(No Model.)

2 Sheets—Sheet 1.

P. CONRADSON.

SNOW SKATE.

No. 382,254. Patented May 1, 1888.

Fig: 1

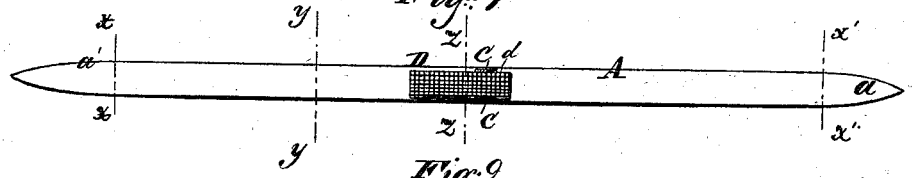


Fig: 2

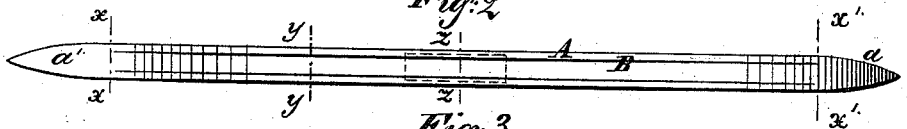


Fig: 3

Fig: 4 Fig: 5 Fig: 6 Fig: 7 Fig: 8 Fig: 9 Fig: 10

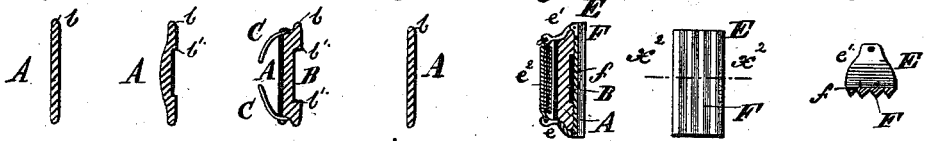


Fig: 11

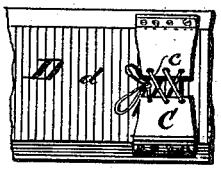


Fig: 12

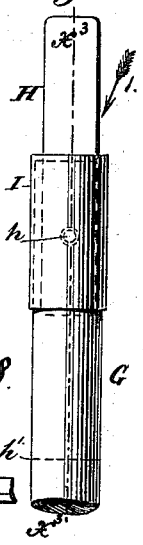


Fig: 13

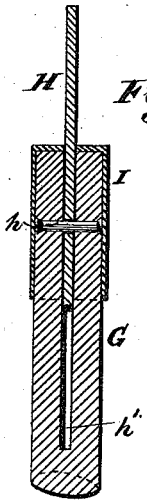


Fig: 14

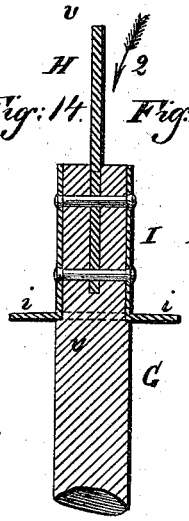


Fig: 15

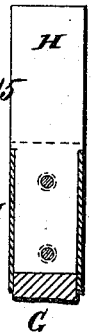


Fig: 18

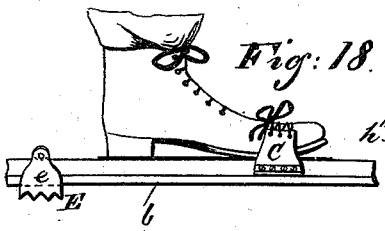


Fig: 16.

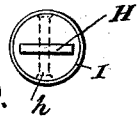
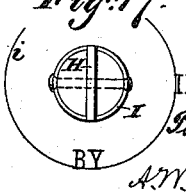


Fig: 17.



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BY

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ATTORNEY.

(No Model.) 2 Sheets—Sheet 2.

P. CONRADSON.

SNOW SKATE.

No. 382,254. Patented May 1, 1888.

