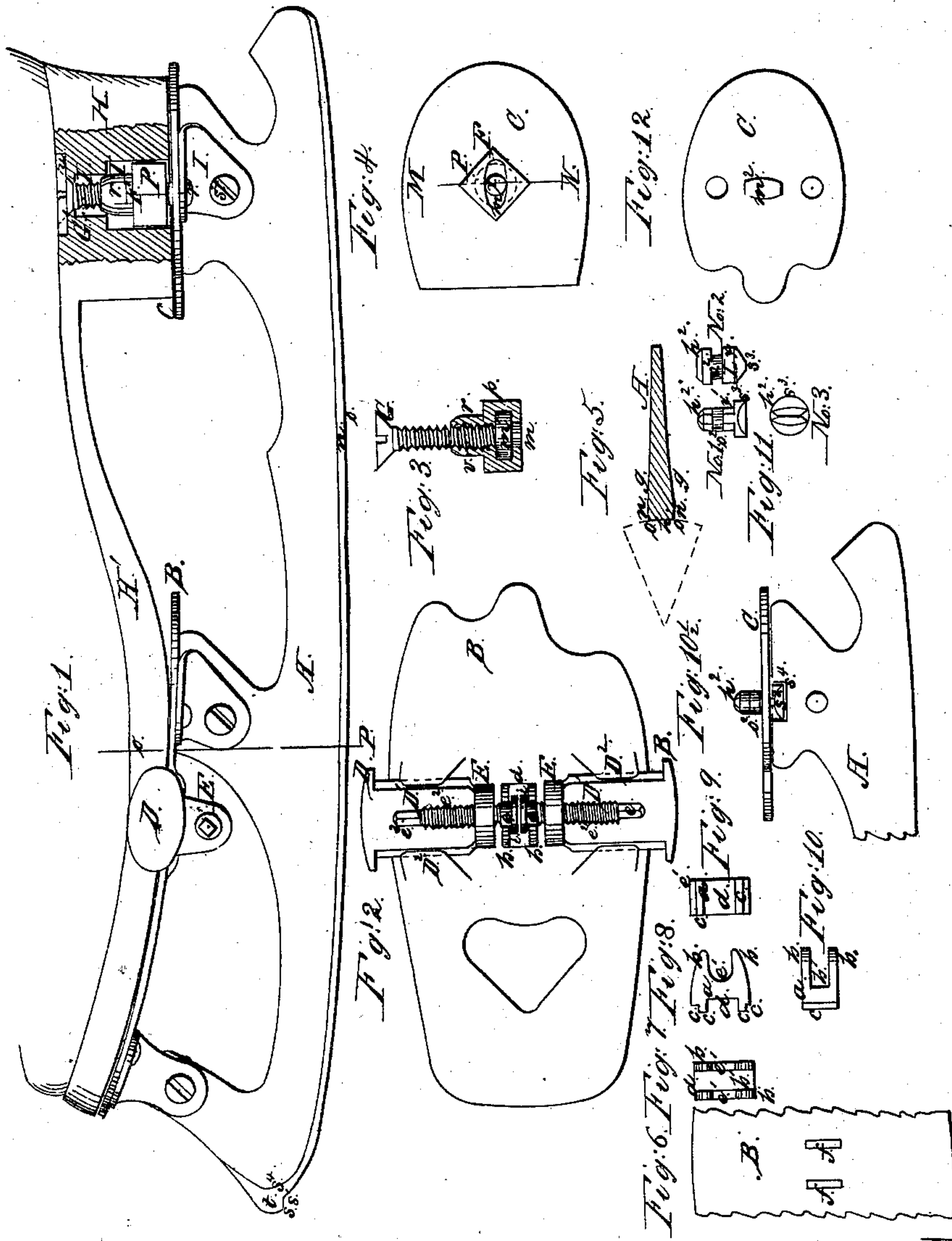


Barney & Berry,

Skate,

No 77,862.

Patented May 12, 1868.



Witnesses,
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United States Patent Office.

E. H. BARNEY AND JOHN BERRY, OF SPRINGFIELD, MASSACHUSETTS.

Letters Patent No. 77,862, dated May 12, 1868.

IMPROVEMENT IN SKATES.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that we, E. H. BARNEY and JOHN BERRY, both of Springfield, in the county of Hampden, and State of Massachusetts, have invented a new and useful Improvement in Skates; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, and to the letters of reference marked thereon, in which—

Figure 1 is a side elevation of a skate, showing the means by which it is secured to the foot or boot.

Figure 2 is a view of the under side of the foot-plate, with the runner and brackets removed, showing our improved arrangement for operating the clamps.

Figure 3 is a vertical transverse section through line M N of the heel-fastening, with view of the fastening-screw.

Figure 4 is a bottom view of the heel-fastening, as it appears inserted in the heel of the boot.

Figure 5 is a vertical transverse section of the runner A, through line O P of fig. 1.

Figure 6 is a view of that portion of the foot-plate to which the stud is attached which secures the clamp-screws.

