Nov. 4, 1947. A. VINCENT 2,430,037

ROLLER SKATE DEVICE

Filed July 20, 1945

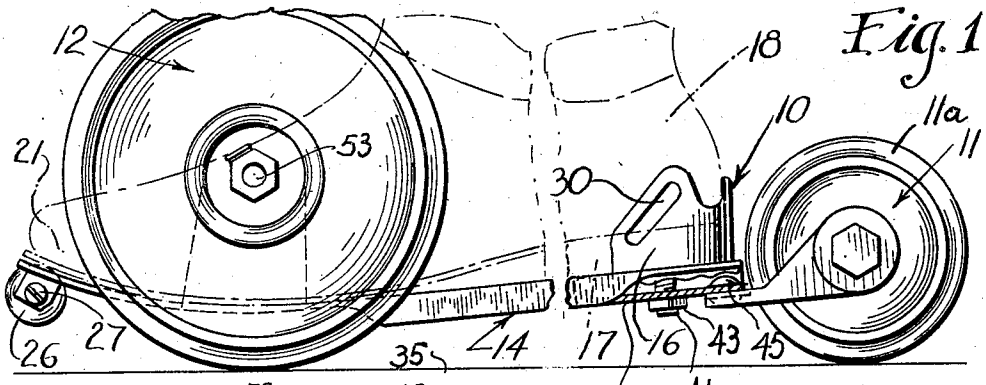


Fig. 1

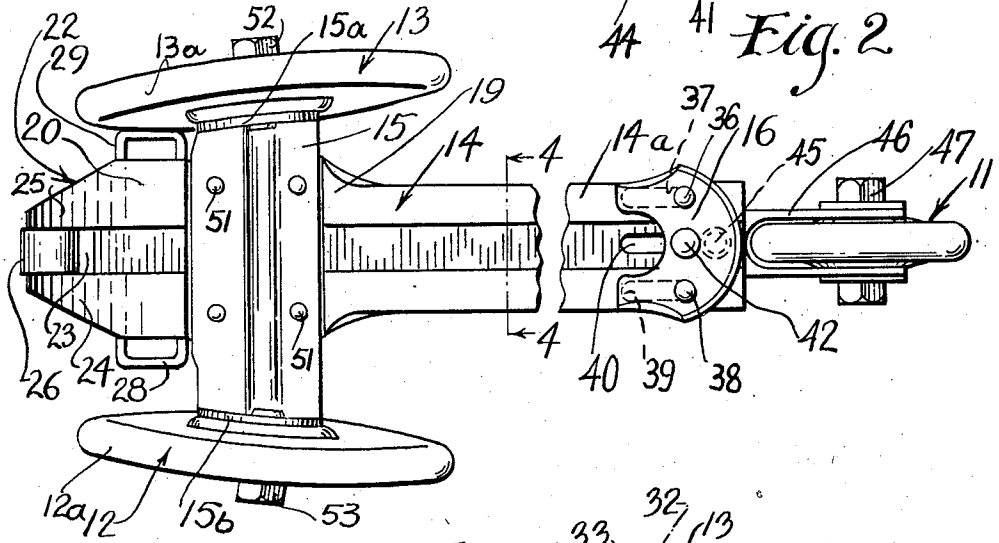


Fig. 2

Fig. 4

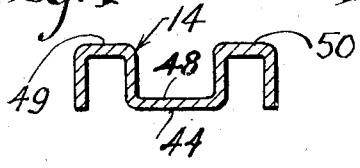


Fig. 5

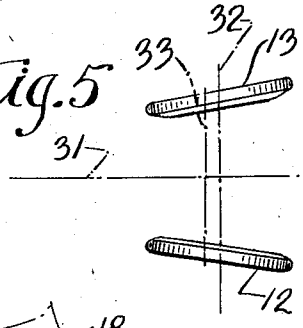


Fig. 6

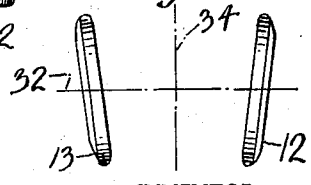
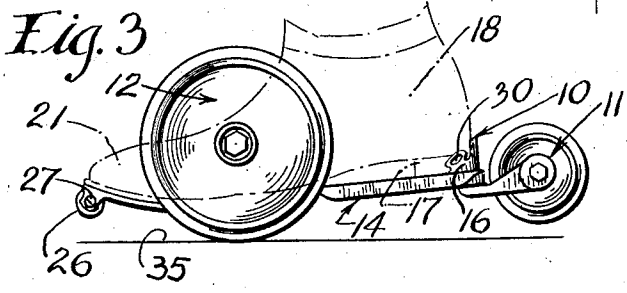


Fig. 3



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ROLLER SKATE DEVICE

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3 Claims. (Cl. 280—11.20)

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The present invention refers to roller skate structures of the type equipped with three or four wheels or rolling elements.

It is one of the objects of this invention to provide means for increasing the efficiency and stability, as well as easiness of directing of roller skates of the aforesaid type.

It is another object of the invention to provide means permitting simple and rapid change from one to another position of the bearing surface or platform of roller skates relatively to the rear wheel or wheels thereof.

