

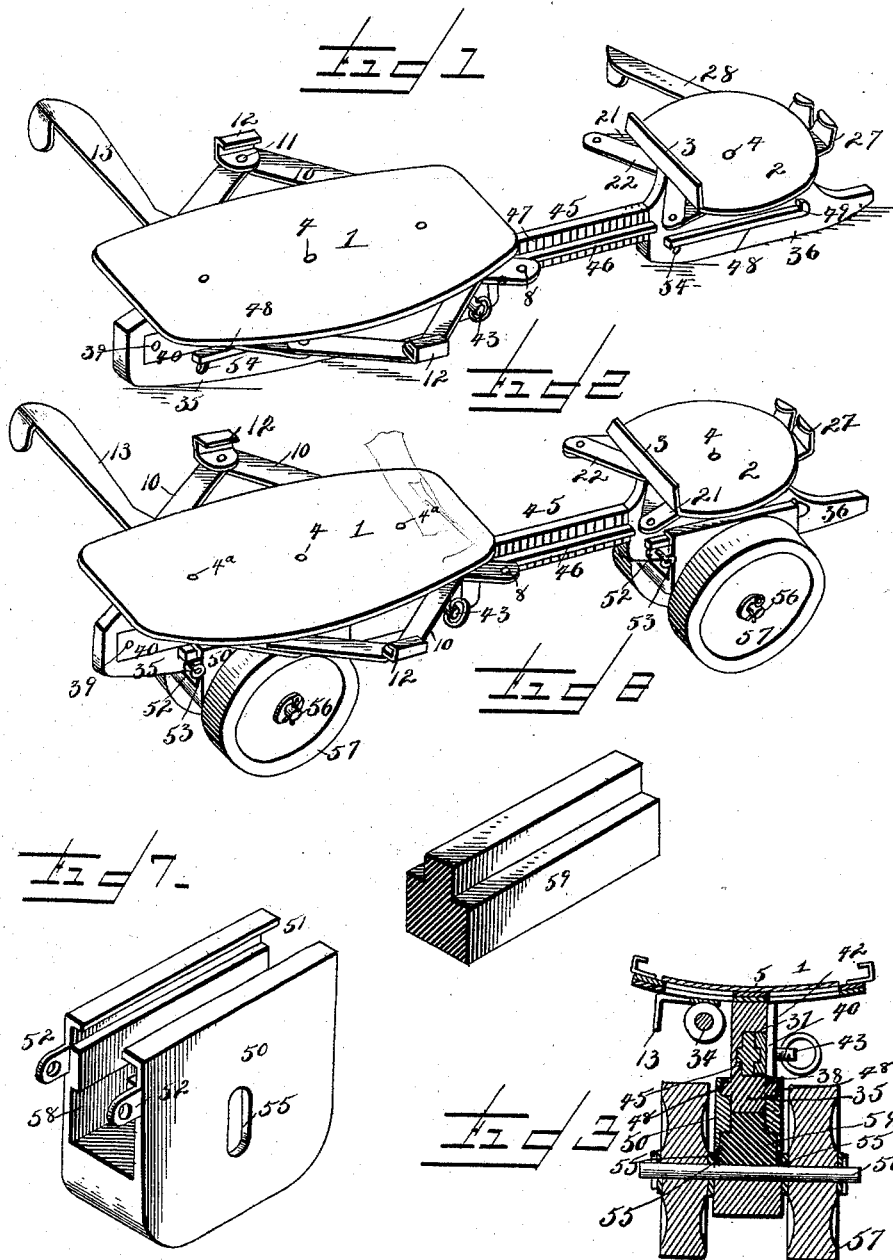
(No Model.)

2 Sheets—Sheet 1.

A. A. JOHNSON.
SKATE.

No. 526,655.

Patented Sept. 25, 1894.



Inventor

Alexander A. Johnson.

Witnesses

W. Schneider.
W. S. Duval.

By his Attorneys.

C. A. Snow & Co.

(No Model.)