Fig: 19

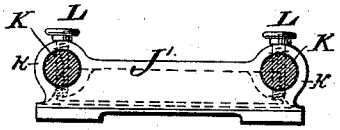


Fig: 20

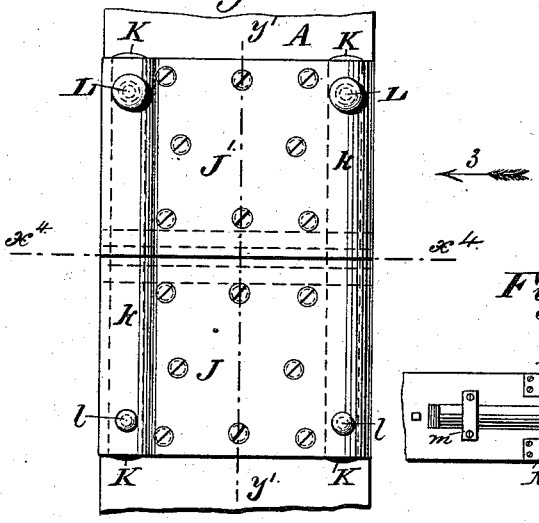


Fig: 23

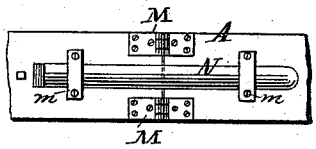


Fig: 21

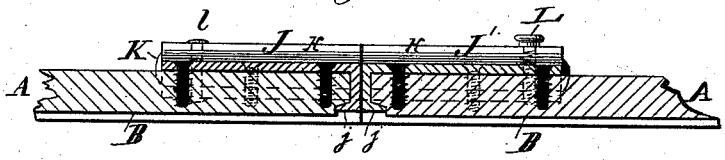
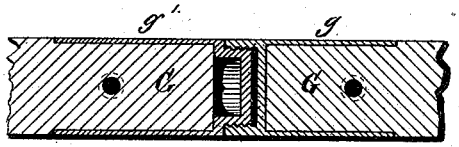


Fig: 22



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ATTORNEY.

UNITED STATES PATENT OFFICE.

PONTUS CONRADSON, OF ALTOONA, PENNSYLVANIA.

SNOW-SKATE.

SPECIFICATION forming part of Letters Patent No. 382,254, dated May 1, 1888.

Application filed March 9, 1887. Serial No. 230,244. (No model.)

To all whom it may concern:

Be it known that I, PONTUS CONRADSON, a citizen of Sweden, and a resident of Altoona, in the county of Blair and State of Pennsylvania, have invented a new and useful Improvement in Snow-Skates, of which the following is a specification.

My invention relates to snow-shoes, or, more properly, snow-skates, such as are used in Scandinavia as a means whereby a person may support and swiftly propel himself upon a surface of snow.

The invention comprises improvements whereby the skates may be folded and packed in a small compass, and in the improvements of details of construction, as will be hereinafter fully described, and specifically pointed out in the claims, reference being had to the accompanying two sheets of drawings, in which—

Figure 1 is a top or plan view of an improved skate according to my present invention, with the foot-strap in section. Fig. 2 is a view of the under side of the same. Fig. 3 is a side view. Figs. 4, 5, 6, and 7 are cross-sections, respectively, on the lines $x\ x$, $y\ y$, $z\ z$, $x'\ x'$ of Figs. 1, 2, and 3. Fig. 8 is a cross section on the line $z\ z$ of the skate, showing the brake applied to it. Fig. 9 is an under side view of the brake. Fig. 10 is a cross-section of the same through the line $x^2\ x^2$ of Fig. 9. Fig. 11 is a top view of a portion of the skate, the foot-plate, and the foot-strap. Fig. 18 is a side view of the same with the brake applied. Fig. 12 is a side view of the lower end of the pole and scraper inverted. Fig. 13 is a cross-section of the same, taken on the line $x^3\ x^3$ of Fig. 12. Fig. 14 is a similar section of a modification of the same. Fig. 15 is a partial section on the line $v\ v$ of Fig. 14. Figs. 16 and 17 are end views of the pole, looking in direction of arrows 1 and 2 in Figs. 12 and 14, respectively. Fig. 19 is a cross-section on the line $x^4\ x^4$ of Fig. 20, taken in the joint of the two main sections of a skate made in sections. Fig. 20 is a top view of a portion of a skate made in sections, and showing the metallic fastening by which the two parts are connected together. Fig. 21 is a longitudinal section taken through the line $y'\ y'$ of Fig. 20. Fig. 22 is a longitudinal section of a portion of the pole, showing how the same may be made in sections secured together. Fig. 23 is a top view of a portion of one of the main parts or sections of a skate, showing how the same may be made in sub-sections hinged together.

Like letters of reference indicate like parts in the several figures.

