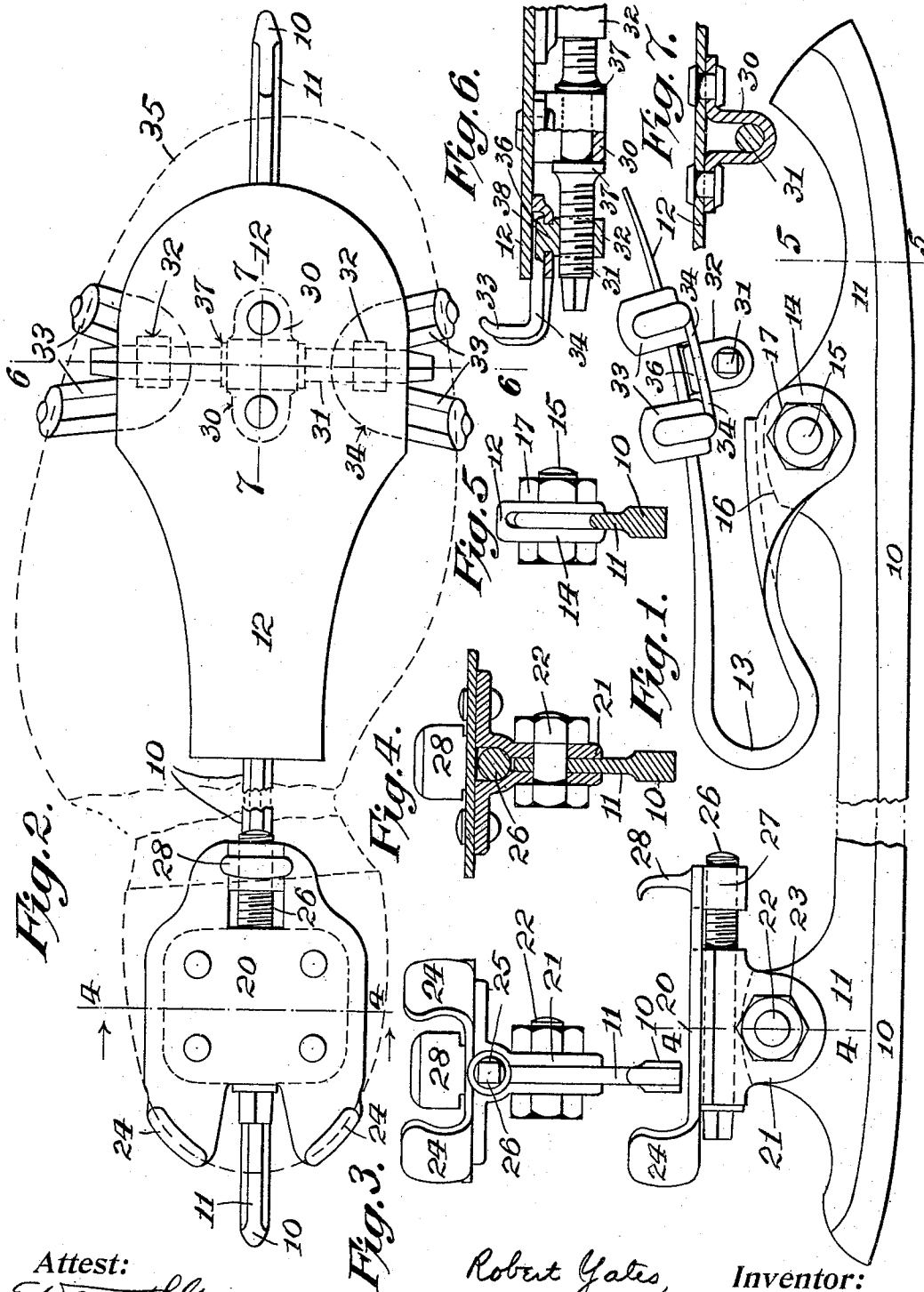


R. YATES.
ICE SKATE.

APPLICATION FILED AUG. 29, 1908.

940,108.

Patented Nov. 16, 1909.



