

April 12, 1955

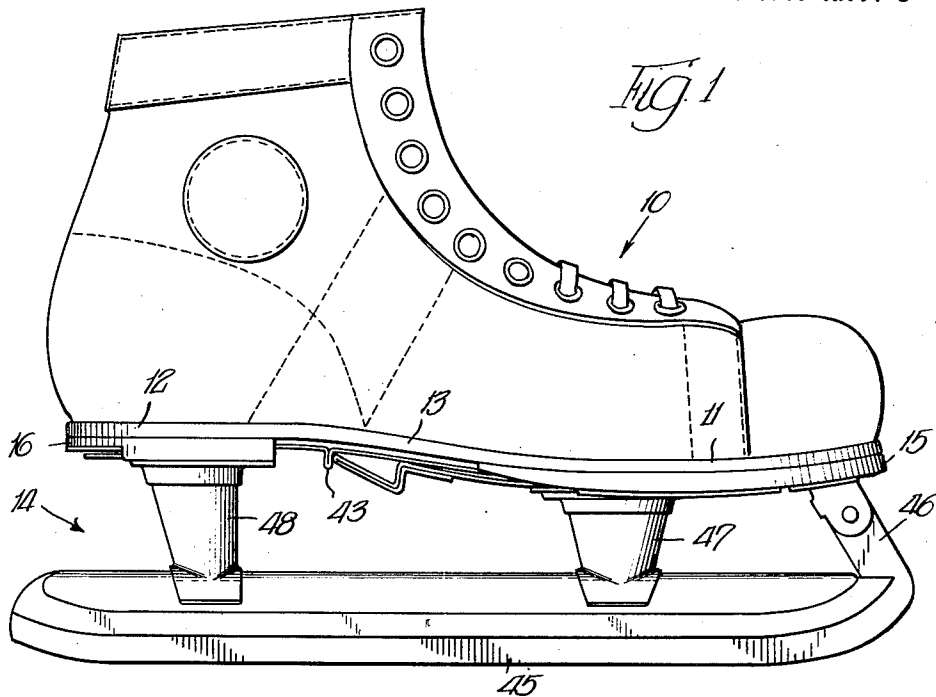
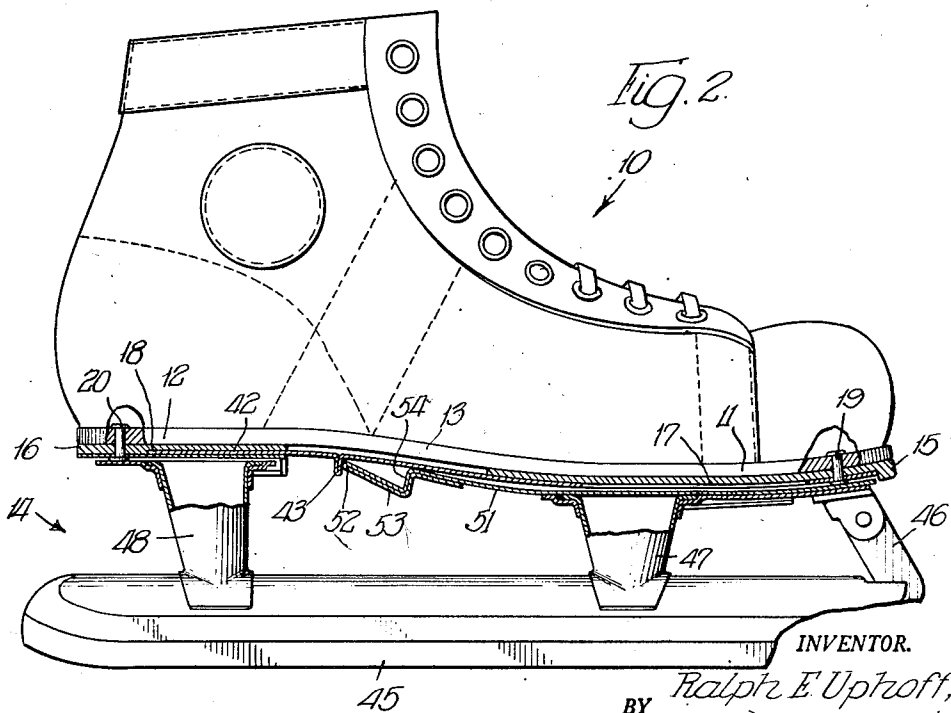
R. E. UPHOFF

