(No Model.)

L. D. YORK.

ROLLER SKATE.

No. 320,993. Patented June 30, 1885.

Fig: 3.

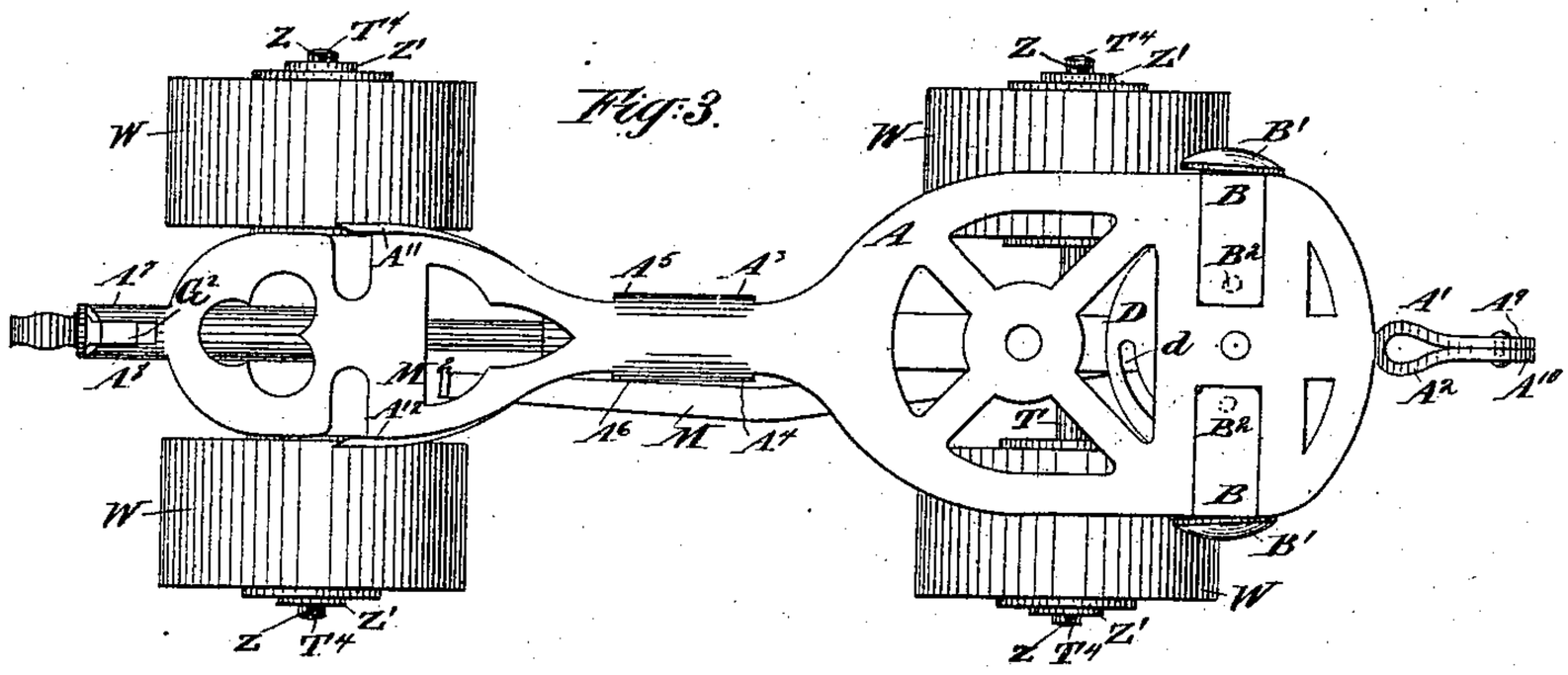


Fig: 1.

