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R. F. DUFF

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COMBINATION SHOE AND SKATE

Filed March 9, 1929

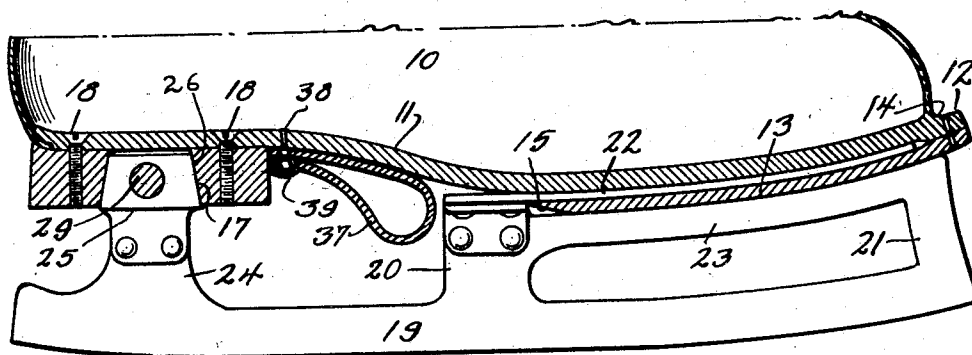


Fig. 1

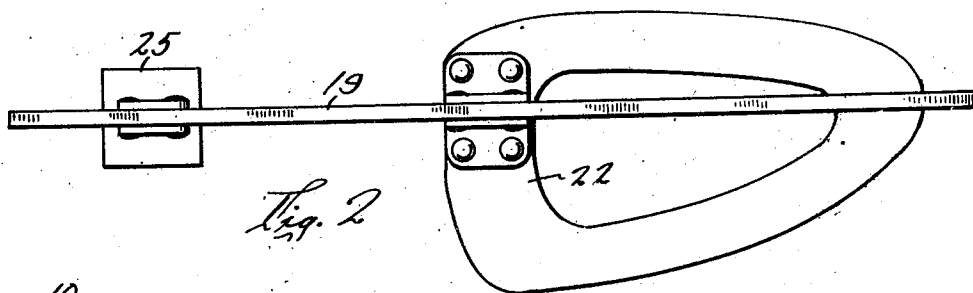
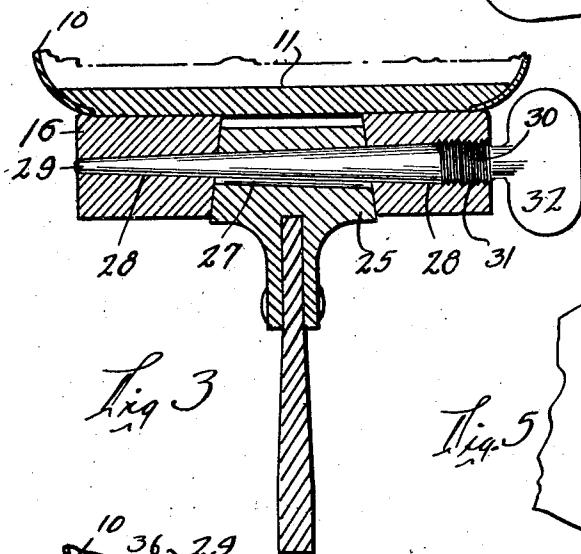


