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3,199,883

DOUBLE RUNNER ICE SKATE HAVING RESILIENTLY MOUNTED FOOT PLATE

Filed Sept. 16, 1963

FIG. 1.

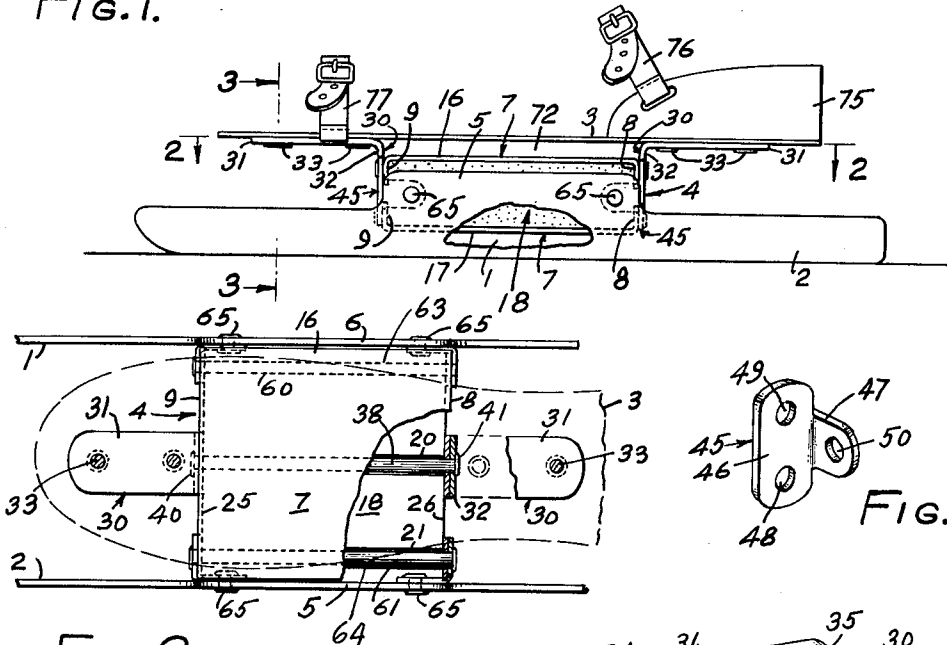


FIG. 2.

FIG. 3.

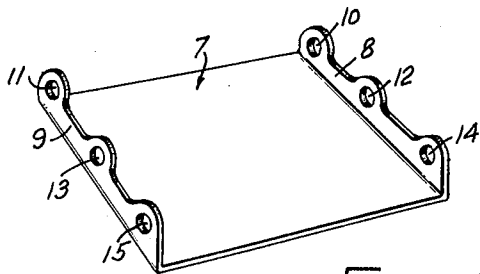
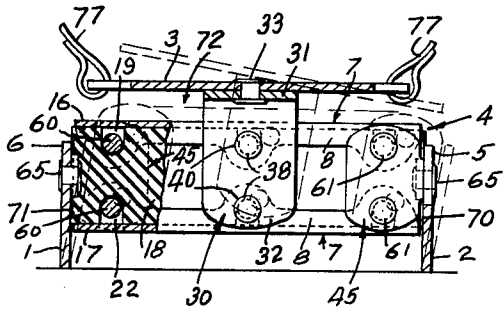


FIG. 4.

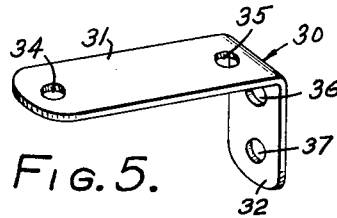


FIG. 5.

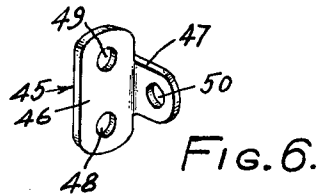


FIG. 6.

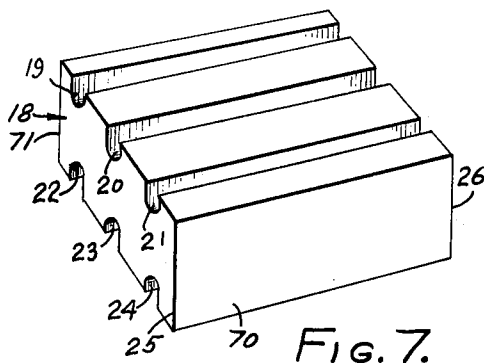


FIG. 7.

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DOUBLE RUNNER ICE SKATE HAVING RESILIENTLY MOUNTED FOOT PLATE

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The present invention relates to skates for use on ice of the type which incorporate for each skate a pair of blades or runners.

Skates of the type mentioned usually provide separate mountings for each blade of the pair at the front and rear of a sole plate. This mounting as a rule comprises posts which engage snubbers or rubber bumpers and each blade of the pair has independent movement although parallel links are often provided to provide parallel movement of the blades sideways when the sole plate is moved at an angle. Such constructions, however, do not correct any uneven pitch of the blades as one rubber bumper, either front or rear, may be compressed more than the other rubber bumper with the result that each blade may tilt vertically. This is undesirable and causes an unstable condition because such individual bumpers move in accordance with weight distribution on the sole plate.

