

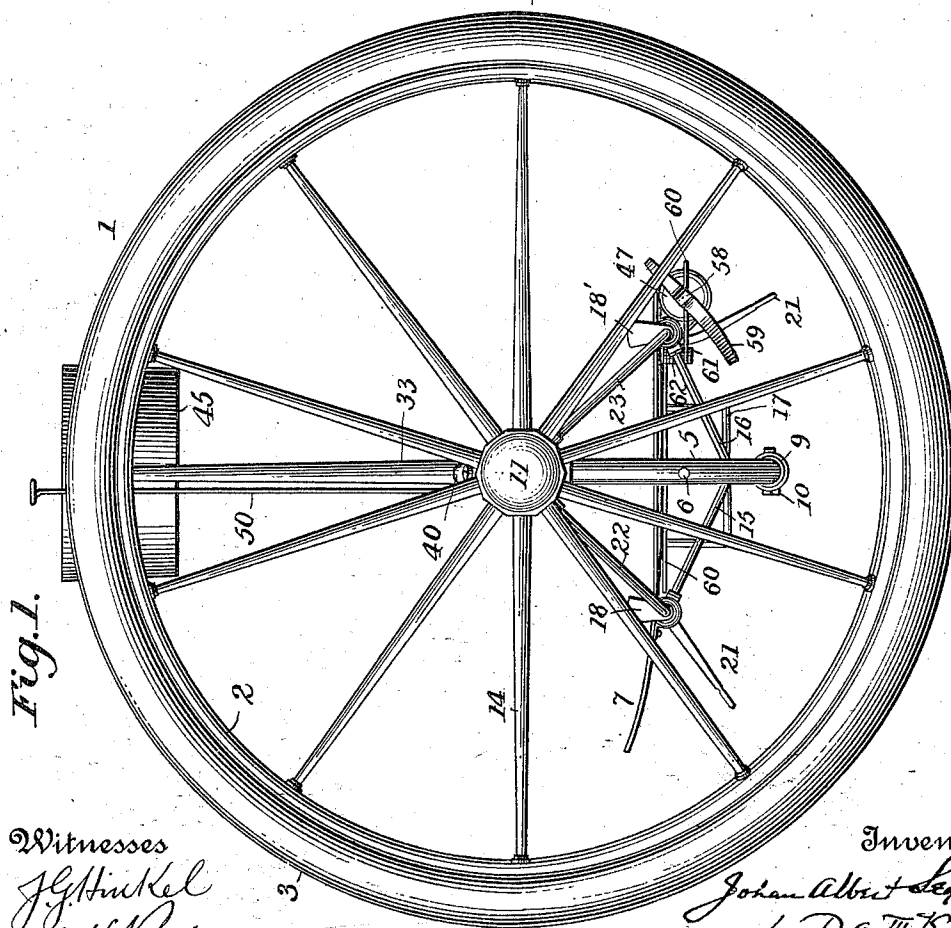
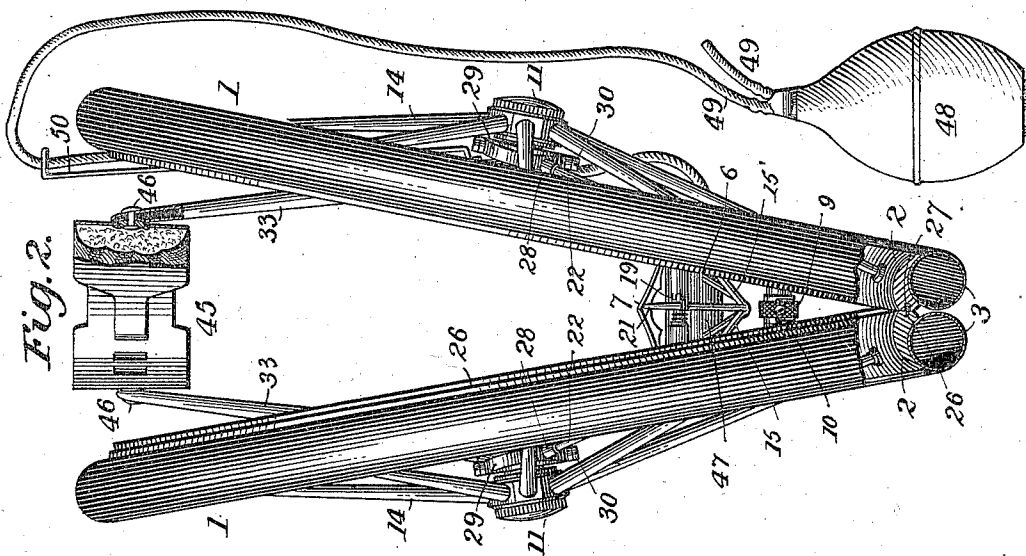
(No Model.)