Fig. 2



Lix 3

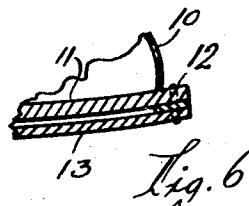


Fig. 6

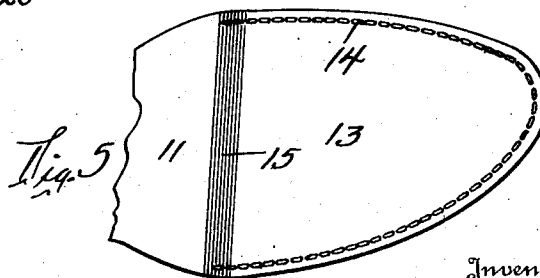


Fig. 5

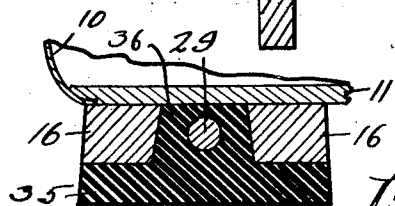


Fig. 4

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COMBINATION SHOE AND SKATE

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My invention relates to shoe skates and has for its basic object to provide a combination shoe and skate in which the skate is quickly detachable and attachable and in which the shoe is adapted to be used for walking purposes. To be more explicit, it is my purpose to provide an arrangement wherein the skater can put on his skating shoes and walk to a skating rink with the same comfort and the same protection from the weather as is found in an ordinary pair of shoes and when he arrives at the rink can quickly attach his skates to the shoes and then be provided with a pair of shoe skates in which the skates are as rigidly attached as though they were permanently screwed or riveted to the shoes.

An object of my invention is carried out in a general way by providing a shoe having a normal full sole, which is imperforate and adapted to completely exclude the weather and a half sole which is also imperforate and adapted to form to smooth ground engaging surface for walking purposes but secured to the full sole only at the sides and front so as to form a rearwardly opening pocket to receive a tongue formed on the skate proper for securing the skate to the shoe. An object of this arrangement is to provide, as has just been stated, a smooth, ground engaging surface with no projections or perforations which would catch against or be hooked by any rough or protruding portions of a surface being walked upon.

A further object is to provide a half sole which constitutes the wearing surface for the shoe and also cooperates with the full sole in providing an extra thickness of sole to insulate against heat, to aid in the exclusion of moisture and to protect the full sole against wearing.

A further object is to provide a pocket arrangement having the requisite strength for rigidly securing a skate to the shoe and yet adapted to allow instant removal of the skate without difficulty.

Another object is to provide novel means for attachment of the skate to the heel of the shoe in order to obtain rigidity, strength and quick attachability and detachability. The

functions of the heel attaching means are, first, to attach the skate to the heel of the shoe, as above noted, and, secondly, to secure the skate against longitudinal movement relative to the shoe, lateral pressure being carried at the forward extremity, by the sole pocket, and at the rear extremity, by the heel attaching means.

The heel attaching means is further designed to cooperate with the sole pocket in securing the tongue of the skate in snug engagement with the pocket and in exerting some pressure against the tongue to force it into contact with the pocket.

The heel arrangement is the means for locking the skate to the shoe and includes a locking key or its equivalent for retaining the parts in locked position. It is my object to attain quick attachability and detachability by using a single key for securing the parts in engagement, the stresses and strains between the skate and the shoe, however, being borne primarily by the heel and sole pocket mechanisms rather than by the key.

A further object is to provide a detachable heel cushion to be used when the skate is detached for walking purposes and attachable by the same mechanism as is employed in attaching the heel portion to the heel.

With these and other objects in view, my invention consists in the construction, arrangement and combination of the various parts of my device, whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claims, and illustrated in the accompanying drawings, in which:

Fig. 1 is a vertical, sectional view through the skate shoe with the skate attached.

Fig. 2 is an inverted plan view of the skate.

Fig. 3 is a transverse, sectional view through the heel with the skate attached.

Fig. 4 is a longitudinal, sectional view through the heel with the heel cushion attached.

Fig. 5 is an inverted, plan view of the sole of the shoe and

Fig. 6 is a longitudinal, sectional view through the toe of a somewhat modified form of the shoe structure.

I have used the reference character 10 to indicate generally the upper of the skate shoe of my invention. The full sole thereof is indicated at 11, being secured to the upper in the usual manner. The usual vamp 12 is employed to support the half sole 13, and may be considered as an integral part of the full sole 11. The method of attaching the full sole to the upper does not constitute a part of my invention and this detail of construction is not illustrated.

The half sole 13 is secured to the vamp 12 or to the outer edge of the full sole 11 by a line of stitching 14 extending around the sides of the half sole and across the toe.