Figure 7 is a top view of the stud.

Figure 8 is a side view of the same.

Figure 9 is a bottom view of the same.

Figure 10 is an end view of the same.

Figure 11, Nos. 1 and 2, are side views of the heel-button, and No. 3 is an end view of the same.

Figure 12 is a plan of the heel-plate, and

Figure 10½ is a side view of the heel portion of the skate, with bracket removed, showing method of securing the heel-button to heel-plate and runner.

Our invention relates to that class of skates which are made of metal, and known in commerce as "club-skates," and consists in the construction and arrangement of said skate with its toe or foot-clamps, whereby the said clamps may be operated, in adjusting the skate to the boot, one independently of the other, so that the skate may be easily and readily adjusted more upon one side of the sole of the boot than the other, as may be desirable; and it also consists in the construction of the heel-fastening of a skate, whereby the socket, which secures the heel-button of the skate to the boot, may be adjusted as the heel of the boot wears away; and it also consists in the construction of the skate-runner, having a point or projection upon the toe of said runner; and it also consists in the construction of a skate-runner, having the lower edge upon each side chamfered off or bevelled; and also in constructing portions of the heel-button, the hole in heel-plate through which the button is inserted, and the button-hole in the socket-plate, all of the same shape, whereby the button is inserted from the under side of the heel-plate, and secured therein, thus rendering the construction cheaper and more substantial and durable than by the usual construction thereof.

As toe-clamps of metal are generally constructed, the clamps being operated together, and by one and the same screw, the clamps slip through their sockets whenever the skater exerts any great force upon the clamps, so that when he may be performing some difficult evolution, the skate slips from one side to the other of the boot.

To remedy this fault, sharp "spuds," placed upon the top of the foot-plate, have been used; but there are objections to this mode of preventing the skate from slipping upon the boot, as the "spud" often penetrates nearly through the sole of the boot, or far enough to cause the boot to leak in wet weather.

Our invention obviates the necessity of any "spud" in the foot-plate, as the clamps operate one independently of the other, each one being capable of being moved either in or out, without moving the other, and they remain perfectly rigid and firm at any point or position they may be left.

In the use of the common heel-plate, as the heel of the boot wears away, it becomes necessary to move the button-plate further into the heel; but as the ice, snow, and dirt, in walking, get in at the button-hole, and become hard and packed underneath the plate, if it is desired to move the plate farther into the heel, it is oftentimes necessary to entirely remove the plate, clean out the space underneath, and then replace the plate.

Our improvement in the heel-fastening entirely removes any liability to the clogging or packing of snow and dirt, which cannot be easily removed by means of the key, without removing the heel-fastening from the heel, as there is no communication between the button-hole or chamber in the heel-socket, and the space in the heel of the boot in which the socket is placed; and when the heel wears away, it is only necessary to turn a screw from the inside of the boot, when the socket is drawn up, by the action of the screw, farther into the heel of the boot. The socket, perfectly filling the space in the heel, laterally, prevents any snow or even water from entering the boot in walking.

That others skilled in the art may be able to make and use our invention, we will proceed to describe its construction and mode of operation.

In the drawings, $D^1 D^1$ represent the clamp-bars, which move in the sockets $D^2 D^2$, and having at their outer ends the clamps $D D$, and upon their inner ends the ears $E E$, both of which ears have a threaded perforation, in which operate the screws $e^2 e^2$, each of which has upon its inner end the collar i , and upon its outer end the prismatic portion e^3 , upon which to place a key, by means of which to operate the said screws.

The part e of each screw rests in the socket or space e^1 , made in each ear $b b$, the collar i being of larger diameter than the distance across the space e^1 in the stud a , said stud a consisting of a suitable piece of metal, upon which are two projections or ears $b b$, with a space, b^1 , between, and having a socket or bearing, e^1 , in each ear, and upon the lower end of the stud a are two projections $c c$, which fit closely into the holes $f f$, made in the foot-plate B .

The stud a being placed or secured in the foot-plate B , and the parts $e e$ of the screws $e^2 e^2$ being placed in the sockets $e^1 e^1$, and the ends $e^3 e^3$ inserted into the threaded holes in the ears $E E$, and turned through, so that the bars $D^1 D^1$ shall be drawn into their sockets $D^2 D^2$, the clamps are ready for use. In practice, it will only be necessary to mill or cut out sufficient space to permit the collars $i i$ to be inserted vertically into the said space, instead of cutting out the whole space b^1 , as shown in the drawings; as, in that case, the two ears $b b$ would be connected across the ends of the stud, thus giving additional strength to the ears.

