J. J. JORGENSEN.

ROLLER SKATE.

APPLICATION FILED JUNE 1, 1921.

1,437,314.

Patented Nov. 28, 1922.

2 SHEETS—SHEET 1.

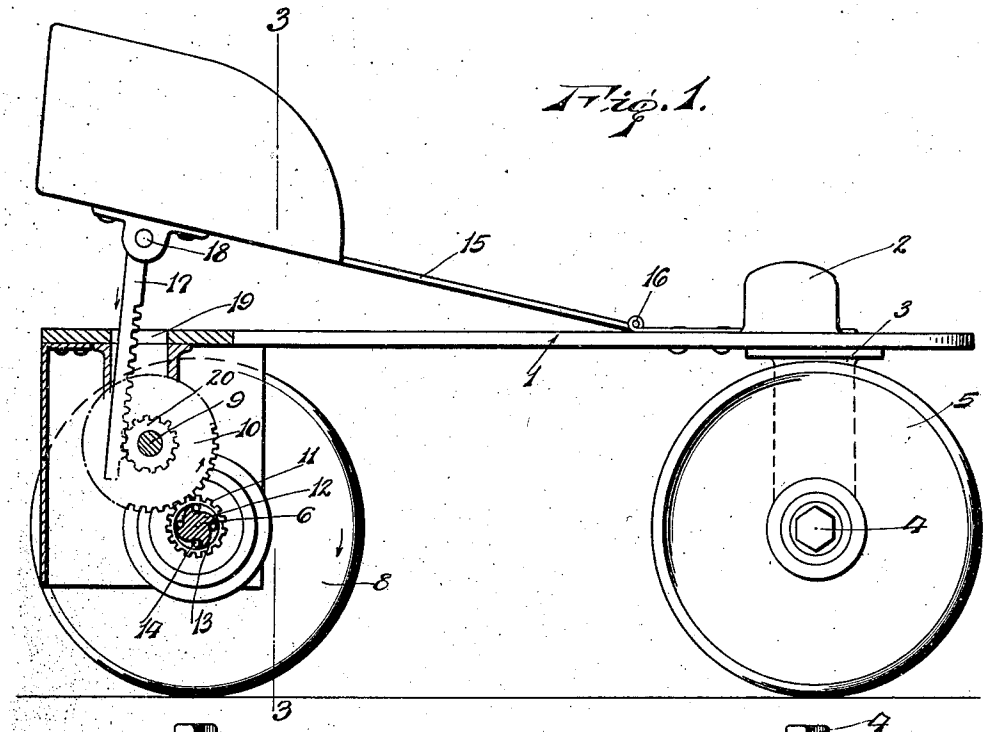


Fig. 1.

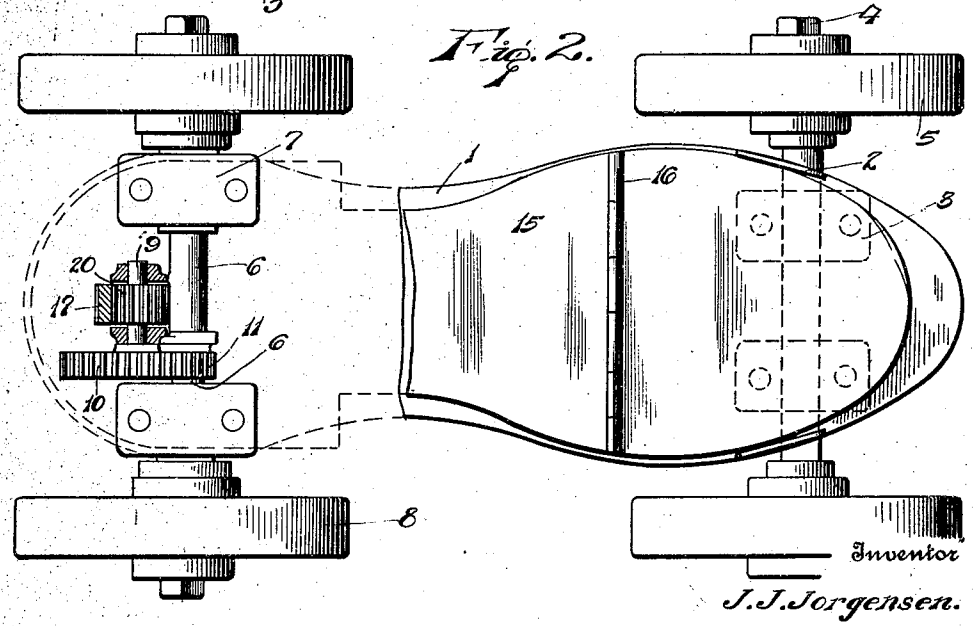


Fig. 2.

