2 Sheets—Sheet 1.

R. THOMSON, Jr.

Skate-Fasteners.

No. 211,643. Patented Jan. 28, 1879.

Fig. 1.

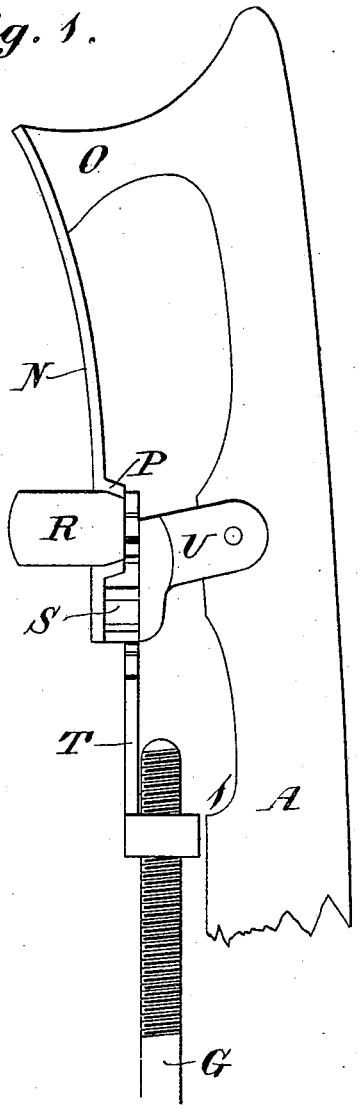
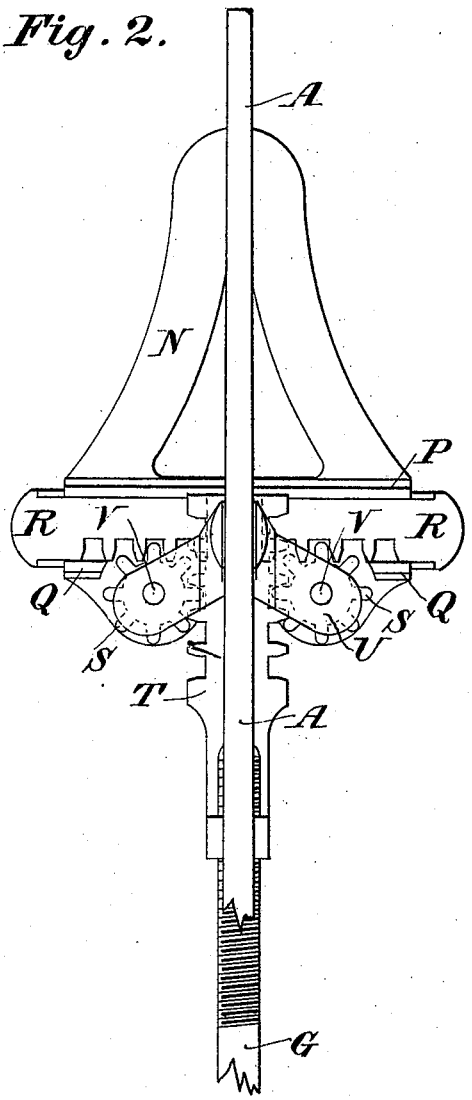


Fig. 2.



Witnesses

Charles G. G. Simpson

W. E. Rudger

Inventor

Robert Thomson R.

2 Sheets—Sheet 2.

R. THOMSON, Jr.

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No. 211,643. Patented Jan. 28, 1879.

Fig. 3.

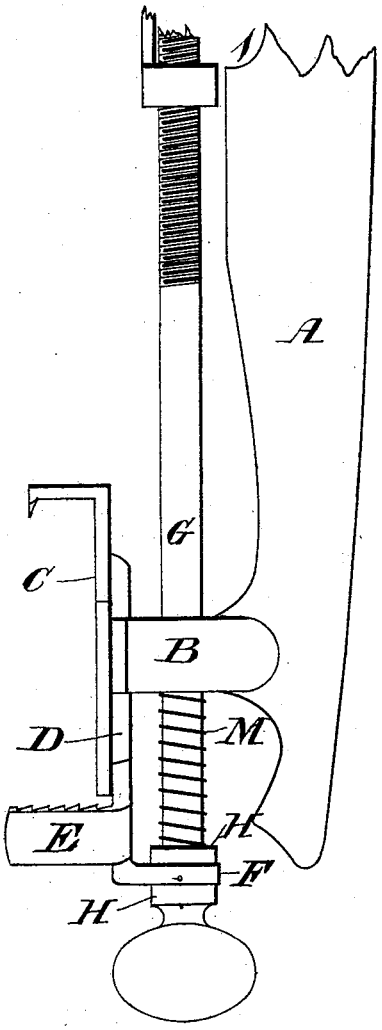
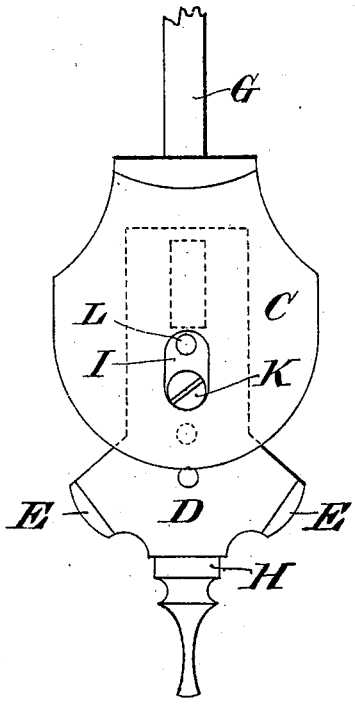


Fig. 4.



