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ROLLER SKATE

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1
This invention relates to a roller skate and the main object thereof is to provide an improved flexible connection between the foot plate and the trucks of the skate.

In roller skating, and more particularly in exhibition or figure skating, it is desirable that the skates shall have substantial flexibility, that is, that the foot plate shall be tiltable in such a manner as to move the trucks about a vertical axis to steer the skate. Roller skates have heretofore been provided with some flexibility but, in most cases at least, that flexibility has not been as great as is desirable, and it is a further object of the invention to provide a skate with increased flexibility without sacrificing smoothness of operation or other desirable qualities of the skate.

A further object of the invention is to provide a flexible skate in which the foot plate may move smoothly and continuously from one tilted position to an oppositely tilted position.

A further object of the invention is to provide a strong durable flexible skate of simple construction.

Other objects of the invention may appear as the skate is described in detail.

In the accompanying drawings Fig. 1 is a top plan view of a skate embodying the invention; Fig. 2 is a side elevation of such a skate with one wheel removed; Fig. 3 is a section taken on the line 3--3 of Fig. 2, showing one of the trucks in elevation; and Fig. 4 is a section taken on the line 4--4 of Fig. 3.

In these drawings I have illustrated one embodiment of my invention, but it is to be understood that the skate as a whole, as well as the various parts thereof, may take various forms without departing from the spirit of the invention.

In the particular embodiment here illustrated the skate comprises a foot plate 5 provided adjacent each end thereof with a depending bracket or hanger 6 with which the respective trucks are connected. The trucks at the respective ends of the skate are substantially identical, and each truck comprises a truck frame 7 which includes a transverse tubular portion 8 to receive the axle 9 on which the rollers 10 are mounted, and a forwardly extending arm 11 rigid with and preferably formed integral with the axle receiving part 8. In the present arrangement the arm 11 is of a relatively great width and is inclined downwardly and inwardly, that is, toward the other truck.

The arm 11 of the truck frame is connected

2
with the corresponding hanger 6 by a connecting member, here shown as a bolt 12, the threaded upper end portion of which is screwed into a threaded opening 13 in a socket member 14a which depends from the inner end portion of the hanger, the opening 13 being at substantially right angles to the arm 11. The bolt 12 is provided at its lower end with a head 14 or other supporting part. Interposed respectively between the upper surface of the arm and the hanger and between the lower surface of the arm and the head 14 of the bolt are resilient elements which tend to hold the hanger and the foot plate in a position substantially parallel with the axle 9. In the present instance the arm 11 is provided with an opening 15 through which the bolt 12 extends and which is of a diameter slightly greater than the diameter of the bolt to permit the latter to tilt with relation to the arm. The arm is provided in its upper and lower surfaces respectively with annular recesses 16 and 17 which surround the opening 15 and in which the respective resilient members are seated. The resilient members may be of any suitable character, but preferably each member comprises a body or block 18 of resilient material, such as soft rubber, which fits snugly in the corresponding recess in the arm 11. Each block of material is provided with an opening through which the bolt 12 extends. Preferably a substantially rigid plate 19, of metal or the like, is interposed between the lower end of the resilient member 18 and the head 14 of the bolt, this plate being here shown in the form of a cap having an annular flange to embrace the adjacent end portion of the resilient member 18. A similar resilient element is interposed between the upper side of the arm 11 and the hanger and also comprises an apertured body 20 of resilient material and a cap 21 which engages a part rigid with the hanger. In the present instance a nut 22 is mounted on the threaded portion of the bolt and is provided in its upper end with a recess 23 to receive the lower end portion of the socket member 14a which is preferably slightly tapered, as shown at 24, to provide a snug fit in the recess of the nut. The bolt is provided with means whereby it may be rotated and thus adjusted lengthwise with relation to the hanger, this means comprising in the present instance a non-circular socket 25 to receive a suitable implement. Thus the resiliency of the resilient elements may be controlled by the adjustment of the bolt.

The truck frame is braced against the outer portion of the hanger to prevent the movement

of the arm 11 about the axis of the axle 9, and the bracing means is adjustable to accommodate the same to the adjustments of the bolt 12. As here shown the truck frame comprises a boss 26 rigid with and extending upwardly and rearwardly from the axle receiving part 8 of the frame. The boss is provided with a screw threaded socket to receive a screw 27 which is pivotally connected at its upper end with the hanger to permit the hanger and foot plate to tilt with relation thereto. In the present construction the screw 27 is provided with a substantially spherical upper end portion 28 which is seated in and has bearing contact with a socket 29 in the outer end portion of the hanger. The screw is preferably provided adjacent the spherical head 28 with flattened portions 30 to receive a wrench or other implement for adjusting the screw, and the screw is also provided with a locking nut 31 whereby it may be rigidly secured in adjusted positions.

The two truck frames are rigidly connected and braced one against the other by a longitudinal bar 32, the end portions of which extend between the caps 21 and the nuts 22 of the respective truck assemblies. Each end portion is apertured and each nut 22 is provided at its lower end with a portion of reduced diameter which extends through the adjacent opening in the bar 32, thus rigidly connecting the bar with the bolts 12 and hangers 6 of the respective truck assemblies.

