(No Model.) 2 Sheets—Sheet 1.

U. WIERDA.

SKATE.

No. 475,650. Patented May 24, 1892.

Fig. 1.

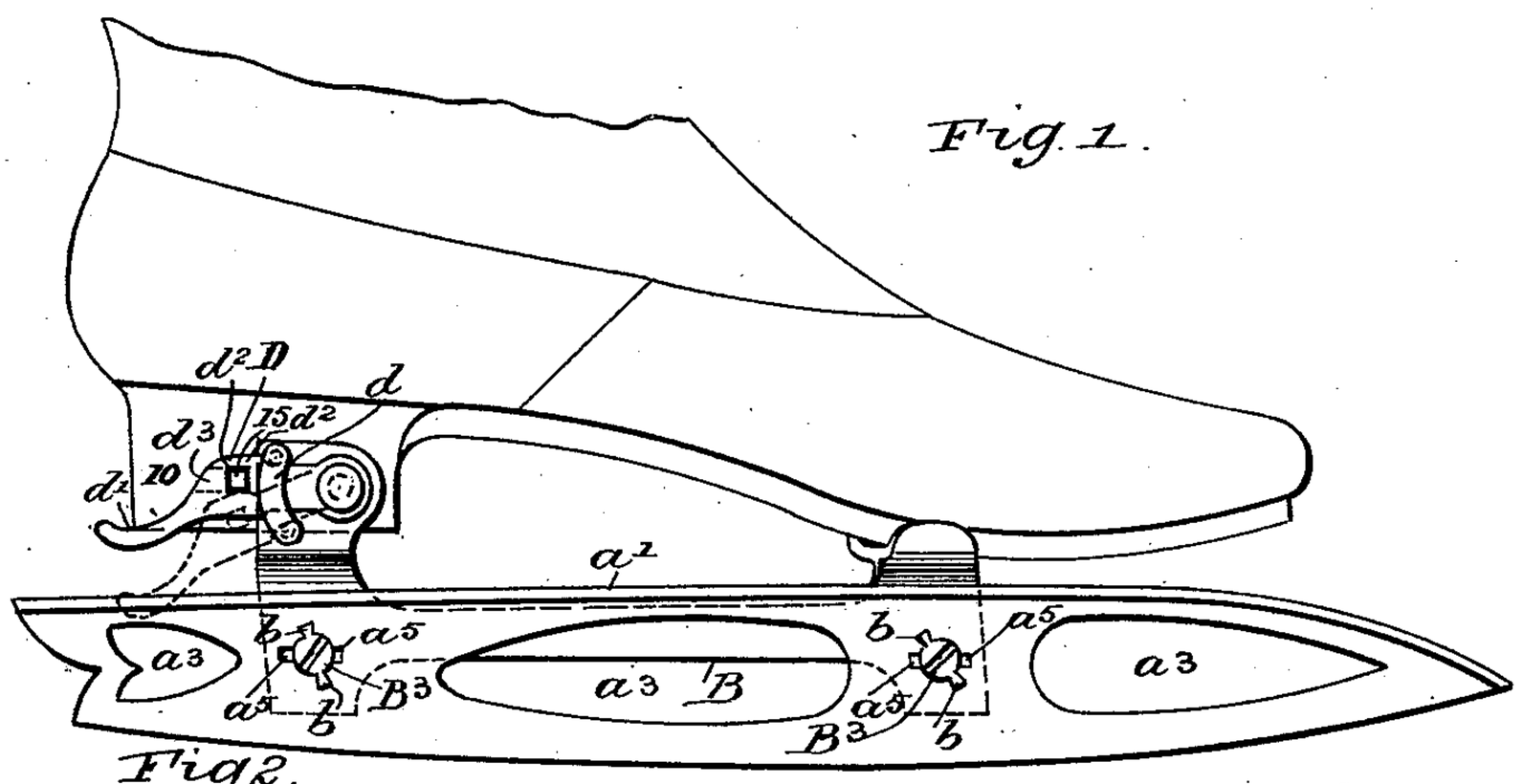


Fig 2.

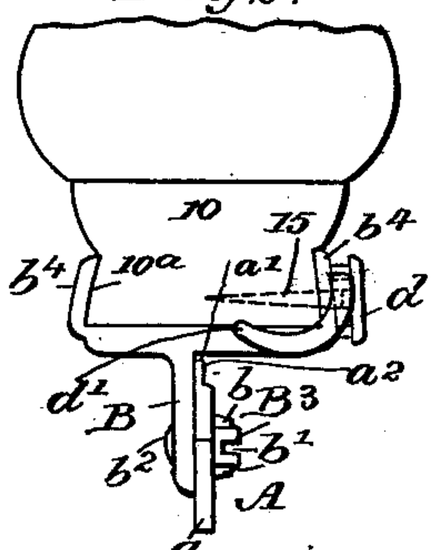


Fig. 3.