2,706,119

SKATE AND SHOE CONSTRUCTION

Filed May 27, 1950

3 Sheets-Sheet 1



April 12, 1955

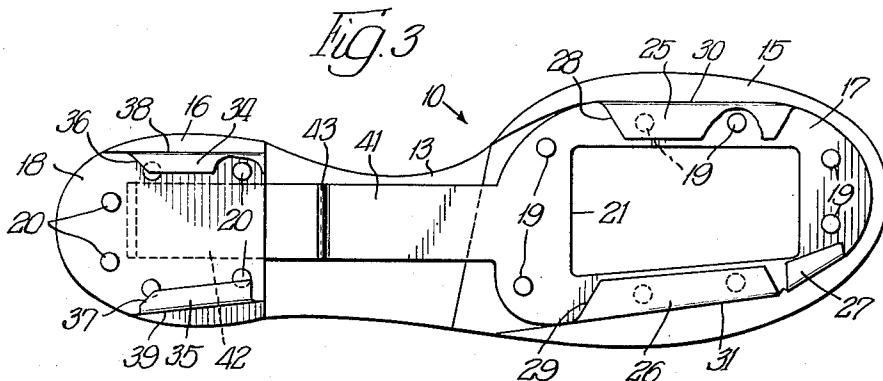
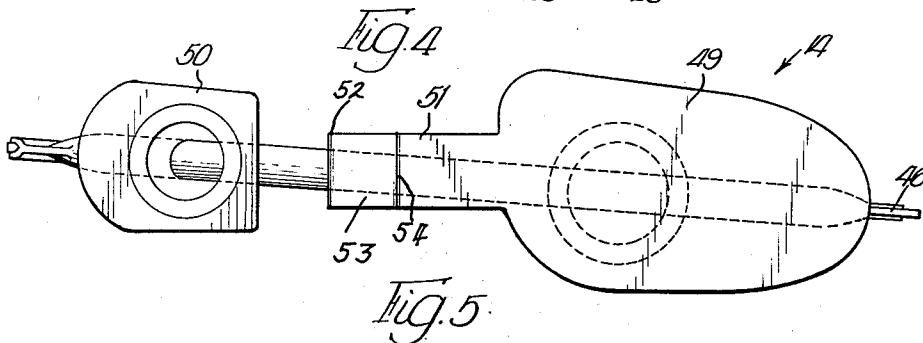
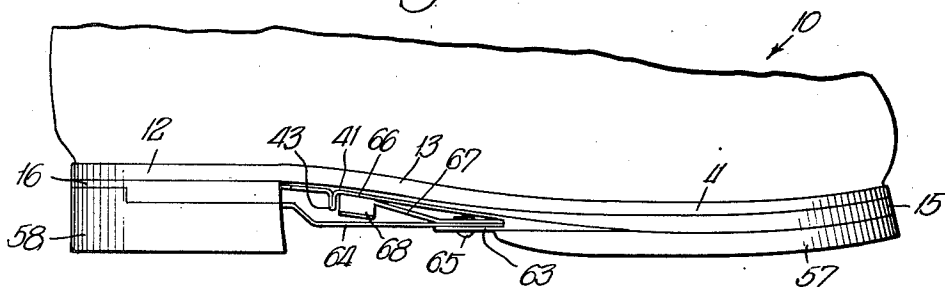
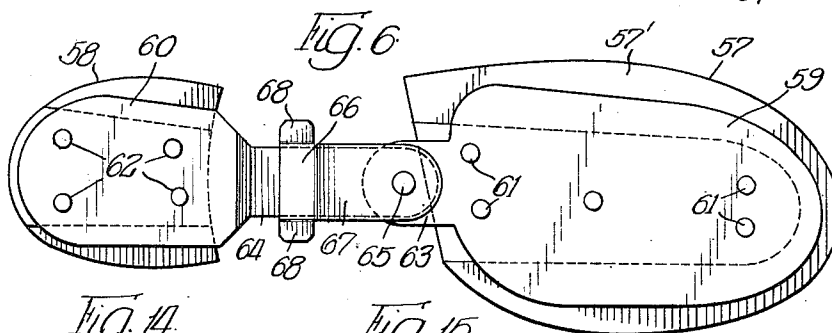
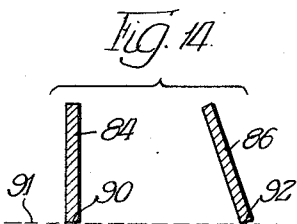
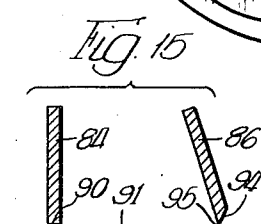
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SKATE AND SHOE CONSTRUCTION

