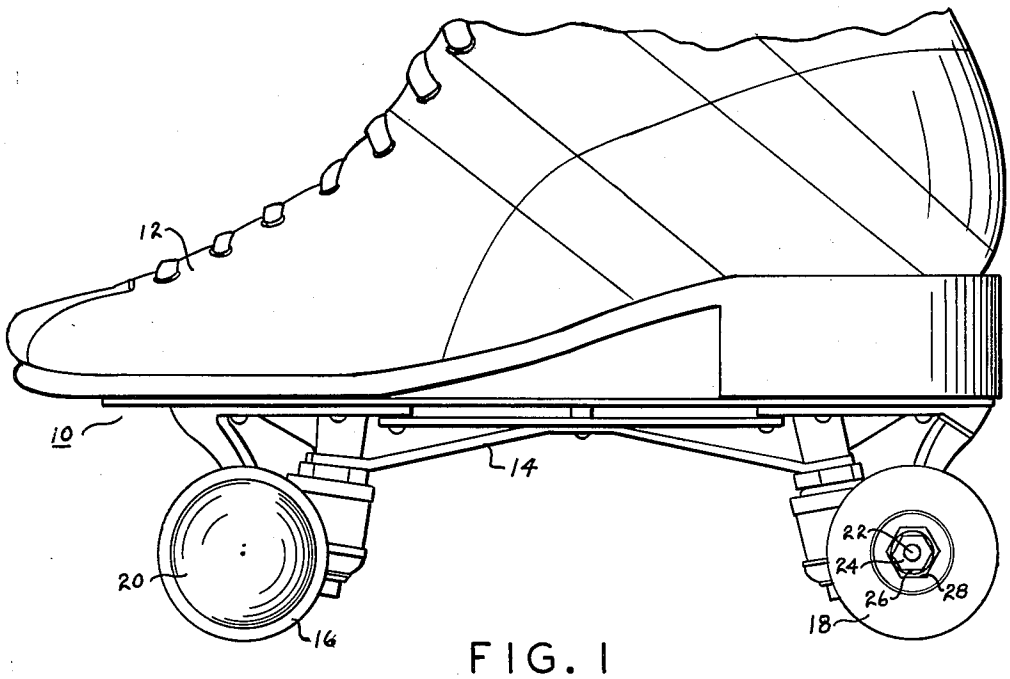


FIG. 1

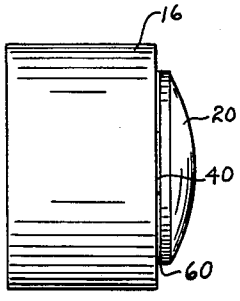


FIG. 2

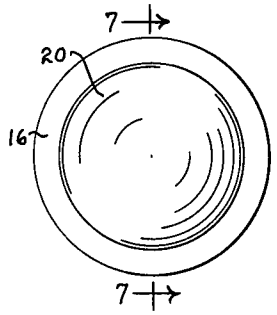


FIG. 3

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Feb. 26, 1963 C. D. EVANS 3,079,202