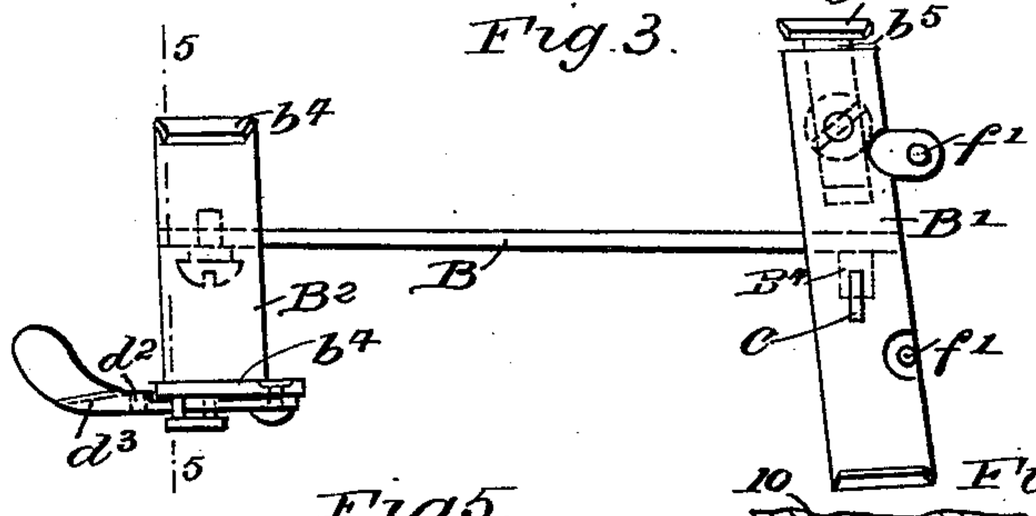


Fig 4.

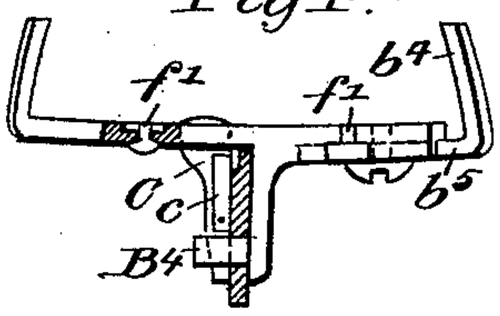


Fig 5.

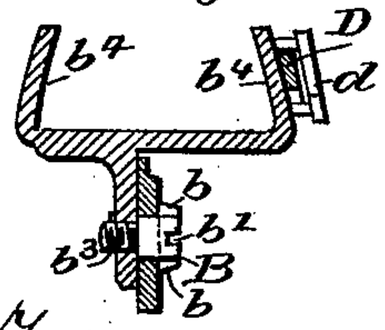


Fig 7.