Attest:
Edgeworth G. Smith
Alan C. McDonnell.

Robert Yates, Inventor:
by *William R. Baird*
his Atty.

UNITED STATES PATENT OFFICE.

ROBERT YATES, OF PASSAIC, NEW JERSEY.

ICE-SKATE.

940,108.

Specification of Letters Patent.

Patented Nov. 16, 1909.

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To all whom it may concern:

Be it known that I, ROBERT YATES, a citizen of the United States, and resident of Passaic, Passaic county, New Jersey, have invented certain new and useful Improvements in Ice-Skates, of which the following is a specification.

This invention relates to skates and its novelty consists in the construction and adaptation of the parts.

The object of the invention is to provide for the toe plate a spring support which increases the resiliency of the skate, to provide for both the heel and toe plates single bearings having a rocking movement, to permit of an adjustment of these plates automatically relative to each other and to the movements of the wearer, and to provide a simple and efficient means for attaching the skate to the shoe of the wearer.

In the drawings, Figure 1 is a side elevation of a skate embodying my invention; Fig. 2 is a top plan view thereof; Fig. 3 is a rear elevation; Fig. 4 is a section on the plane of the line 4—4 in Figs. 1 and 2, Fig. 5 is a sectional front elevation beneath the toe plate, on the line 5—5 of Fig. 1; Fig. 6 is a partial section on the line 6—6 of Fig. 2; and Fig. 7 is a section on the line 7—7 of Fig. 2.

In the drawings, 10 is the runner of the skate and 11 is its web, of any desired size and form. The toe plate consists of a flat loop spring 12, reverted at 13 in a somewhat wide curve and at its lower front end provided with two depending lugs 14, adapted to embrace the web 11, and secured to the web by a transverse bolt or pin 15 on which the toe plate is free to rock. Suitable nuts 17, hold the bolt 15 securely in place. Rivets may replace the bolts 15, if desired.

Beneath the toe plate 12 and firmly secured thereto by any suitable means as screws or rivets, is a U-shaped hanger 30, which retains and forms a bearing for a right and left clamp screw 31, adapted to engage threaded apertures in posts 32, one under each side of the toe plate. An annular collar 37 on the screw 31 on each side of the hanger 30, prevents the screw from sliding in the hanger.

33, are two toe grips, projecting above each side of the toe plate 12 in the form of upright ends of horizontal plates 34, which are apertured vertically to receive stems 38, projecting upward from the posts 32. These

stems fit loosely in the apertures of the plates 34, and are headed above the plates as at 36, so as to permit the toe grips to rotate freely on the stems to accommodate the grips to the varying forms of the sides of the shoe soles of the skater, as indicated by the dotted line 35 in Fig. 2. The posts 32 form the supports for the toe grips and are bored and threaded, one right-handed and the other left-handed, to receive the corresponding threads on the clamp screw 31, the grips being drawn toward or moved away from each other by turning the clamp screws, thus adapting them to different widths of shoe soles.

20 is a heel plate provided with depending lugs 21, adapted to embrace the web 11 and secured thereto by a transverse pin or bolt 22, on which the heel plate is free to rock and which pin or bolt is held in place by nuts 23, or, if desired, by a riveted pin. To the heel plate 20, are secured or made integral therewith, rear heel posts 24, curved slightly inward to engage the rear of the heel of the wearer's shoe. Below the plate 20 is a longitudinal clamp screw 26 having a collar and head at its rear end and a screw thread at its forward end. It fits closely within a housing between the lugs 21 to maintain it firmly in its normal axial line. At its threaded end it is adapted to engage in an interiorly threaded opening in the depending end 27, of a front heel post 28, which projects upwardly through a longitudinal slot 25 in the plate 20 and is curved slightly inward to engage the front of the heel of the wearer's shoe. This bolt 26 and its housing is so made as to occupy the least possible vertical space to permit the bearing pin 22 to be placed within a limited distance of the surface of the heel plate and its close fit in its housing is designed so that it may carry the front heel post 27 on its projected front end with the least deflection. The heel plate 20, the fixed rear heel posts 24, the adjustable front heel post 27 and the clamp screw 26 taken all together form a heel clamp.

