June 7, 1949. C. M. BIERMAN 2,472,087

ROLLER SKATE WHEEL HUB CAP

Filed Sept. 12, 1945

Fig. 1.

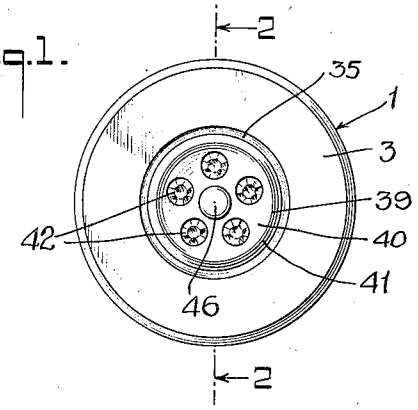


Fig. 2.

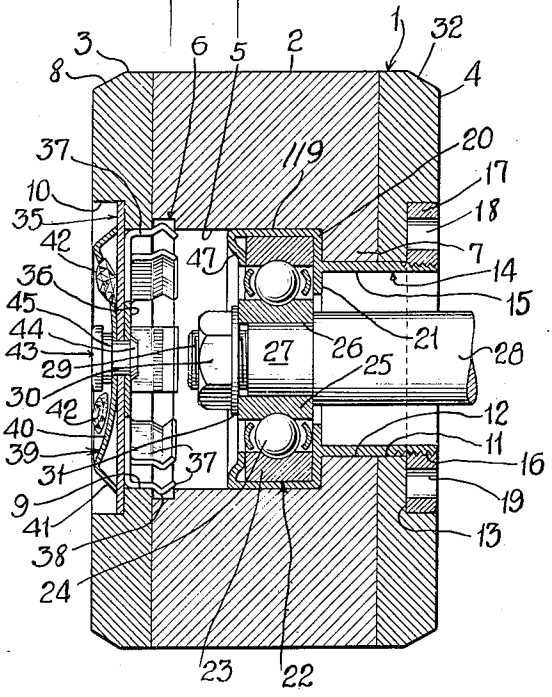
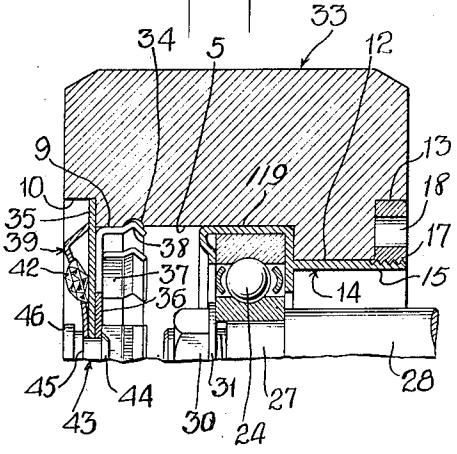


Fig. 3.



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Patented June 7, 1949

2,472,087

UNITED STATES PATENT OFFICE

2,472,087

ROLLER SKATE WHEEL HUBCAP

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Application September 12, 1945, Serial No. 615,778

2 Claims. (Cl. 301—108)

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This invention relates to roller skate wheels in general.

Among the objects of the present invention, it is aimed to provide an improved roller skate wheel hub cap which is particularly adapted for use by professional skaters or performers, to which end a combination has been worked out which will eliminate some of the objectionable noises today accompanying the use of professional skates, which can be expeditiously assembled by the average user, which will have no objectionable projections, and which will permit forming the skate wheel in an extremely attractive appearance.

These and other features, capabilities and advantages of the invention will appear from a detailed description of specific embodiments thereof illustrated in the accompanying drawings, in which

Fig. 1 is a side elevation of a roller skate wheel made according to the present invention in full size;

Fig. 2 is a transverse section on the line 2—2 and enlarged as to the scale of the view shown in Fig. 1;

Fig. 3 is a fragmental section of a second embodiment on an enlarged scale.