Like the old-fashioned Scandinavian snow-skates, each skate A is made, preferably, of pine or ash, and has its front end, *a*, curved upward, somewhat in the manner of an ordinary sleigh-runner, provided underneath with a groove, B. The body of the skate is not straight, but is slightly arched in such a manner as to raise the center about an inch or two over the level of the support at the ends. This causes the skate to act as a sort of spring-board, relieving the foot (which is held by the strap C) of the weight of the snow-skate the trifle necessary in locomotion. Instead of curving the front end only, as aforesaid, I make both ends $a\ a'$ of the skate curved in the fashion of a sleigh-runner. The object of this is to be able to utilize the skate again without repair in case, as sometimes happens, the front end breaks off, in which case the strap C is reversed and the end a' is utilized as the front end.

The groove B, which heretofore invariably has been made throughout the entire length of the snow-skate, I make shallower toward the ends, and end it flush with the bottom of the skate, as shown in Fig. 2, at about twelve to fifteen inches from the end. By this construction the skate turns much easier than heretofore, thus facilitating the task of running off from a straight line into a lateral curve.

The strap C, by which the foot is held, is preferably made of two pieces of leather fastened by grasp-plates and screws to the opposite edges of the body A, said straps being connected by a lace-string, *c*. (See Figs. 11 and 18.) In order to prevent the foot from slipping out of the strap, (no heel-strap being used, as that would prevent the rapid removal of the foot from the skate in case of danger,) I provide on the body A a rubber plate, D, of the same width as the skate and about nine to twelve inches long, which rubber plate is corrugated transversely at *d*, as shown in Figs. 1 and 11, so as to better prevent slipping.

The skates are generally about four inches

wide and from nine to fifteen feet long, and I make the skates for both feet of the same length, (as heretofore made the right skate is always much shorter than the left one.) The groove B, when seen in cross-section, as in Figs. 5 and 6, presents a rounding on the outer edges at *b*, while the lower edges, *b'*, of the groove B are sharp or abrupt. This construction causes the skates to steer and run better. As heretofore made a horizontal slot was made transversely through the body of the skate for the reception of the foot-strap. The said slot of course tended greatly to weaken the skates, and thus necessitated a thicker and consequently much heavier skate; but by my present strap C the said objection is overcome, the same being fastened to the sides, as aforesaid, and the width where the ends of the strap are attached, just above the rounding *b*, is less than at the bottom of the skate, thereby preventing the straps from coming in contact with and presenting unnecessary friction against the surface of the snow upon which the skate slides.

The edges of the upper surface of the skate are rounded off throughout the whole length, as in Figs. 4 and 5, except where the foot-plate D is secured.

E is a brake, the object of which is to prevent the skates from sliding backward when the snow-skater has to walk up steep inclines. For this purpose the brake consists, preferably, of a thin metallic plate having longitudinal corrugations, as shown in Figs. 9 and 18, which, when the brake is attached to the skate, as in Fig. 18, run transversely of the skate. The brake is applied a little in front or a little behind the foot, and is provided with end pieces, *e e'*, conforming to the edges of the skate. One of the end pieces, *e*, is rigid with the corrugated plate F, while the other end, *e'*, is hinged thereto. A spiral spring, e^2, secured with one end to the stationary piece *e*, is adapted to be hooked with its other end into a loop or hole through the hinged piece *e'*, so that all that is necessary for applying the brake to the snow-skate is simply to unhook the spring from the hinged end piece, *e'*, then slip the brake under the skate, as in Figs. 8 and 18, and then connect the end pieces, *e e'*, above the skate by means of the said spring e^2. The upper surface of the corrugated plate F of the brake E is provided with leather or rubber, *f*, (see Fig. 8,) for the purpose of preventing the brake from slipping on the skate. If cast, the brake-plate F may be made smooth on the inside and without the leather or rubber.

G is a staff or pole, which is an indispensable part of the snow-skater's equipment. As heretofore constructed this had a conical joint, and a few inches above the joint a square or round wooden washer or disk several inches in diameter. The object of this is to prevent the pole from sinking too deeply in the snow when the pole is used to aid propulsion, as when the snow-skater is moving on a horizontal plane or up a small incline, in which case the pole is used against the snow-surface to push the skater along.