The rear edge of the half sole is thus left unsecured to the full sole, forming a rearwardly facing opening. The rear edge of the half sole is preferably bevelled as at 15, merging the surface of the half sole with that of the full sole.

It will now be seen that the half sole and full sole form between them a rearwardly opening pocket having substantially the shape of the tread portion of an ordinary shoe; which shape may vary to fit the needs of various feet, as in ordinary shoe constructions. In most cases, the tread portion of a shoe decreases in width toward the toe and the pocket will thus in most cases be somewhat triangular in shape or decreasing in width toward its forward extremity. There is some advantage in having the pocket thus wedge-shaped or decreasing in width toward its forward extremity. A tighter fit can be secured between the pocket and the tongue of the skate, (which will later be more fully described in detail) where both tongue and pocket are made to converge somewhat toward their forward extremities. By forcing such a tongue forwardly, its engagement with the pocket may be tightened. However, it is not entirely essential that this tapering or converging construction be employed. The pocket might be formed with parallel sides, irrespective of the shape of the sole of the shoe by bringing the lines of stitching rearwardly in parallel relation rather than following the contour of the sole.

A careful fitting of the tongue of the skate into such a parallel sided pocket would still give a snug fit and sufficient lateral support to prevent wobbling of the skate relative to the shoe. The converging construction, however, has a tendency to tighten and rigidify the connection.

The half sole may be made of leather or composition, although preferably of good sole leather to give the desired strength of support to the skate. It is to be noted at this point that the half sole has a smooth continuous surface adapted to give the same walking comfort as is found in ordinary shoes, to save the full sole from wearing and thus to preserve the life of the shoe and to

help in the exclusion of moisture and heat or cold. It will be understood that the half sole does not fully protect against moisture obtaining access to the full sole because of the pocket opening but it will do so to some extent where the shoes are used in walking on a moist surface, as compared with actually wading through water. The smooth lower surface protects against catching the shoes on cinders or other projections in the ground, thus being a very decided improvement over those types of combination shoe and skate wherein a pocket or opening is formed in the center of the sole to receive the skate tongue.

Thus the rearwardly opening pocket is a decided improvement in view of the smooth continuous surface of the half sole.

The heel of the shoe is preferably formed of steel or some substance having comparable wearing qualities and hardness in order to form a socket for the reception of the heel portion of the skate. The heel is herein shown as formed of a solid block 16 of steel or the like, provided with a central socket opening having the inclined sides 17. It will be understood that the same effect could be obtained by forming the heel of leather or composition and the like and inserting a socket shell of steel or the like to form the socket walls.

The heel may be secured to the heel portion of the sole 11 in any manner such as by means of the screws 18.

The skate comprises the usual runner 19, provided with the upwardly projecting central post 20 and the upwardly projecting forward post 21. The central post 20 is for the purpose of supporting the forwardly projecting tongue 22, which is preferably made with such a shape as to fit the pocket of the sole. It is not essential, however, that the tongue 22 be the full width of the pocket during the entire length of the tongue. A tight fit could be obtained by forming the tongue to completely fill the pocket from side to side during a portion of the length of the pocket. Thus the tongue would give lateral support by engagement with the sides of the pocket during at least a portion of its length.

Forward and rear support is obtained by a rigid heel connection, adapted to prevent movement of the skate longitudinally relative to the shoe. Thus both longitudinal and lateral support are provided.

The post 21 is for the purpose of providing a supporting engagement between the forward extremity of the skate and the shoe. It will be understood that with the posts 20 and 21 and the tongue 22, sufficient support between the shoe and skate can be secured for ordinary skating purposes. However, it adds to the support between the skate and the shoe and adds to the strength of the skate proper to connect the posts 20 and 21 with a forward skate portion 23, shaped to fit the contour of

the lower face of the half sole 13 and thus arranged in parallel and spaced relation to the tongue 22. The heel portion of the skate includes an upwardly projecting post 24, to which is secured or with which is formed integrally a socket plug 25. The plug 25 is formed with inclined side faces 26 to engage the side faces 17 of the heel socket.

