

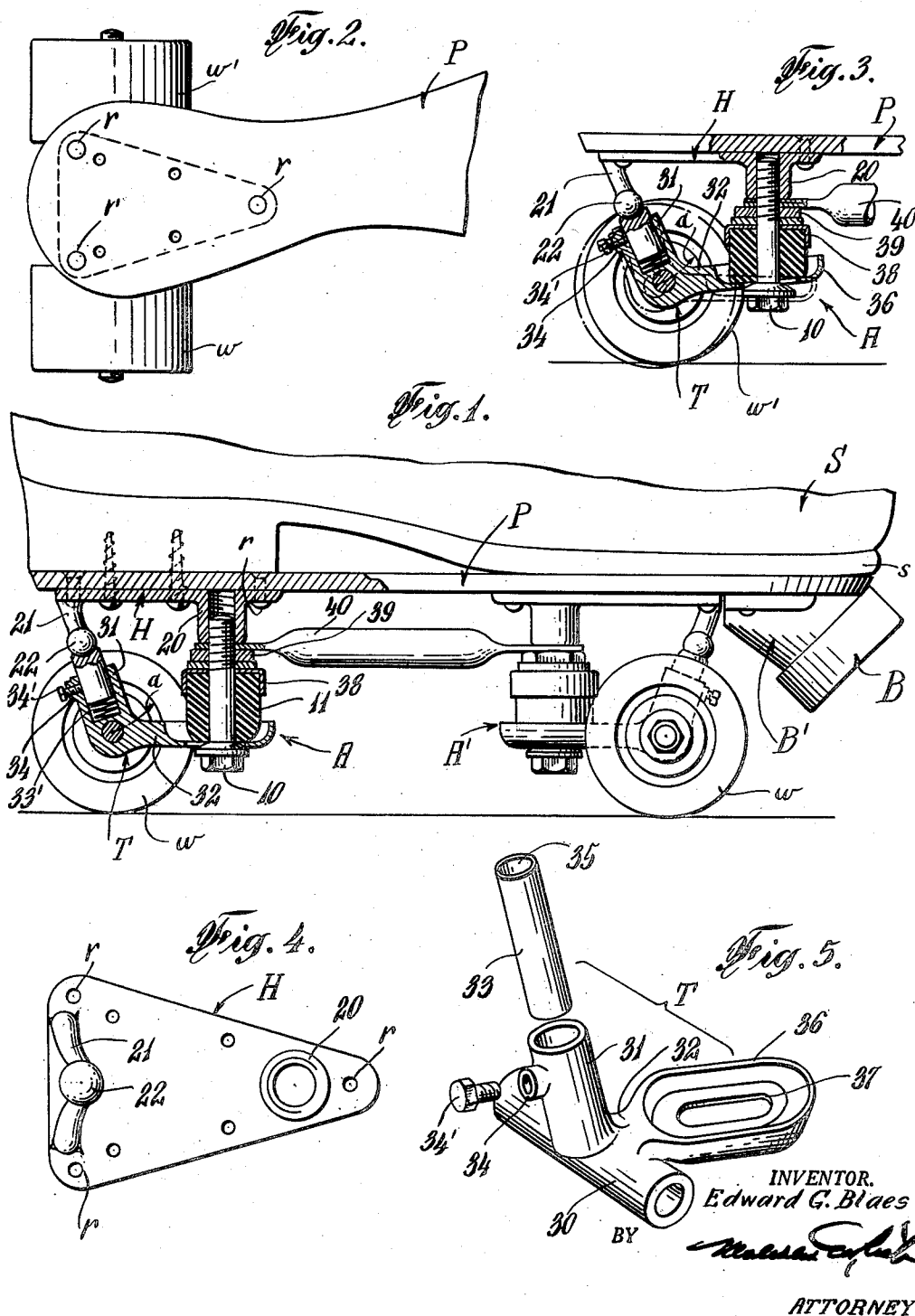
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ROLLER SKATE

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ROLLER SKATE

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5 Claims. (Cl. 280—11.27)

This invention relates to roller skates and has for its object the provision of an improved wheel truck hanger means for roller skates which better adapts the skate for use by fancy and figure skaters.

Another object is to provide a wheel truck hanger means for roller skates which provides a resilient suspension of the wheel truck from the hanger with an adjustability of the wheel axle both vertically and horizontally.

Still another object is to provide an improved roller skate, better adapted for fancy and figure skating than skates heretofore utilized in the art.

In accordance with these objects I have devised the improved roller skate illustrated in the accompanying drawing, wherein:

Fig. 1 is a side elevational view partly in section of the roller skate of the present invention;

Fig. 2 is a top view of the rear half of the same;

Fig. 3 is a sectional view illustrating the wheel truck hanger adjustability feature of the present invention;

Fig. 4 is an enlarged bottom view of the improved hanger means of the present invention; and

Fig. 5 is a perspective view of the improved wheel truck assembly of the present invention.