An object of my invention is to provide a two bladed skate wherein the blades remain substantially parallel both vertically and horizontally without any tendency of the blades to toe in or toe out or to counter tilt in a vertical plane.

An object of the invention is to provide a skate construction having two runners which allows the skater a control thereof comparable to a single runner type skate.

A further object is to provide a skate construction which may be used by the beginner for the purpose of acquiring competence in skating and aiding materially in the learning of figure skating.

Another object is the provision of a skate construction which permits a person with weak ankles to stand or to coast without the muscles of the legs being tense.

Another object is the provision of a skate incorporating at least two runners and wherein during a propelling operation on the part of the skater, the double runners will act in the same manner as a single runner type skate. Single runner skates utilize the edge of the skate in propelling the skater and this same action will occur in the double runner type skate of my invention.

A further object of the invention is to provide a skate so constituted and arranged that inclination of the foot to vertical will produce like movement in the skate runners whereby various maneuvers may be made by the skater such as rapid turning and sliding of the runners to effect a sudden stop to forward movement.

The invention further consists in providing a dual bladed skate which is inexpensive in cost of manufacture, easily fabricated and generally superior to skate constructions using dual runners, now known to the inventor.

With the above and other objects in view, the invention consists in the novel and useful provision, formation, construction, association and relative arrangement of parts, members, and features, all as shown in one embodiment in the accompanying drawing, described generally and more particularly pointed out in the claims.

In the drawing:

FIGURE 1 is a fragmentary side elevation of a skate embodying my invention;

FIGURE 2 is a fragmentary plan view of the skate taken on the line 2—2 of FIGURE 1;

FIGURE 3 is an enlarged fragmentary sectional view on the line 3—3 of FIGURE 1;

FIGURE 4 is a perspective view of a plate used in the practice of the invention;

FIGURE 5 is a perspective view of a bracket or angle strap used in the invention;

FIGURE 6 is a perspective view of a link type bracket for securing a blade to a plate of the type shown in FIGURE 4; and

FIGURE 7 is a perspective view of a resilient block or bumper positioned between a pair of plates of the type shown in FIGURE 4.

Referring now to the drawings, the skate of the present invention includes two parallel spaced apart blades or runners 1 and 2, a sole plate having a heel portion 3 and means designated generally as 4 interconnecting the sole plate and the said runners. The blades 1 and 2 are of like formation and each blade is provided with integrally formed elevated or stepped portions 5 and 6 on the top edge thereof which lies in the plane of the blade and which elevated portion lies substantially intermediate the length of the blade. The means 4 is adapted to be secured to the stepped or elevated portions of each blade as hereinafter set forth.

The means 4 includes a top and bottom plate of stiff material such as a metal of the form shown in FIGURE 4 and designated as 7. Two of the marginal edges of each plate are provided with parallel flanges 8 and 9, both flanges extending in the same direction and provided with aligned holes 10 and 11; 12 and 13; 14 and 15. The holes 12 and 13 are positioned intermediate the width of the plates while the holes 10 and 11, 14 and 15 are adjacent ends of the flanges and all holes are equidistantly spaced apart. As stated there are two plates 7, as shown at 16 and 17, FIGURE 3. The flanges for the plate 7 at 16 extend downwardly while the flanges for the plate 7 at 17 extend upwardly and interposed between the upper and lower plates is a block 18 of the type shown in FIGURE 7. This block is formed of resilient material such as a rubber or rubber composition, the block being provided on its top and bottom surfaces with aligned parallel grooves 19 and 22; 20 and 23; 21 and 24, which grooves extend between the ends 25 and 26 of the block. The top and bottom plates 7 when assembled with the block 18 therebetween, are secured to the sole plate 3 by means of angular brackets designated generally as 30 and shown in FIGURE 5. One leg 31 of the bracket is of greater length than the other leg 32 and two of said brackets are provided, the longest leg 31 being secured by rivets 33 or other means to the sole plate and intermediate the blades 1 and 2, as shown in both FIGURES 1 and 3. To accomplish this, the bracket leg 31 is provided with holes 34 and 35 as is, likewise, the sole plate through which holes the rivets 33 may be passed. The longest leg 31 faces forwardly towards the toe of the sole plate in one instance while in the other instance the longest leg faces the heel portion. The leg 32 of the bracket is provided with two spaced holes 36 and 37 and elongated bolts 38 are passed between the holes 36 and 37 of each bracket leg 32 and the holes 12 and 13 of flanges 8 and 9 of the upper and lower plates 7, with the shanks of the bolts lying in the grooves 20 and 23 of the block 18. The ends of the bolts 38 are either headed or flanged as shown at 40 and 41 in FIGURE 2 or provided with other suitable means such as nuts.