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3 Sheets-Sheet 2



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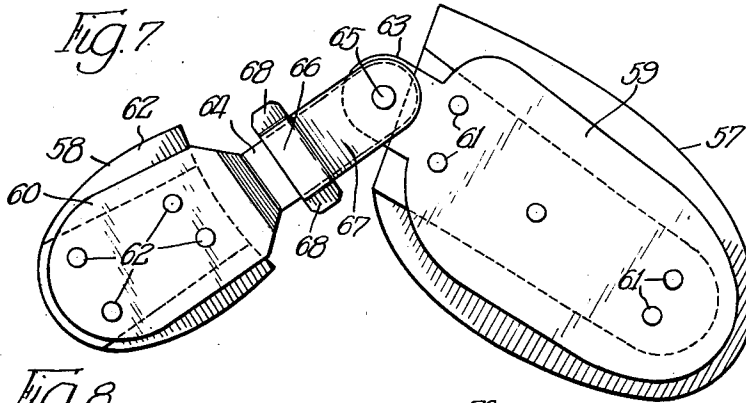
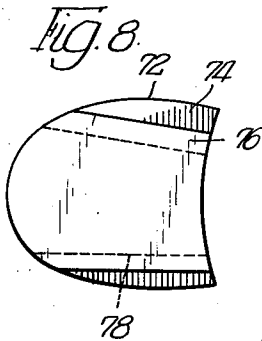
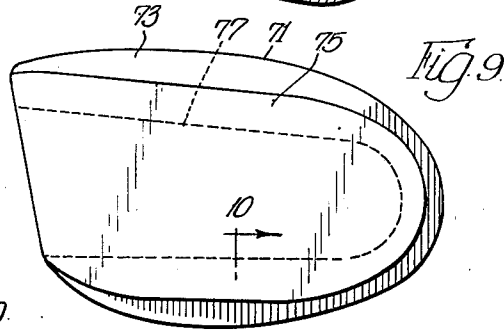
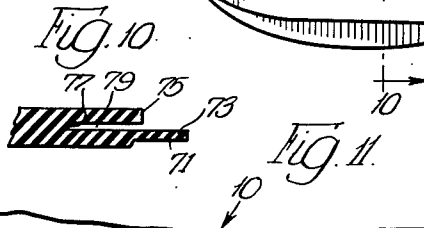
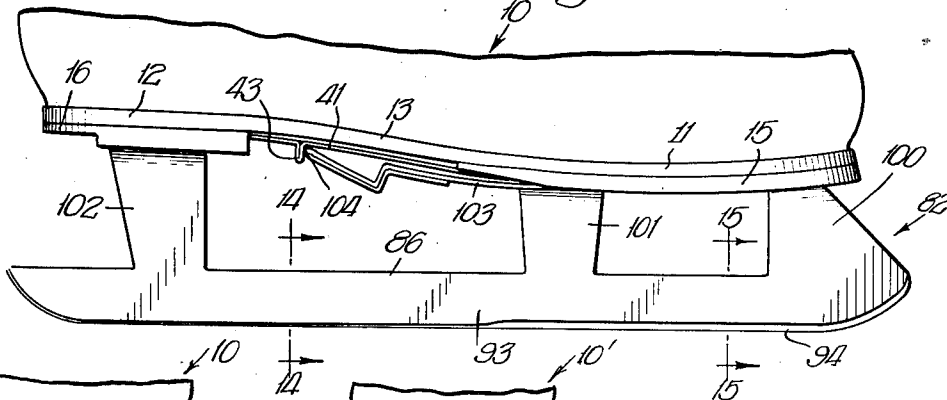
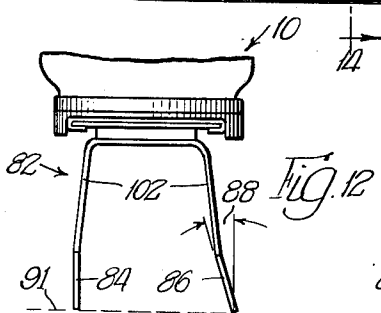
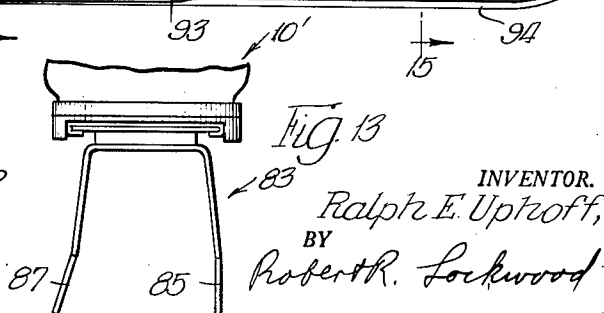
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SKATE AND SHOE CONSTRUCTION

