C. G. C. SIMPSON.

SKATES.

No. 178,563. Patented June 13, 1876.

Fig. 3.

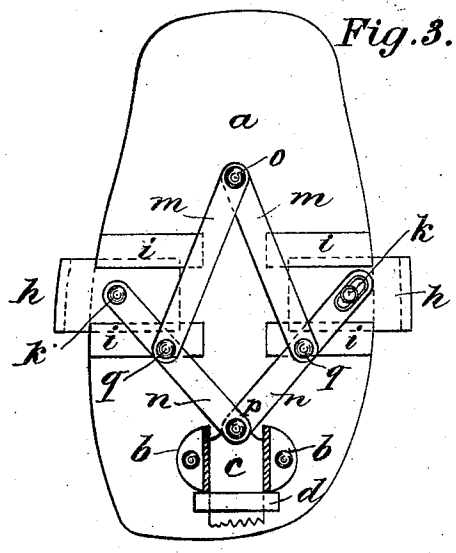


Fig. 1.

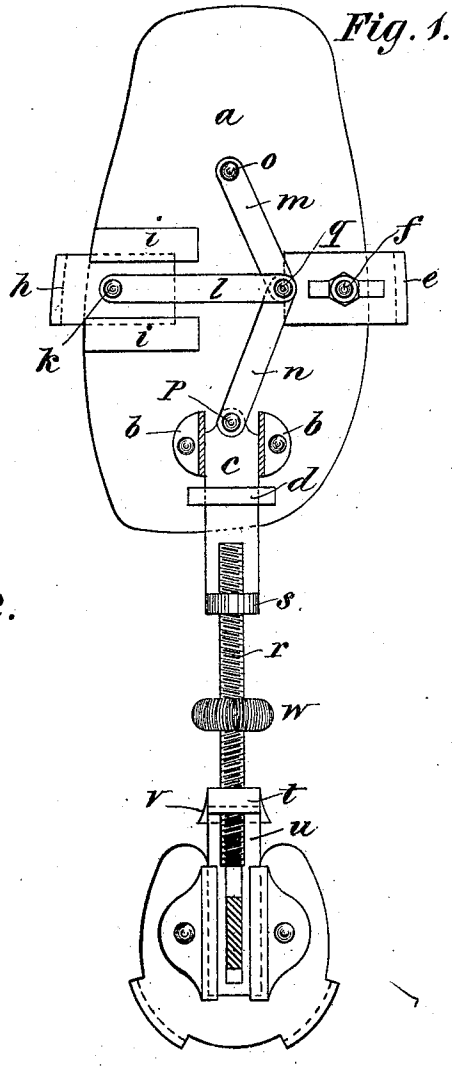
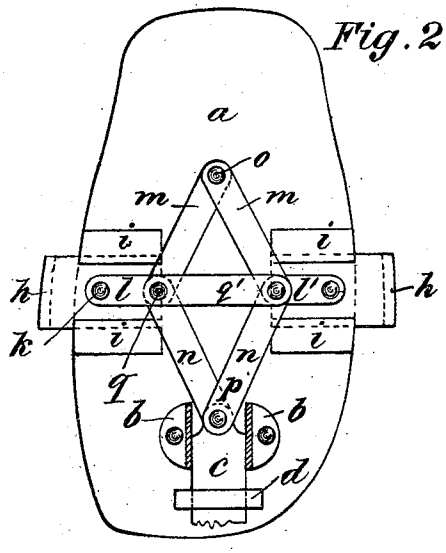


Fig. 2.



Witnesses

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UNITED STATES PATENT OFFICE.

CHARLES G. C. SIMPSON, OF MONTREAL, CANADA, ASSIGNOR TO CHARLES BREWSTER, OF SAME PLACE.

IMPROVEMENT IN SKATES.

Specification forming part of Letters Patent No. **178,563**, dated June 13, 1876; application filed May 4, 1876.

