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E. VAN HORN

2,484,974

ROLLER SKATE WHEEL

Filed March 26, 1947

FIG. 1.

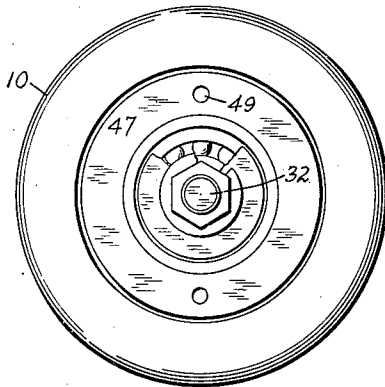


FIG. 2.

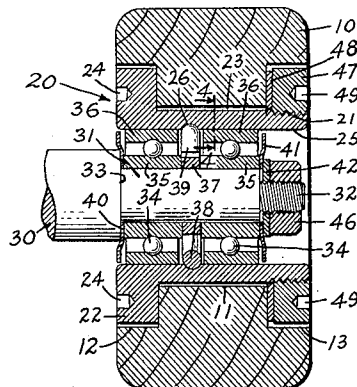


FIG. 3.

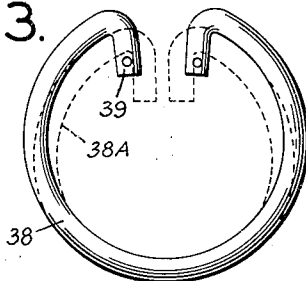


FIG. 4.

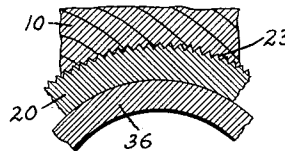


FIG. 5.

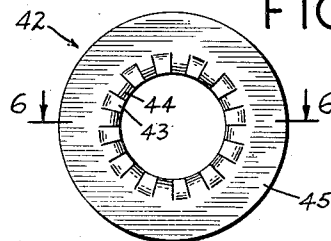
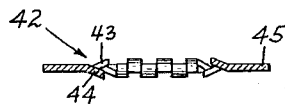


FIG. 6.



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ROLLER SKATE WHEEL

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2 Claims. (Cl. 301—5.7)

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This invention relates to demountable roller skate wheels, and its object is to provide a simple, sturdy anti-friction mounting for skate rollers which is of simple, inexpensive construction and comprises few parts.

More particularly, its object is to provide an arrangement for firmly securing a roller to rotating parts of a bearing in such a manner that an injured roller may be easily and quickly removed and replaced by a new roller.

According to former practice, it has been assumed that skate rollers will last a long time and that when they are worn down all of them can be removed and new ones substituted. Such changes are infrequent, so that the time involved in making the change is of little consequence. It is a fact, however, that in fancy skating, hockey playing and racing one or more of the eight rollers on a pair of skates may split or become otherwise injured, and it is important to provide an arrangement whereby a perfect roller may be substituted for an injured one with a minimum of effort and in the shortest possible time.

This application is a continuation in part of my application Serial No. 672,481, filed May 27, 1946, now abandoned.

I have invented an arrangement which supplies this need, and in the following specification will be described what I now consider a preferred embodiment of the invention and will point out its novel features in claims.

Fig. 1 is an end view of a roller and its bearing, which is made according to and embodies my invention;

Fig. 2 is a sectional side elevation of the structure shown in Fig. 1;

Fig. 3 is an end elevation of a lock ring which is used to hold some of the parts together;

Fig. 4 is a partial sectional elevation taken on the line 4—4 of Fig. 2;

Fig. 5 is an end elevation and Fig. 6 is a sectional edge view of a spring washer as shown in Fig. 2. The section in Fig. 6 is taken on the line 6—6 of Fig. 5.

10 designates a skate roller. Such rollers are usually made of wood, but may be made of fiber, plastic or other material, if desired. The roller is provided with a central cylindrical bore 11 and with counterbores 12, 13 of a larger diameter at either end of the central bore, forming therewith flat transverse shoulders.

20 is a metallic hub externally threaded as at 21 at one end and having an upwardly extending flange 22 at its other end. The sides of the flange are flat and normal to the axis of the hub. The

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outer surface of the hub between the threads 21 and the flange 22 is knurled to provide serrations 23 parallel to the axis of the hub. 24 designates diametrically opposed holes in the outer side of the flange for the reception of a wrench. The hub has a cylindrical bore 25, in which is an annular transverse groove 26.