3 Sheets—Sheet 1.

J. A. SEGERBERG.
ROLLER SKATE.

No. 577,628.

Patented Feb. 23, 1897.

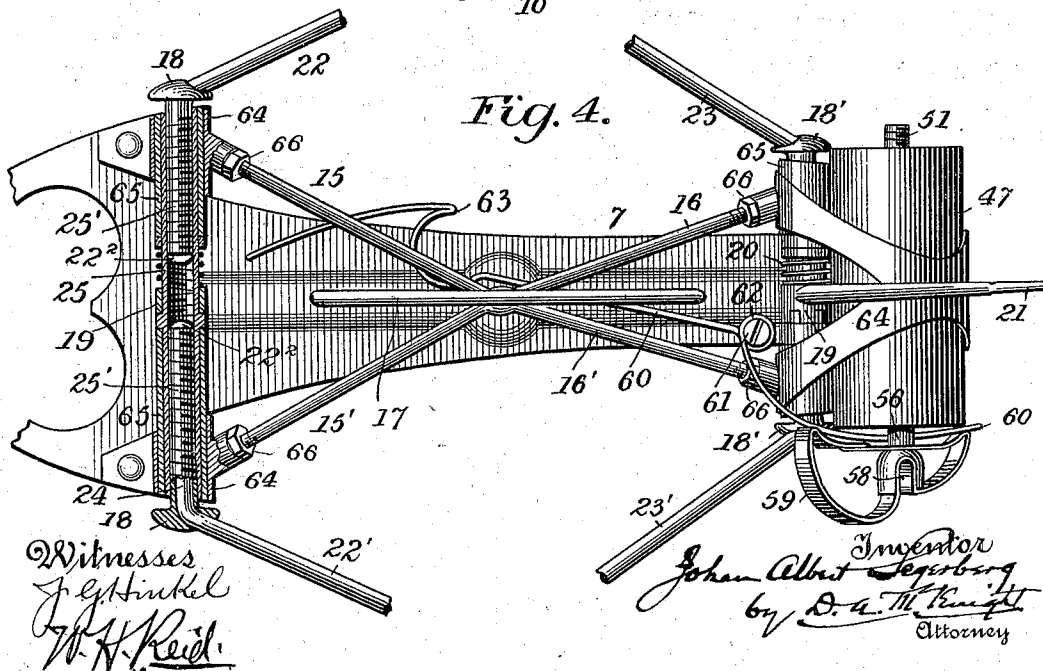
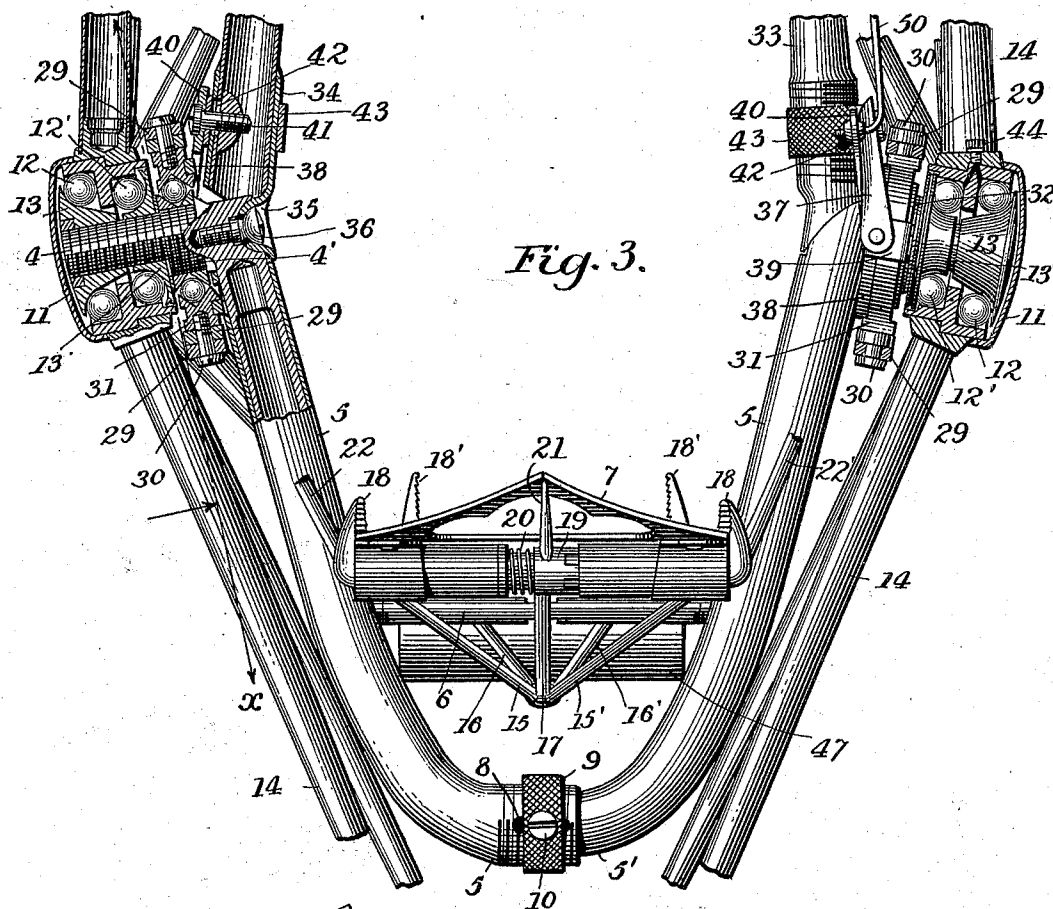