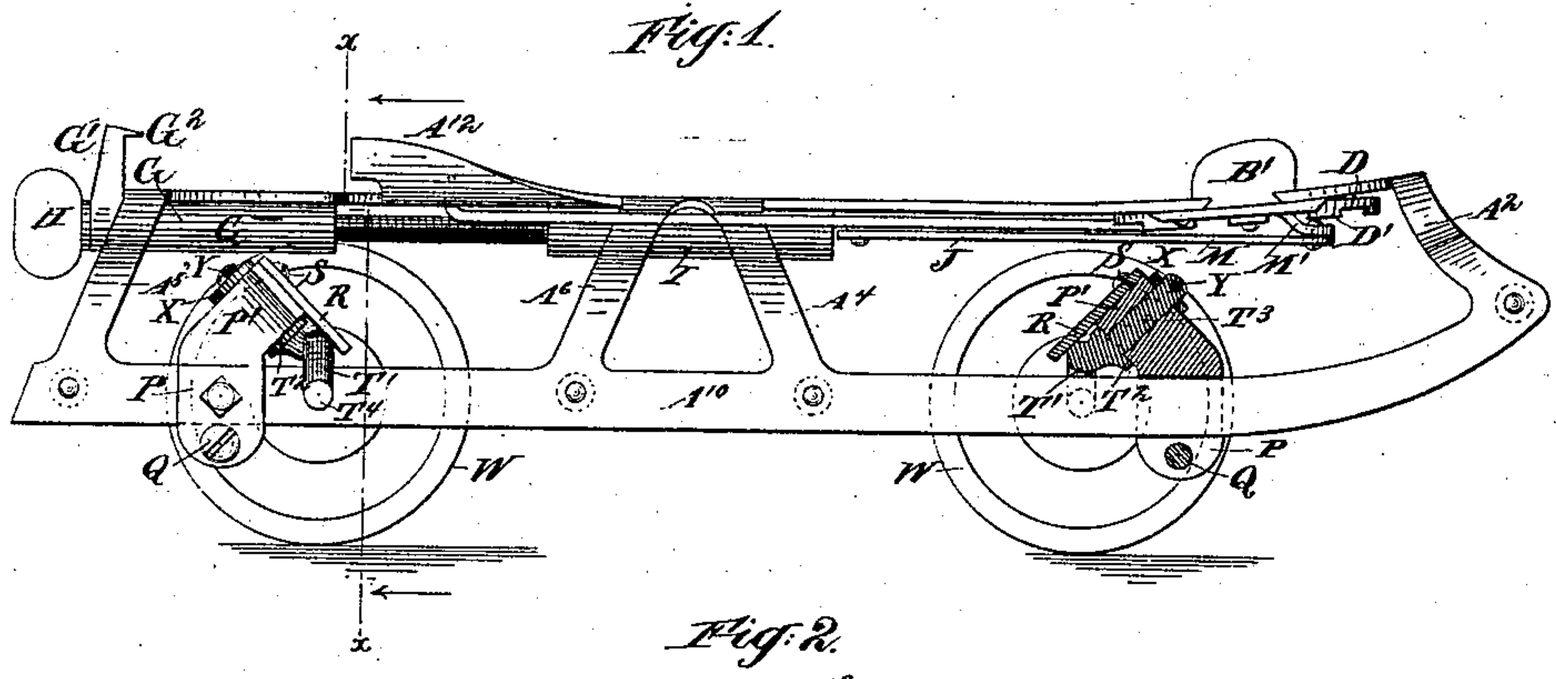
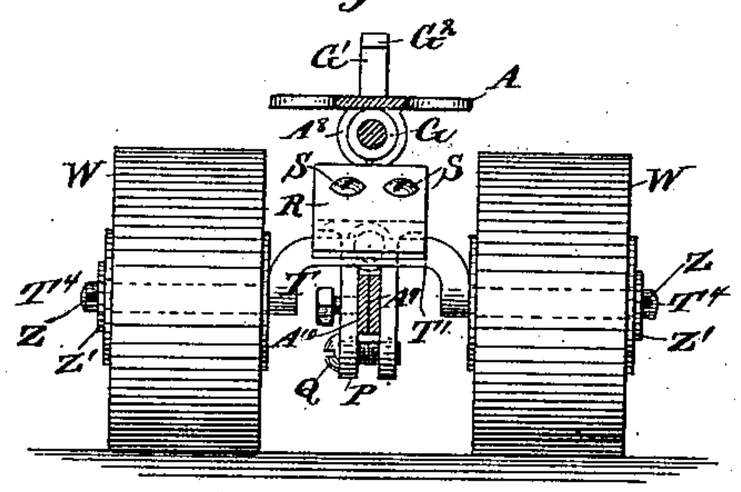


Fig: 2.