It is still another object of the invention to provide means causing the positioning of the metatarsal axis of the foot ahead of the axis of the front wheels of the roller skate.

It is a further object of the invention to provide means affording adjustability of the platform to the foot of the wearer without necessitating any change of the relationship between the axis of the front wheels and the metatarsal axis of the wearer's foot.

Still another object of this invention resides in the provision of means for preventing slipping movement of the platform of the roller skate in lateral directions.

Still a further object of this invention is to provide means rendering the change of the position of the skate platform possible by a slight movement of the foot rather than by displacing the entire body of the skater so that the equilibrium of the latter will substantially always be maintained.

It is still a further object of the invention to provide means facilitating reduction of the width of the platform of the skate device to a minimum and to prevent any springy action of the platform.

Yet, another object of the invention is to provide means permitting the roller skate to easily follow, turn or run sharp curves having a relatively short radius.

These and other features and advantages will become more apparent from the ensuing description of the invention, and will be further clearly understood by referring to the accompanying drawing.

In the drawing:

Fig. 1 is a side-elevational view of a skate device made in accordance with this invention (parts of the device being broken away).

Fig. 2 is a perspective view of the skate device of Fig. 1, as seen from above and into the direction of the right-hand wheel of the skate device.

Fig. 3 illustrates the skate device of Fig. 1 (on a reduced scale) as seen in another operative position.

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Fig. 4 is a cross-sectional view taken along line 4—4 of Fig. 2.

Fig. 5 is a schematic top plan view of the front part of the skate device.

Fig. 6 is a schematic front view of the front part of the skate device.

Referring now more particularly to the drawing, there is shown in Figs. 1 and 2 a roller skate device 10 which is equipped, in this instance, with a single rear wheel 11, with the two front wheels 12 and 13, an elongated profiled platform 14 and bridge 15 which connects the front wheels 12 and 13 to said platform 14.

Slidably attached at the rear part 14a of platform 14 is a holder 16 for engagement with the heel 17 of the shoe 18 of the skater.

Platform 14 extends in uniform width and substantially in horizontal direction lengthwise of the skate device 10, but is enlarged at the front portion 19 of the platform, in particular at the bridge or traverse 15. Front portion 19 is somewhat upwardly curved at 20, where the forward end 21 of the shoe 18 comes to rest.

Forward end 22 of front portion 19 is bifurcated at 23 to provide a space between arms 24, 25 in which a brake element 26 is fixedly held in position by means of screw bolt 27 passing through depending lugs of said arms 24 and 25.

The forward curved part 20 of the portion 19 of the platform 14 is further provided with loop elements 28, 29 for the engagement with a retainer strip (not shown) for holding the shoe of the skater on platform 14. Similarly, heel holder 16 includes slots or loops, such as indicated by numeral 30 to retain the rear portion of shoe 18 on platform 14.

As can be visualized from Figs. 2 and 5, wheels 12 and 13 are inclined with respect to the longitudinal axis 31 of the platform 14, the angle being approximately 3° to 5°. Wheels 12 and 13 are also inclinedly disposed to each other in vertical direction, the angle being approximately between 5° to 10° to the vertical axis 34. This arrangement of the front wheels 12, 13, the diameter of which being about twice the diameter of rear wheel 11, considerably increases the stability and markedly contributes to the easiness with which curves having a relatively short radius, may be run. In other words, the front wheels 12, 13 converge toward the curved end of the forward portion of said platform, but diverge from below or bottom surface of said platform thereabove or surface of said platform.

The inclination of the wheels 12 and 13 with respect to the longitudinal axis 31 and relatively to the vertical axis 34 is apparent from Fig. 6.

In order to readily facilitate the change of the position of the skate platform as seen in Fig. 1 to a position illustrated in Fig. 3 in which the rear wheel 11 is swung upwardly and does not contact the surface 35, the metatarsal axis indicated at 33 in Fig. 5 is arranged according to this invention ahead of the transverse axis 32 extending through the front wheels 12, 13. Thus, without substantially changing the equilibrium of the skater and his posture, a slight pressing movement of the toes of the foot of the skater will be sufficient to bring about pivotal movement of the platform 14 about the transverse axis 32 since the same is positioned above and rearwardly of the metatarsal axis 33 which extends crosswise to the curved forward end 20 of the enlarged forward platform portion 19.

In order to maintain the position of the metatarsal axis at that preferred location, heel holder 16 is slideably affixed on the rearward portion 14*a* of the platform by means of bolt and slot arrangement 36, 37 and 38, 39. Platform portion 14*a* is further provided with a slot 40 through which extends screw bolt 41 riveted at 42 to the base of heel holder 16. In order to adjustably affix heel holder 16 in its position, a nut 43 may be moved in tight engagement with the underface 44 of platform 14.

At a location underneath of heel holder 16 and pivotally attached by a bolt connection 45 is the bifurcated member 46 which, in this instance, carries rear wheel 11. Rear wheel 11 is held in member 46 for position and rotation relatively thereto by means of a nut and bolt connection 47.