The heel-socket consists of a suitable piece of metal, F , consisting of the rectangular-shaped portion p , and the neck r , the lower portion having the cylindrical chamber m' , with an elliptical-shaped entrance or button-hole m , the neck r having a threaded hole, v , made therein, in which works the screw G . A space or chamber, I , is made in the heel of the boot, in which fits tightly the lower part p of the socket F , as represented in red lines in fig. 1, and a smaller chamber, I' , is made, into which fits the neck r , said chamber I' having an entrance from the top, sufficiently large to permit the passage of the screw G . A washer, u , may be fitted into the inside of the boot, so that, when the screw is turned into the neck r from the inside of the boot, the screw-head and washer may not project up into the boot, and a thin insole or flap may be laid over the screw in the boot, if desirable. This arrangement has a great advantage over the common plate used, as oftentimes the outward strain of the latter against the lower portion of the heel of the boot pulls the heel entirely off the sole; while, in our arrangement, the whole outward strain of the skate is exerted against both the inner and outer sole together.

We make the toe of the skate of the usual form given to that class of skates known as "club-skates," except that the point t is formed thereon, which projects forward beyond the line s' of the runner A sufficiently to catch in the ice whenever the heel is raised, to enable the skater to more easily and certainly retain his position upon the toe of the skate, in performing the more difficult evolutions upon the toes; and this we consider to be a valuable feature of our invention, as by the use of the said points or projections, the skater is enabled to perform evolutions upon the ice which cannot be performed without the use of skates having said points or projections thereon.

The lower edge or surface k of the runner is made upon the arc of a circle, or concave transversely, as shown in fig. 5, and the sides $g g$ of the runner A are also made concave, so that the edges formed by the surfaces which meet at the lower edge of each side of the runner, would be very sharp, and cut too deeply into the ice.

We therefore chamfer off or bevel the edges, as shown at $n n$, which causes the runner to glide more smoothly upon the ice, and gives the skater greater control over the skate. In chamfering off these edges, some may prefer that the point or projection t should not be chamfered at all, while others might prefer some bevel thereon. It is not essential in this feature of our invention that said point should be chamfered or bevelled at all, as it is equally operative without such bevel.

Figs. 10 $\frac{1}{2}$, 11, and 12, show the method of securing the heel-button to the heel-plate, m^2 representing an elliptical-shaped hole in the heel-plate C , of a size to admit the insertion of the button k^2 , and its neck x' , said neck fitting closely into said hole m^2 , and the said button k^2 and neck x' are inserted from the under side of said heel-plate, and the shoulders at the upper side of the neck x' are then headed down from the upper side, and the whole button is then firmly secured in said heel-plate, the shoulder s^3 preventing any possibility of its being drawn up through said heel-plate, as is often the case with skates as now constructed. The form of the shoulder s^3 , as shown in No. 1 of fig. 11, fits a recess, s^4 , made in the upper part of the runner A , immediately under the heel-plate, thus rendering the said heel-plate stronger, as to its liability to any longitudinal movement. By this construction we are enabled to mill or form the neck x' and button k^2 at one and the same operation, which reduces the cost in the manufacture; and they are put together much quicker and easier, and are more substantial when the said button is made, having the large shoulder s^3 upon the lower end, and introduced into the hole in the heel-plate from below, than when made with the shoulder above, and introduced from the top, and riveted underneath.

In the use of the clamps above described, there are many advantages over the ordinary single-screw clamps, some skaters preferring to operate the screw from the outside of the foot, and this arrangement admits of the

use of the key by the right hand alone in operating the screw upon the outside of the right foot and the inside of the left one, this class of skates generally being made in "rights and lefts," as it is termed.

Another advantage which may be mentioned is the perfect and uniform adjustability to any desired portion of the sole of the boot, and said adjustment always remaining permanent by the use of only one screw in attaching and detaching the skate to and from the boot, when once the desired adjustment is attained.

We are aware that various devices and arrangements have been used for securing skates to the boot, as in Letters Patent granted to P. J. Clark, bearing date February 5, 1861, and numbered 31,348, and to U. Josephs, granted May 3, 1859, and numbered 23,844, and also to O. G. Brady, dated September 22, 1862, and numbered 36,503; but our invention differs very materially from said devices, both in construction and their mode of operation, inasmuch as in our invention the operation of the clamps alone adjusts the skate to the boot without the aid of any other adjusting-screws, and in other particulars; and we disclaim any and every part of said devices irrespective of our arrangement and construction; but having described our invention,

What we do claim as new, and desire to secure by Letters Patent, is—

1. The heel-socket F, consisting of the portion *p*, having the button-socket therein, and the threaded neck *n*, and operated by means of the screw G, thus securing the skate to the inner sole of the boot, all constructed and operating substantially as described, and for the purposes specified.

2. We claim a skate, having the point or projection *t* formed upon the toe of the runner, substantially as described, and for the purposes specified.

3. We claim a skate, having a concave bottom, with the chamfered or bevelled sides *n n*, substantially as described and herein set forth.

4. We claim the heel-fastening to a skate, having the neck *x'*, the button *h²*, the hole *m²*, in the heel-plate C, and the hole *m* in the button-socket, all of the same shape, the button *h²* and stem having upon its lower end the larger portion *s³*, substantially as described.

E. H. BARNEY,
JOHN BERRY.