The plug is shaped to fit snugly within the socket and adapted to snugly engage the socket while its upper extremity is still spaced somewhat from the sole 11. Thus a wedging action between the plug and socket is at all times assured, even after some wear has taken place.

The plug 25 and heel 16 are provided with registering openings 27 and 28, respectively. One of the openings 27 or 28 is tapered and a key 29 is provided having a tapered portion to engage with the tapered opening. The taper is such that upon forward movement of the key into the openings, the plug 25 will be drawn upwardly. It is, of course, preferably to taper all of the openings 27 and 28 and to taper the key during substantially its entire length so as to obtain its greatest drawing action.

The key is provided with a threaded portion 30 and one of the openings 27 or 28 is provided with a coacting threaded portion 31 to receive the threads 30. The key has a head 32 for engagement by the fingers of the operator.

It will now be seen that by inserting the key through the registering openings 27 and 28 and rotating it that it will be drawn forwardly and will draw the plug 25 upwardly to snug engagement with the socket. Furthermore, the parts may be arranged so that as the plug is drawn upwardly the rear inclined faces of plug and socket will force the skate forwardly and urge the tongue 22 into snug engagement with the pocket.

The operation of attaching or detaching the skate is fairly obvious from the foregoing description but may be summed up briefly at this point as follows:

In attaching the skate, it is only necessary to slip the tongue 22 forwardly into the pocket of the sole until the plug 25 is in position where it can be inserted into the heel socket. The skater may then place the skate upon the floor and force his heel downwardly, forcing the plug to move into the socket and thereby wedging the tongue 22 forwardly, due to the inclination of the rear faces of the plug and socket. The plug may be brought to the proper position to register the openings 28 and 27 by stamping the skate against the floor or ground and the key 32 may then be inserted and used to complete the wedging operation and to tie the parts together securely. A snug engagement of the tongue 22 with the sole pocket gives a firm support for the forward portion of the skate and the snug

engagement of the plug in the heel socket gives a firm, securing support for the rear portion of the skate.

From the foregoing description, it will be obvious that the essential characteristics of my invention are as follows:

1. A skate shoe having an imperforate half sole covering substantially the entire tread portion of the shoe and forming a rearwardly opening socket.

2. A skate having a forwardly projecting tongue adapted to fill the pocket from side to side during at least a portion of its length, and

3. Means to securely fasten the heel portion of the skate to the heel of the shoe.

The heel cushion 35 has the lug 36, formed integrally, to fit the heel socket, and perforated to receive the key 29. The cushion is applied when the shoe is to be used for walking. (See Figure 4.)

I provide a tongue 37, which is secured by means of a fastening device 38 to the sole 11 and which is normally inserted into the rear end of the pocket to close the same. The tongue 37 is provided with a snap fastener 39, which coacts with a fastener device which may be formed as a part of the securing means 38 to secure the loose end of the tongue in folded back relation, as shown in Fig. 1, when the shoe is used for skating purposes.

Some changes may be made in the construction and arrangement of the parts of my invention without departing from the real spirit and purpose of my invention, and it is my intention to cover by my claims, any modified forms of structure or use of mechanical equivalents, which may be reasonably included within their scope.

I claim as my invention:

1. In a combination shoe and skate, a shoe including a full sole, a heel, and a half sole secured to the forward portion of the full sole to form a pocket opening toward the heel, said half sole covering substantially the entire tread portion of the full sole, so as to provide a ground engaging surface for walking purposes, and a skate including a skate body, a tongue secured to the body intermediate its ends, projecting forwardly in perpendicular relation thereto, adapted to be received in said pocket, and means to attach the rear portion of the body to the heel.

2. In a combination shoe and skate, a shoe including a full sole, a heel, and a half sole secured to the forward portion of the full sole to form a pocket opening toward the heel, said half sole covering substantially the entire tread portion of the full sole, so as to provide a ground-engaging surface for walking purposes, the pocket being substantially the full width and length of the half sole, and a skate including a skate body, a tongue secured to the body intermediate its ends, projecting forwardly in perpendicular relation

thereto, adapted to be received in and to fill the pocket from side to side for at least a portion of its length, and means to attach the rear portion of the body to the heel.