Witnesses

Charles H. Simpson

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UNITED STATES PATENT OFFICE.

ROBERT THOMSON, JR., OF MONTREAL, QUEBEC, CANADA.

IMPROVEMENT IN SKATE-FASTENERS.

Specification forming part of Letters Patent No. **211,643**, dated January 28, 1879; application filed December 13, 1878.

To all whom it may concern:

Be it known that I, ROBERT THOMSON, the younger, of the city and district of Montreal, Province of Quebec, Canada, have invented certain new and useful Improvements in Skate-Fasteners; and I do hereby declare that the following is a full, clear, and exact description of the same.

This invention has reference to the employment of a rack and pinion movement for operating the clasps employed in grasping the sole and heel of the boot to which the skate is to be attached, and this is arranged in conjunction with a tension-strain upon the spindle by which the parts are operated.

By the employment of a rack-motion instead of inclined slots in a plate much of the friction of the slots is overcome, and by employing it instead of pivoted levers and arms a uniform power of the parts is obtained in contradistinction to a power which varies according to the various positions the pivoted levers or arms may assume. Thus if the spindle of the skate be arranged with a toggle-joint to operate the toe-clamps, the power that the toggle-joint will have to move the toe-clamps will depend on the position of the parts of said toggle-joint. In one position they are very powerful, in another they are very weak.

When the strain on the spindle and parts by which the clamps are actuated is a compression, the parts are always inclined to yield to it, and become sprung or bent, as they have to be made very light in structure, so that the sum total of the weight of the skate when complete may not be too heavy and clumsy.

In the drawings hereunto annexed similar letters of reference indicate like parts, and Figure 1 is a side elevation of the front end of the skate. Fig. 2 is a plan of the lower side of Fig. 1. Fig. 3 is a side elevation of the rear end of the skate; and if Figs. 1 and 3 be united at the curve they will make up the whole side elevation of the skate. Fig. 4 is a plan of upper side of heel-plate or upper side of rear of Fig. 3.

Letter A is the runner of the skate, to which is attached, by a bracket, B, the heel-plate C. In the bracket an opening is made, forming a guide to the sliding piece D, upon which the ordinary heel-clamps E are formed. F is a forked projection of the plate D. Its forked ends sit astride the spindle G, between the collars H of the spindle. In the plate C a slotted hole, I, is formed to receive the head of a pin, K, and in the slide D a number of screw-threaded holes, L, are formed, so that by moving the pin K to any of these holes the range that the plate D can be adjusted for various sizes of heels is changed. M is a spiral spring placed on the spindle, and pressing between the collar H and bracket B to cause the plate D to be drawn backward.

N is the toe-plate, attached to a projection, O, of the runner A, in the ordinary manner. On the under side of N a rib, P, extending across the plate, is formed, and, as shown, projections Q are formed on each side, thus providing a dovetail groove to receive and guide the correspondingly-beveled toe-clamps R, provided with rack-teeth to engage with the gear-wheels S, which are operated by a bar, T, having rack-teeth on each side arranged to engage with the two gears. The bar T is provided with an eye screwed to fit the screw of the spindle G, so that by revolving the spindle the rack is moved fore and aft to operate the gears. *v* is a bracket, attached to the runner, as shown, into which the pivots V of the gears S, are screwed. The said pivots are provided with ordinary wood-screw heads, and the holes in the plate N, through which they pass, are provided with corresponding countersinks, so that the heads of the pivots are just flush with the upper surface of the plate N.

The manner of attaching the skate to the boot is as follows: I first adjust the screw K to the hole L, which will, according to the size of the heel, be the smallest capable of receiving the heel and grasping it without causing the head of the screw K to touch the front end of the slotted hole I. The object of this pin is to retain the heel-plate at about or near the position it will be in when the heel is released. Were not the screw K used the spring M would draw the spindle back, closing the toe-clamps and opening the heel-clamps wide, giving extra trouble in securing them to and

taking them off the boot. I next place the boot on the skate, with the front of the heel up against the heel-clamp at the front end of the heel-plate, and then revolve the spindle to cause the clamps E and R to close upon and grasp the boot.

What I claim, and wish to secure by Letters Patent, is as follows:

1. The combination of the double rack-bar T, gears S, and clamps R, provided with rack-teeth, as described.

2. The combination of the double rack-bar T, gears S, rack-toothed clamps R, spindle G, and plate D, provided with clamps E, substantially as and for the purposes set forth.

3. The combination of the double rack-bar T, gears S, and clamps R with spindle G, plate D, provided with clamps E, and spring M, substantially as described.

ROBERT THOMSON, JR.

Witnesses:
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W. E. FUDGER.