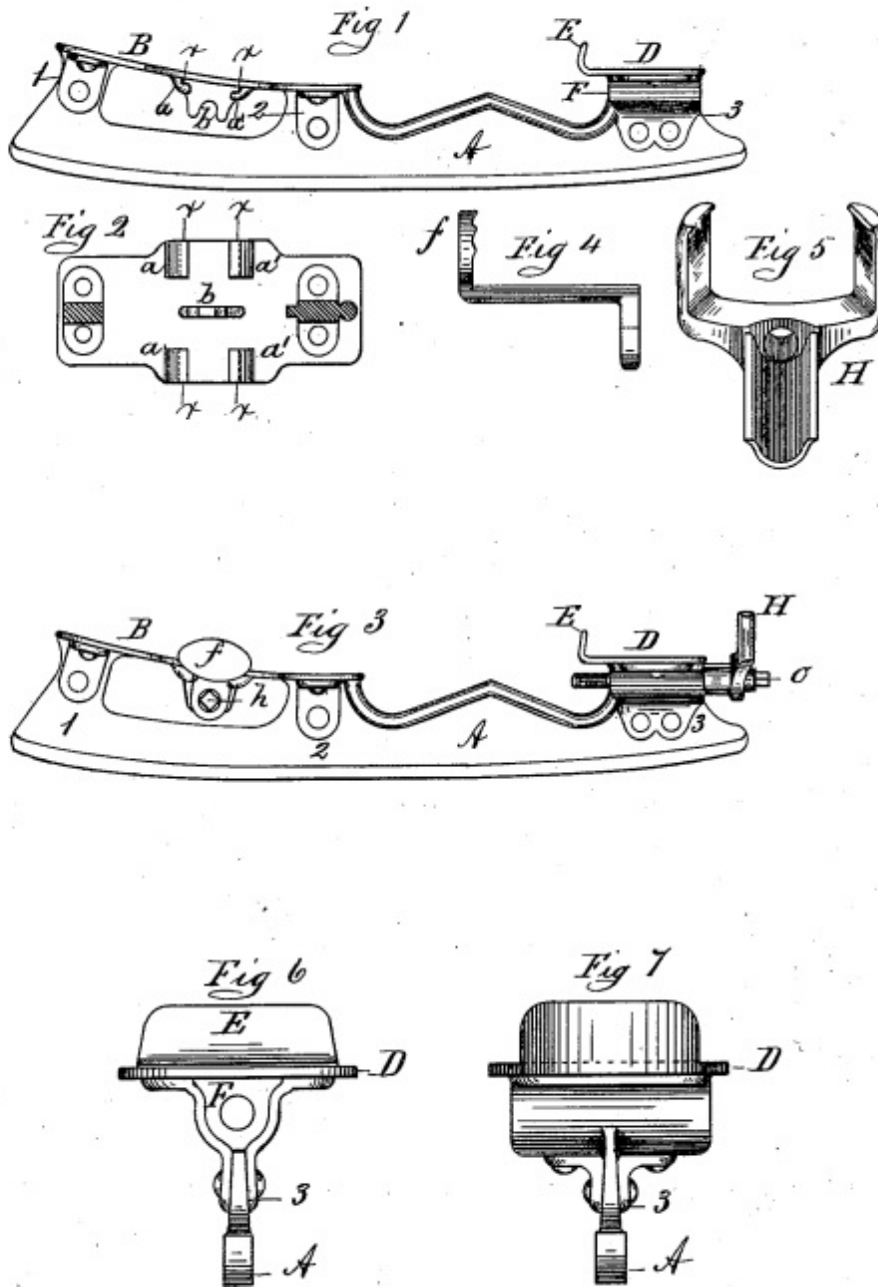


E. H. BARNEY.
Skates.

No. 200,424.

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UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN SKATES.

Specification forming part of Letters Patent No. **200,424**, dated February 19, 1878; application filed January 7, 1878.

To all whom it may concern:

Be it known that I, EVERETT H. BARNEY, of Springfield, county of Hampden, and State of Massachusetts, have invented certain new and useful Improvements in Skates, made principally of cast-iron, which improvements are fully set forth in the annexed specification and in the accompanying drawings.

The object of my invention is to furnish a good serviceable cast-iron skate, produced at small cost, by so casting it that the casting comes from the mold almost completely prepared for the addition of such movable parts of the fastening devices as may be required to complete it ready for use, thereby essentially reducing the cost of manual labor thereon, and increasing the strength and durability of the skate by casting onto it certain auxiliary parts that have heretofore been made separately and fastened on, or cast on partly formed, in malleable iron, and subsequently completed by bending to shape.

Referring to the drawing, Figure 1 is a side elevation of the skate-casting stripped of its fastening parts. Fig. 2 is a plan view of the under side of the sole-pad casting. Fig. 3 is a side elevation of the skate complete. Fig. 4 is a view of one of the sole-clamps. Fig. 5 is a view of the heel-clamp. Fig. 6 is a rear-end elevation of the skate with the heel-clamp removed. Fig. 7 is a rear-end elevation also, but showing the heel-clamp shank-chamber cast transversely under the heel-pad instead of longitudinally, and the upward heel-steadying projection cast on the rear instead of on the front edge of the heel-pad.

My improved skate belongs to that class which are fastened to the foot by the use of screw-clamps operated with a key.