ROLLER SKATE HUB CAP

Filed Aug. 8, 1960 3 Sheets-Sheet 2

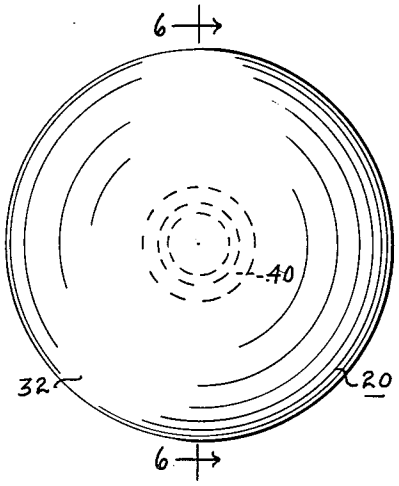


FIG. 4

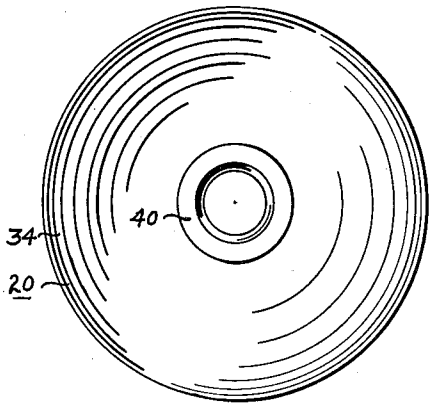


FIG. 5

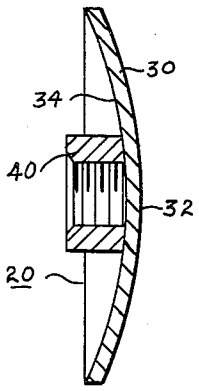


FIG. 6

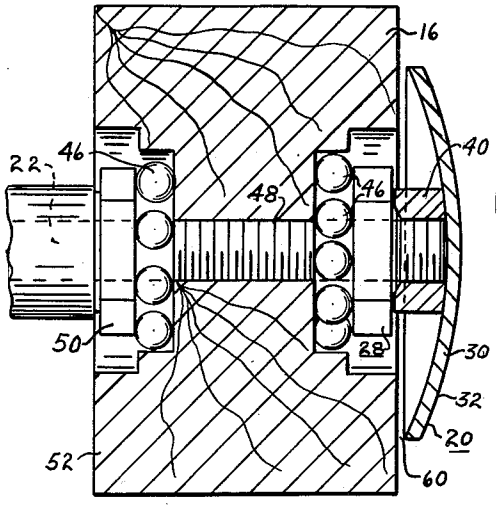


FIG. 7

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Feb. 26, 1963 C. D. EVANS 3,079,202

ROLLER SKATE HUB CAP

Filed Aug. 8, 1960 3 Sheets-Sheet 3

FIG. 8

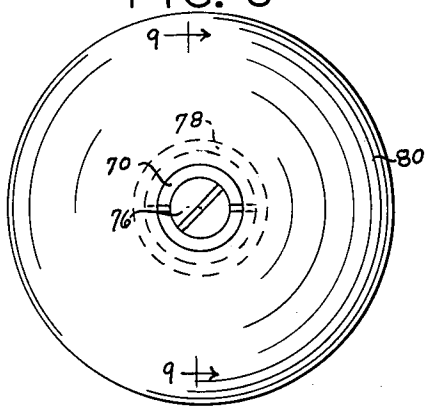


FIG. 10

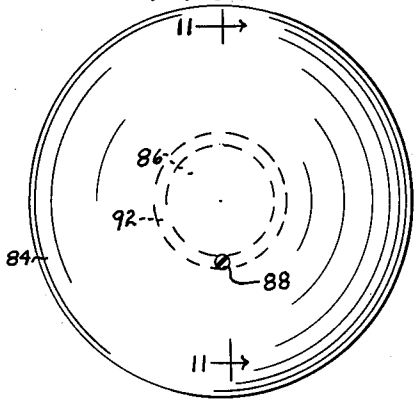
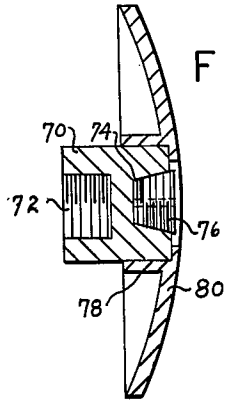


FIG. 9



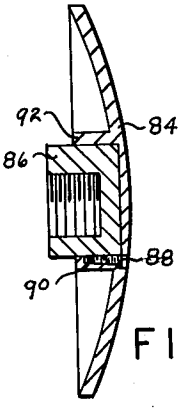


FIG. 11

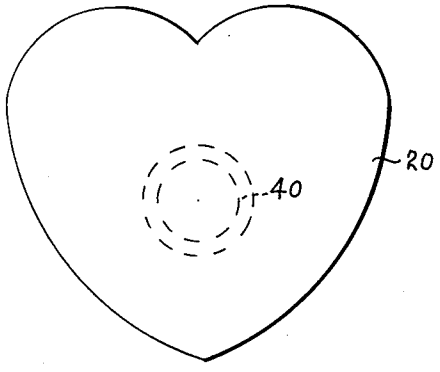


FIG. 12

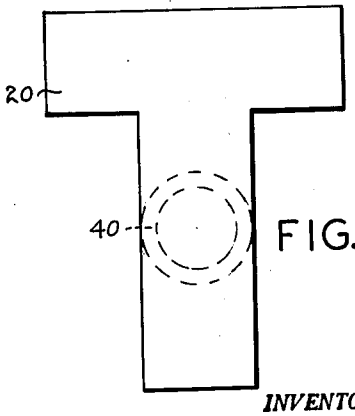


FIG. 13

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3,079,202

ROLLER SKATE HUB CAP

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Filed Aug. 8, 1960, Ser. No. 48,297
2 Claims. (Cl. 301—108)

The present invention relates to roller skates and more particularly to hub caps for roller skate wheels.