Inventor

J. J. Jorgensen.

By Lacey & Lacey, Attorneys

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2 SHEETS—SHEET 2.

Fig. 3.

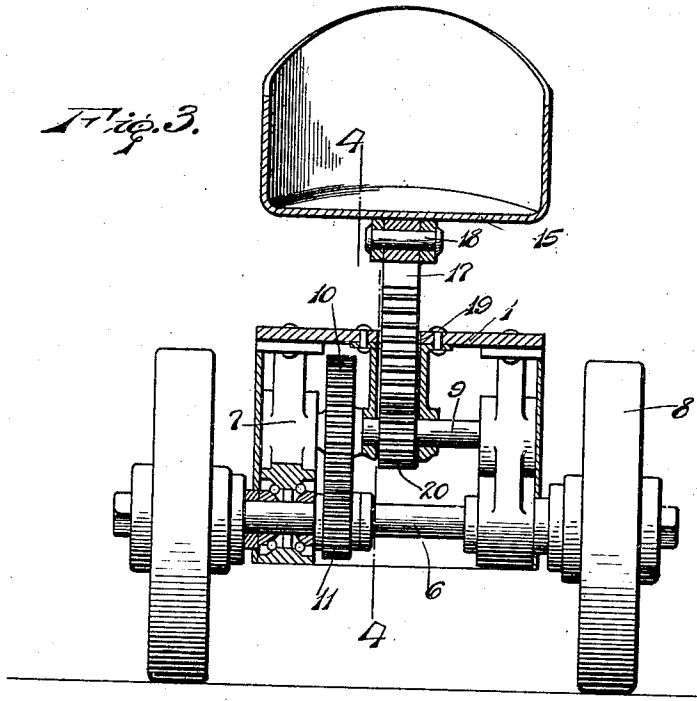
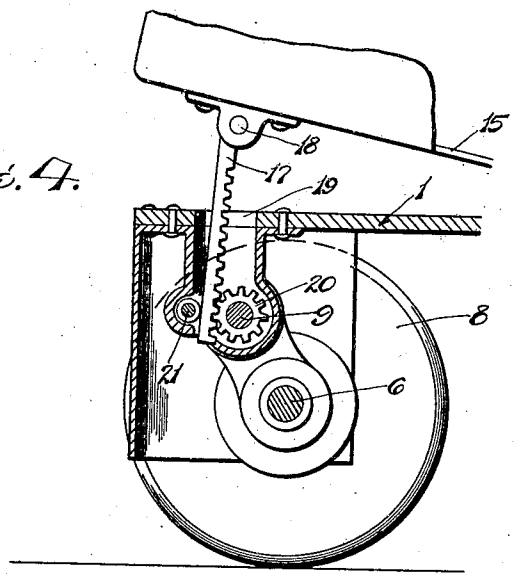


Fig. 4.



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UNITED STATES PATENT OFFICE.

JOHN J. JORGENSEN, OF PORTLAND, OREGON.

ROLLER SKATE.

Application filed June 1, 1921. Serial No. 474,142.

To all whom it may concern:

Be it known that I, JOHN J. JORGENSEN, a subject of Denmark, residing at Portland, in the county of Multnomah and State of Oregon, have invented certain new and useful Improvements in Roller Skates, of which the following is a specification.

This invention relates to roller skates.

One object of the present invention is to provide means whereby the downward pressure exerted by the foot upon the skate will result in rotative movement being positively imparted to the spindle upon which the rear wheels of the skate are mounted so that by reason of such pressure, exerted at intervals, the skate will be propelled in a forward direction.

Another object of the invention is to provide an improved gear connection between the rear wheel spindle and the gear member which is carried by the depressible heel plate of the skate so that the drive referred to above will be obtained in the most positive manner and so that upward movement of the heel plate will result in immediate disengagement or unclutching of the gear elements for subsequent clutching and actuation.

