Feb. 24, 1959 W. B. MALL 2,874,970

CONVERTIBLE SKATES

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FIG. 1.

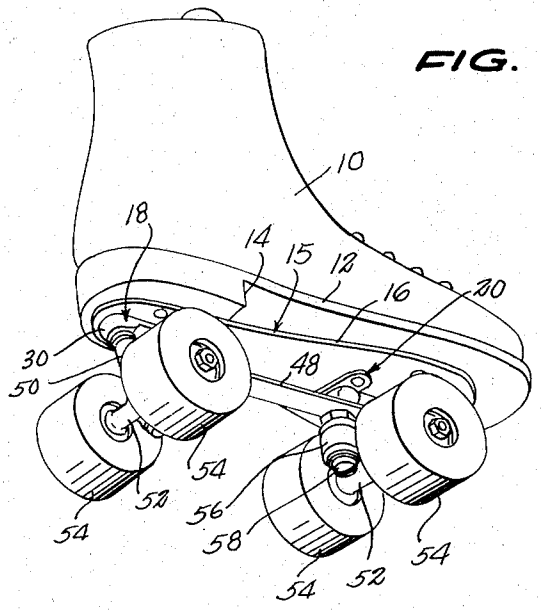


FIG. 2.

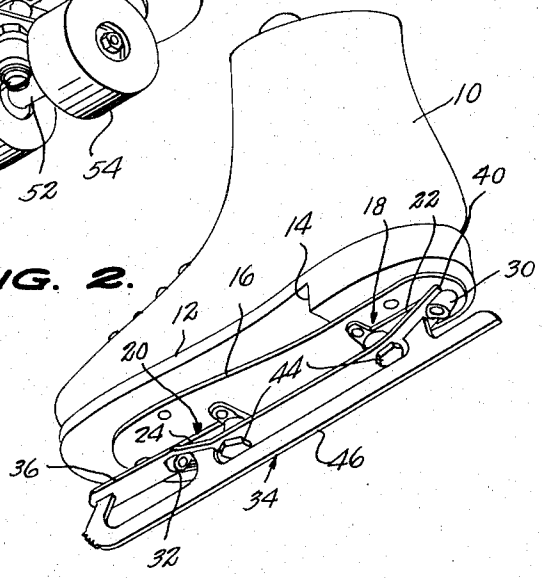
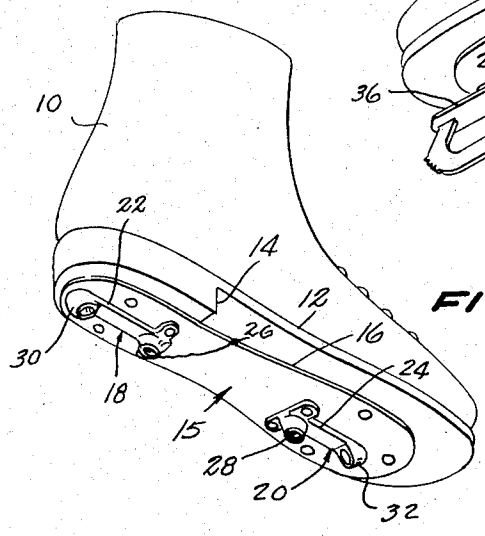


FIG. 3.



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FIG. 4.

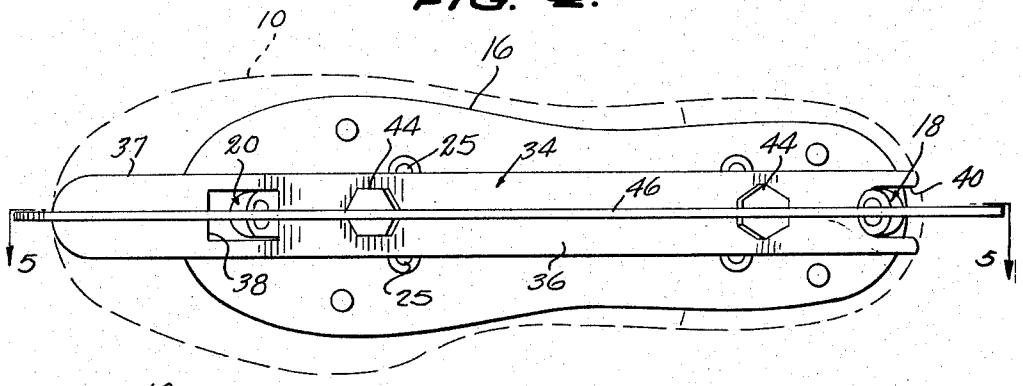


FIG. 5.