2,706,119

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3 Sheets-Sheet 3



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2,706,119

SKATE AND SHOE CONSTRUCTION

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7 Claims. (Cl. 280—11.3)

This invention relates, generally, to shoes and skates and it has particular relation to detachable shoe skates.

Shoes with permanently attached skates are in widespread use for either ice or roller skating. For each kind of skate a separate pair of shoes is required. Since different lengths of runners are used for figure skating and for speed skating and since different types of rollers are used for indoor and sidewalk skating, it is usual to employ a corresponding number of pairs of shoes for these uses. That is, the shoes are not interchangeable with the different types of skates or the different types of skates cannot be employed with the single pair of shoes. Rather, they are permanently attached to the individual shoes. In addition to these shoes for these different skating purposes, it is customary to provide still another pair of conventional shoes for travel to and from the place where the skating is done. The shoe skates are carried separately, usually in a specially constructed suitcase.

At the skating rink the skater removes the conventional shoes and puts on the shoes to which the skates are permanently attached. There is then the problem of what to do with the conventional shoes while skating. They are frequently lost or stolen.

When ice skating, particularly outdoors, it is necessary to change from the conventional shoes to the shoes to which the ice skates are permanently attached. In cold weather this means that the wearer puts on a pair of cold shoes for skating. Then when he is finished skating, his conventional shoes meanwhile have become cold and they are again put on with considerable discomfort. Unless the conventional shoes are carried by the skater, it is necessary for him to return to the starting point in order to change into them when he has finished skating.

There has been some use in the past of detachable skates which are constructed so as to be clamped or otherwise secured to conventional shoes. Their use has not been as widespread as is the use of the permanently attached skates. One reason for this is that conventional shoes are not usually suitable for skating. Another reason is that it has not been possible to securely clamp the detachable type of skates to conventional shoes.

Accordingly, an important object of this invention is to provide a shoe and skate construction in which a single pair of shoes is arranged to have detachably clamped thereto a pair of skates for skating and also the same pair of shoes is arranged to have detachably attached thereto a sole and heel for each so that the same pair of shoes also can be used for walking.

Other objects of this invention are: To provide duplicate wedge shaped clamp means on the skates and on the soles and heels whereby they may be interchangeably clamped to a single pair of shoes having correspondingly shaped wedge shaped receiving means thereon; to lock either the skate or the sole and heel to each shoe in a manner that is secure and not subject to accidental unlocking and which may be readily and simply manually unlocked; to connect the sole and heel of each assembly so as to provide a unitary construction which may be folded or swung one over the other so that they occupy a minimum of space lengthwise; and to provide a double runner skate that is easier to manipulate than conventional double runner skates.

Other objects of this invention will, in part, be obvious and in part appear hereinafter.

This invention is disclosed in the embodiments thereof shown in the accompanying drawings and it com-

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prises the features of construction, combination of elements and arrangement of parts which will be exemplified in the constructions hereinafter set forth, and the scope and the application of which will be indicated in the appended claims.