WITNESSES—

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UNITED STATES PATENT OFFICE.

LEVI D. YORK, OF PORTSMOUTH, OHIO.

ROLLER-SKATE.

SPECIFICATION forming part of Letters Patent No. 320,993, dated June 30, 1885.

Application filed July 28, 1884. (No model.)

To all whom it may concern:

Be it known that I, LEVI D. YORK, of Portsmouth, Scioto county, in the State of Ohio, have invented certain new and useful Improvements Relating to Roller-Skates, of which the following is a specification.

I provide clamps with means for attaching them at will in adjustable positions on a skate having an open-work blade or runner. On removing the clamps and the rollers the skate is ready for use on ice. On again attaching them the skate is in condition for use on a floor or smooth pavement. The capacity for adjustment allows the rollers to be set forward or backward, at the pleasure of the wearer.

I have in an application for patent filed April 21, 1884, Serial No. 128,713, set forth a construction of skate adapted for use on ice in which the blade or runner is open-work, being composed of a bottom strip of double thickness and having a depth of a half-inch, more or less, with curved bars or uprights connecting these runners with the foot-plate or body of the skate, the intervals between the uprights being open above the upper edge of the runners. I will describe my present invention as applied thereto, although the invention may apply with other constructions of ice-skates having sufficient openings in the blades.

The following is a description of what I consider the best means of carrying out the invention.

The accompanying drawings form a part of this specification.

Figure 1 is a side elevation with the nearest wheels removed, partly in section. Fig. 2 is a cross-section on the line *x x* in Fig. 1, looking in the direction of the arrows. Fig. 3 is a plan.

Similar letters of reference indicate corresponding parts in all the figures where they occur.

A is the foot-plate of a suitable ice-skate. A^9 A^{10} are the runners. The runners are formed of two thicknesses of sheet iron or steel cut from the same original sheet of iron or steel as the foot-plate A, and brought into position by bending down the connecting parts, which I term the "uprights," as described in the application hereinbefore mentioned.

A' A^2 are the front uprights; A^3 A^4, the next rearward; A^5 A^6, a pair of uprights still farther rearward, and A^7 A^8 the rear uprights. These parts are rigidly united to form the foot-plate and runner of a suitable skate adapted for use on ice and equipped with suitable means for firmly fastening to a boot, the same consisting of clamping slides B, having suitable end clamps, B′, and pins B^2. The latter engage in spiral slots *d*, formed in a partially-rotating horizontal wheel, D D′, operated by a lever, M, having an arm, M′, and lock M^2.

G is a sleeve, having an arm, G′, and a spur, G^2, constituting, with certain spurs, A^{11} A^{12}, formed on the turned-up portions of the foot-plate A, and arranged as shown, suitable heel-fastenings operated by a screw, H, nut I, and link J.

P P are clamps, mounted in reversed positions on the runners A^9 A^{10}, and secured each in the desired position by the aid of a screw-bolt, Q, which is inserted loosely through one of the sides, and is tapped through the other. The opening in the interior of the clamp should be matched accurately to the thickness of the runner, so that the slight elasticity of the metal will be sufficient to allow the forcible turning of the bolt Q to bind it firmly. On slacking the bolt Q, the clamp may be moved forward or backward and re-secured in the new position.

The upper portion, P′, of the clamp P presents an inclined face, as shown, upon which is secured, by screw-bolts S, a flat spring, R.

A cylindrical hole is formed in the clamp extending forward and backward at an inclination. It serves as a bearing on which vibrates a peculiarly-formed axle, T, portions of which will be distinguished when necessary by additional marks, as T′ T^2.

T′ is an inverted fork portion which stands loosely astride of the runners A^9 A^{10}.