In the accompanying drawings:

Figure 1 is a view partly in side elevation and partly in longitudinal section illustrating a skate constructed in accordance with the present invention;

Figure 2 is a top plan view of the skate, parts being shown in section and other parts being broken away and illustrated in dotted lines;

Figure 3 is a vertical transverse sectional view through the skate taken substantially in the line 3—3 of Figure 1;

Figure 4 is a vertical front to rear sectional view taken substantially on the line 4—4 of Figure 3.

In the drawings, the foot plate of the roller skate is indicated by the numeral 1 and the same is provided near its forward end with the usual clamps 2, this end of the foot plate being supported by brackets 3 which have bearings mounting the spindle 4 for the front wheels 5, these wheels being free to turn upon the said spindle 4.

The rear spindle of the skate is indicated by the numeral 6 and is rotatably mounted in suitable bearing brackets 7 fixed upon the under side of the foot plate 1, and secured upon the ends of the spindle in any suitable manner are the rear wheels of the skate indicated by the numeral 8. A shaft 9 is mounted in the bearing brackets 7 parallel to the shaft 6 and fixed upon this shaft is a gear 10 which meshes with a pinion 11 rotatably mounted upon the shaft 6. The pinion 11 is hollow and cylindrical and the said shaft 6 is formed or provided with a circumscribing series of clutch teeth 12 having wedging surfaces 13. Clutch rollers are arranged between the teeth 12 and between the wedge faces of the said teeth and the inner surface of the gear body 11 and it will now be evident that when the pinion 11 is rotated in one direction the rollers 14 will be wedged against the inner surface of the pinion and the pinion will thus be clutched in the spindle 6. Therefore when the gear 10 is rotated to one direction the rear wheels 8 of the skate will be rotated in a forward direction so as to propel the skate in a corresponding direction. In order that this may be accomplished, means is provided which will now be described.

The numeral 15 indicates a heel plate which is hingedly connected at the forward end, as at 16, to the foot plate 1 and which is designed to have angular up and down swinging movement with relation to the said foot plate as the heel is depressed and lifted in the use of the skate. The numeral 17 indicates a rack bar which is pivotally suspended, as at 18, at its upper end from the under side of the rear end portion of the heel plate 15 and works through a slot 19 formed in the foot plate 1. The rack bar 17 meshes with a pinion 20 fixed upon the shaft 9 and is maintained in engagement with the pinion by riding against a roller 21 mounted in rear of the said shaft 9 and suitably spaced therefrom.

From the foregoing description of the invention it will be understood that as the heel plate 15 is depressed and the weight is brought to bear upon this plate, the rack bar 17 will be forcibly moved downwardly imparting rotative movement to the gear 10. As this gear is in mesh with the pinion 11 the pinion will be rotated in a forward direction and the clutch teeth 12 will wedge the rollers 14 against the inner surface of the pinion so that the pinion will be clutched with the spindle 6, and the spindle will therefore be rotated in a corresponding direction as also the rear wheels 8 which are fixed thereon. As the foot plate 15 is elevated, in the act of lifting the foot, the rack

bar 17 will be moved upwardly and the pinion 20 and gear 10 will be rotated in a reverse direction thus likewise reversing the direction of rotation of the pinion 11 and causing the same to release the rollers 14 and thus become unclutched from the spindle 6 so that this backward rotation of the gears and pinions has no effect upon the said spindle 6.

Having thus described the invention, what is claimed as new is:

A roller skate including a foot plate, a heel plate mounted for oscillation thereon, a rotatable spindle mounted below the foot plate, wheels fixed upon the spindle, a shaft mounted parallel to the spindle, a pinion upon the shaft, means connected with the heel plate and coacting with the pinion to rotate the shaft in one direction when the heel plate is depressed, a gear fixed upon the shaft, a hollow pinion loosely rotatably mounted upon the spindle and engaged by the said gear, the spindle being provided within the hollow pinion with a circumscribing series of teeth having wedging surfaces, and rollers arranged between said wedging surfaces and the inner circumference of the hollow pinion and housed by the pinion and adapted to clutch the pinion to the spindle in one direction of rotation of the pinion and release the pinion from the spindle upon rotation of the pinion in the opposite direction.

In testimony whereof I affix my signature.

JOHN J. JORGENSEN. [L. S.]