For a more complete understanding of the nature and scope of this invention reference can be had to the following detailed description, taken together with the accompanying drawings, in which:

10 Figure 1 is a view, in side elevation, of a left shoe and skate in which the present invention is incorporated;

Figure 2 is a view, similar to Figure 1, and showing in longitudinal section the manner in which the shoe and skate are constructed so as to permit detachable engagement therebetween;

15 Figure 3 is a bottom plan view of the shoe shown in Figure 2, the skate being absent;

Figure 4 is a top plan view of the skate shown in Figures 1 and 2;

20 Figure 5 is a view, inside elevation, of the shoe shown in Figures 1 and 2, only the lower portion being shown, illustrating how the detachable sole and heel of the present invention are applied thereto;

25 Figure 6 is a top plan view of the detachable sole and heel for the shoe as illustrated in Figure 5;

Figure 7 is a view, similar to Figure 6, but showing how the heel can be swung over the sole so as to reduce the length of the assembly to a minimum;

30 Figure 8 is a top plan of a modified heel construction which can be employed in lieu of the heel shown in Figures 6 and 7;

Figure 9 is a top plan view of a sole which can be employed in lieu of the sole illustrated in Figures 6 and 7;

35 Figure 10 is a detailed sectional view taken generally along the line 10—10 of Figure 9;

Figure 11 is a view, in side elevation, of a two-runner skate constructed in accordance with this invention;

40 Figure 12 is a view in end elevation of the lower portion of the shoe and skate shown in Figure 11, this being the left shoe and skate;

Figure 13 is a view, similar to Figure 12, for the right shoe and skate; and

45 Figures 14 and 15 are detailed sectional views, at an enlarged scale, taken respectively along the lines 14—14 and 15—15 of Figure 11.

Referring now particularly to Figures 1 and 2 of the drawings it will be observed that the reference character 10 designates, generally, a skate shoe having a sole portion 11 and a heel portion 12 of a main sole 13 which extends the entire length of the bottom of the shoe. It will be observed that the shoe 10 is of the type which is specially designed for use with skates. For illustrative purposes a skate is shown, generally, at 14. However the present invention can be employed in connection with roller skates, skis, snow shoes, golf spikes, and the like. The important feature is to employ a single type of shoe 10 which can be used for each of these purposes and also can be used for walking.

Underneath the sole and heel portions 11 and 12 are fastened, respectively, a sole 15 and a heel 16 which are routed out for the purpose of receiving, respectively, a sole plate 17 and a heel plate 18. The plates 17 and 18 are formed preferably of stainless steel and are secured in position on the under side of the shoe 10 by means of rivets 19 and 20 as illustrated more clearly in Figures 2 and 3 of the drawings. It will be understood that the main sole 13 can be constructed of sufficient thickness so as to avoid the necessity of the use of the separate sole 15 and heel 16. The sole plate 17, Figure 3, can be cut away as indicated at 21, for the purpose of lightening it.

The sole plate 17 has turned over edges 25, 26 and 27 which provide oppositely facing grooves 28 and 29 and the sides 30 and 31 are inclined towards each other so as to provide a wedge shaped opening that is narrow at the toe end of the shoe 10 and opens rearwardly toward the heel end.

In like manner the heel plate 18 has turned over edges 34 and 35 providing oppositely facing grooves 36 and 37. The edges 38 and 39 are inclined so as to provide a rear-

wardly opening wedge shaped space, the purpose of which will be apparent presently.

The sole plate 17 has a rearwardly extending tongue 41, the rear end 42 of which overlies the heel plate 18, and is slidable with respect thereto in order to provide flexibility between the sole portion 11 and heel portion 12 of the shoe 10. As shown in Figure 2 the tongue 41 is provided with a depending shoulder 43 that is formed by doubling over the tongue 41. This provides a portion of a locking mechanism for holding the skate 14 in operative position on the under side of the shoe 10.

The skate 14 has a conventional runner 45 with an arm 46 projecting upwardly from the forward end and tubular supports 47 and 48 projecting upwardly as illustrated. The arm 46 and tubular support 47 have a wedge shaped tongue 49 secured thereto as illustrated more clearly in Figure 4. Likewise the tubular support 48 carries a wedge shaped tongue 50. The tongues 49 and 50 are shaped so as to interfit accurately with the wedge shaped openings provided on the sole plate 17 and heel plate 18 respectively by their turned over edges 25, 26 and 27 of the sole plate 17 and by the turned over edges 34 and 35 of the heel plate 18.