I have provided the pole with a snow scraper or cleaner, to be used for removing the snow from the corrugations of the rubber plate D and from the grooves and edges of the skates, &c., as may be needed. This scraper or cleaner H consists of a flat blade of metal, which may be attached to the upper or the lower end of the pole. If attached to the upper end, I prefer to construct it as in Figs. 12 and 13, in which case the blade is pivoted by a rivet, *h*, in a slot, *h'*, of the pole, the slot being of suitable length to enable the blade H to be folded in the slot in the manner of a blade in an ordinary pocket-knife. In Figs. 12 and 13 the blade is shown as unfolded, held by a ferrule, I, tightly fitting the end of the pole, and having an end slot, through which the blade projects. To fold the knife into the slot *h'*, (see Fig. 13,) it is only necessary to pull off the sleeve or ferrule I from the pole and the blade, then fold the blade into the slot *h'*, and again replace the ferrule I as a cap upon the pole end. If attached to the lower end of the pole, the blade H is riveted in two places to the pole and to the ferrule I, so as to be firm and not folding, and the ferrule is provided with a flange, *i*, for the purposes before stated. The blade thus acts as a combined spike and cleaner. The disk formed by the flange *i* serves another important purpose—namely, to stop and moderate the speed of the skater by simply allowing the pole to drag behind him on the snow, pressing on it more or less as occasion may require.

For convenience of transportation, the pole may be made in two parts, as in Fig. 22, one end at the joint being provided with a socketed and threaded ferrule, *g*, and the other with a ferrule, *g'*, having a threaded nipple to fit the threads of the said socket.

For convenience of transportation, I make the skate itself of two parts or main sections detachable from each other, and, if necessary, one or both of the said sections into sub-sections hinged together and folding one upon the other. The device by which the two main sections are secured together is shown in Figs. 19, 20, and 21. The two adjoining sections are provided with metallic plates J J', having annular flanges embracing the ends of the said main sections at the joint, as plainly shown in Fig. 21. On the edges of the upper surface these plates are provided longitudinally with bores *k*, receiving steel bolts K. Each of these bolts is rigidly secured in one of the said plates, J, by a pin, *l*, or otherwise; and in order to connect the two main sections the other projecting ends of the bolts K are inserted in the bores *k* of the other plate, J', in which they fit tightly, and are then secured by a screw, L, passing transversely through the bore and the bolt. The plates J J' are secured to the wooden part of the skates by screws, as in Figs. 20 and 21, or in any other suitable manner. When one or both of the main sections are made in

sub-sections folding together, I prefer to join the said sub-sections by hinges M, as in Fig. 23. To each of the sub-sections is attached a bored or perforated lug, *m*, and when the sub-sections are unfolded for use a steel bolt, N, is driven through the said lugs *m*, as plainly shown in said Fig. 23.

In Figs. 1, 2, and 3, owing to the small scale, the joint and hinges are not shown.

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

1. A snow-skate having underneath a continuous groove, B, with parallel edges throughout its length and gradually shallower toward its ends, and ending flush with the surface of the skate at a distance from each end of the latter.

2. A snow-skate provided underneath with a continuous groove, B, having abrupt edges *b'*, as specified.

3. A snow-skate having its side edges rounded off at *b*, and provided underneath with a continuous groove, B, having abrupt edges *b'*, as set forth.

4. The combination of a snow-skate having its side edges rounded underneath at *b* and narrower above the rounded portion, in combination with the foot-strap C, made in two parts, secured to the said narrower portion and connected by the lace *c*, substantially as described.

5. In combination with the snow-skate A and the foot-strap C, the foot-plate D, provided with transverse corrugations *d*.

6. In combination with a snow-skate, the brake E, provided on its under side with projections or corrugations F and adapted to be attached to the skate, substantially as specified.

7. In combination with a snow-skate, the brake E, provided on its under side with projections or corrugations F, a friction-covering, *f*, above the said corrugations, and having the rigid end piece, *e*, and the hinged end piece, *e'*, conforming to the edge of the skate, and a spring or strap, e^2, connecting the said pieces *e e'*, substantially as specified.

8. A snow-skate made in two or more detachable sections, substantially as specified.

9. In a snow-skate made in detachable main sections, the sub-sections interconnected by hinges M, to adapt them for folding together.

10. A snow-skate made in two main sections provided with angular end plates, J J', one of the said plates, J, having secured to it a bolt, K, and the other plate, J', having a bore or socket, *k*, and a pin or screw, L, to receive and retain the said bolt for securing the two sections together, substantially as specified.

11. In a skate made in sections, the sub-section made in two parts, having lugs *n* and connected by hinges M, in combination with a key or bolt, N, for securing the said sub-sections in the unfolded position, substantially as specified.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 26th day of February, 1887.

PONTUS CONRADSON.

Witnesses:
W. OTIS DUNBAR,
HENRY MILLHOLLAND.