O. EDWARDS.

SKATES.

No. 192,643. Patented July 3, 1877.

Fig. 1.

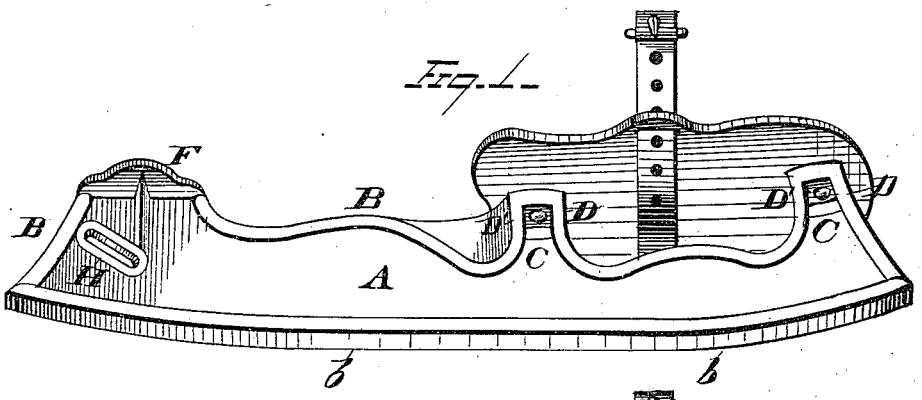


Fig. 2.

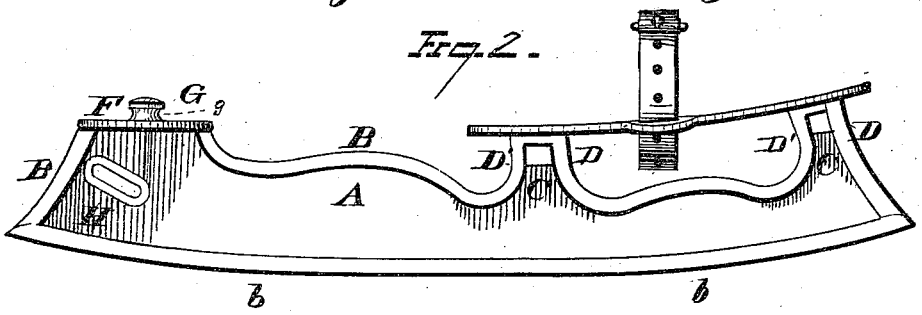


Fig. 3.

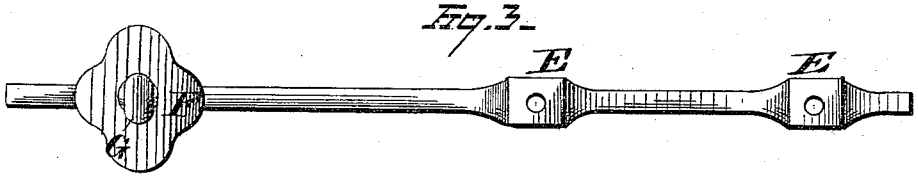
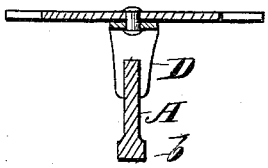


Fig. 4.



WITNESSES

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IMPROVEMENT IN SKATES.

Specification forming part of Letters Patent No. **192,643**, dated July 3, 1877; application filed January 15, 1877.

To all whom it may concern:

Be it known that I, OLIVER EDWARDS, of Florence, in the county of Hampshire and State of Massachusetts, have invented certain new and useful Improvements in Skates; and I do hereby 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 pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to improvements in skates, designed to render a club-pattern skate, made as a common iron casting, of strength equal to that of malleable-iron or steel club-skates, and at the same time as light and easy.

It is well known that skates of the club pattern must be light, strong, and safe, and by producing a cast skate having these qualities, a great saving in the manufacture of marketable club-skates is effected, inasmuch as the difference in initial cost of the raw material is largely in favor of a cast-iron as against that of a malleable-iron or steel skate.

My improvement consists, first, in making the runner with a strengthening rib or enforcement formed about its outer body, and projecting out in increased lateral extension to either side of the runner as it passes up along the standards or risers, and thus imparts to the latter strength to resist both vertical and lateral strain proportionately to the force applied; secondly, in constructing the runner with supporting-braces, which extend vertically upward from each standard as double columns, and are united at their upper end extremities by a horizontal bracket crossing the space which intervenes between the same, the said braces gradually increasing in cross-sectional area from the body of the runner up to this supporting-bracket, which latter is of greater width than any part of the vertical braces, and thus affords a full and stable bearing for the sole-plate; thirdly, in making the horizontal brackets upon which the sole-plate rests of greater width than the vertical braces supporting the same, and providing each with a central slot for engaging the sole-plate therewith by a single loose rivet-connection, whereby the number of rivets connecting the runner and sole-plate is reduced one-half, and at the same time a strong and safe engagement is made; also, by using a loose rivet, the connection is made much stronger than if the rivet were cast with the skate; fourthly, the runner is provided with a strap-opening located diagonally in its immediate body just below and to the rear of the center of the heel-plate, thus making the skate lighter, but especially of merit in that the instep-strap may have more defined inclination toward the vertical, and thus bind the foot to the skate more securely.