Witnesses
J. G. Hinkel
W. H. Reid.

Inventor
Johan Albert Segerberg
by D. A. Mc Knight
Attorney

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3 Sheets—Sheet 3.

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Fig. 5.

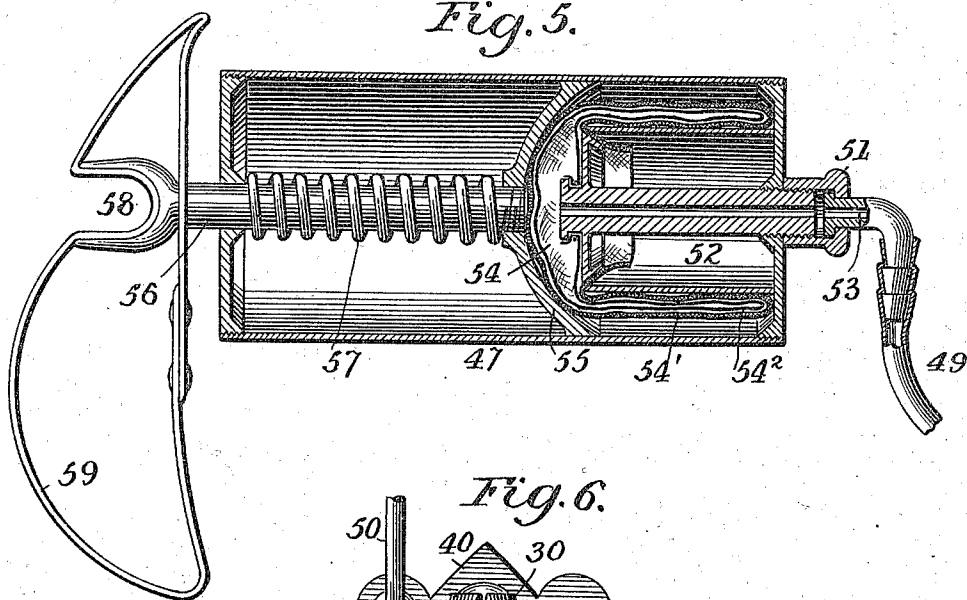
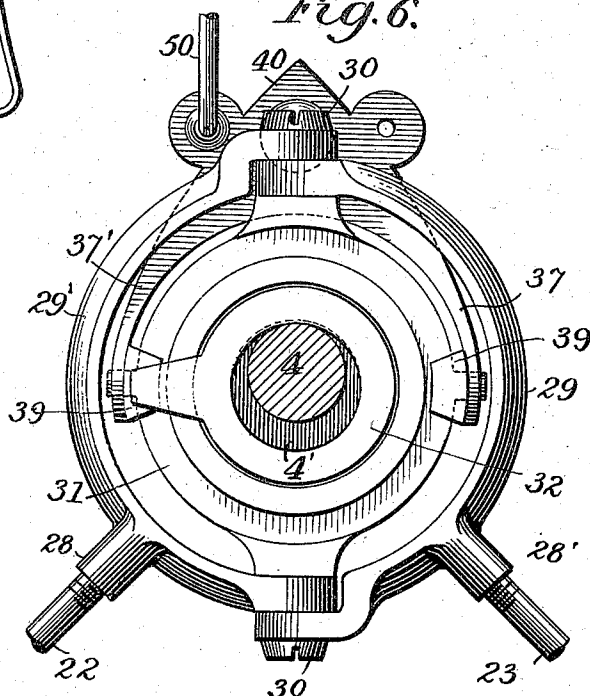


Fig. 6.



Witnesses
J. G. Hinkel
W. H. Reid

Inventor
John Albert Segerberg
by *D. A. M. Bennett*
Attorney

UNITED STATES PATENT OFFICE.

JOHAN ALBERT SEGERBERG, OF DENVER, COLORADO.

ROLLER-SKATE.

SPECIFICATION forming part of Letters Patent No. 577,628, dated February 23, 1897.

Application filed June 9, 1896. Serial No. 594,808. (No model.)

To all whom it may concern:

Be it known that I, JOHAN ALBERT SEGERBERG, a citizen of the United States, residing at Denver, in the county of Arapahoe and State of Colorado, have invented certain new and useful Improvements in Roller-Skates; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to roller-skates; and it consists in the hereinafter-described improvements upon the roller-skate for which Letters Patent of the United States No. 527,164 were issued to me on the 9th day of October, 1894. Figure 1 is a side elevation of my improved roller-skate, and Fig. 2 is a front elevation thereof broken away at its lower extremity. Fig. 3 is an enlarged front view, partly in section, of the depending axle and foot-support and their bearings. Fig. 4 is a bottom plan view of the foot-support and air-brake. Fig. 5 is an enlarged sectional view of the air-brake and cylinder. Fig. 6 is a section on the line *x x* in Fig. 3, looking in the direction of the arrow.

In the views, 1 1 represent two wheels of the velocipede type, mounted on the ends of the axle 4, which are inclined downward, so that rims 2 form an angle with each other and lightly touch at their lowest point, the two thus forming substantially one wheel. To equalize the strain on the wheels and axles, the inner face of the rim of one wheel is provided with a thin annular rib 26, adapted to fit into a corresponding annular groove 27 in the inner face of the rim of the other wheel at their point of contact. Rubber tubular tires 3 are seated in the rims and nearly touch each other at their point of contact with the ground.