Referring to the drawing, the improved roller skate of the present invention comprises a one piece sole plate P consisting of a strong light weight metal, such as aluminum or an aluminum alloy adapted to be secured to a sole of shoe S, on the under side of which sole plate is secured a pair of wheel truck hanger assemblies A—A', one (A) under the heel portion of sole plate P, and the other (A') under the ball portion of the said sole plate, and a bumper or stop means B—B' secured on the under side of the said sole plate P at and adjacent the toe end of sole plate P.

Bumper or stop means B—B', per se, forms no part of the present invention except insofar as it is employed in combination with the improved wheel truck hanger means of the present invention, and is more particularly described and claimed in my co-pending application Serial No. 451,921 filed July 22, 1942, now Patent No. 2,356,736, issued August 29, 1944, which is assigned to the same parties and in the same manner as is the present application.

Skilled fancy and figure skaters vary widely with respect to their particular preference as to the proper location of the skate wheels under the heel and ball portions of sole plate P. In

part, this is due to temperament but, in part, this is also due to some muscular or weight peculiarity of the individual which requires the wheels to be located in a certain position under the heel and/or ball of the foot for perfect balance and, again, in part to the particular type of skating to be done. Heretofore in the art, no means has been provided whereby the position or location of the wheel could be shifted horizontally and vertically to adjust the wheel location to exactly suit the individual skater's demand or requirement for perfect balance or for the type of skating to be done. The wheel truck hanger means of the present invention is designed to accomplish this desired result.

As shown in the drawing, the wheel truck hanger means A—A' of the present invention consist of two identically similar assemblies mounted oppositely on the under face of sole plate P. A description of one assembly therefore is sufficient for the full understanding of the present invention.

The assembly A (shown in section Figs. 2 and 3) consists of two parts, a hanger plate H illustrated in Fig. 4 and a wheel truck assembly T illustrated in perspective in Fig. 5, the two parts being resiliently held together by a king bolt 10 and resilient member 11 as will be more fully hereinafter described.

Hanger plate H consists of a triangularly shaped metal plate rivetly secured in position on the under face of sole plate P at the three corners thereof by rivets r with the base of the triangle lying adjacent the heel end of sole plate P and the apex end lying forwardly of said heel end. Adjacent the apex end of the hanger base plate is provided a tubular extension 20 which is interiorly threaded to be engaged by the threaded end of king bolt 10. The center axis of tubular extension 20 is normal or perpendicular to the surface of the hanger base plate, at about the longitudinal axis of the sole plate P.

On the base end of the triangular shaped hanger base plate is provided an extension 21 having a center axis lying in substantially the same plane normal to sole plate P along the longitudinal axis of sole plate P, which extension 21 terminates in a ball 22, the center of the ball 22 being located at approximately the same level as the end of tubular extension 20 above the base plate and in approximately the same plane normal to the base plate surface and normal to the base of the said base plate along the longitudinal axis of sole plate P but preferably disposed at a point inwardly from the edge of the base

plate substantially as indicated, with the axis of the sustaining neck of extension 21 lying in a plane at an angle of about 45° to the face of the sole plate P, but which may vary from an angle of 90° to an angle of 45° without departure as will be more fully hereinafter disclosed.

Wheel truck assembly T consists of an axle housing 30 provided with two arms 31-32 preferably disposed at an angle of about 135° to each other as indicated. Arm 31 is hollow tubular and is adapted to receive rod 33 therein in sliding engagement against spring means 33' and is provided with means such as set screw 34-34' to fixedly locate rod 33 therein in any desired position of sliding engagement therein. The outer end of rod 33 is provided with a socket 35 adapted to engage the surface of ball 22.

Arm 32 is provided with an elongated cup-shaped part 36 provided in the bottom thereof with a slot opening 37 having a width approximating but larger than the diameter of king bolt 10.

As may be seen in Fig. 1, when the wheel truck T is assembled on hanger plate H by engaging the threaded end of king bolt 10 in extension 20 through slot 37 and through resilient member 11, opposing cup member 38, lock-nut 39 and the end of brace member 40, the normal free vertically hanging position of the wheel truck is that indicated in Fig. 1. In this position, the wheel axle is at its maximum distance from the face of sole plate P.

It may be seen from the arrangement shown that with any given angular relation between arms 31 and 32 of wheel truck T, such as the 135° angle shown, by shifting the position of king bolt 10 in slot 37, arm 32 may be located in a position parallel to sole plate P in which position rod 33 in arm 31 may be moved into a position bringing cup 35 into engagement with ball 22 of extension 21 and locked in that position by means of set screw 34'. King pin 10 then may be locked in this position by means of lock-nut 39. From this position axle 30 may be adjusted forwardly and upwardly along an arc indicated by arrow a having a center located at the center of ball 22 by unlocking king pin 10 by loosening lock-nut 39 and tightening up on king bolt 10, until the wheel axle 30 is located in a forward position under the heel of shoe S to suit the precise balance requirement of the skater and relocking king pin 10 in this new position.