3. In a combination shoe and skate, a shoe including a full sole, a heel, and a half sole secured to the forward portion of the full sole to form a pocket opening toward the heel, said half sole covering substantially the entire tread portion of the full sole, so as to provide a continuous ground engaging surface for walking purposes, the pocket being substantially the full width and length of the half sole, and shaped so as to decrease in width toward its forward extremity, and a skate including a skate body, a tongue secured to the body intermediate its ends, projecting forwardly in perpendicular relation thereto, adapted to be received in and to fill the pocket from side to side for at least a portion of its length, and means to attach the rear portion of the body to the heel.

4. In a combination shoe and skate, a shoe including a full sole, a heel, and a half sole secured to the forward portion of the full sole to form a pocket opening toward the heel, said half sole covering substantially the entire tread portion of the full sole, so as to provide a smooth ground engaging surface for walking purposes, the pocket being substantially the full width and length of the half sole, and a skate including a skate body, a tongue secured to the body intermediate its ends, in perpendicular relation thereto, adapted to be received in and shaped to fill said pocket, and means to attach the rear portion of the body to the heel.

5. In a combination shoe and skate, a shoe including a full sole, a heel, and a half sole secured to the forward portion of the full sole to form a pocket opening toward the heel, said half sole covering substantially the entire tread portion of the full sole, so as to provide a smooth ground engaging surface for walking purposes, the pocket being substantially the full width and length of the half sole, and shaped so as to decrease in width toward its forward extremity, and a skate including a skate body, a tongue secured to the body intermediate its ends, in perpendicular relation thereto, adapted to be received in and shaped to fill said pocket, and means to attach the rear portion of the body to the heel.

6. In a combination shoe and skate, a shoe including a sole provided with a rearwardly opening pocket, and a heel provided with a downwardly opening socket; and a skate including a skate body, a forwardly projecting tongue adapted to be received in the pocket, a plug adapted to be received in the socket, and means for securing the plug in the socket.

7. In a combination shoe and skate, a shoe including a heel provided with a downwardly opening socket, and a skate including a

plug adapted to be received in the socket, said plug and the heel being provided with openings adapted to register, one of said openings being threaded, and the other being tapered, a pin provided with a threaded portion to screw into the threaded opening, and a tapered portion to coact with the tapered opening to draw the plug into the socket as the pin is threaded forwardly.

8. In a combination shoe and skate, a shoe including a heel provided with a downwardly opening socket, at least two opposed sides of which diverge downwardly, and a skate including a plug receivable in the socket and provided with converging faces to coact with the diverging faces of the socket, said plug and the heel being provided with openings adapted to register, one of said openings being threaded, and the other being tapered, a pin provided with a threaded portion to screw into the threaded opening, and a tapered portion to coact with the tapered opening to draw the plug into the socket as the pin is threaded forwardly.

9. In a combination shoe and skate, a shoe including a heel provided with a downwardly opening socket, at least two opposed sides of which diverge downwardly, and a skate including a plug receivable in the socket and provided with converging faces to coact with the diverging faces of the socket, said plug and the heel being provided with openings adapted to register, one of the openings being tapered, and a pin provided with a tapered portion to coact with the tapered opening, to draw the plug into the socket as the pin is moved into the openings.

10. In a combination shoe and skate, a shoe including a heel provided with a downwardly opening socket, a heel cushion adapted to cover the lower face of the heel for walking purposes including a lug adapted to be received in the socket and means for securing the lug in the socket.

11. In a combination shoe and skate, a shoe including a heel and a sole comprising inner and outer sole members secured together to form between them a pocket having an opening defined on one side by an edge of the outer sole member and intersecting the longitudinal axis of the sole, the outer sole member presenting a continuous ground-engaging surface, a skate body, and a substantially flat tongue secured to the body in proper relation thereto and having a projecting portion adapted to be received in the pocket and to lie flatly between the two sole portions and to attach the rear portion of the body to the heel.

Signed this 6th day of March, 1929, in the county of Woodbury and State of Iowa.

ROBERT F. DUFF.