2 Sheets—Sheet 2.

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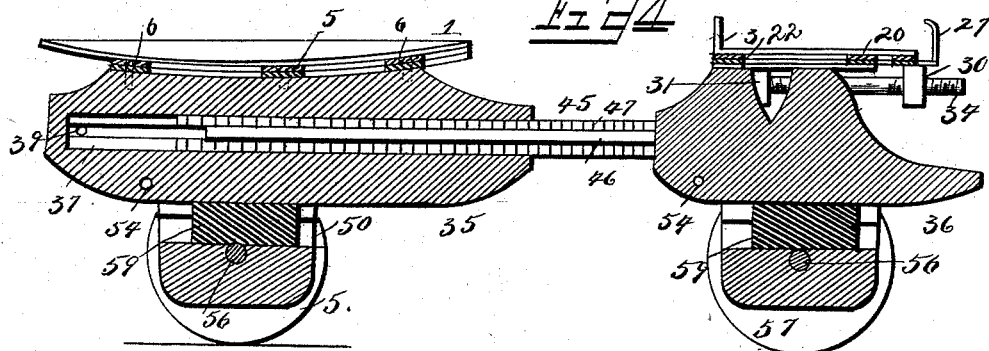


Fig. 6

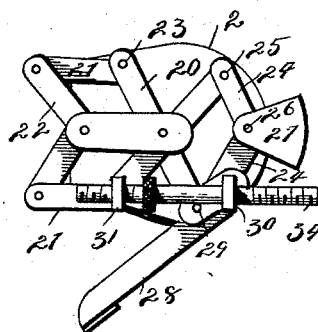
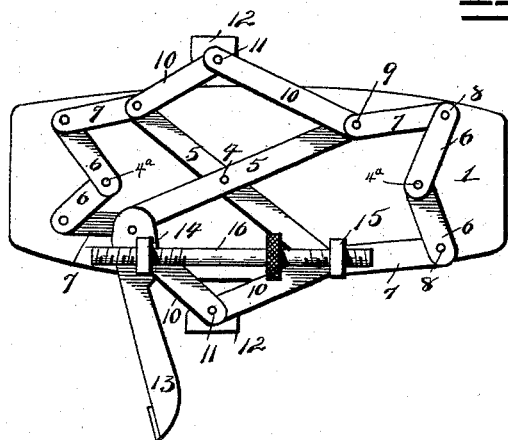
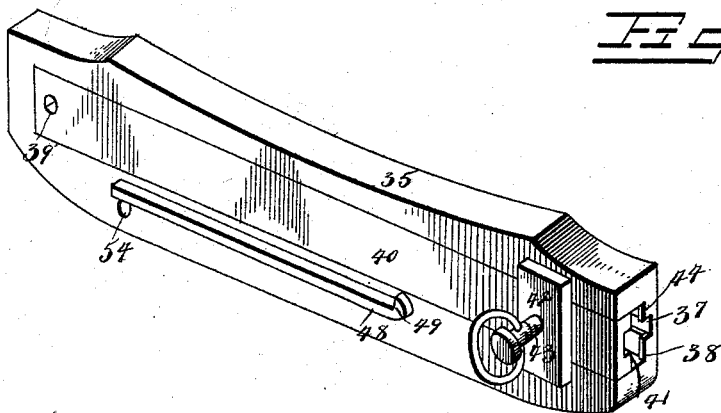


Fig. 5



Inventor

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UNITED STATES PATENT OFFICE.

ALEXANDER ASBURY JOHNSON, OF CLARKSVILLE, TENNESSEE.

SKATE.

SPECIFICATION forming part of Letters Patent No. 526,655, dated September 25, 1894.

Application filed October 23, 1893. Serial No. 488,922. (No model.)

To all whom it may concern:

Be it known that I, ALEXANDER ASBURY JOHNSON, a citizen of the United States, residing at Clarksville, in the county of Montgomery and State of Tennessee, have invented a new and useful Skate, of which the following is a specification.

My invention relates to improvements in skates; and the objects in view are to provide a combination ice and roller-skate; and to adapt the same to be readily changed or converted from the one to the other; and to provide for a ready adjustment of the skate to the shoe of the user and securement thereto.

With these and various other objects in view the invention consists in certain features of construction hereinafter specified and particularly pointed out in the claims.

