





## UNITED STATES PATENT OFFICE

2,356,736

## ROLLER SKATE

Edward G. Blaes, Glendale, N. Y., assignor of one-third to Gordon V. Oldham, Summit, N. J., and one-third to Schuyler H. Rust, New Brunswick, N. J.

Application July 22, 1942, Serial No. 451,921

3 Claims. (Cl. 280—11.20)

This invention relates to roller skates and has for its object the provision of an improved type of skate adapted for use in fancy and figure skating.

Another object is to provide a roller skate with means adapting it for use by fancy and figure skaters in the performance of jumps, splits, spins and the like figures, involving abrupt stops and abrupt changes in direction.

Still another object is to provide a roller skate with a front or toe end bumper or stop means in a position adapting the skate to use by fancy and figure skaters in the performance of heretofore impossible jumps, splits, spins and the like figures.

Other objects and advantages will be apparent as the invention is more fully hereinafter disclosed.

In accordance with these objects I have devised the skate structure, one specific embodiment of which is, illustrated in the accompanying drawings, wherein—

Fig. 1 is a top view of the improved skate of the present invention;

Fig. 2 is a side view of the same;

Fig. 3 is a sectional view along plane 3—3 of Fig. 1;

Fig. 4 is a bottom view of the same stripped of the wheel trucks at the front end to more clearly illustrate the present invention;

Fig. 5 is a sectional view along plane 5—5 of Fig. 2;

Fig. 6 is a perspective view illustrating one part of the front or toe end, bumper or stop means of the present invention;

Fig. 7 is a perspective view illustrating the second part of the front or toe end bumper or stop means of the present invention, and

Fig. 8 is a perspective view illustrating an improved wheel truck hanger brace means of the present invention.

Referring to the drawings, heretofore in the art of roller skating, fancy and figure skating has been limited as to character and kind by reason of the fact that no means has heretofore been provided on the skates to enable the skater to stop forward or reverse motion abruptly or to utilize the kinetic energy of forward or reverse motion in the execution of jumps, spins and the like figures, thereby relieving the body and the leg muscles of the skater of the physical strain of such activities.

The skate structure illustrated in the accompanying drawings is designed to correct this defect in roller skates, thereby to enlarge the pos-

sibilities of use of skates by fancy and figure skaters.

In accordance with the present invention the skate structure consists of a sole plate P comprised of one piece of metal, preferably a light weight metal such as aluminum or an aluminum base alloy, shaped to fit the sole of a shoe S to which it may be rigidly secured by means of screws 10—10 passing through holes 11—11 therein.

On the underside of sole plate P and at the toe end thereof is located bumper or stop means A—A' of the present invention. Bumper or stop means A—A' may be shaped in a plurality of different ways without essential departure from the present invention as one skilled in the art will readily perceive. After considerable experimentation, however, I have found that the most practical form adapted to the widest utility in the art of fancy and figure skating is that indicated in the drawings.

Referring first to Figs. 6 and 7, bumper or stop means A—A' consists of two parts. Part A' is comprised of metal, preferably a light weight metal, such as aluminum or aluminum alloy, and is shaped to provide a base plate 20 adapted to be fixedly secured to the under face of sole plate P by rivets 21 passing through openings 22; and with an extension 23 extending forwardly and downwardly provided with a plane surfaced face 24 lying in a plane at an angle of about 45° to the face of sole plate P and in a position relative to the toe end of sole plate P adapted to permit the mounting of part A thereon with the forward end thereof lying approximately in the same plane normal to the center horizontal axis that is tangent to the rounded surface of the toe end of shoe S and with the face thereof lying in a plane at an angle of about 45° to the face of sole plate P which is slightly forward a similarly angled plane tangential to the front wheels W—W'. This arrangement provides for the engagement of the face of part A with a floor surface when the toe end of the skate is inclined at an angle to the horizontal of about 45° with the wheels W—W' free of the floor.

Part A is comprised of a disc-shaped soft wear-resistant resilient material 30 such as rubber, cork, synthetic organic plastic material of rubber-like properties and the like material, and is provided with means such as an imbedded screw threaded bolt 31 coating with threaded recess 32 in the face 24 of extension 23 to be detachably secured thereon. Alternative ways and means for mounting and securing part A on

part A' may be employed without essential departure from the present invention. I have found it preferable to employ a plane surfaced member A mounted as shown to locate the plane surface at an angle of 45° to the horizontal axis of sole plate P and in the forward position shown. The diameter of the disc A may vary widely without departure from the present invention depending upon the particular frictional properties of the material employed. For example, in the specific embodiment shown disc 30 of part A is comprised of rubber of the type normally employed in pencil erasers and has a diameter approximating one inch and a thickness approximating ¼ inch. This type of rubber appears to give the best results on highly polished hard wood floors usually surfacing skating rinks insofar as its resiliency, frictional and wear-resistant properties are concerned.