The axle is mainly composed of tubing, reinforced, and consists of two depending parts 5 and 5', united at their lower extremities 5' and 5' so as to form a U-shaped brace between the wheels. Tie-rod 6 connects the two legs 5 and 5' and has right-and-left screws

at its opposite ends which enter suitably-threaded sockets in legs 5, whereby the distance between the two wheels is regulated. One of said extremities 5' is adapted to slide within the other, the outer tube being externally screw-threaded for the reception of the internally-screw-threaded thimble 9, and through a slot 8 passes set-screw 10 for the purpose of tightening the joint when the proximity of the wheels has been adjusted by tie-rod 6. The upper extremities of axles 4 are made solid and are covered by caps 11, fitted upon the hubs as dust-guards. Two rows of balls 12 and 12' are used in the ball-bearings, which cause the wheels to run more truly and to more truly keep the angle at which they are set to each other. The oiling-ducts are closed by screw 44. In each row the balls have a three-point bearing, as shown, so arranged that their plane of rotation is at an angle of forty-five degrees with the axle extremities, whereby all friction is prevented in the event that the wheels tend to spread. Cones 13 and 13' are so shaped that the outer bearings for the two rows of balls are set at right angles to the tubular spokes 14, more balls therefore being used in the outer than in the inner row.

In the space between the depending parts of the axle and below the center of the wheels is the foot support or plate 7, braced from below by the rods 15, 15', 16, and 16', screwed into nipples 66, projecting from sleeves 65, secured by straps 64 to the plate near its front and rear ends, and by rod 17 riveted at either end to the bottom of the plate. Plate 7 is fastened to the sole of the skater's shoe by the clamps 18 and 18' in the manner of the ordinary ice-skate. Said clamps are fastened to the ends of the two tubes 25', which are externally right and left screw-threaded to fit the threads of the internally-screw-threaded revolving cylinder 25, which is held in place by sleeves 65 and is actuated by the adjustable wrench 19, held in place by spring 20 and operated by lever 21.

Foot-support 7 is swung on four rods 22, 22', 23, and 23', the lower extremities of each front and rear pair being rigidly attached to round cross-bars 24, passing through tubes 25' and being riveted at 22' at either end of

the foot-support, which is thereby enabled to oscillate freely on cross-bars 24 with each movement of the skater's leg. The upper extremities of each side pair of rods 22 and 23, 22' and 23' are rigidly fastened at 28 and 28' to semicircular jointed collars 29 and 29', which are movably secured by screws 30 to the top and bottom of the exterior ring of the foot-support ball-bearing 31. Ball-bearing 31 is fixed on the axle at 4' just inside the hubs, with washer 32 between it and the hub ball-bearing; but the axle at said point is so enlarged on its lower side that its center is below the center of axle 4, by which construction is assured the immediate contacting of the wheels at any point where either may touch the ground.

Leg-braces 33, extending upward from the axles, are fixed in sleeves 34, the lower ends of which on one side are socketed at 35 for the reception of screws 36, which secure the sleeves to axles 4', said screws having hemispherical shoulders of less diameter than sockets 35, whereby braces 33 have a free motion in every direction, but without play. Braces 33 are additionally secured by two arms 37 and 37', whose lower ends are pivotally attached to either side of a ring 38, adapted to oscillate on a projection of ball-bearing 31 and secured in place by a flanged sliding plate 39, their upper extremities being united to cross-piece 40, which is secured to braces 33 by screws 41. Screws 41 pass through a diagonal slot 42 in screw-threaded thimbles 43, which move up and down on the lower part of braces 33. By loosening screws 41 and turning thimbles 43 to a suitable extent screws 41 are forced down or up in slot 42, and thereby the upper extremities of the braces 31 are moved nearer together or farther apart, and are thus adjusted to the size of the skater's ankle.

Padded spring-bands 45 are fastened securely but loosely to the upper ends of braces 33 by pivots 46, whereby they have a slight movement in all directions, and they are provided with suitable means for fastening them to ankles of any size.