I provide brackets of the type shown in FIGURE 6 and designated as 45 for securing the blades to the upper and lower plates 7. Each bracket 45 forms a link connection between the means 4 and the blades 1 and 2. Each bracket 45 is provided with an elongated leg 46 and an intermediate leg 47 in right angular relationship to leg 46. Leg 46 is provided with a pair of spaced apart holes 48 and 49 and leg 47 is provided with a transverse hole 50. Four brackets 45 are provided, two for each blade arranged at opposite flanged ends of the plate 7. The longest leg 46 is secured between the flanges 8 and

9 of the upper and lower plates 7 by elongated bolts 60 and 61. The bolts are passed through the holes 48 and 49 of pairs of corner brackets, the flange holes 10, 11, 14 and 15, and are received in the grooves 19, 21, 22, and 24 of the block 18 as shown at 63 and 64 in FIGURE 2. The ends of the bolts are upset or provided with nuts, as previously described and as shown at 40 and 41 for the intermediate top and bottom bolts. The legs 47 of the brackets are in facing relationship as shown in FIGURE 2 and rivets 65 are passed through the holes 50 and through the stepped portions 5 and 6 of each blade, as shown in FIGURE 3.

As illustrated in the drawings, the side faces 70 and 71 of the block 18 are plane and likewise parallel and said faces are adapted to bear against the inner surface of each blade and particularly the stepped portions 5 and 6 of said blades. The top plate 7 is spaced slightly downwardly from the under surface of the sole plate 3, as shown in FIGURES 1 and 3 at 72.

The sole plate is provided with the usual heel guard 75 which carries an adjustable strap 76 and a strap 77 may be provided adjacent the toe portion of the sole plate whereby the skate considered as an entirety may be secured to the skater's foot, in the well understood manner.

The operation, uses and advantages of my invention are as follows.

Assuming that the means 4 interconnects the sole plate with the pair of blades 1 and 2, it will be observed from FIGURE 3 that the sole and heel plate may be tipped from the full line position to the dotted line position which will likewise uniformly tip both blades 1 and 2 at the same angle relative to a horizontal plane. This tipping movement of the blades is resisted by the block 18 and a shifting of the weight from the heel to the sole portion of the sole plate will not vary the tipping movement of the blades as the weight of the skater is at all times equally distributed from the toe to the heel of the sole plate. As a consequence, no canting or toe in occurs between the blades by a shifting of weight and a skater may stand on the skate without any unbalance. Obviously rigidity of the ankle is not required. By using a single resilient block 18 interposed between upper and lower plates 7, which plates are preferably formed of a metal such as steel, the bumper or block is evenly compressed and a shifting of the weight by the skater does not result in any uneven pitch of the blades. It has been found in actual practice that a pair of skates constructed in accordance with my invention allows the skater to perform the same maneuvers as performed when using skates having single runners or blades as inclination of the foot to vertical will produce like movement of the blades.

The single mounting means 4, positioned substantially intermediate the length of the blades and of the sole and heel plate provides a skate construction that gives superior results in practice and accomplishes the objects of my invention.

I claim:

1. In skate construction: a sole and heel plate, a pair of spaced apart parallel blades and means connecting the sole and heel plate and the blades substantially intermediate the lengths thereof; said means comprising substantially rigid parallel upper and lower plates, link connections between said plates and the blades and between the heel and sole plate and a resilient block interposed between said plates.

2. In skate construction: a pair of blades in spaced apart parallel relationship, a sole and heel plate and means interconnecting the sole and heel plate and the blades; said means being positioned substantially intermediate the length of the blades and of the sole and heel plate and comprising upper and lower plates each provided with facing end flanges, a resilient block interposed between the upper and lower plates, link means interconnecting the flanges of the upper and lower plates with the blades and further means interconnecting the sole and heel plate to the flanges of the upper and lower plates.

3. In skate construction: a sole and heel plate, a pair of blades and means flexibly interconnecting the skate and blades positioned substantially intermediate the length of said blades and plate; said means comprising a pair of parallel aligned plates each provided with end flanges, a resilient block between the plates and the end flanges, the block provided on opposite surfaces with spaced apart aligned grooves extending from end to end of the block, the plate flanges provided with bores in alignment with the grooves of the block, link type brackets secured to each skate blade, and bolts secured to the link type brackets and passed through the bores of the flanges of the top and bottom plates and lying in the grooves of the resilient block, and further brackets secured to the sole and heel plate, there being bolts passed through the flanges of the upper and lower plates and received in grooves of the resilient block for securing said latter brackets.

4. In skate construction: a sole and heel plate, a pair of blades and means flexibly interconnecting the skate and blades positioned substantially intermediate the length of said blades and plate, said means comprising a pair of spaced apart rectangular plates, a resilient block interposed between the plates, link type brackets secured at each corner of the plates and to the blades and brackets positioned intermediate the corner link type brackets and secured between the plates and to the heel and sole plate.

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