The provision of bumper or stop means A—A' on sole plate P and the securing of sole plate P to the sole s of shoe S requires the use of a brace member B between hangers H—H' adjustably sustaining wheel trucks T—T' on the bottom of the skate to more uniformly distribute the strain on the wheel trucks T—T' as a result of the increased field of use imparted to the skates. Hangers H—H' and trucks T—T', per se, form no part of the present invention and except for brace member B cooperatively assembled therewith are old and well known in the art.

As indicated in section in Fig. 3, each hanger H consists of a base plate 40 rivetly secured in position on the under side of sole plate P which base plate 40 is provided with two extensions 41 and 42. Extension 41 is an interiorly threaded tubular part mounted at an angle to the vertical of about 10° forwardly in the case of the front hanger H and rearwardly in the case of the rear hanger H', into which extends the threaded end of king bolt 43. Extension 42 is a curved pin extension located to engage in cupped recess 44—44' of wheel trucks T—T'.

Wheel trucks T—T' consist of an axle housing 50 sustaining axle 50'' provided with two arms 51 and 52 angularly disposed to each other, one arm 51 carrying cupped recess 44 on the end thereof and the other arm 52 being provided with a dish-shaped member 53 provided with a center opening through which king bolt 43 may extend with the head end thereof engaging the outer surface thereof around the periphery of the said center opening. Seated within dish-shaped member 53 is resilient member 54 and the opposite end of member 54 is enclosed by a similarly shaped dish-shaped member 55 provided with a center opening through which extends king bolt 43.

With this arrangement it may be seen that with member 55 resting in position against the end of threaded extension 41, the spaced relation between the axle 50' and the sole plate P may be varied along the angle of the king bolt axis by tightening up or loosening king bolt 43, limited by the space gap between the extension 42 and the inner face of cup 44. This arrangement gives a measure of adjustment of the axle 56 forwardly and rearwardly with resilient suspension of trucks T—T' on hangers H—H', the maximum resiliency in all directions being obtained in the position shown in Fig. 3 with pin-extension 42 centrally located in cup 44.

Bar B consists of a hollow member which may be circular, oval or square in cross-section, and which is comprised of strong light metal such as

aluminum or aluminum alloy. Bar B is flattened at each end and is provided with openings 60—60' in the flattened end portions 61—61' thereof through which king bolts 43—43' may pass and preferably is mounted in the position shown in the drawings by means of lock-nuts 57—57' between cups 55—55' and the end of extensions 41—41'. This arrangement distributes the shock on either set of wheels uniformly to both hangers H—H', eliminating the possibility of accidental failure of either hanger assembly.

From the above disclosure and drawings, it is believed apparent that the improved skate assembly of the present invention may be widely modified without essential departure from the present invention and that it is particularly adapted for use in the art of fancy and figure skating by reason of the specific improvements made therein. The full length of sole plate P gives greater support to the shoe S and prevents the toe of the shoe S from bending upwards and the full width of the sole plate to the width of the shoe sole s prevents side rocking tending to work loose the screws or rivets holding the sole plate P to the shoe sole s. The provision of inter-connecting brace B between wheel truck hangers H—H' in cooperation with sole plate P adds to the strength and rigidity of the skate and uniformly distributes the strain incident to use to both wheel truck hangers H—H'. In view thereof, all such modifications and adaptations of the present invention are contemplated as may fall within the scope of the following claims.

What I claim is:

1. In a roller skate, the combination of a one-piece sole plate having a size, shape and configuration, conforming substantially identically to the size, shape and configuration of a skate shoe sole, means integrally securing the said sole plate to the said shoe sole, front and rear roller wheel hangers dependently secured to the said sole plate, a brace bar extending between the hangers to secure the same together in desired depending relation, and a toe stop means on the toe end of said sole plate, said toe stop means comprising a base plate secured to the sole plate at the toe end, said base plate being provided with an extension extending downwardly and towards the toe end of the base plate at an angle of about 45°, the end of said extension terminating in a plane surface lying substantially normal to the axis of said extension, and a plane surfaced bumper member comprised of resilient material secured to the end of said extension, the plane surface of said member lying in a plane substantially tangential to the roller wheels carried by the front roller wheel hanger.

2. In a roller skate, the combination of a one-piece sole plate having a size, shape and configuration conforming substantially identically to the size, shape and configuration of a skate shoe sole, means fixedly securing the sole plate to the skate shoe sole, and a toe stop means secured to the toe end of said one-piece sole plate, said stop means comprising a base plate fixedly secured to the bottom face of the toe plate at the toe end thereof, said base plate being provided with an extension extending downwardly and towards the toe end of the sole plate at an angle of about 45° the forward end of said extension being plane surfaced and lying in a plane normal to the axis of the extension and a plane surfaced bumper member comprised of resilient material secured to the forward end of said extension, the plane surface of said bumper member lying in a plane

substantially normal to the axis of said extension and appreciably beyond the toe end of said sole plate.

3. In a roller skate, the combination of the one-piece sole plate and toe stop means of claim 2 and braced roller wheel hangers, said braced roller wheel hangers comprising front and rear

roller wheel hangers dependingly secured to the bottom of said one-piece sole plate and a brace bar extending between the said hangers securing the same in desired spaced relation at a point intermediate the wheel axis and the said sole plate.

EDWARD G. BLAES.