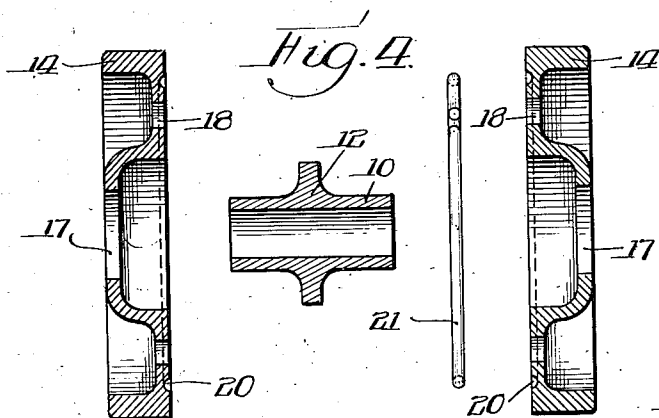
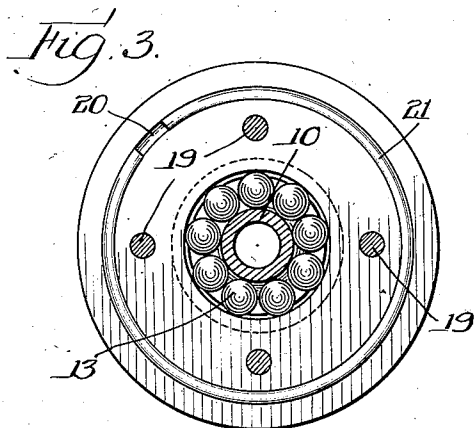
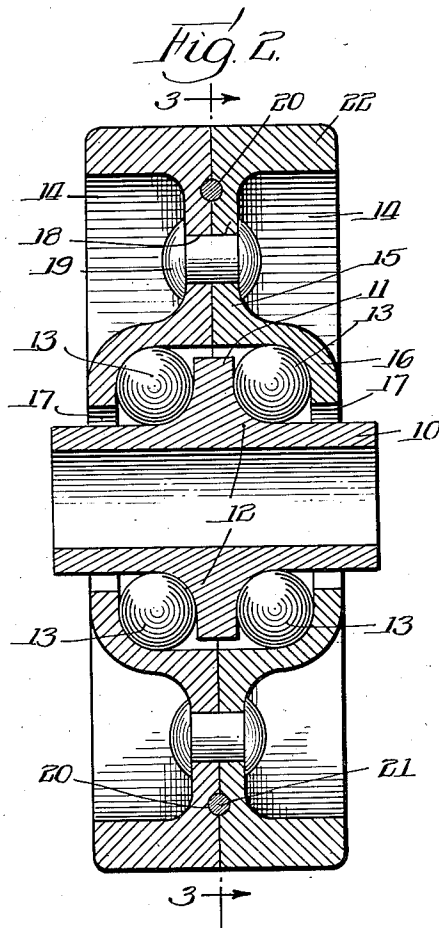
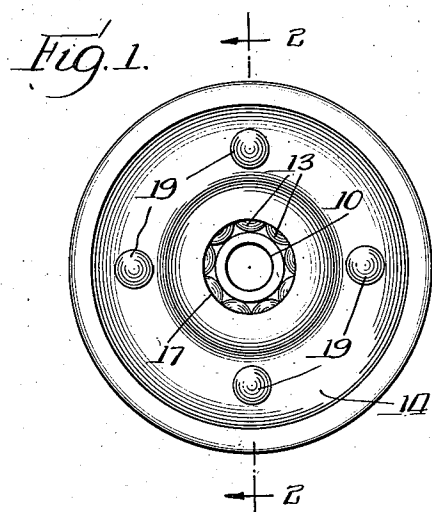


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L. G. KNAPP
ROLLER SKATE WHEEL
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ROLLER SKATE WHEEL

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1 Claim. (Cl. 208—181)

The primary object of the present invention is to improve the construction of wheels used with roller skates so as to render them more durable and lasting.

5 As now constructed, wheels employed for the purposes indicated wear out quickly. They are incapable of resisting the rough usage to which they are most commonly subjected, as when the user skates upon cement and concrete walks and other surfaces offering high abrasive action to the wheels. In the general form and construction of skate wheels employed in the present-day skate, only a relative small quantity of metal is present in their rims. This is due to the fact that the wheels are formed by stamping and bending, and the rims are constituted by overlapping layers which provide but little thickness. The outer layer therefore receives the direct wear, and when this outer layer becomes worn the life of the wheel is gone. A new wheel must be substituted if use of the skate is to be continued.

The present invention aims to provide a novel form of skate wheel by which the objections and disadvantages above pointed out are overcome. It contemplates a wheel wherein the rim is formed of a single thickness of massed metal to provide the necessary wear-resisting properties to meet the rough usage to which the wheel is subjected, thereby strengthening the wheel and imparting to the same greater durability and longevity.

30 A further object of the present invention is the provision of a wheel of the character referred to which embodies in its construction such an arrangement and organization of parts as will permit the same to be manufactured at relatively low cost, and thus enable its use in the low priced skates now found generally in commerce.

40 A further object of the invention is the provision of a wheel of sectional formation, the sections being of complementary character, and thereby capable of production by a single die. Novel means are employed for holding the sections, when assembled, from relative movement, thus freeing the fastening means for the members from shearing strains which would operate to release the fastening means and destroy the integrity of the wheel.

Other objects and advantages of the invention will appear as the nature of the improvements is better understood, the invention consisting substantially in the novel construction, combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawing, and pointed out in the appended claim.

55 While the form of the invention herein shown

and described is believed to be a preferred embodiment thereof, it is to be understood that the same is susceptible of various changes in the form, proportion and minor details of the parts, so that the present disclosure is to be considered from the illustrative standpoint rather than as imposing limitations on the invention.