A is the runner of the skate. B is the sole-pad. D is the heel-pad. E is an upward projection on the front edge of the heel-pad. D. 1 2 3 are the standards. *a a'* are clamp-brackets, cast on sole-pad B. *b* is a screw-steadying stud, cast also on the under side of sole-pad B. F is a chamber, cast under the heel-pad and between the side walls of standard 3, in the general form of a cross-section of the shank to heel-clamp H, and of sufficient length

to receive it between the side walls of standard 3. *ff* are sole-clamps. *h* is the sole-clamp screw, and *o* is the heel-clamp screw.

My improvements consist, first, in making the sole-pad B with the clamp-brackets *a a'* cast on the under side thereof in complete form, as shown by my drawing, and between the lower longitudinally-projecting portions of which and the under surface of the sole-pad is formed, in casting, the transverse grooves *xx*, in which slide the edges of the sole-clamps *ff* as they are moved by the screw *h* in a direction at right angles to the runner, or in such a way as to clamp the boot to the skate; secondly, in casting the sole-pad, including the before-mentioned brackets *a a'* and the screw-steadying stud *b*, so that they form, with the standards and runner, a single casting, complete as such, and not requiring any machinery for the addition of the above-named clamps and screw; thirdly, in casting the heel-pad D with the upwardly-projecting piece E cast thereon, said heel-pad, with the said projection E being cast solid with the heel-pad, the standard 3, and the runner; fourthly, in casting the rear standard 3, divided from about midway between the bottom of the runner and the heel-pad longitudinally into two portions, which increase in lateral separation up to their junction with the heel-pad.

By the above-described disposition of standard and heel-pad parts two important ends are served, viz; greater strength is secured in proportion to the metal used, and a chamber is formed under the heel-pad to receive and guide the heel-clamp shank as it is operated by screw *o* to clamp the boot-heel to the skate.

This skate is cast of common gray iron, but may be cast of other metals, if desired.

The end of chamber F, under the forward upturned end of the heel-pad, is tapped to receive the heel-clamp screw *o*, which passes through a hole in the heel-clamp in its outer end and through the V-shaped groove in the shank of the latter.

Tapping said screw-hole is all the machine-work that the body of this skate requires aside from finishing the bottom and sides of

the runner, as the said screw-hole is made in casting, being formed by the end of the core which forms chamber F.

Stud *b* is cast to fit into a groove turned around the center of clamp-screw *h*, between the right and left hand screws on the latter, and said screw and the clamps *ff* are assembled, in a manner already well known, under the sole-pad, and the clamps are held up by and slide in the said cast grooves *xx*.

The upwardly-projecting piece E, cast on the forward part of heel-pad D, is so arranged as to prevent the heel from sliding forward when pressed against by heel-clamp H; but in skates constructed with differently-operating clamping devices, it may be necessary to cast said projection or projections on the rear or on the sides of the heel-pad, the object of them being to prevent the heel from moving either forwardly, backwardly, or laterally.

The combination of the heel-pad and the two side walls of the standard 3 (the said walls increasing in lateral dimension as they rise from the runner to the heel-pad, and whereby the chamber F is formed for the purpose specified) forms one of the strongest modes possible for the construction of this part of the skate, and secures the greatest strength proportionate to the weight of metal used. So, while securing the before-mentioned advantage of great strength in the heel-support, provision is made, without additional cost, for a suitable chamber for the reception of the shank to the heel-clamp H, whereby said clamp is kept in proper position in the rear of the heel, and in which the shank can freely slide to and fro, operated by the screw *o*.

In other styles of skates in which it may be desirable to make the runner separate from the sole-pad and rivet one to the other, the latter may be cast separately, in the manner already specified—that is to say, with the brackets *a a'* and stud *b* thereon. Also, there may be cast upon the under side of the heel-pads of skates which are fastened by clamps similar to those shown under the sole-pad of this skate clamp-brackets like those just mentioned, for supporting the heel-clamps; or the chamber F may be cast transversely across the under side of the heel-pad D, as shown in Fig. 7, and side heel-clamps, with shanks working therein, be used to se-

cure the heel to the skate, said clamps working to and from each other, similarly to the clamps under the sole-pad of this skate; and in this latter arrangement it might be best to cast the heel-steadying projection E on the rear edge of the heel-pad.

I am well aware that there have been cast of malleable iron, upon the under side of the sole-plate of skates, thin projections standing at right angles to the surface of the plate, said projections being subsequently bent inwardly to form brackets for the support of clamps; but such a mode of construction as I have just mentioned is much more costly than mine, and necessitates the use of more costly material than gray-iron casting, and I do not claim that; but

What I do claim as my invention is—

1. A cast-iron skate having the clamp-brackets *a a'* cast in complete form under the sole-pad thereof, substantially as set forth.
2. The grooves *xx*, cast between the brackets *a a'* and the sole or heel plate of a skate, substantially as and for the purpose set forth.
3. The combination, in a cast-iron skate, of the sole-pad B, brackets *a a'*, and stud *b*, said parts all being cast in complete form, and clamps *ff* and screw *h*, substantially as and for the purpose set forth.
4. The standard 3, divided longitudinally into two portions, increasing in lateral separation up to their junction with the heel-pad, substantially as and for the purpose specified.
5. The standard 3, divided longitudinally into two portions, increasing in lateral separation up to their junction with the heel-pad D, its upward projection E, and the rear part of the runner, all cast in one piece, substantially as and for the purpose set forth.
6. The combination of the hollow standard 3, heel-clamp H, heel-clamp screw *o*, heel-pad D, and projection E, substantially as and for the purpose set forth.
7. The chamber F cast in the standard 3, substantially as and for the purpose specified.
8. The heel-pad D and heel-steadying upward projection E cast upon the standard 3, substantially as and for the purpose set forth.

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Witnesses:

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