Referring to the drawings:—Figure 1 is a perspective view of a skate constructed in accordance with my invention, the same being designed for use upon ice. Fig. 2 is a similar view, the skate being designed for use as a roller skate. Fig. 3 is a transverse sectional view through the front truck or rollers. Fig. 4 is a longitudinal sectional view of the skate. Fig. 5 is a perspective view of a front runner-section of the skate. Fig. 6 is a bottom plan view of the skate, the runners being removed. Fig. 7 is a detail in perspective of one of the front trucks with the wheels removed. Fig. 8 is a similar view of the rubber-cushion employed therein.

Like numerals of reference indicate like parts in all the figures of the drawings.

In the practice of my invention I employ a foot-rest, comprising separate plates or sections, of which 1 designates the toe-plate and 2 the heel-plate, the latter having its front end upturned to form the flange 3 for embracing the face of the heel. The heel and toe-plates are provided with the usual openings through which extend studs 4 from the runner of the skate, said studs being headed to prevent the separation of the members.

To the center of the under side of the toe-plate 1 is pivoted by means of the above mentioned stud a pair of levers 5, which are arranged at an angle to each other. In front and in rear of these crossed levers and pivoted by similar studs 4^a are pairs of short independent levers 6 connected to the extremi-

ties of the levers 5 by means of intermediate links 7, rivets 8 and 9 being employed to form the pivotal connections. The rivets 9 also pivotally connect the inner ends of a pair of levers 10, the outer ends of which are loosely connected by means of pivots 11. A hand lever 13 is pivoted on the outer front rivet 9, and located eccentrically upon said lever is a threaded post 14, a second post 15 serving as the rear pivot 9 at the outer side of the skate. These posts are threaded in reverse directions, and are connected by an intermediate adjusting screw 16. By operating this screw it will be seen that the levers 5 may be adjusted toward or from each other at their outer ends to adjust the sole clips 12 closer to or farther from the side edges of the toe-plate to accommodate soles of different widths. The hand lever 13, it will be understood, is swung to the front when the adjustment occurs, and after the adjustment and the application of the foot-rest to the foot, said hand-lever is swung to the rear thereby causing the parts above described to work in toggle fashion, and by reason of the eccentric pivot of said lever cause the sole-clips 12 to move inward and firmly embrace the sole of the shoe. If desired a heel-strap may be employed for the heel-plate, and in fact straps may be substituted for the securing mechanism, or clamping devices above described for the toe-plate, but I prefer, however, to employ a similar mechanism at the rear end or heel plate of the skate. To a central stud, by which said heel-plate is secured to the runner, are pivotally connected the levers 20, and in front of the same is arranged a pair of independent levers 22, which are connected at their outer ends to the corresponding extremities of the levers 20 by means of links 21, rivets 23 serving to form the pivotal connections between said parts. A pair of links 24 are pivoted, as at 25, to the rear ends of the levers 20, and at their inner ends are connected by the pivot 26, upon which is mounted a forked heel-clip 27. A hand lever 28 is pivoted at 29 to the rear end of a lever 20 at the outside of the heel-plate, and eccentrically located on said hand lever is a perforated post 30. A similar post 31 serves as the pivot 23 at the front end of the other lever 20 at said outer side of the heel-plate, and the two

posts, which have their bores reversely threaded, are connected by a right and left threaded bolt 34. It will be seen that by operating this bolt the two levers 20 in the manner heretofore described may be adjusted to carry the heel-clip from or toward the heel-plate, and by swinging the lever 28 toward the plate the clip is caused to coact with the flange 3 to clamp the heel of a shoe upon the heel-plate. The pivotal connection of the clips 27 and 12 with the clamping mechanism insures the automatic adjustment of the clips to the curvature or contour of the sole and heel of the shoe.