Referring to the drawings, Figure 1 is a perspective view of a skate embodying my invention. Fig. 2 is a side elevation of the same. Fig. 3 is a plan view, with the sole-plate removed. Fig. 4 is a transverse sectional view through the sole-plate and its supporting-bracket.

The runner of the skate A is preferably cast as a common gray-iron casting; but any other cast metal may be used, as desired. It is formed with a strengthening-rib, B, running about its entire outer edge or portion, which, continuing up from its enlarged tread *b*, extends about on the remaining sides of the runner, and projects laterally therefrom to either transverse side.

The standards C rise or project upward slightly from the body of the runner, which latter is further continued vertically upward by the braces D D′, which stand as two columns, united at their upper end extremities by a horizontal connecting piece or bracket, E, to which latter the sole-plate is attached. These vertical braces are formed by the upward extension of the strengthening-rib B, which, as it passes from the longitudinally-central body of the runner up along each standard, increase in width or lateral dimension, and continuing beyond the standard on either transverse side of the latter, it reaches its greatest cross-measurement as it crosses over the space between the upper extremities of the vertical braces, and forms thereby the horizontal bracket E—that is, this main strengthening-rib gives to the runner an added strength throughout its entire body, and especially distributes increased resisting

force to those points or portions of the same which most need it, and in the due relative proportion to the strain put upon each respective part. Thus, as the standards are approached, the width of the strengthening-rib gradually increases, giving lateral support to the same, and passing vertically up beyond the standards in a constant and graduated transverse enlargement, it finally turns at a right angle, and, taking a horizontal course for a short distance, forms a supporting-bracket, upon which the sole-plate directly rests, and is seated in firm basal support.

A return angle is then made by the strengthening-rib, and, descending, it forms the second of the two vertical braces or supporting-columns D D′, which rise up from each main standard C. In this way a broad base, E, is given for the sole-plate, and at same time a strong vertical bearing is obtained for the weight of the skater.

The increased lateral dimension of the rib B, being made correspondingly proportionate to the strain brought against the skate, acts as a compensating resistance to the force applied thereto.

The sole-plate may be of any suitable construction, that in the drawing being cast separate from the runner, and provided with loop-openings on either central side, through which the toe-strap passes, and thereby binds the foot of the skater to this plate.

Within the interior or immediate body of the rear of the runner, below the heel-plate and just back of the centrally vertical plane of the same, is cast a strap-opening, H, inclined at an angle of about forty-five degrees to the horizontal plane of the skate. Through this passes the strap to secure the instep of the skater in place, and by placing it so far backward the strap is inclined at a greater angle to the length of the foot, and more in line with the force tending to separate the heel of the skater from its supporting-plate.

Fuller advantage can in this way be given to the instep-strap to firmly bind the foot down upon the skate, and the line of direction of applied force is more parallel with that of the strain.

The heel-plate F, made solid with the runner, has the button G cast in same piece therewith, and provided with the continuous annular groove *g*. This feature of my skate is a minor point of my invention, and has not the scope of claim consequent thereon, as is the case in the foregoing-described features. It is limited to its special form of construction, and does not include a hasp cast solid with runner and plate, my improvement in this point consisting in the advantage of a button made with a continuous ring-groove over a stud or post made with only a partially annular groove, or rather a recess formed in its forward portion. The latter form, which acts as a hasp, requires the foot of the skater to be forced forward between the sole-clamps, in order to engage the skate, while my button locks the heel of the skater to the skate-plate by a simple half-turn, and gives even double engagement, a bearing on either side of the stud, instead of the single and one-sided engagement otherwise incident.

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

1. A skate constructed with a strengthening-rib or lateral projection, extending about the outer body of the runner, and increasing in transverse sectional dimension as it approaches the sole-plate, whereby the greatest strength is obtained proportionate to the strain brought against the skate, substantially as and for the purpose described.

2. The standard of a skate-runner, provided with a lateral enlargement or projecting rib, cast on its front and rear transverse sides or edges, substantially as and for the purpose described.

3. The laterally-projecting ribs cast with and along the vertical transverse sides of the standard, and increasing in their cross-sectional dimension from the body of the runner up, substantially as described.

4. The combination of the metallic sole-plate of a skate with the double vertical braces rising in increased transverse dimension from the body of the runner, and connected by a horizontal cross-piece, which latter directly secures the sole-plate by a loose rivet-and-slot engagement, substantially as and for the purpose described.

5. A skate whose runner is cast with double vertical braces or columns united at their upper extremities by a horizontal bracket directly supporting the sole-plate, the said braces individually increasing in transverse sectional measurement from the body of the runner up to the said bracket, substantially as described.

6. A skate-runner provided with an oblong opening about midway between the heel-plate and bottom of the runner, said opening formed on an incline to the length of the skate, whereby the strap, when secured over the instep, will not twist within the strap-opening, substantially as and for the purpose set forth.

7. A skate whose stud-button, having an annular locking-groove, is cast complete with the heel-plate and runner, substantially as and for the purpose described.

In testimony that I claim the foregoing I have hereunto set my hand this 10th day of January, 1877.

OLIVER EDWARDS.

Witnesses:

D. W. GOODELL,

H. A. CROSBY.