May 22, 1951 C. V. SEFFERINO 2,554,062

ROLLER SKATE

Filed Sept. 8, 1947

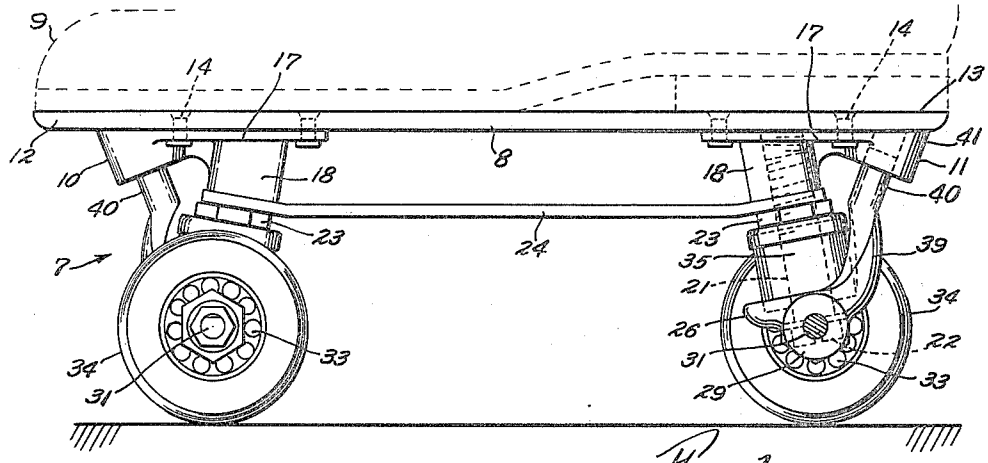


Fig. 1

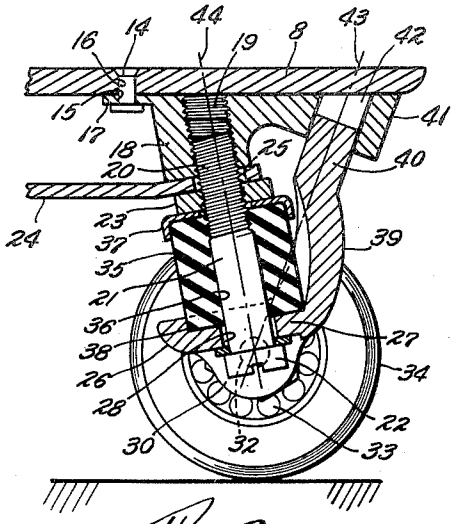


Fig. 3

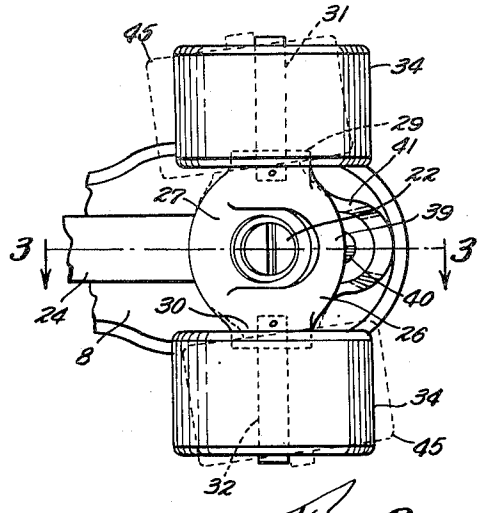


Fig. 2

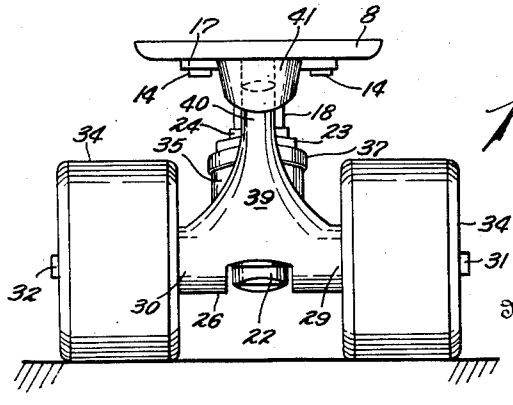


Fig. 4

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ROLLER SKATE

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8 Claims. (Cl. 280—11.28)

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This invention relates to roller skates and is particularly directed to improvements in roller truck mountings which provide better responsive characteristics for the skate when the weight of the skater is shifted from side to side in executing turns, and the like.

An object of the invention is to provide a roller truck mounting for a skate which causes the rollers to turn in a substantially horizontal plane upon tilting of the associated sole plate, to obtain a roller truck action which is sensitively responsive to the movement of the skate sole plate.

Another object of the invention is to provide a skate which has a nicely balanced and durable roller truck mounting that produces an effective turning action for the skate and which permits all four rollers to remain in contact with the running surface, even during the execution of very steep and short turns.

A further object of the invention is to provide for a skate having the foregoing characteristics a roller truck mounting wherein an improved and more equalized traction is maintained between all the skate rollers and the roller running surface.