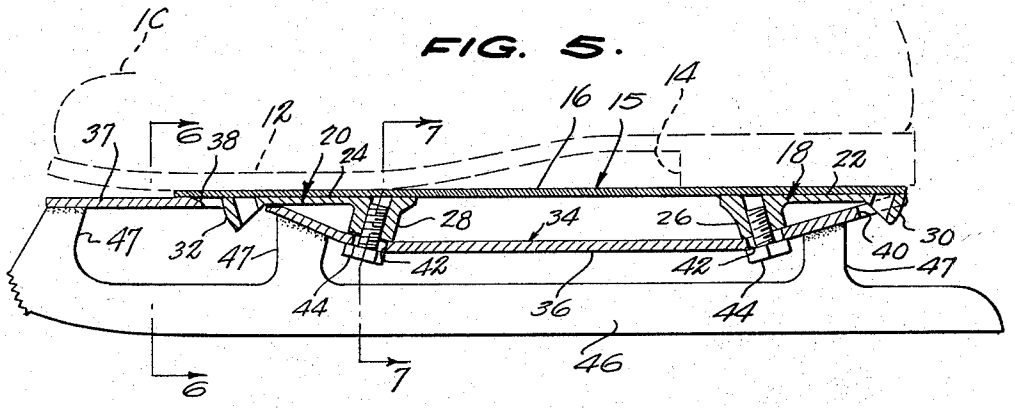


FIG. 6.

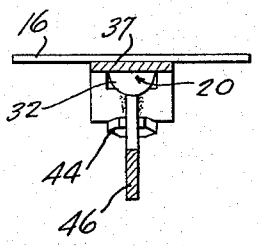
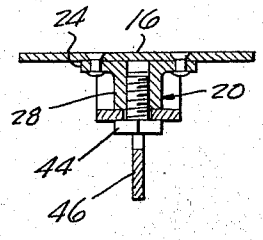


FIG. 7.



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CONVERTIBLE SKATES

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Application May 31, 1957, Serial No. 662,749

4 Claims. (Cl. 280—7.13)

The invention relates to skates of the type wherein a roller skate may be converted to an ice skate, and vice versa.

Skates of a convertible nature are, of course, already known. It is the main object of the present invention, in this connection, to provide an improved skate that will be particularly designed to simplify and facilitate the conversion of a skate either to a roller skate or ice skate, whichever is desired.

Another object is to provide a convertible skate of the character described that will be so designed as to insure that the blade assembly or the roller assembly, whichever is being used, will be securely anchored to the skate and will not work loose.

An important object of the invention is to provide conversion skate means so designed that standard roller skates can be swiftly converted to ice skates.

A further object is to provide a conversion skate assembly, so designed that the ice skate unit will mount upon a shoe-attached frame of a conventional roller skate with maximum speed and ease.

Still another object is to so mount the ice skate unit that it will be secured at substantially the same locations, and with substantially the same strength, as is true of conventional ice skates.

Another object is to provide a conversion-type skate which will permit the conversion to be effected without the requirement of special tools, other than the regular, conventional wrench employed with roller skates of conventional design.

Still another object is to provide a conversion skate which, regardless of whether it is being used as a roller skate or as an ice skate, will receive heavy shock without weakening of the connections, this being of importance in view of the fact that ice skates are used in such a manner to cause serious shocks to be imparted thereto, in directions both longitudinally and transversely of the blade.

Yet another object is to provide a conversion skate which will be designed to make use of inherently conventional roller skate construction, that is, the skate is so designed that the blade assembly can be attached to a conventional roller skate frame and shoe, merely by removal of the roller and roller hanger means.

Other objects will appear from the following description, the claims appended thereto, and from the annexed drawing, in which like reference characters designate like parts throughout the several views, and wherein:

Figure 1 is a perspective view of a roller skate used in effecting the conversion;

Figure 2 is a bottom perspective view showing the skate converted to use as an ice skate;

Figure 3 is a bottom perspective view showing the shoe and the support frame;

Figure 4 is an enlarged bottom plan view of the frame and the blade assembly, the shoe being shown in dotted lines;

Figure 5 is a view substantially on line 5—5 of Figure 4, on the same scale as Figure 4;

Figure 6 is a transverse sectional view, on the same scale as Figure 5, taken substantially on line 6—6 of Figure 5; and

Figure 7 is a transverse sectional view, on the same scale as Figure 5, taken substantially on line 7—7 of Figure 5.