Today's modern indoor skating rinks usually have hardwood floors, and when a skater falls, the sides of his skates are often scraped along the floor, marring and damaging the wood with the sharp axle ends and other hard metallic portions of the skate, as well as endangering other skaters. Therefore, one principal object of the present invention is to provide a hub cap for skates which will protect other skaters and the floor from the ends of the axles, and which may be coated with a resilient material to provide additional protection.

Another object of the invention is to provide a non-rotatable hub cap which will minimize the aforementioned scraping and marring and which may carry various materials and printed matter such as advertising or other slogans and special identifying designs or emblems to be seen and read by other skaters and spectators.

An additional object of this invention is to provide a hub cap of the above type which may be cut into the configuration of a symbol such as a shield or coat-of-arms, initials, and the like, and which may be drilled to carry small inserts such as jewels.

It is a further object of the invention to provide a hub cap for roller skate wheels which is simple and attractive in design and construction and which is readily mountable and demountable on roller skate wheels without the use of special tools or techniques.

Additional objects and advantages will become apparent from the following description and accompanying drawings, wherein:

FIGURE 1 is a side elevational view of one type of skate with my hub cap mounted on one of the wheels thereof;

FIGURE 2 is a front elevational view of a skate wheel with my hub cap mounted thereon;

FIGURE 3 is a side elevational view of the wheel and cap shown in FIGURE 2;

FIGURE 4 is an enlarged front elevational view of the hub cap;

FIGURE 5 is an enlarged rear elevational view of the hub cap;

FIGURE 6 is a vertical cross sectional view of the hub cap taken on line 6—6 of FIGURE 4;

FIGURE 7 is a vertical cross sectional view of the wheel and hub cap shown in FIGURES 2 and 3, taken on line 7—7 of FIGURE 3;

FIGURE 8 is an enlarged elevational front view of a modified form of my hub cap;

FIGURE 9 is a vertical cross sectional view taken on line 9—9 of FIGURE 8;

FIGURE 10 is an enlarged elevational front view of another modified form of my hub cap;

FIGURE 11 is a vertical cross sectional view of the hub cap taken on line 11—11 of FIGURE 10;

FIGURE 12 is an enlarged elevational front view of a further modified form of the hub cap; and

FIGURE 13 is an enlarged elevational front view of a still further modified form of my invention.

In FIGURE 1, numeral 10 designates generally a skate having shoe 12 mounted on body portion 14 to which are rotatably attached wheels 16 and 18. Hub cap 20 is mounted on wheel 16, while wheel 18 has been shown without the cap to illustrate a common type of bearing unit for the wheels, including axle 22 with outer nut 24, washer 26, and bearing nut 28, for retaining the bearings, threadedly received thereon. The shoe 12, body portion 14, and particular construction of wheels 16 and 18 may consist of any desired structure or design, provided a threaded portion of the axle extends outwardly beyond the bearing structure.

Hub cap 20 includes a plate 30 formed as a flat disc-shaped member or a member with a convex outer surface 32 and a corresponding concave inner surface 34, as shown in FIGURE 6, and an internally threaded hollow cylindrical portion 40 welded or otherwise secured to the inner surface of plate 30, preferably at the center thereof. The cylindrical portion 40 may be mounted at any desired position on the inner surface 34, but it must be so placed that the mounted hub cap will not touch the floor or any rotating portion of the wheel. The convexity of the outer surface acts as a safety device by providing a surface without sharp edges to cut or catch skaters, clothing, or the floor.

FIGURE 7 shows a cross section of a roller skate wheel, the bearing structure being represented by balls 46, threaded axle portion 48 of axle 22, and bearing nuts 28 and 50, supporting rotatable wheel portion 52, which would ordinarily be made of wood, such as maple. Frequently, the bearing structure of a roller skate wheel is more complex than that shown in this figure, but it is sufficient for the installation of the present invention that a threaded portion of the axle extend beyond the structure retaining the bearings. Usually there is such a member holding a nut and washer, such as outer nut 24 and washer 26 of FIGURE 1, for the purpose of tightly retaining the bearing parts in proper position. As seen in FIGURE 7, outer nut 24 and, if desired, washer 26 are removed and replaced by hub cap 20, the hub cap thus performing the functions of nut 24 and the washer. Since axle portion 48 does not rotate while the skate is in use, hub cap 20, held rigidly to the axle by cylinder 40, is also prevented from rotation.