A still further object of the invention is to provide for a roller skate a roller truck that is loosely mounted to a substantially vertical king pin depending in fixed position from the skate sole plate, said roller truck being supported by a resilient mounting which is adapted upon tilting action of the skate sole plate to create a twisting action in said resilient mounting whilst causing a slight compression of said mounting on the side adjacent the low point of the tilted sole plate.

Other objects will be apparent from the following specification and drawing which illustrate the preferred embodiment of my invention, and it will be understood that other modifications may be made therein without departing from the spirit and scope of this invention as clearly set forth in the appended claims.

In the drawing wherein like reference numerals indicate similar parts:

Fig. 1 is a side elevational view of my improved roller skate, parts being shown in cross section.

Fig. 2 is a fragmental, bottom plan view of the rear roller mounting for the skate illustrated in Fig. 1.

Fig. 3 is an enlarged cross-sectional view taken on line 3—3 of Fig. 2.

Fig. 4 is a front elevational view of the front roller mounting for the skate shown in Fig. 1.

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In the drawings the reference numeral 7 generally indicates the preferred embodiment of my invention and depicts a roller skate having the usual sole plate 8 which may be fastened to a shoe 9 in any suitable manner, as by the usual detachable clamps and/or straps, or permanently secured to the shoe by screws, rivets, or the like. Identically shaped and oppositely disposed brackets 10 and 11 are secured to the front part 12 and back part 13, respectively, of the sole plate by means of rivets 14 which pass through aligned holes 15 and 16 formed, respectively, through a flange portion 17 on the brackets and through the thickness of the sole plate 8.

The front and rear roller mountings for the skate have identical structure and functions, and a description of a single mounting will suffice for a clear understanding of the present invention, it being understood that said mountings differ only in that they are oppositely inclined and for a given tilt of the sole plate each pair of rollers simultaneously turn in opposed, rotational directions.

The bracket has an integral boss 18 depending therefrom which is substantially vertically disposed, and it is contemplated that its maximum inclination relative to the sole plate, should not exceed 10°. The boss has a threaded aperture 19 formed therethrough for receiving the upper threaded end 20 of a king pin 21. The king pin preferably takes the form of a bolt provided with the usual slotted head 22, said bolt being fixed to the bracket by threaded cooperation with the boss and a lock nut 23. The nut may be locked against a suitable brace 24 which extends between the brackets and has an opening 25 formed through each end for freely receiving the respective king pin for each bracket.

A roller truck 26 is mounted adjacent the headed, lower end of the king pin 21 and, a most clearly indicated in Figs. 2 and 3, said truck has a relatively narrow body portion 27 having formed therethrough a centrally disposed opening 28 which loosely encircles the king pin shank. Extending transversely from the sides of the truck are a pair of spaced, opposed studs 29 and 30 each having fixed thereto an axle 31 and 32, respectively, disposed in spaced, axial alignment. The usual ball bearings 33 are provided between said axles and their respective rollers 34.

A resilient mounting is disposed between the roller truck 26 and the bracket for carrying and supporting the entire weight of my skate user, and to that end said resilient mounting preferably takes the form of a rubber sleeve 35 which

is cylindric in transverse section and has formed centrally therethrough a bore 36 which receives the lower end of the king pin shank; a suitable cap 37 being provided to enclose the upper end of the sleeve and form a re-enforcing shoulder for the sleeve for abutting engagement against the lock nut 23.

With particular reference to Fig. 3 it will be noted that the upper surface of the central body portion 27 of the roller truck has a recess 38 formed therein which conforms to, and receives, the lower transverse end of the resilient mounting 35, whilst the outer side of the roller trunk is provided with an integral, upstanding guide arm 39 which tapers upwardly and has formed on its upper terminal end a cylindric bracket contacting extension 40 of uniform diameter throughout.

The bracket is provided with an inclined boss 41 which has formed therethrough an inclined guide hole 42 to loosely receive the upper end of the guide arm extension 40 so that said extension is at all times independently rotatable and axially movable therein. As most clearly illustrated in Fig. 3 the guide extension 40 and the guide hole 42 are inclined at an angle of approximately 31° from the vertical, and, the axial extension of said guide arm, as indicated by broken line 43 (Fig. 3), passes through the common axis for the split axles 31 and 32 and the axis of the king pin 21, indicated by the broken line 44 in Fig. 3.

In operation, therefore, it will be understood that the entire weight of the skater is borne upon the resilient mounting 35 and that the guide arm 40 and its contact with the bracket acts merely as a guide for directing the rollers in the proper rotational direction when the sole plate is tilted during the execution of a turn by the skater. Upon tilting action of the sole plate the stationary king pin 21 functions as the center of rotation for the roller truck mounting 26 said rotation being in a substantially horizontal plane and produced by pressure on either side of the sole plate when the skater throws his weight from side to side. The extreme position of a pair of rollers during a steep and narrow turn is illustrated by dotted lines 45 in Fig. 2, and it will be noted that the faces of the rollers are disposed in substantially vertical planes. Rotation of the roller truck around its king pin mounting creates a twist in the rubber sleeve and also a slight compression on the side of the rubber mounting adjacent the inside of the turn executed by the skater. Because of the substantial vertical position of the king pin and relative angles of said king pin and guide arm extension, a sensitive, and responsive roller mounting is provided for my skate which produces a more effective turning action for the rollers and permits all four of the rollers to remain on the running surface even during the execution of steep, short turns.