Referring to the drawings in detail, designated at 10 is a conventional shoe, of the type used on roller skates, said shoe having the sole 12 and heel 14.

Riveted or otherwise fixedly secured to the sole and heel are the opposite end portions of a support frame generally designated at 15, and including a substantially flat, elongated plate 16 through which the rivets or fastening elements pass. The frame includes, at its underside, oppositely but identically formed mounting plate units 18, 20, respectively. Referring to Figure 5, these include flat, narrow plates 22, 24, which are secured by rivets 25 or their equivalents to the frame plate 16. In a commercial embodiment, it would be undoubtedly preferred to use a permanent connection between the units 18, 20 having frame plates 16, such as the illustrated rivet-type connections. This, of course, is at the option of the manufacturer, and it is not desired to be restricted to any particular type of connection, except, of course, as necessarily required by the scope of the appended claims.

Integrally formed on the confronting, inner ends of the plates 22, 24 are depending sockets 26, 28, having threaded recesses. As shown in Figure 5, the sockets diverge in a downward direction, being inclined slightly out of perpendicularity to the plane of the framing plate 16.

Integrally formed upon the outer ends of the plates 22, 24 are downwardly opening, slightly inclined outer end sockets 32. These converge in a downward direction, so that on each mounting unit, the sockets at opposite ends thereof are convergent downwardly from the plate of the unit.

This is, per se, conventional construction, but is described and illustrated in detail, to illustrate the manner in which the conversion is effected without requiring modification or redesign of readily obtainable, conventional roller skate constructions.

Designated generally at 34 is an ice skate assembly, including a relatively narrow, elongated, rigidly constituted support plate 36, the ends of which are inclined oppositely, out of the main plane of the support plate (see Figure 5). Thus, it is appropriate to consider that the support plate 36 has a downwardly offset midlength portion, and has oppositely, upwardly projecting end portions connectable to the respective mounting units 18, 20.

At its forward end, the support plate 36 has an elongated longitudinal extension 37, which is disposed in a plane parallel to and offset upwardly from the plane of the main or midlength portion of the support plate.

The support plate, adjacent its forward end, has a rectangular opening 38 loosely receiving the outer end socket 32 of mounting unit 20. At its rear extremity, plate 36 has a rearwardly opening, wide, longitudinal slot 40, correspondingly receiving the outer end socket 30 of the unit 18.

Formed at opposite ends of the main portion of the support plate 36 are openings 42, 42, receiving bolts 44, that are threadable into the recesses of the inner end sockets 26, 28 of units 18, 20. The heads of the bolts bear against the underside of the support plate 36, and thus it is seen that the support plate is fixedly, strongly secured to the frame 15, at locations such that the blade assembly will absorb to the maximum extent shocks suffered thereby during the normal use of the ice skates. In other words, the blade 46 of the blade assembly is secured by connecting portions 47 to the support plate 36,

at the same location as the connections made in conventional ice skates, between the support plate and the blade thereof. Further, the support plate is secured to the frame **15** at substantially the same locations as a conventional support plate of an ice skate is secured to the shoe.

In addition, the extension of the sockets **30, 32** through the openings **38, 40** serves to properly align the ice skate upon the frame, and in addition, said sockets **30, 32,** which constitute lugs projecting through the apertures **38, 40,** serve to prevent lateral displacement of the plate **36** in respect to the support frame **15.**

It will be apparent that the conversion of a conventional roller skate such as shown in Figure 1 to an ice skate is effected speedily and easily. A conventional skate, such as shown in Figure 1, includes a support plate **48,** and further includes rear and front wheel hangers **50, 52,** having stems engaging in the outer end sockets **30, 32.** Still further, a conventional skate includes the rollers or wheels **54,** and the rubber shock absorber **56,** through which extend bolts **58** that thread into the recesses of the sockets **26, 28.**

The conversion may therefore be swiftly effected by using an ordinary roller skate wrench, to remove the bolts **58,** after which the roller skate assembly will be removable from the shoe, leaving the frame **15** as shown in Figure 3. Then, the ice skate assembly shown in Figures 4 and 5 is attached, and is merely positioned in engagement with the several sockets, after which the bolts **44** are threaded through openings **42** into the sockets.