With a view to locking the skate 14 in position on the under side of the shoe 10 the tongue 49 has a resilient extension 51 that projects underneath the main sole 13 toward the heel portion 12. As shown in Figure 2 the rear end of the extension 51 is doubled back and provides a detent 52 which bears against the forward side of the shoulder 43 and acts to lock the skate 14 in operative position as shown. The detent 52 is inclined as illustrated at 53 to facilitate grasping for unlocking, and also to provide a secondary detent 54 which can engage the forward side of the shoulder 43 to hold the skate 14 underneath the shoe 10 should the detent 52 accidentally become unlocked from the shoulder 43.

The skate 14, as shown in Figure 4, can be assembled readily on the under side of the shoe 10 by sliding the wedge shaped tongues 49 and 50 into the wedge shaped openings provided by the sole plate 17 and heel plate 18. The skate 14 is moved forwardly relative to the shoe 10 to such position that the detent 52 automatically snaps into place in front of the shoulder 43. In the drawings the left shoe has been illustrated together with the left skate. A similar construction is employed for the right shoe and right skate. The construction which has been described thus far permits the shoe 10 to be detachably mounted on a skate 14. As indicated, instead of an ice skate 14, a roller skate could be used. Also different types of ice skate could be used with the same shoe 10. Likewise the same shoe 10 could be employed for attachment to a ski, a snowshoe or to a set of golf spikes.

Now, in order to permit the use of the shoe 10 for walking a detachable sole 57 and a detachable heel 58, Figures 5 and 6 are provided. They may be formed of rubber, leather, or composition material as may be desired. Wedge shaped tongues 59 and 60 are secured by rivets 61 and 62 to the sole and heel 57 and 58 respectively. The tongue 59 is a duplicate of the tongue 49 which is fastened to the skate 14. Likewise the tongue 60 is a duplicate of the tongue 50 at the heel portion of the skate 14. The purpose of this duplicate construction is to permit the mounting of the sole 57 and the heel 58 on the under side of the shoe 10 in lieu of the skate 14. This then, as illustrated at Figure 5, permits the shoe 10 to be used for walking when the sole 57 and heel 58 are substituted for the skate 14. The margins 57' and 58' of the sole 57 and heel 58, respectively, are routed out so as to provide sufficient space for receiving the turned over edges 25, 26 and 27 of the sole plate 17 and the turned over edges 34 and 35 of the heel plate 18.

It is desirable to interconnect the sole 57 and the heel 58 and also to permit their being folded over so as to occupy a minimum of space lengthwise. For this purpose the tongue 59 has a rearwardly extending tongue 63 and the tongue 60 has a forwardly extending tongue 64 which are hinged together by a rivet 65. As illustrated in Figure 7 this construction permits the heel 58 to be swung over the sole 57 and thus provides a compact construction which may readily be inserted in the pocket of the wearer.

The sole 57 and heel 58 interconnected as described can be locked in position underneath the shoe 10 by means of a resilient detent 66. The body portion 67 of the detent 66 is secured by the rivet 65 in position on the tongues 63 and 64. The detent 66 has depending ears

68 which straddle the tongue 64 and facilitate its movement away from locking engagement, as shown in Figure 5, with the forward side of the shoulder 43 to permit removal of the sole 57 and heel 58.

Now it will be apparent that a skater can walk to the skating rink or ice pond with the sole 57 and heel 58 locked underneath in position on the shoe 10. He carries the skates 14 which occupy a minimum of space since the shoe 10 is not attached thereto. At the rink or ice pond, the skater merely depresses the detent 66 from engagement with the shoulder 43 and slides the sole 57 and heel 58 rearwardly out of wedging engagement with the sole plate 17 and heel plate 18. He folds the heel 58 over the sole 57, by swinging the former over the latter as illustrated in Figure 7, and places them in his pocket. Then he inserts the tongues 49 and 50 in the wedge shaped openings of the plates 17 and 18 and shoves the skate 14 forwardly until the detent 62 engages the forward side of the shoulder 43. This is repeated for the other shoe and he is ready to skate. The same shoes are worn for skating as for walking and thus it is unnecessary to take off a warm pair of shoes and put on a cold pair. Further it is unnecessary to provide for checking or otherwise storing the shoes that are used for walking. Since the skater carries the detachable soles and heels with him in his pocket, he need not return to the initial starting point in order to pick up his walking shoes. All that he needs to do is to remove the skates and substitute for them the detachable soles and heels.