It is well understood that instead of one rear wheel 11 two rear wheels or rolling elements may be arranged, either swingably or in fixed relation to the platform 14.

Platform 14 is preferably made from a light weight metal, such as aluminum or magnesium or any alloy thereof, and is preferably profiled, as seen in Fig. 4. Thus, a center groove 48 is provided, the tread surface being composed of portions 49 and 50 of the platform which can thus be kept to a minimum width and is greatly reinforced.

Wheels 11, 12 and 13 are preferably provided with rubber layers 11*a*, 12*a* and 13*a* or other resilient surfaces to bring about smooth working conditions for the roller skate.

As hereinabove mentioned, the rounded brake element 26 may be turned after the employed surface section thereof has worn off. Thus, a new braking surface will be readily obtained for the purpose intended.

The operation of the skate device made in accordance with this invention is quite apparent from the aforesaid description. The roller skate device may be either used by employing the front and rear wheels (Fig. 1) or by using only the front wheels (Fig. 3) which is preferably accomplished during motion by a slight pressure and shifting of the metatarsal axis 23 about transverse wheel axis 32 (Fig. 5). The start of the roller skate motion may be brought about by the skater in a conventional manner and the stop of the roller skate motion may be accomplished by the utilization of the friction between the brake device 26 and the surface 35, as it is well understood.

According to the present invention, sharp curves with a relatively short radius can be run

with easiness and safety which is in particular attributed to the arrangement and disposition of the front wheels 12 and 13 which are rotatably affixed, respectively, on lugs 15*a* and 15*b* upwardly extending from bridge or traverse 15 which, in turn, is riveted to the surface of platform 14 at 51. Lugs 15*a* and 15*b* include respective bearings for rotatable wheels 13 and 12 held in position thereon by means of a bolt and nut arrangement 52 and 53.

In accordance with the present invention there has been provided a skate device comprising an elongated platform, said platform including a rearward portion and a forward portion provided with an upwardly curved end, a traverse fixed in crosswise direction to and adjacent said forward portion of said platform and terminating in opposite lugs, each lug extending angularly from and above said platform, a front wheel positioned at either side of said platform and arranged for rotation on said lugs, respectively, whereby the transverse axis of said wheels is positioned above said platform, said front wheels converging toward the curved end of said platform, a heel holder adjustably affixed to the rearward portion of said platform, a rear wheel connected to the end of said rearward portion, and means displaceably connecting said heel holder with said platform whereby upon engagement of the heel of a shoe with said heel holder the tip of the shoe will be located on said curved end and with the metatarsal axis of the foot of the skater ahead of said transverse axis so as to effectuate pivotal movement of said platform about said transverse axis of said front wheels substantially solely by the tip of the shoe thereby avoiding shifting of the point of gravity of the skater for said pivotal movement.

While there have been shown and described and pointed out the fundamental novel features of the invention as applied to the above embodiment, it will be understood that various omissions and substitutions and changes in the form and details of the device above described and illustrated and the operation thereof may be made by those skilled in the art without departing from the spirit of the invention.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent, is:

1. A skate device of the character described comprising a platform having a surface terminating into a forward portion provided with an upwardly curved end, said end being bifurcated and extending above the remainder of said platform, a U-shaped traverse including two end lugs connected to said platform rearwardly of said curved end, said lugs extending above said platform and including two bearings, two front wheels journalled for rotation in said bearings of said lugs, whereby said front wheels extend below and above said platform, at least one rear wheel connected for rotation to said platform, said front wheels converging in the direction of said forward portion of said platform and diverging upward from said surface of said platform, the transverse axis of said front wheels being disposed above said upwardly curved end of said forward portion of said platform, and brake means accommodated in said bifurcated end and projecting therebelow.

2. A skate device of the character described comprising a platform having a bottom surface, said platform terminating into a forward portion with an upwardly curved end, said end being located at a level above the remainder of said plat-

form and being provided with a bifurcation, a traverse fixed to said platform and positioned rearwardly of said curved end, oppositely arranged lugs on said traverse and extending therefrom above said platform, two front wheels connected for rotation to said lugs, respective bearings for said front wheels carried by said lugs and positioned above said platform, whereby said front wheels extend below and above said platform, at least one rear wheel connected for rotation to said platform, said front wheels converging in the direction of said bottom surface of said platform as well as toward the curved end of said platform, the transverse axis of said front wheels being disposed above said upwardly curved end of said forward portion of said platform, and a brake element accommodated within said bifurcation and fixed thereat.

3. A skate device of the character described comprising a platform terminating into a forward portion provided with an upwardly curved end for engagement with the toes of the skater's foot, said end being located at a level above the remainder of said platform, a traverse fixed to said platform and located rearwardly of said curved end, oppositely arranged lugs on said traverse and extending from the latter above said platform, two front wheels connected for rotation to said lugs of said traverse, respective bearings for said front wheels carried by said lugs and positioned above said platform, whereby said front wheels extend below and above said platform, and at least one rear wheel connected for rotation to said platform, said front wheels converging in the direction of said forward portion of said platform and diverging in the direction from below said platform thereabove.

ARNOLD VINCENT.

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