Projecting from the truck 30 of the skate is an integral axle 31 of reduced diameter. This has a reduced externally threaded portion 32 at its outer end. A rigid transverse shoulder 33 is formed between the truck 30 and the axle 31. 34, 34 are ball bearings, which may be of standard construction. Each of these has an inner race ring 35 and an outer race ring 36. The inner surfaces of the inner race rings are of a diameter to fit the axle 31. The outer surfaces of the outer race rings fit the bore 25 of the hub. 37 is a spacing bushing, the inner diameter of which corresponds to the diameter of the axle, and its outer diameter is substantially the same as the outer diameter of the inner race rings 35.

38 is a split lock ring between the outer race rings. This has inwardly turned ends 39, by means of which it can be compressed, as shown by dotted lines at 38A in Fig. 3.

In assembling these parts a dust washer 40 is placed on the axle 31 adjacent the shoulder 33. Then one of the bearings 34, the spacing bushing 37 and the hub 20 are placed on the axle. The lock ring, compressed to pass into the bore 25 of the axle, is then inserted, and when it reaches the annular groove 26 is allowed to expand and becomes seated in the groove. The other bearing 34 is then placed on the axle, and, after the parts are thus assembled, a dust washer 41 placed against its inner race ring 35. 42 is a lock washer, which is placed on the dust washer 41. The inner periphery of the lock washer, which is shown in detail in Figs. 5 and 6, is subdivided into a plurality of sections 43, 44, which are bent alternately to project from opposite sides of its outer body 45. 46 is a nut on the reduced threaded end 32 of the axle. When the nut is tightened, all of these parts except the hub and the outer races of the bearings will be locked to the axle.

The roller 10 is then placed on the hub 20. This may be tapped into place as the serrations 23 cut into its bore 11. The counterbores 12, 13 are of equal depth and of a diameter slightly in excess of the outer diameter of the flange 22, so that either side of the roller may be placed first on the hub, and the roller is forced in until it abuts the flange 22.

48 is a lock washer, similar to the lock washer

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42, but of larger diameter, which is placed in the center bore 13, and a lock ring 47, internally threaded to engage the threads 21 on the axle, is screwed against it. Diametrically opposed holes 49 in the outer surface of the lock ring are provided for the reception of a wrench.

This construction provides an arrangement whereby a roller may be readily applied to a skate and may be as readily and as quickly removed.

Various modifications in construction, mode of operation, method and use of an invention may and do occur to others, especially after benefiting from knowledge of such a disclosure as that herein presented, of the principles involved, but the invention itself is not confined to the present showing.

I claim:

1. A skate roller having a central bore and counterbores in its sides forming flat transverse shoulders normal to the axis of the roller, a metallic hub having an outer cylindrical surface adapted to fit tightly in the central bore of the roller, an outwardly extending flange at one end of the hub within one of the counterbores, the inner surface of said flange being flat and normal to the axis of the hub to abut one of the shoulders in the roller, an externally threaded portion near the other end of the hub, said hub having an inner cylindrical bore having a transverse groove therein intermediate its ends, an axle having a rigid shoulder at one of its ends and an externally threaded extension at its other end, a nut on said extension, longitudinally spaced antifriction bearings interposed between the inner bore of the hub and the axle, said bearings having inner and outer race rings, a spacer between the inner race rings, said inner race rings and the spacer being clamped between the shoulder on the axle and the nut on the extension thereof, an internally threaded lock ring on the threaded portion of the hub within the other counterbore in the roller, and a resilient ring between the outer race rings seated in the groove in the hub.

2. A skate roller having a central bore and counterbores in its sides forming flat transverse

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shoulders normal to the axis of the roller, a metallic hub having an outer cylindrical surface adapted to fit tightly in the central bore of the roller, an outwardly extending flange at one end of the hub within one of the counterbores, the inner surface of said flange being flat and normal to the axis of the hub to abut one of the shoulders in the roller, an externally threaded portion near the other end of the hub, the outer surface of the hub between its flange and its threaded portion being provided with longitudinally disposed serrations, said hub having an inner cylindrical bore having a transverse groove therein intermediate its ends, an axle having a rigid shoulder at one of its ends and an externally threaded extension at its other end, a nut on said extension, longitudinally spaced anti-friction bearings interposed between the inner bore of the hub and the axle, said bearings having inner and outer race rings, a spacer between the inner race rings, said inner race rings and the spacer being clamped between the shoulder on the axle and the nut on the extension thereof, an internally threaded lock ring on the threaded portion of the hub within the other counterbore in the roller, and a resilient ring between the outer race rings seated in the groove in the hub.

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