In the drawing,

Fig. 1 is a side elevation of a skate wheel constructed in accordance with the present invention;

Fig. 2 is a vertical transverse sectional view thereof, on an enlarged scale, as on the line 2—2 of Fig. 1;

Fig. 3 is also a transverse sectional view of the wheel, the viewpoint being at right angles to that of Fig. 2, as on the line 3—3 of Fig. 2; and

Fig. 4 is a disassociated sectional view of the components of the wheel, the balls being omitted.

Referring in detail to the accompanying drawing, the numeral 10 designates an elongated sleeve, which constitutes the hub of the herein described wheel. At the center of the sleeve 10 is located an annular flange 11, which is of integral formation with the sleeve. The metal of the sleeve 10 merges into the flange 11 at either side of the flange so that a fillet 12 is provided in the angles between the side faces of the flange 11 and the outer surface of the sleeve 10. These fillets 12 have their exposed faces curved and thereby provide raceways for a plurality of anti-friction balls 13 which are arranged in two separate series. One series of these balls is arranged at each side of the flange 11.

The wheel proper comprises a pair of complementary sections 14. Each section includes a web 15 at the inner end of which is located an outwardly curved hub 16, which hub has an opening 17 of greater diameter than the diameter of the sleeve 10, so as to loosely fit over the adjacent end of said sleeve and permit the sections 14 to rotate with reference to the sleeve. The inner face of each of the hubs 16 is curved on an arc corresponding to the curvature of the balls 13, and said curved inner surfaces fit against the balls 13 so as to preserve rolling contact therewith. The hubs 16 constitute cages for the respective series of the balls 13, thereby confining the balls in rolling contact with the sleeve 10, and particularly with respect to the fillets 12 thereof.

The opposing inner faces of the sections 14 have close-fitting contact, these faces being plane, so that each section will contact and fit closely to the other section at all points throughout its area. That the sections 14 may be held in fixed

assembled relation to each other, and thus held in proper relation to the sleeve 10, the webs 15 are punched out at intervals to form openings 18, and these openings receive fastening rivets 19 which are headed up, and thereby fasten the sections 14 together.

In the rotation of the herein described wheel, it is obvious that each of the sections 14 will have a tendency to move in shearing relation to the other section. In such movement strains would be imposed upon the fastening rivets 19, and with the rupture of these rivets the sections 14 would separate, and thereby destroy the integrity of the wheel. To prevent such shearing movement of the sections 14, with the resultant action indicated, on the rivets 19, the inner face of each of the sections 14 is provided with an annular groove 20, said grooves being brought into registry with each other when the sections 14 are brought together. Fitted within the grooves 20 is a split ring 21, said ring being formed preferably of wire of a suitable gauge to permit the ring 21 snugly to fit the grooves 20. With the sections 14 assembled, and the ring 21 disposed therebetween in the grooves 20 thereof, it will be seen that an interlock is provided between the sections 14 which will prevent relative movement of the sections with respect to each other, the strains of such movement being taken up by the ring 20, and thus freeing the sections 14 from imposing on the fastening rivets 19 any movement which would tend to shear the fastenings 19.

At the outer ends of the webs 15 are located rim members 22. These members extend at right angles to the webs 15, and when the wheel sections 14 are brought together they cooperate to form a continuous tread surface for the wheel. The thickness of the rim members 22 is greater than the thickness of the webs 15, and this masses the metal in the rim members to the required degree for imparting to the rim the necessary thickness. Thus, a solid body of metal constitutes the tread surface of the wheel, and thereby greatly prolongs the life of the tread surface over the laminated form of treads which characterizes the general type of skate wheel now in common use.

Various expedients and processes of manufacture may be employed for massing the material in the rim members 22 as indicated, it being a desideratum of this invention that in the formation or blanking of the wheel sections 14 the distribution of the metal shall be such as to concentrate in the rim members 22 the desired mass

of metal to accomplish the purposes for which the present wheel has been designed.

In producing the wheel sections 14, due to their complementary characteristics, a single forming die will suffice, it being but necessary to reverse two of the sections in relation to each other in order to provide the requisite sections to complete a wheel.

In assembling the parts of the herein described wheel, one series of the balls 13 is applied to one side of the annular flange 11 of the hub sleeve 10, or the balls may be positioned upon the cage 16 of one of the wheel sections 14, one end of the sleeve 10 being then introduced between the balls thus positioned so as to bring the flange 11 of the sleeve 10 into contact with the balls 13. The balls of the other series then may be positioned upon the flange 11 at the side opposite to that to which the first series of balls has been applied, whereupon the other wheel section 14 is brought into assembled relation with the first section, it being understood that the split ring 21 has been positioned in the grooves 20 of the sections 14, and thus interlocking these sections one with the other. Upon application of the fastening rivets 19 to the openings 18 of the sections 14, and their upsetting, the wheel sections 14 will be held in tight or fixed relation, and the wheel is then ready for use.

The present invention sharply distinguishes from the construction of skate wheel now commonly employed because of the single thickness of the rim sections 22, due to which the metal is massed in the rim. The wear is received by this massed metal, and because of the thickness of the same, it is obvious that there is greater durability and longevity to the wheel, with greater wear-resisting properties to meet the rough usage to which the wheel is subjected.

I claim:

In a wheel of the class described, the combination with a plurality of complementary wheel sections, and means for fastening said wheel sections in fixed assembled relation, the inner face of each wheel section being provided with an annular groove, of a split ring disposed in said grooves to lock the wheel sections against relative movement and thereby free said fastening means from shearing action incident to the relative movement of the wheel sections with respect to each other.

LELAND G. KNAPP.