It will be apparent that the conversion skate can be manufactured at comparatively low cost, considering the benefits to be obtained from the use thereof. Further, the skate has the particularly desirable characteristics that the ice skate assembly can be mounted upon a conventional roller skate, without requiring any modification or redesign of said skate. Further, the ice skate assembly can be manufactured at a comparatively low cost, and is particularly designed to receive shocks incurred during skating, in the same manner as a conventional ice skate. Still further, the disconnection of the ice skate can be effected rapidly and easily, and in this way, the skate can be swiftly reconverted to use as a roller skate.

It is believed apparent that the invention is not necessarily confined to the specific use or uses thereof described above, since it may be utilized for any purpose to which it may be suited. Nor is the invention to be necessarily limited to the specific construction illustrated and described, since such construction is only intended to be illustrative of the principles of operation and the means presently devised to carry out said principles, it being considered that the invention comprehends any minor change in construction that may be permitted within the scope of the appended claims.

What is claimed is:

1. In a convertible skate the combination, with a shoe, and with a roller skate frame including a frame plate affixed to said shoe and a pair of mounting units affixed to the frame plate at locations spaced longitudinally of the frame plate, each unit including two depending projections spaced longitudinally of the frame plate, one projection of each unit having a downwardly opening, threaded socket, of an ice skate assembly comprising: an elongated support plate having portions which slope upwardly from the intermediate portion of said support plate, said sloped portions having upper ends formed with apertures, the sloped portions having openings inwardly from said apertures, the apertures receiving one projection of the mounting units and the openings registering with the other projections of the units; a blade having a plurality of fixed connections to said support plate; and connecting bolts extending through the respective openings and engaged in said sockets.

2. In a convertible skate the combination, with a shoe, and with a roller skate frame including a frame plate affixed to said shoe and a pair of mounting units affixed to the frame plate at locations spaced longitudinally of the frame plate, each unit including two depending projections spaced longitudinally of the frame plate, one projection of each unit having a downwardly opening, threaded socket, of an ice skate assembly comprising: an elongated support plate having portions which slope upwardly from the intermediate portion of said support plate, said sloped portions having upper ends formed with apertures, the sloped portions having openings inwardly from said apertures, the apertures receiving one projection of the mounting units and the openings registering with the other projections of the units; a blade having a plurality of fixed connections to said support plate; and connecting bolts extending through the respective openings and engaged in said sockets, said one projection of the respective units having sides engaging the respective sides of the apertures.

3. In a convertible skate the combination, with a shoe, and with a roller skate frame including a frame plate affixed to said shoe and a pair of mounting units affixed to the frame plate at locations spaced longitudinally of the frame plate, each unit including two depending projections spaced longitudinally of the frame plate, one projection of each unit having a downwardly opening, threaded socket, of an ice skate assembly comprising: an elongated support plate having portions which slope upwardly from the intermediate portion of said support plate, said sloped portions having upper ends formed with apertures, the sloped portions having openings inwardly from said apertures, the apertures receiving one projection of the mounting units and the openings registering with the other projections of the units; a blade having a plurality of fixed connections to said support plate; and connecting bolts extending through the respective openings and engaged in said sockets, said one projection of the respective units having sides engaging the respective sides of the apertures, the sockets extending perpendicularly to the general planes of said sloped portions.

4. In a convertible skate the combination, with a shoe, and with a roller skate frame including a frame plate affixed to said shoe and a pair of mounting units affixed to the frame plate at locations spaced longitudinally of the frame plate, each unit including two depending projections spaced longitudinally of the frame plate, one projection of each unit having a downwardly opening, threaded socket, of an ice skate assembly comprising: an elongated support plate having portions which slope upwardly from the intermediate portion of said support plate, said sloped portions having upper ends formed with apertures, the sloped portions having openings inwardly from said apertures, the apertures receiving one projection of the mounting units and the openings registering with the other projection of the units; a blade having a plurality of fixed connections to said support plate; and connecting bolts extending through the respective openings and engaged in said sockets, said one projection of the respective units having sides engaging the respective sides of the apertures, the sockets extending perpendicularly to the general planes of said sloped portions, said sloped portions bearing at the outer, upper ends thereof against the underside of the support plate.

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