T^2 is a stout collar, and T^3 a cylindrical bearing extending beyond the collar through the longitudinal hole in the clamp. It is secured therein with a suitable washer, X, by a pin, Y, which may be a split key or other simple device capable of retaining its position and of being easily removed when necessary.

T^4 T^4 are cylindrical bearings in line with

each other, extending horizontally in opposite directions from bosses at the lower ends of the forked portion T'. These carry suitable bearing rollers or wheels, W W, which may be made of leather, rawhide, or other suitable material, preferably bushed with metal.

A transverse-pin, Z, acting on a washer, Z', on the outer end of these bearings, hold them reliably.

Operation: When the skates are to be used for ice, the clamps P, axles T, and wheels W, with their several fastening means, may be kept in the pocket or otherwise out of the way, and the skate may be used with the runners A^9 A^{10} resting on the ice in the ordinary manner. When it is desired to skate on a floor, the axles, clamps, and wheels are applied and secured in the desired position, and the same body and runner of the skate and the same fastenings to the foot being employed, the skate is ready to serve as a roller-skate.

To change the skate from one condition to the other, one of the rollers W should be taken off from its bearing T^4. Then, exercising a little care to shift the position of the parts, as will easily be determined by practice, the clamp P with its crooked axle may be applied or removed. After applying it, the screw-bolt Q is inserted and turned to effect a strong compression of the clamp, and the latter is reliably fixed. Now, applying the missing wheel W, and securing it with the washer and pin, and proceeding to manipulate the same with the other pair of rollers and connections, the skate is ready for use as a roller-skate. In changing the angular position of the foot-plate of the skate relatively to the floor, the foot-plate runner and clamps vibrate on the bearings T'. The inclinations of these bearings operates by well-known laws to change the positions of the axle T, and consequently of the rollers on the floor. The rocking of the body or foot-plate A in either direction draws together the front and rear rollers on the side toward which the skate is inclined, and moves the opposite rollers farther apart. Such change of position has been differently effected in other skates, and is highly esteemed in aiding to execute graceful curve motions of the skates on the floor.

The spring R fixed on the clamp presses on a flat surface at the upper portion of the fork T', and tends to hold the body of the skate upright. This force is not so great as to prevent the foot being inclined in either direction to any desired extent in maneuvering on the skates; but the instant the foot is raised from the floor it throws the axle and its connections into the central position, so that the skater can always rely upon their being in the central position when the skate is again put down.

Modifications may be made in the forms and proportions. I can vary the diameter and width of the rollers W; also their distance apart from right to left. These points should be determined in the manufacture. The shifting of the clamps and their attachments forward and backward gives an important advantage in adjusting the bearings of the skate according to the size of the foot or to the fancy of the skater.

I can, by allowing a little space between each bolt Q and the bottom of the runner, not only secure a capacity to shift the clamp and its connections forward and backward on the runner, but also to incline the clamp and its connections relatively to the runner. By inclining it backward or forward I can vary the inclination of the bearing T, and consequently the extent to which the skate will tend to traverse in a curved line when it is rocked to one side or the other.

I can, if preferred, determine the correct inclination in the manufacture, and have each bolt Q touch and press lightly against the under side of the runner, and thus hold the clamp firmly against the possibility of rocking by any accident.

I claim as my invention—

1. The axle T, having a fork, T', cylindrical bearings T^3, and two bearings, T^4, in combination with the wheels W, and runner A^9 A^{10}, the latter free to vibrate within the fork T' by turning on the said bearing T^3, as herein specified.

2. The combination, with the body and runner A^9 A^{10} of an ice-skate, of a clamp, P, held to the runner adjustably by mechanism, as Q, the axle-frame T, having inclined bearing T^3 in said clamp, the spring R, secured to the clamp and bearing on the axle-frame, and the rollers W, as and for the purpose set forth.

In testimony whereof I have hereunto set my hand, at Portsmouth, Ohio, this 19th day of June, 1884, in the presence of two subscribing witnesses.

LEVI D. YORK.

Witnesses:
P. S. IVENS,
T. C. ANDERSON.