What is claimed is:

1. In a roller skate the combination of a sole plate, a bracket mounted beneath the sole plate and having a guide hole formed therein with its axis lying in a vertically disposed, longitudinal plane of the skate, and inclined at a longitudinally disposed angle of not less than thirty-one degrees with respect to the vertical, a king pin fixed to the bracket and having its axis lying in said longitudinal plane and longitudinally inclined with respect to the vertical at an angle less than ten degrees with respect to the vertical, a roller truck loosely carried by the free end of the king pin, aligned roller axles extending transversely from opposed sides of the truck, a resilient sleeve surrounding the pin and interposed between the truck and the bracket, an integral guide arm extending upwardly from the truck, and a bracket contacting terminal end on the arm of uniform diameter and freely disposed in the guide hole for rotatory and axial movement, the axes of said king pin and of said terminal end of the guide arm meeting in the axial extensions of the axles.

2. In a roller skate the combination of a sole plate, a king pin, means for mounting the king pin beneath the sole plate with its axis lying in the vertical, longitudinally disposed medial plane of the skate, said king pin being inclined outwardly with respect to the center of said skate, a roller truck loosely mounted on the king pin, a resilient sleeve surrounding the king pin and interposed between the truck and the means for mounting the king pin, a pair of spaced, laterally extending roller axles fixed coaxially on opposite sides of the truck, the common axis of the roller axles intersecting the king pin, and a guide arm for the truck extending outwardly therefrom and having a loose connection with the sole plate.

3. In a roller skate the combination of a sole plate, a king pin, means for mounting the king pin beneath the sole plate with its axis lying in the vertical, longitudinally disposed medial plane of the skate, said king pin being inclined outwardly with respect to the center of said skate, a roller truck loosely mounted on the free end of the king pin, a resilient sleeve surrounding the king pin and interposed between the truck and the means for mounting the king pin, a pair of spaced, laterally extending roller axles fixed coaxially on opposite sides of the truck, the common axis of the roller axles intersecting the king pin axis at the free end thereof, and a guide arm for the truck extending outwardly therefrom and having a loose connection with the sole plate.

4. In a roller skate the combination of a sole plate, a king pin, means for mounting the king pin beneath the sole plate with its axis lying in the vertical, longitudinally disposed medial plane of the skate, said king pin being inclined outwardly with respect to the center of said skate, a roller truck loosely mounted at its central portion on the free end of the king pin, a resilient sleeve surrounding the king pin and interposed between the truck and the means for mounting the king pin, a split, transverse axle carried by the truck and positioned thereon with the center of the axle axis intersecting the king pin axis at the free end thereof, and a guide arm for the truck extending outwardly therefrom and having a loose connection with the sole plate.

5. In a roller skate the combination of a sole plate, a king pin, means for mounting the king pin beneath the sole plate with its axis lying in the vertical, longitudinally disposed medial plane of the skate, said king pin being inclined outwardly with respect to the center of said skate, a roller truck loosely mounted at its central portion on the free end of the king pin, a resilient sleeve surrounding the king pin and interposed between the truck and the means for mounting the king pin, a split, transverse axle carried by the truck and positioned thereon with the center of the axle axis intersecting the king pin at the free end thereof, and a guide arm for the truck extending outwardly therefrom and having a loose connection with the sole plate.

6. In a roller skate the combination of a sole plate, a king pin, means for mounting the king pin beneath the sole plate with its axis lying in the vertical, longitudinally disposed medial plane of the skate, said king pin being inclined outwardly with respect to the center of the skate, a roller truck loosely mounted at its central portion on the free end of the king pin, a resilient sleeve surrounding the king pin and interposed between the truck and the means for mounting the king pin, a split transverse axle mounted on the truck and positioned thereon with its axial center intersecting the king pin axis at the free end of the king pin, a guide arm extending upwardly and outwardly from the truck, and means for freely mounting the upper end of the guide arm in the sole plate on an axis inclined inwardly toward the skate center and passing through the intersection of the axes for the split axle and the king pin.

7. A roller skate as set forth in claim 6 wherein the angle of inclination of the king pin with the vertical is less than ten (10°) degrees.

8. A roller skate as set forth in claim 6 wherein the angle of inclination of the king pin with the vertical is less than ten (10°) degrees, and the angle of inclination of the axis of the upper end of the guide arm with the vertical is substantially thirty-one (31°) degrees.

CLIFFORD V. SEFFERINO.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,044,187	King	Nov. 12, 1912
2,300,477	Whitcomb, Jr. et al.	Nov. 3, 1942
2,466,070	Balstad	Apr. 5, 1949