A further adjustment is possible. Many skaters, particularly when figure skating do not like the full resiliency afforded by the location of truck T in the position indicated in Fig. 1, as hereinabove described. In that case, king bolt 10 may be located in slot 37 in a position that will provide for an engagement of socket 35 of rod 33 with ball 22 when resilient member 11 has been compressed between cups 36 and 38 to the desired degree on tightening king bolt 10 as shown in Fig. 3. This brings axle housing 30 in closer parallel spaced relation to the face of sole plate P and requires a new setting of rod 33 in arm 31. In this new horizontal position, axle housing 30 is adjustable along the same arc a by further tightening or loosening king bolt 10, as indicated in Fig. 3.

By the above arrangement, a plurality of positions horizontally may be obtained with any given angular relation between arms 31 and 32 to vary the resiliency of the mounting of trucks T-T' and at each horizontal position the trucks T may be adjusted forwardly and upwardly along the

arc a to suit the balance requirements of the individual skater. By providing a plurality of trucks T wherein the angular relation between arms 31 and 32 varies from the 135° angle shown and a plurality of hangers H-H' wherein the angle of extension 21 corresponds to the angle of arm 31, it may be seen that a wide variation in adjustability may be obtained in the skate structure to meet almost any desired skating condition.

It is preferable to maintain substantially the same angle of inclination to arm 31 that is present in extension 21, although with any given angle of extension 21 the angle of arm 31 may vary within rather wide limits without exceeding the structural strength of extension arm 21, and without departure from the present invention. Accordingly, with an angle of inclination approximating 45° in arm 21, I have found that the angle between arms 31 and 32 may vary from 90° to 135° in the arrangement shown, thereby providing a plurality of trucks for selection to suit the particular adjustment requirements of a plurality of different skaters with the single hanger H.

The truck hanger assembly A' is identical in all respects to the truck hanger A except that it is mounted on sole plate P in a reverse position to that of truck hanger A.

From the above description and the specific embodiment illustrated in the drawing, it is believed apparent to any one skilled in the art that the present invention may be widely modified without essential departure therefrom and all such modifications and departures are contemplated as may fall within the scope of the following claims.

What I claim is:

1. In a roller skate, a wheel truck assembly comprising an axle housing provided with two arms extending outwardly therefrom at right angles to the longitudinal axis of the said housing midway between the two ends of said housing, the two said arms being at an angle to each other within the range 90° to 135°, one said arm being hollow tubular and being provided with a cylindrical shaped member slidably sealed therein which terminates in cup-shaped section forming the socket part of a ball and socket joint and with a means to secure the said cylindrical member in any desired position of sliding engagement therein and the other said arm being provided with a substantially oval dish-shaped section facing in the direction of the first said arm extension, said section having an elongated slot in the bottom thereof having its longitudinal axis in a plane substantially normal to the longitudinal axis of the said axle housing.

2. In a roller skate, a wheel axle support means, said means comprising in combination a wheel truck hanger comprising a base plate adapted to be secured in position on the bottom of the shoe plate of a skate, said base plate being provided with aligned extensions, one said extension being a tubular extension provided with interior threads extending substantially perpendicular to the face of the base plate and the other said extension extending at an angle of from 90° to 45° to the face of said base plate and terminating in a ball section having its center lying in a plane normal to the face of the said base plate which passes also through the axis of said first extension, a wheel truck assembly comprising an axle housing provided with two arms extending outwardly therefrom

at right angles to the longitudinal axis of the said housing midway between the two ends of said housing, the two said arms being at an angle to each other within the range 90° to 135° , one said arm being hollow tubular and being provided with a cylindrical shaped member slidably sealed therein which terminates in cup-shaped section forming the socket part of a ball and socket joint and with a means to secure the said cylindrical member in any desired position of sliding engagement therein and the other said arm being provided with a substantially oval dish-shaped section having an elongated slot in the bottom thereof having its longitudinal axis in a plane substantially normal to the longitudinal axis of the said axle housing, and means to resiliently suspend the said truck assembly from the said wheel truck hanger, said means including a king bolt having a threaded end adapted to be received in the threaded tubular extension of said hanger and a diameter approximating but smaller than the width of the slot in the bottom of said oval dish-shaped section of one arm extension on said axle housing, a resilient member adapted to seat within the said dish-shaped section of said arm extension, said member having a center opening of a diameter permitting the passage of said king bolt

therethrough, a cup-shaped member enclosing the opposite end of said resilient member, said cup-shaped member having a center opening permitting the said king bolt to pass there-through, and a lock-nut means disposed on the end of the king bolt between the cup-shaped member and the end of the said tubular extension to provide means to secure the king bolt in desired position of engagement of the threaded end thereof in said tubular extension with the said resilient member compressed between the oval dish-shaped member and the said cup-shaped member.

3. The combination of claim 2, wherein the angle of the ball ended extension on said hanger and the angle of the hollow tubular arm on said truck assembly are substantially identical.

4. The combination of claim 2, wherein the angle of the ball ended extension on said hanger approximates 45° and wherein the angle of said hollow tubular arm on said truck assembly varies from 90° to 45° .

5. The combination of claim 2, wherein the angle of the ball ended extension on said hanger and the angle of the hollow tubular arm on said truck assembly each approximates 45° .

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