The runner consists of a front portion 35 and a rear or heel portion 36, which are secured respectively as above indicated to the heel and toe-plates, and are with said heel and toe plates adjustable toward and from each other to vary the length of the skate. The runner section 35 is provided in one side with a longitudinal recess 38, extending from its rear end to a point adjacent to its front end, and the bottom of this recess is grooved, as shown at 37. A pin 39 projects from the bottom of this groove near its front end, and in the recess is located a metal strip 40 having a perforation at its front end to receive said pin 39. This strip is further provided upon its inner face with a groove 41 corresponding with the groove in the bottom of the recess 38, and said recess is spanned at its rear end by a cross bar 42 having a threaded perforation in which is fitted a binding screw 43 adapted to bear upon the outer surface of the strip 40, which is preferably of strong metal to press the free rear end of the latter inward or toward the floor of the recess 38. The plate 35 is provided with one or more teeth 44, which stand outward toward the strip 40.

The rear runner section 36 is provided at its front end with a forwardly disposed stem 45 provided upon opposite sides with longitudinal ribs 46, which correspond with the grooves formed in the opposing faces of the strip 40 and the runner 35, whereby when said stem is fitted in the recess 38, said ribs 46 fit snugly in the grooves 41 and 37. This stem is provided with a series of notches 47 to receive the teeth 44 which are normally held in engagement therewith by the pressure of the binding-screw 43 upon the outer surface of the strip 40. It is preferable to round the front ends of both runner sections to avoid unnecessary friction with the surface of the ice.

This may complete the construction of the skate, as I contemplate manufacturing both as an ice skate exclusively and as a combination roller and ice skate, but I prefer to provide the above described construction with attachments, whereby the skate may be adapted for use as a roller skate, said attachments being as follows: Each runner section 35 and 36 is provided with horizontal superficial ribs 48 terminating at their rear ends in should-

ers 49, and these ribs are adapted to engage the frames respectively of front and rear trucks provided with suitable rollers or wheels. The construction of said front and rear trucks is identical, and hence it will be necessary to describe but one.

50 represents a U-shaped casting, the inner surface of the vertical walls or terminals of which are grooved horizontally adjacent to their upper edges, as shown at 51 for the reception of the horizontal ribs 48 above described. The rear edges of these castings when adjusted upon the runner sections bear against the terminal shoulders 49 of the ribs, which form suitable fixed means for conveying the forward movement imparted to the foot-rest by the wearer to the trucks. The casting is provided at opposite sides and adjacent to the upper ends of its terminals or walls with forwardly extending perforated ears 52, which are adapted to register with a perforation 54 in the runner section for the reception of a fastening screw 53. Thus the screw prevents the detachment of the truck from the runner section by a forward movement with relation thereto, but does not bear the strain of the forward motion in the use of the skate. This strain is sustained entirely by the shoulders 49 at the rear ends of the ribs. The casting is provided adjacent to the lower end with a vertically elongated, horizontally disposed bearing opening 55, which communicates with the space between the side walls or cheeks of the casting, and in this bearing opening is located a transverse axle 56 carrying the rollers or wheels 57. The walls or terminals 50 of the casting below the plane of the grooves 57 are cut away or recessed, as shown at 58, and fitted between the walls or terminals of the casting above and bearing upon the transverse axle, and with its upper surface in contact with the shoulders at the upper sides of the recesses 58, is a rubber cushion 59, which allows a rocking movement of the body portion of the skate with relation to the rollers or wheels by the compression of this cushion. Furthermore, said cushion serves to absorb the vibrations of the rollers or wheels, caused by irregularities in the surface over which the skate passes.

I do not limit my invention to the details of construction herein shown and described, but hold that I may vary the same to any degree and extent within the knowledge of the skilled mechanic.

Having described my invention, what I claim is—

1. In a skate, the combination with the foot rest, of the levers 5 pivoted at their centers at their points of intersection under and to the foot rest, the links 10 pivoted at their inner ends to the levers 5 and at their outer ends pivoted to each other as at 11, the clips 12 pivotally mounted on the pivots 11, the hand-lever 13 pivoted to the inner end of one of the levers 5, the threaded post 14 eccentrically mounted on the lever 13, a similar post

15 pivoted to the inner end of each opposite lever 5 and reversely threaded to its companion post, and the intermediate right and left hand threaded bolts 16 engaging the posts, substantially as specified.