In order to prevent friction and wear between the rotating wheel portion 52 and cap 20, a space 60 is provided between the edge of the cap and wheel portion by the proper choice of the length of cylinder 40, which must be in contact with nut 28 to hold it tight, but the space 60 must be limited in order to avoid catching the cap on other skates, skater's clothing or other objects. However, in various designs of skate bearing structures, the axle projects to different extents from the bearing structure, and frequently it does not extend beyond the side of the wheel as does the one shown in FIGURE 7. Therefore, it is necessary to construct cap 20 so that the length of cylinder 40 corresponds to these various degrees of extension of the axle and holds the cap at the proper distance from wheel portion 52. Rather than produce a different cap for each type of bearing structure, hub caps may be manufactured with a single long cylinder 40, and the user of the cap then cuts or grinds the cylinder to the required length. A decal may be placed on outer surface 32, or the surface may be initially painted, engraved, or otherwise marked. Furthermore, materials such as fur may be attached to the surface 32 to give it a pleasing and/or interesting appearance. The fur may be secured to the plate by cement or other suitable means.

In use, nut 24 and washer 26 are removed from axle portion 48 and hub cap 20, with cylinder 40 ground to the desired length, is screwed onto the axle in their place. As the skater moves along the floor, spectators and other skaters can readily see and/or read the material on the hub caps. Identifying symbols, such as initials or numbers, can be used by individual skaters and by roller rinks renting skates to discourage stealing, and clubs can use special symbols representing the club. For example,

a boy and girl can use a heart-shaped hub cap, such as that shown in FIGURE 12 mounted by cylinder portion 40, or an initial cap such as that shown in FIGURE 13, and these caps may be coated with a fluorescent or reflecting material.

The hub caps may be made in a number of different ways and from a variety of different materials, including steel, aluminum and plastic materials. To prevent injury to other skaters and the floor by the metal portions of the skate wheel when a skater falls, plate 30 may be formed of resilient material to act as a buffer and at the same time carry a pleasing design or device.

When mounting a prepared hub cap on a skate, it may be difficult to screw cylindrical portion 40 onto the axle portion 48 in such a way that the letter, shield or other symbol is upright. To aid in mounting the hub cap upright, one of the structures shown in FIGURES 8 through 11 may be incorporated in the design of the cap. The structure shown in FIGURES 8 and 9 includes cylindrical portion 70 having a threaded bore 72 to receive the axle extending substantially half the length of the cylindrical portion. The outer end of the portion 70 is split and provided with a tapered hole 74 threaded to receive a tapered screw 76. In use, portion 70 is mounted on the axle, and then cylindrical portion 78 of plate 30 is placed over the split end in the desired position and screw 76 is tightened to force the two halves of the end against cylindrical portion 78 and hold the positioned plate 30 immovable. Alternatively, the structure of FIGURES 10 and 11 may be used, in which plate 84 is held immobile on cylindrical portion 86 by the pressure of screw 88 in tapered bore 90 acting between cylindrical portion 86 and portion 92 of plate 84. With either of these structures, it is possible to readily place the plate of the hub cap in the desired position for viewing of the symbols thereon and thereafter hold the plate firmly in its adjusted position.

Although several embodiments have been shown and described herein, various other changes and modifications may be made without departing from the scope of the present invention.

I claim:

1. A non-rotating hub cap for roller skate wheels mounted on threaded axles, comprising a dome shaped circular plate with a centrally located hole therethrough, the convex surface of said plate being smooth for receiving thereon decals and the like, a cylinder having a threaded passage in its inner end concentric with the longitudinal axis of said cylinder for receiving the skate axle and having a threaded passage in its outer end separated from said first passage by a partition, the portion of the cylinder containing the last mentioned passage being split longitudinally from the outer end of said cylinder to said partition, a cylinder with an internal bore equal in diameter to the diameter of said first mentioned cylinder mounted on said plate on the surface opposite to said convex surface in the center of the plate and embracing said first mentioned cylinder at the split portion, and a tapered set screw in the passage in the split portion of said first mentioned cylinder for pressing the sides of said split portion against the internal sides of said second mentioned cylinder.

2. A hub cap for roller skate wheels mounted on threaded axles, comprising a plate-like member with an internal side and with a hole therethrough, a cylinder having a threaded passage in its inner end substantially parallel to the longitudinal axis of said cylinder for receiving the skate axle and having a threaded passage in its outer end separated from said first passage by a partition, the portion of said cylinder containing said second passage being split longitudinally, a cylinder with an internal bore substantially the same in diameter as said first mentioned cylinder mounted on said plate-like member on said internal side around said hole and embracing said first mentioned cylinder at the split portion, and a tapered set screw in the passage in the split portion of said first mentioned cylinder for pressing the sides of said split portion against the internal sides of said second mentioned cylinder.

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