Firmly attached by straps 64, beneath and at the rear end of foot-plate 7, is a pneumatic braking device operated by a suitable rubber air-bulb 48, carried in the pocket or elsewhere, through tubing 49, which has a branch extending to the braking device on each skate, passing through an eye at the top of rod 50 (supported by plate 40) and connecting with the braking device at 51. Said air-brake has an exterior cylinder 47 and at one end thereof an interior cylinder 52, through the center of which extends the air-duct 53, which enters the inflatable air-sack 54, of a smaller diameter than the inside of cylinder 47. Air-sack 54 is preferably made in two parts 54' and 54'', the outer of cloth and the inner of thin rubber, both being suitably attached to the inner end of cylinder 52 and

being so disposed that when partially deflated and pushed backward the excess of material folds upon itself and sinks into the space between the inner and outer cylinders, as shown in Fig. 5.

55 is the piston-head, concave on the side next the air-sack and attached to piston-rod 56, which carries spiral spring 57, whose function is to aid in retracting the piston-rod when the air-pressure is removed. At the outer end of piston-rod 56 is a fork 58, and attached thereto the spring-brake 59. The brake is forced against the spokes of the wheel by the pneumatic pressure and so checks its speed of revolution, and if the pressure be continued fork 58 finally catches one of the spokes and stops the wheel from further motion. To prevent the depending axle 5 from being thrown forward when the brake is applied, a wire spring 60 is loosely attached to post 61 by a coil 62, at the rear end passing loosely through a hole in piston-rod 56 and at the front end being bent into hook 63. Hook 63 is so disposed that as the piston-rod is pushed outward the hook is thrown in the pathway of the moving axle and prevents its swinging forward; or if the axle is already beyond its reach it will on its return catch it and prevent its swinging forward again.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a roller-skate, the combination of the wheels with a pneumatic brake, consisting of an exterior cylinder attached to the foot-support, a piston-rod moving at one end of said cylinder, said piston-rod carrying at its inner end a piston-head and at its outer end a brake-shoe, a spiral spring adapted to push the piston-rod inward, a smaller cylinder fixed in the other end of the exterior cylinder, an inflatable air-sack between the piston-head and the interior cylinder adapted when inflated to press the piston-rod outward and to sink into the space between the exterior and interior cylinders when deflated, an air-tube entering the air-sack, and a pneumatic bulb for supplying air under pressure to the air-tube.

2. A pneumatic brake for a vehicle-wheel, consisting of a cylinder provided with a piston-rod therefor having a brake-shoe at its outer end and a piston-head at its inner end, an air-bladder attached to the cylinder and adapted to press against the piston-head and to push the same forward when being inflated, a retracting-spring, and means for supplying air under pressure to the air-bladder.

3. A roller-skate consisting of two wheels set at an angle to each other and lightly touching at their point of contact with the ground, said wheels being mounted on ball-bearings fixed on the inclined extremities of an adjustable U-shaped axle, an adjustable foot-support located between the depending legs of said axle and swung from ball-bearings mounted near the extremities of said axle,

adjustable leg-braces pivotally attached to the upper ends of said axle, and adjustable padded leg-bands at the upper ends of said leg-braces.

- 5 4. A roller-skate consisting of two wheels set at an angle to each other and lightly touching at their point of contact with the ground, said wheels being mounted on ball-bearings fixed on the inclined extremities of an adjustable U-shaped axle, an adjustable foot-support located between the depending legs of said axle and swung from ball-bearings mounted near the extremities of said axle, adjustable leg-braces pivotally attached to the upper ends of said axle, adjustable padded leg-bands at the upper ends of said leg-braces,

and a pneumatic brake attached to the bottom of the foot-support.

5. In a roller-skate, the combination of the wheels set at angles to each other on inclined axles with ball-bearings therefor, each having two rows of balls with their outer bearings set at right angles to the spokes, having three-pointed bearings, and revolving at an angle of forty-five degrees with the axle.

In testimony whereof I affix my signature in presence of two witnesses.

JOHAN ALBERT SEGERBERG.

Witnesses:

GEORGE EPPICH,
FRANK DOTTERSTEIN.