2. In a skate, the combination with a foot-rest, of the levers 5 pivoted at their centers to said rest, the independent or separate levers 6 pivoted at their adjacent ends in front of the levers 5 and in rear of the same, links 7 pivotally connected to the levers 6 and to the ends of the levers 5, the links 10 pivoted to the levers 7 and 5 and at their outer ends pivoted together at 11 and carrying clips for embracing the sole of the shoe, the hand-lever 13 pivoted to the front end of one of the levers 5, the threaded post 14 eccentrically mounted on the lever 13 and a similar post 15 pivoted to the rear end of one of the levers 5 and reversely threaded to its companion post, and the intermediate right and left hand threaded bolt 16 engaging the posts, substantially as specified.

3. In a skate, the combination with a heel-plate and runner, of the interposed pivoted levers 20, the front and rear links 22 and 24, the latter pivoted to the rear ends of the levers 20, the intermediate links 21 between the levers 22 and 23, the pivoted heel-clip at the rear ends of the levers 24, the hand-lever 28 pivoted on the rear end of one of the levers 20, the threaded post eccentrically mounted on the hand-lever, the oppositely threaded post pivotally mounted on the front end of the opposite lever 20, and the intermediate adjusting bolt reversely threaded and engaging the post, substantially as specified.

4. In a skate, the runner comprising two sections, one of which is grooved and the remaining one of which is provided with an extension adapted to fit the groove, in combination with a plate for covering the groove and adjusting devices for securing the extension in the groove carried by the plate, substantially as specified.

5. In a skate, front and rear runner-sections, the former having a groove in its side, a plate loosely mounted in the groove, a binding-screw arranged to impinge upon the plate, and teeth upon the inner side of the plate, in combination with a notched extension extending from the rear section, adapted to enter the groove, and be engaged by the teeth of the plate, substantially as specified.

6. In a skate, the combination with a front runner section having a recess in its side face whose bottom is grooved, a post at the front end of the recess, a loose plate perforated and mounted in the recess and having a corresponding groove, a cross-bar spanning the recess, a threaded bolt arranged in the cross-bar and impinging on the plate, of a rear runner-section having an extension-bar whose opposite sides are provided with longitudinal

ribs to fit the grooves of the recess and plate and with notches engaged by teeth on the plate, substantially as specified.

7. In a skate, the combination with the foot-rest of the levers 5 pivoted at their centers to said rest, the independent or separate levers 6 pivoted at their adjacent ends in front of the levers 5 and in rear of the same, links 7 pivotally connected to the levers 6 and to the ends of the levers 5, the links 10 pivoted to the levers 7 and 5 and at their outer ends pivoted together at 11 and carrying clips for embracing the sole of the shoe, and the hand-lever 13 pivoted to the front end of one of the levers 5 and an adjustable connection between the lever 13 and the rear end of the companion lever 5, substantially as specified.

8. In a skate, the combination with a heel-plate and runner, of the intersecting pivoted levers 20, the front and rear links 22 and 24, the latter pivoted to the rear ends of the levers 20, the intermediate links 21 between the outer ends of the levers 22 and 20, the pivoted heel-clip at the rear ends of the levers 24, and the hand-lever 28 pivoted on the rear end of one of the levers 20 and an adjustable connection between it and the end of the companion lever 20, substantially as specified.

9. In a skate, the combination with a foot-rest, of a series of toggle levers, clips mounted on the outer levers of the series, a hand lever pivotally connected to one pair of the toggle levers, and an adjustable connection between the hand lever and the adjacent pair of toggle levers, substantially as specified.

10. In a skate, the combination with a foot-rest comprising relatively adjustable toe and heel-plates, of which the latter is provided at its front edge with means to engage the front side of a heel, and adjustable connections between said toe and heel-plates, of toe-clips arranged upon opposite sides of the toe-plate, a heel-clip arranged in rear of the heel-plate, independent sets of toggle levers carrying the toe and heel-clips respectively, a hand lever operatively connected with one lever of each set of toggle levers, and adjustable connections between each hand lever and the adjacent lever of each set of toggle levers, whereby the sets of clip operating levers are carried respectively by the toe and heel-plates and whereby the members of each set of levers are relatively adjustable to vary the intervals between the said clips and the respective plates, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

ALEXANDER ASBURY JOHNSON.

Witnesses:

M. A. STRATTON,
L. S. TIPPIT.