According to the embodiment illustrated in Figs. 1 and 2, the improved wheel consists essentially of a tread member 1 composed in the present instance of an intermediate housing member 2 composed of wood, preferably maple, and having plastic annular end members 3 and 4. The middle portion 2 preferably is centrally chambered, having a main central opening 5 with a narrow annular recess 6 at one end and an annular shoulder 7 at the other end. The plastic end member 3 preferably is bevelled at its outer peripheral edge as shown at 8, has a central opening 9 in alinement with the central opening 5 in the wooden element 2, and adjacent to the opening 9, is provided with an annular recess 10. The depth of the recess 10 in the present instance is substantially the same as the depth of the opening 9.

The plastic element 4 preferably has an opening 11 registering with the opening 12 at the shoulder 7. The plastic element 4 also is provided with an annular recess 13 about the depth of the annular opening 11.

The annular opening 9 cooperates with the opening 5 to form the annular recess 6 in the wooden element 2. The plastic elements 3 and 4 may be composed of any suitable plastic material. Excellent results, however, have been achieved when the plastic material used is composed of a

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polymerized methyl methacrylate known in the trade as "Lucite" or the like having wearing qualities about equal to maple wood.

The bearing element for the skate consists essentially of a metal shell 14 having a cylindrical element 15 formed to have a frictional fit in the alined openings 11 and 12 of the plastic member 4 and wooden element 2. The cylindrical member 15 in turn has an outer external thread 16 screw-threadedly to receive the annulus 17 which is conformed snugly to fit in the recess 13. Preferably the annulus 17 has two openings 18 and 19 for the fingers of a spanner wrench to enable a mechanic or the user to remove the annulus 17 from the cylindrical portion 15 of the shell 14.

The shell 14 also has a second cylindrical portion 119 conformed to frictionally fit in the opening 5 of the wooden element 2, the cylindrical portions 119 and 15 being connected to one another by the disk or flange portion 20. In alinement with the disk portion 20, there is formed a flange 21 extending inwardly from the cylindrical portion 15 in turn to form with the disk portion 20 a shoulder for the ball bearing 22. This ball bearing unit 22 in the present instance consists essentially of an outer annulus 23 snugly mounted against the inner periphery of the cylindrical element 119, to form the outer bearing or raceway for the ball bearings 24 while the inner raceway for the ball bearings 24 is formed by the annulus 25 having a central opening 26 to receive the diminished portion 27 of the axle 28 of the truck of a roller skate.

The diminished portion 27 in turn has a threaded projection 29 to receive the nut 30 preferably spaced from the annulus 25 by a washer 31 as shown. The end member 4 similar to the end member 3 is inclined or flared at 32 as shown.

When the tread is composed of a solid piece of plastic material or a solid piece of wood such as maple, the chambers 10, 6, 5, 11 and 13 will all be substantially reproduced, see the unit 33 of Fig. 3. This unit 33 is in the present instance mainly distinguished from the unit 1 shown in Fig. 2 in that the recess 34 is concave, instead of rectangular, as is the case with the recess 6 of the embodiment shown in Fig. 2.

The bearing already described and the cap now to be described are substantially the same for either the unit 1 or the unit 33, and therefore the description thereof will not be repeated.

The cap for the outer face of the wheel unit 1, as well as for the wheel unit 33, consists essentially of a metal disk 35, the periphery of which is conformed snugly to fit in the recess 10

as shown. At one side of the disk 35, there is secured the spider 36 having a plurality of spring fingers 37 having projections 38 resiliently to extend into the recess 6 of the unit 1 and the recess 34 of the unit 33 resiliently to anchor the disk 35. On the other side of the disk 35, there is preferably secured as shown, primarily for the purpose of ornamentation, the disk 39 having the concave portion 40 provided with an annular inclined flange 41 at the outer periphery of the concave portion 40. The concave portion 40 preferably also is provided as shown with a plurality of openings to receive ornamental stones composed of various cut pieces of glass 42 having geometric interconnected faces to facilitate in transmitting and reflecting light in the well known way. These ornamental stones 42 may be of colored glass or of colored translucent plastic material or the like. In the interest of assembling, the disk 35, spider 36 and disk 39 are all secured to one another by one central rivet 43 preferably having an upset edge 44 engaging the inner face of the spider 36, a shoulder 45 engaging the outer face of the disk 39, and an offset head 46, the outer periphery of the shoulder 45 forming a recess between the head 46 and the disk 39 to enable a screw driver or other ordinary tool to enter the recess so formed, engage the head 46 and remove the cap consisting of the disk 35, spider 36 and disk 39.