The spring under the toe plate reduces vibration when passing over rough surfaces. It also increases the natural spring in the toe movement of the skater thereby increasing the length of the stroke and speed of the skater without extra exertion. The single bearing pin on which the spring is free to rock permits of any relative change of position or angle of the toe plate with the

runner when the spring is compressed, without imposing strains on the shoe of the skater, or affecting the easy seating of the shoe on the toe plate. The heel support being also poised on a single bearing pin, on which it is free to rock in accord with the varying compression of the spring, thus relieves the heel of the shoe of all strains, and both heel and toe plates are automatically adapted to any angle of heel and toe of any shoe, thereby affording perfect and comfortable seating for the shoe and foot, while the grips on the heel and toe supports serve to bind the skate firmly to the shoe.

15 What I claim as new is:

1. A skate having a runner, a heel plate, and a separate toe plate hinged to the runner on a single transverse bearing pin, to permit of a rocking movement of the toe plate in a vertical longitudinal plane.

2. A skate having a runner, a heel plate, and a separate toe plate comprising a spring having a single loop and supported on the runner by one of its arms.

25 3. A skate having a runner, a heel plate, and a separate toe plate comprising a spring having a single loop hinged to the runner on a transverse bearing pin.

4. A skate having a runner, a heel plate, and a separate toe support comprising a piece of elastic metal extending rearwardly, then reverted and extended forwardly to form a spring and hinged to the runner on a transverse bearing pin.

35 5. A skate having a runner, a heel plate, and a separate toe support comprising a piece of elastic metal extending rearwardly, then reverted and extended forwardly to form a spring and secured at the forward end of its lower arm to the runner.

6. A skate comprising a runner, a toe support hinged to said runner on a transverse bearing pin and a separate heel support also hinged to the runner on a transverse bearing pin.

7. A skate comprising a runner, a toe support comprising a spring having a rear loop and secured by the lower arm of the loop to the runner, and a separate heel support hinged to the runner on a transverse bearing pin.

8. A skate comprising a runner, a toe support comprising a spring having a rear loop and secured by the lower arm of the loop to the runner on a transverse pin passing through the spring and runner, and a separate heel support hinged to the runner on a

transverse pin passing through the support and runner.

9. A skate comprising a toe support, and a separate heel support hinged to a runner on a transverse bearing pin passing through the support and runner to permit of a rocking movement in a vertical plane.

10. A skate comprising a toe support, a separate heel support having a heel plate with pendent lugs, a runner having a vertical projection on its web, and a pivot pin piercing the lugs and vertical projection, on which the heel support is free to rock.

11. In a skate, the combination with a toe plate, of two laterally adjustable posts beneath the top plate, and a toe clamp having a pair of twin grips in one piece of metal on each side of the toe plate; each pair pivotally secured to a separate adjustable post and free to turn to the right or left thereon.

12. In a skate, the combination with a toe plate, of two laterally adjustable posts beneath the toe plate, a toe clamp having a pair of twin grips in one piece of metal on each side of the toe plate, each pair pivotally secured to one of said posts and free to turn to the right or left thereon, and a right and left threaded clamp screw piercing each post, by means of which the posts and clamps are adjusted to and from each other.

13. In a skate provided with a toe plate, a right and left threaded clamp screw, and means for securing said clamp screw to the toe plate, in combination with two adjustable vertical posts, each bored and tapped to receive its respective end of the clamp screw, by which the posts are moved to and from each other, and a grip pivotally adjustable on each post.

14. In a skate provided with a toe plate, a right and left threaded clamp screw provided with collars and means for securing said clamp screw to the toe plate comprising a U-shaped hanger adapted to embrace the clamp screw between the collars, and means for securing the hanger to the toe plate, in combination with two adjustable vertical posts, each bored and tapped to receive its respective end of the clamp screw, by which the posts are moved to and from each other, and a grip pivotally adjustable on each post.

Witness my hand this 12th day of August 1908, at New York, N. Y.

ROBERT YATES.

Witnesses:

S. BRASHEARS,
S. S. NEWTON.