An alternate construction for the soles and heels is illustrated in Figures 8 and 9 of the drawings. As there illustrated a sole 71 and a heel 72 are provided which are not interconnected as described for the sole 57 and heel 58. As before the sole 71 and heel 72 can be formed of rubber, leather or composition material. In the modified construction the tongues 59 and 60 are not provided of separate material but rather are formed integrally with the sole 71 and heel 72. The margins 73 and 74 are routed out and wedge shaped tongues 75 and 76 are formed which are duplicates in shape of the tongues 49 and 50, respectively, of the skate 14. The tongues 75 and 76 are cut away underneath to the broken lines 77 and 78 by providing a slot as indicated at 79 in Figure 10. The slot is of sufficient width so as to receive the turned over edges 25, 26, and 27 of the sole plate 17 and the turned over edges 34 and 35 of the heel plate 18. The wedge shaped tongues 75 and 76 fit sufficiently tightly with the sole plate 17 and heel plate 18 as to frictionally grip the same. Thus the sole 71 and heel 72 are held in operative position by a frictional engagement. Since walking pressure is exerted rearwardly and since the tongues 75 and 76 taper forwardly, there is a tendency for the wedging action to be increased during walking.

In accordance with this invention a double runner skate construction is illustrated, generally, at 82 in Figure 11. The skate 82 as shown in Figure 12 is for the left foot. A similar skate, shown generally at 83 in Figure 13, is for the right foot. The outer runners 84 and 85 of the left and right double runner skates 82 and 83 extend vertically while the inner runners 86 and 87 are inclined at an acute angle away from the vertical toward the respective outer runner 84 or 85. As indicated at 88 in Figure 12 the angle may be of the order of 15 to 20 degrees. The lower surface 90 of the outer runner 84, as shown in Figure 14, is perpendicular to the vertical plane of the outer runner 84 and is arranged to engage flatwise the surface 91 of the ice. The lower surface 92 of the inner runner 86 from the mid position as indicated at 93 in Figure 11 is at right angles to the inclined runner 86. The lower surface 94 of the inner runner 86 forwardly of the mid point 93 is inclined at an angle to the plane of the inner runner 86. For example the inclination may be of the order of 45 degrees so that a knife edge 95 is provided along the forward portion of each of the inner runners 86 and 87 for engaging the surface 91 of the ice. It will be understood that the outer runner 85 and the inner runner 87 of the right double runner skate 83 are similarly constructed.

The runners 84 and 86 of the left double runner skate 82 are held in rigid spaced parallel relation by means of yokes 100, 101 and 102. They are provided with tongues corresponding to the tongues 49 and 50 for interfitting with the sole plate 17 and heel plate 18 as will be understood readily.

The tongue which corresponds to tongue 49 that is

carried by the yokes 100 and 101 may have a rearwardly projecting extension 103 which corresponds to the resilient extension 51 referred to hereinbefore. The extension 101 has a detent 104, corresponding to the detent 52 for engaging the forward side of the shoulder 43 to lock the double runner skate 82 securely in position. It will be understood that the right double runner skate 83 is similarly constructed and similar provision is made for locking it to the right shoe.

Since certain further changes can be made in the foregoing constructions and different embodiments of the invention can be made without departing from the spirit and scope thereof, it is intended that all matter shown in the accompanying drawings and described hereinbefore shall be interpreted as illustrative and not in a limiting sense.

What is claimed as new is:

1. A shoe construction comprising, in combination, a shoe having sole and heel portions, sole and heel plates on the under side of said sole and heel portions respectively for detachable mounting of a skate or the like thereon, a tongue extending from said sole plate and overlying said heel plate and slidable with respect thereto, and a shoulder depending from said tongue against which a detent on said skate or the like can react to hold the same in operative position on said shoe.
2. A shoe construction comprising, in combination, a shoe having sole and heel portions in fixed and non-adjustable relation, a sole and heel attachment, said sole and heel portions of said shoe having wedge shaped groove means on the underside opening rearwardly, said sole and heel attachment having wedge shaped tongue means on the upper side tapering forwardly for detachably interfitting with said wedge shaped groove means, a shoulder depending from the underside of said shoe intermediate its sole and heel portions, means interconnecting said sole and heel of said attachment, and a resiliently mounted detent on the upper side of said interconnecting means for engaging the forward side of said shoulder automatically to hold said sole and heel attachment in operative position on said shoe.
3. A shoe construction interchangeably usable with a skate for skating and without said skate for walking, said skate having sole and heel portions with shoe attachable means and manually releasable locking means for attaching said skate to said shoe, said shoe construction comprising, in combination, a sole and heel attachment with shoe attachable means corresponding in size and shape to said shoe attachable means on said skate, a shoe having sole and heel portions with interfitting means thereon for cooperating either with said shoe attachable means on said sole and heel portions of said skate for skating or for cooperating with said shoe attachable means on said sole and heel attachment for walking, shoulder means depending from said shoe for cooperation with said manually releasable locking means to hold said skate in operative position, means interconnecting said sole and heel of said attachment, and a resiliently mounted detent on said interconnecting means for engaging said shoulder means automatically to hold said sole and heel attachment in operative position on said shoe.
4. A shoe construction interchangeably usable with a skate for skating and without said skate for walking, said skate having sole and heel portions provided with wedge-shaped tongue means tapering forwardly on the upper side thereof and manually releasable locking means for attaching said skate to said shoe, said shoe construction comprising, in combination, a sole and heel attachment having wedge-shaped tongue means on the upper side tapering forwardly and similar in size and shape to said tongue means on said skate, a shoe having sole and heel portions with wedge-shaped groove means on the underside opening rearwardly for receiving said wedge-shaped tongue means on said skate for skating or said wedge-shaped tongue means on said sole and heel attachment for walking, a shoulder depending from the underside of said shoe intermediate its sole and heel portions for cooperation with said manually releasable locking means to hold said skate in operative position, means interconnecting said sole and heel of said attachment, and a resiliently mounted detent on the upper side of said interconnecting means for engaging the forward side of said shoulder automatically to hold said sole and heel attachment in operative position on said shoe.
5. A shoe construction comprising, in combination, a shoe having sole and heel portions in fixed and non-ad-

justable relation, a sole and heel attachment, said sole and heel portions of said shoe having wedge shaped groove means on the underside tapering in the same direction, said sole and heel attachment having wedge shaped tongue means on the upper side tapering in the same direction as said wedge-shaped groove means for detachably interfitting therewith, a shoulder depending from the underside of said shoe intermediate its sole and heel portions, means interconnecting said sole and heel of said attachment, and a resiliently mounted detent on the upper side of said interconnecting means for engaging said shoulder automatically to hold said sole and heel attachment in operative position on said shoe.

6. A shoe construction interchangeably usable with a skate for skating and without said skate for walking, said skate having sole and heel portions provided with wedge-shaped tongue means tapering in the same direction on the upper side thereof and manually releasable locking means for attaching said skate to said shoe, said shoe construction comprising, in combination, a shoe having sole and heel portions with wedge-shaped groove means on the underside opening in the same direction as said wedge-shaped tongue means on said skate for receiving the same, a sole and heel attachment having wedge-shaped tongue means on the upper side tapering in said same direction as and similar in size and shape to said tongue means on said skate for interfitting with said wedge-shaped groove means on said shoe whereby said shoe can be used either with said skate for skating or with said sole and heel attachment for walking, a shoulder depending from the underside of said shoe intermediate its sole and heel portions for cooperation with said manually releasable locking means to hold said skate in operative position, means interconnecting said sole and heel of said attachment, and a resiliently mounted detent on the upper side of said interconnecting means for engaging said shoulder automatically to hold said sole and heel attachment in operative position on said shoe.

7. A shoe construction interchangeably usable with a skate for skating and without said skate for walking, said skate having sole and heel portions with shoe attachable means and manually releasable locking means for attaching said skate to said shoe, said shoe construction comprising, in combination, a sole and heel attachment with shoe attachable means corresponding in size and shape to said shoe attachable means on said skate, a shoe having sole and heel portions with interfitting means thereon for cooperating either with said shoe attachable means on said sole and heel portions of said skate for skating or for cooperating with said shoe attachable means on said sole and heel attachment for walking, shoulder means depending from said shoe for cooperation with said manually releasable locking means to hold said skate in operative position, means interconnecting said sole and heel of said attachment, and manually releasable locking means on said interconnecting means for engaging said shoulder means to hold said sole and heel attachment in operative position on said shoe.

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