The cap, including the disk 35, also serves to protect one side of the bearing from dust and dirt stirred up while using the wheel. The shell 14 in turn substantially closes off the other side from dust and dirt and then only leaves a space sufficient to enable the heated air to escape during operation of the ball bearing, to wit, at the annular space between the flange 21 and the inner bearing element 25.

In the interest of speedy assembly, and cheapness of manufacture, the bearing elements 25, 119 and ball bearings 24 are anchored inside of the cylindrical element 22 by merely bending in the annular flange 47 engaging the outer bearing element 119 and anchoring it between the flange 47 and the disk portion 20, the ball bearings 24 and inner bearing unit 25 being located in position when mounted on the diminished end 27 of the shaft 28, and secured to the shaft 28, and thereby the shaft 28 in turn secured to the unit 1 or unit 33 by the nut 30 and spacer 31.

Preferably whether the bearing is formed in unit 1, shown in Fig. 2 or in unit 33, shown in Fig. 3, it has been found that much better control of the wheels is had when the center of the ball bearings 24 is disposed about three-thirty-seconds of an inch nearer to the inner face of the wheel than to the outer face of the wheel. It is believed this is due to the fact that the force on the wheel, whether it is the inner wheel or the outer wheel of a skate, is rarely on the flat outer annular tread, but generally on the flared portion 8.

Since as aforesaid, the outer flared portion 8 is used much more than the flat face of the intermediate portion 2, it has been found that if the outer portion 3 is composed of a plastic material, that the noise is materially reduced as compared to when the entire tread 1 is composed of wood.

If however, the entire tread is composed of a polymerized methyl methacrylate known in the trade as "Lucite" or the like having wearing qualities about equal to maple wood, then this reduction in noise is also effected.

It will also be noted from Figs. 2 and 3 that when the projections 38 of the spring fingers 37 are disposed in the recess 6, they will yieldably anchor the ornamental cap in place where the outer face, including the outer edges of the concave portion 40 as well as the outer face of the head 46 will be at least flush with the outer face of the end 3 or outer face of the unit 1 or unit 33 so that no part of the ornamental cap will be in danger of being struck by a passing skater or by the skater himself and in turn of course to protect the ornamental cap from injury.

To enhance the ornamental effect, the concave face 40 of the disk 36 is preferably highly polished, so that the light striking it will be reflected and cooperate with the light transmitted by the light transmitting stones 42 to produce an ensemble ornamental effect.

It is obvious that various changes and modifications may be made to the details of construction without departing from the general spirit of the invention as set forth in the appended claims.

I claim:

1. A roller skate wheel comprising a tread having a central chamber, there being an annular recess at the outer end of said central chamber and an inner annular recess spaced from said outer annular recess, an ornamental cap including a base disk positioned in said outer annular recess, an ornamental disk having a concave polished face, there being ornamental stones mounted in said concave face, a spider having spring fingers, and a rivet securing the ornamental disk, base disk and spider to one another, the spring fingers entering said inner annular recess and resiliently anchoring said ornamental cap in place with the outer face of the cap flush with the outer face of the wheel.

2. A roller skate wheel comprising a tread having a central chamber, there being an annular recess at the outer end of said central chamber and an inner annular recess spaced from said outer annular recess, an ornamental cap including a base disk disposed in said outer annular recess, an ornamental disk, a spider having spring fingers, and means for securing the base disk between said ornamental disk and said spider, the spring fingers extending into said inner annular recess resiliently to anchor said ornamental cap in position.

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