To all whom it may concern:

Be it known that I, CHARLES GRAHAM CHAPPELL SIMPSON, of the city and district of Montreal, in the Province of Quebec, Canada, have invented certain new and useful Improvements in Skates; and I do hereby declare that the following is a full, clear, and exact description of the same.

This invention has reference to improvements in the mechanism for attaching skates to the boot or shoe of the skater.

In the drawings hereunto annexed similar letters of reference indicate like parts.

Figure 1 is a plan of the sole and heel plate of a skate inverted, the runner being removed. Fig. 2 is a modification of Fig. 1. Fig. 3 is a modification of Fig. 2.

Letter *a* is the sole-plate. Its forward end is attached to the ordinary runner in the ordinary way. Its rear end is attached to the central part of the runner by brackets *b*, the ends of the brackets *b* attached to the plate being spread sufficiently far apart to admit the passage of a bar, *c*, between them, to which they form lateral guides. *d* is a staple secured to the plate *a*. In this staple the bar *c* slides. It also guides and holds the bar close up under the plate *a*. *e* is a slotted sole-clamp attached to the plate *a* by a bolt and nut, *f*, the slot allowing of lateral adjustment of position. *h* is a clamp sliding in guides *i*, attached to the plate *a*. This is provided on its lower side with a pivot, *k*, connecting the end of the link *l*, therewith. *m* and *n* are links. The one, *m*, is attached at one extremity by a pivot, *o*, to the sole-plate. The other, *n*, is attached by a pivot, *p*, to the bar *c*. The ends of the two links *m* and *n*, and the link *l*, are all united by the pivot *q*, so that *m* and *n* form a toggle-joint, and, by moving the bar *c*, the clasp *h* is caused to close or open upon the sole of the boot or shoe placed upon the plate *a*.

The movement of the bar *c* is caused by a screwed spindle, *r*, having one screwed end received within an eye, *s*, screwed to receive it and the other end received within the eye *t*, of the neck *u*, on which is formed an inner longitudinal moving heel-clamp *v*.

The ends of the spindle *r* are provided with reverse threads, the one with a right hand, the other with a left hand, so that by rotating the spindle with any suitable thumb and finger device, *w*, the bar *c*, and clamp *v*, are drawn together or pushed apart, according as the spindle is rotated either the one way or the other. This simultaneously operates the clamps.

In the modification shown in Fig. 2, instead of the clamp *e*, both clamps are formed like *h*. Two links, *m*, are pivoted at *o*, and two links, *n*, are pivoted at *p*. The two links *l* and *l'* are pivoted at *q* and *q'*, so that by the movement of the bar *c* the two clamps *h* are simultaneously and equally operated.

In the modification shown in Fig. 3, the links *m* are made somewhat longer, and the links *n* extend beyond the pivots *q*. These extensions connect with the pivots *k* of the clamps *h*.

By careful adjustment of the position of the pins *q* on the links *n*, the radial action of the link *m* may be compensated for by the radial action of the part of the link *n*, between the pivots *k* and *p*, in the same manner as one of the common forms of parallel motions used on the steam-engine, in which case the link may be pivoted at *k*, as shown on the left-hand side of Fig. 3. But unless this is accurately done the parts will not work freely, and, to obviate this, the end of the link *n* may be provided with a slotted hole connecting with the pivot *k*, as shown on the right-hand side of Fig. 3. In this modification of the toggle-joint, as regards the movement of the bar *c*, the action is reversed, for, in Figs. 2 and 3, if the bar *c* is moved toward the rear the clasps *h* slide inward, but in Fig. 1 they push outward; therefore, in the modification shown in Figs. 2 and 3, the bar *c* is connected with an outer longitudinal-moving heel-clamp operated by a screw-spindle, as shown in Fig. 1, instead of an inner longitudinal-moving heel-clamp, the inner heel-clamp being made stationary.

What I claim is as follows:

The combination of the clamp *h*, links *l*, *m*, and *n*, and bar *c*, substantially as described.

Montreal, 17th day of April, A. D. 1876.

CHARLES G. C. SIMPSON.

Witnesses:
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