The provision of resilient elements above and below the arm 11 of the truck frame permits of a substantial tilting of the foot plate and enables the same to move smoothly and continuously from one inclined position to another inclined position. The resilient elements being seated in the recesses in the arm 11 and the bolt fitting tightly in the respective resilient elements enables the resilient elements to prevent vibratory or wobbling movement of the arm and the truck frame, which in ordinary flexible skates is apt to occur as the foot plate moves from one inclined position to another. The resiliency of the resilient elements can be quickly and easily adjusted to meet the requirements or preference of the skater. The adjustment of the arm 11 by the bolt 12 is permitted and compensated for by the corresponding adjustment of the screw 27.

While I have shown and described one embodiment of my invention I wish it to be understood that I do not desire to be limited to the details thereof as various modifications may occur to a person skilled in the art.

Having now fully described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A roller skate comprising a foot plate, a hanger, a truck frame including an axle receiving part and an arm rigid with and extending inwardly and downwardly from said axle receiving part and having an opening therethrough, said hanger including a downwardly extending part having therein a screw threaded socket at substantially a right angle to the normal position of said arm and in line with said opening, a bolt extending loosely through the opening in said arm, having its upper end screwed into said socket and having a head at its lower end, a nut threaded onto said bolt and engaging said downwardly extending part of said hanger, and longitudinally adjustable means for pivotally connecting the outer portion of said truck frame with the outer portion of said hanger, resilient elements interposed respectively between said arm

and the head of said bolt and between said arm and said nut.

2. A roller skate comprising a foot plate, a hanger, a truck frame including an axle receiving part and an arm rigid with and extending inwardly and downwardly from said axle receiving part and having an opening therethrough, said hanger including a downwardly extending part having therein a screw threaded socket at substantially a right angle to the normal position of said arm and in line with said opening, a bolt extending loosely through the opening in said arm, having its upper end screwed into said socket and having a head at its lower end, a nut threaded onto said bolt and engaging said downwardly extending part of said hanger, and longitudinally adjustable means for pivotally connecting the outer portion of said truck frame with the outer portion of said hanger, resilient elements interposed respectively between said arm and the head of said bolt and between said arm and said nut, said nut having a recessed upper portion fitting snugly about the lower end of said downwardly extending part of said hanger.

3. A roller skate comprising a foot plate, a hanger, a truck frame including an axle receiving part and an arm rigid with and extending inwardly from said axle receiving part, a bolt extending loosely through said arm, having at its upper end screw threaded connection with said hanger and having a supporting part at its lower end, a resilient element confined between the lower side of said arm and said supporting part and a second resilient element confined between the upper side of said arm and a part fixed with relation to said hanger, said truck frame also including a part rigid therewith, extending upwardly and outwardly therefrom and provided with an upwardly facing screw threaded socket, and an inclined elongate member having a screw threaded lower portion adjustably mounted in said socket and having at its upper end universal pivotal connection with said hanger.

4. A roller skate comprising a foot plate, a hanger secured to said foot plate adjacent the respective ends thereof and each having adjacent its inner end a downwardly extending screw threaded socket member, a truck beneath each end of said foot plate, each truck including a frame having a transverse axle receiving member and an arm extending inwardly from said axle receiving member, said arm having an opening therethrough, a headed bolt extending through the opening in said arm and having a threaded upper end adjustably mounted in the socket member of the corresponding hanger, a nut on said threaded end of said bolt, having a recess into which the lower end of said socket member extends and having a lower end portion of reduced diameter, a resilient element interposed between the lower side of said arm and the head of said bolt, a second resilient member interposed between the upper side of said arm and said nut, said truck frame having a part rigid therewith and extending upwardly and outwardly therefrom, an elongate member adjustably connected with said part of said truck frame and having universal pivotal connection with said hanger, and a bar having its end portions arranged respectively between the upper resilient elements and the nuts of the respective truck assemblies, said end portions having apertures into which the

5

reduced end portions of the respective nuts extend.

5. A roller skate comprising a foot plate, a hanger, a truck frame including an axle receiving part and a relatively wide arm extending inwardly from said axle receiving part, said arm having an opening therethrough and having in the upper and lower surfaces thereof recesses surrounding said opening, resilient elements seated in the respective recesses and having openings in line with the opening in said arm, a bolt extending through said resilient members and said arm, having at its upper end screw threaded connection with said hanger and having at its lower end a head in supporting engagement with the lower resilient member, the upper end of said upper resilient member engaging a part fixed with relation to said hanger, said truck frame having an upwardly and outwardly inclined boss, and a screw having threaded connection with said boss and having universal pivotal connection with said hanger.

6. A roller skate comprising a foot plate, hangers secured to said foot plate adjacent the respective ends thereof and each having adjacent its inner end a downwardly extending screw threaded socket member, a truck beneath each end of said foot plate, each truck including a frame having a transverse axle receiving member, a boss extending upwardly and outwardly from said axle receiving member and a relatively wide arm extending inwardly from said axle receiving member, said arm having an opening there-through and having in its upper and lower sides

6

recesses surrounding said opening, a headed bolt extending through the opening in said arm and having a threaded upper end adjustably mounted in the socket member of the corresponding hanger, a nut on said threaded portion of said bolt having a recess into which the lower end of said socket member extends and having a lower end portion of reduced diameter, a block of resilient material seated in the upper recess in said arm and extending about said bolt, a cap on the upper end of said block engaging said nut, a second block of resilient material seated in the lower recess in said arm, a cap on the lower end of said lower block engaging the head of said bolt, a screw adjustably mounted in the boss of said truck frame and pivotally connected with the corresponding hanger, and a bar having its end portions arranged between the upper resilient blocks and the nuts of the respective truck assemblies, said end portions having apertures into which the reduced end portions of the respective nuts extend.

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