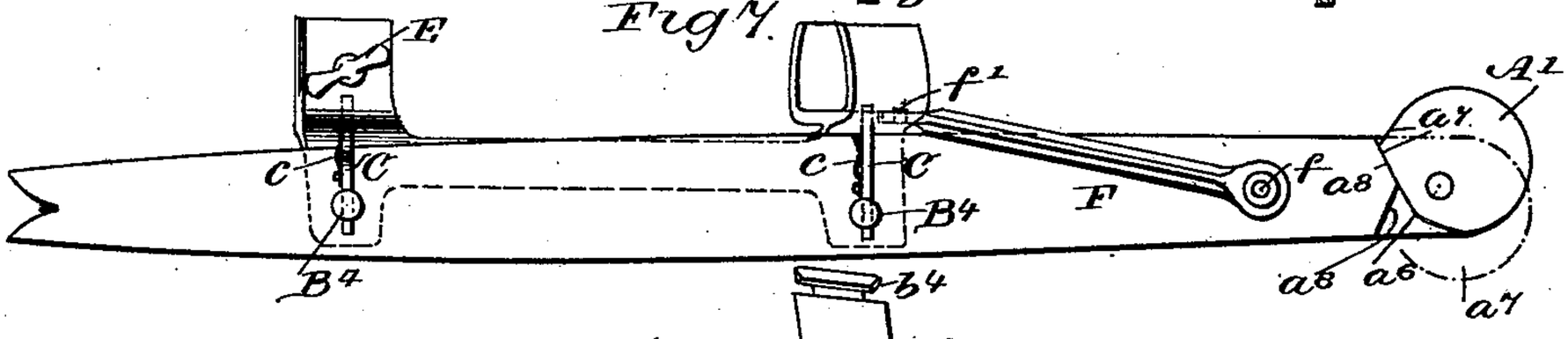
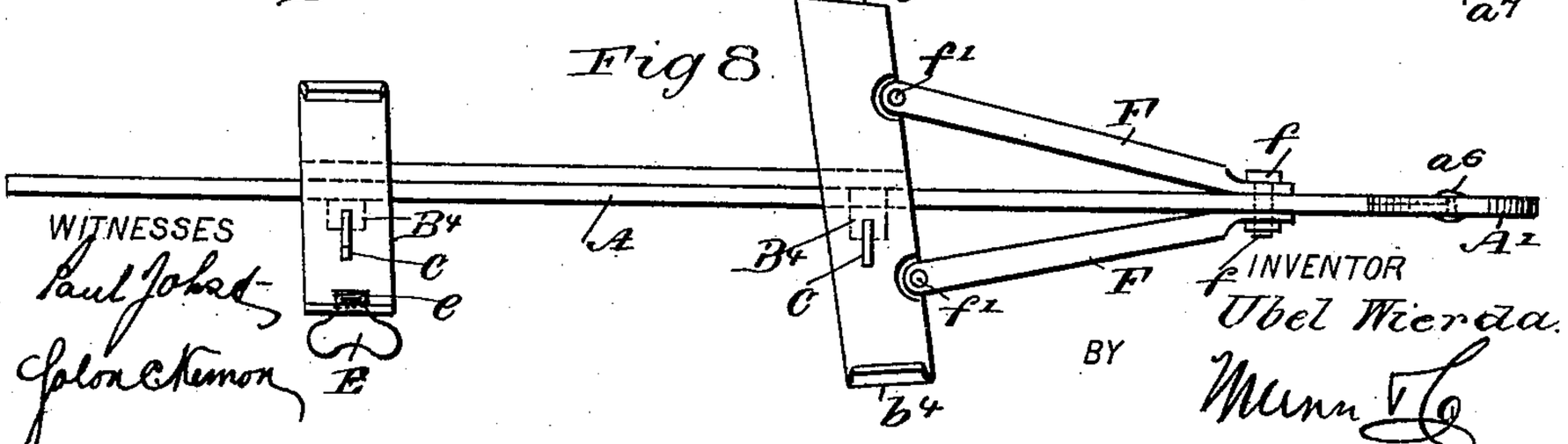


Fig 8.



WITNESSES
Paul Johnd
Solon C. Kemon

INVENTOR
Ubel Wierda.
BY
Munn & Co
ATTORNEYS.

(No Model.) 2 Sheets—Sheet 2.

U. WIERDA.

SKATE.

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Fig. 9.

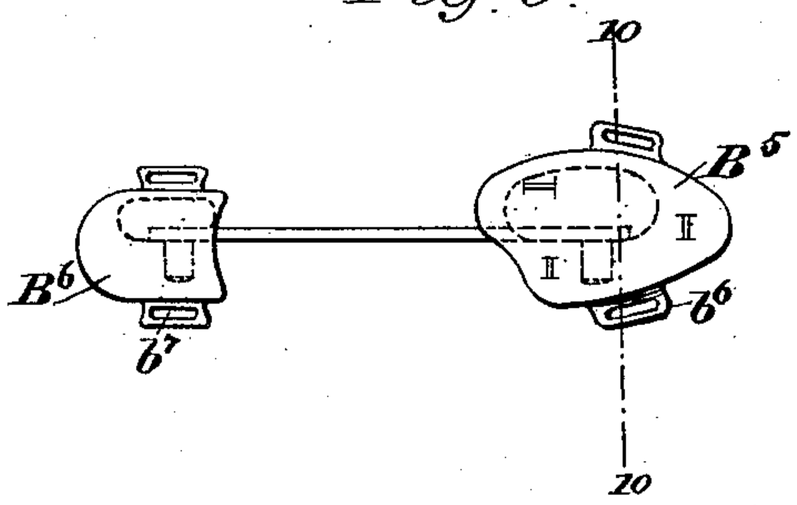


Fig. 10.

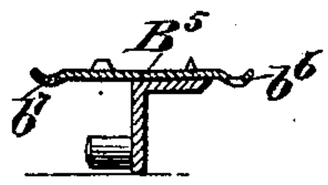


Fig. 11

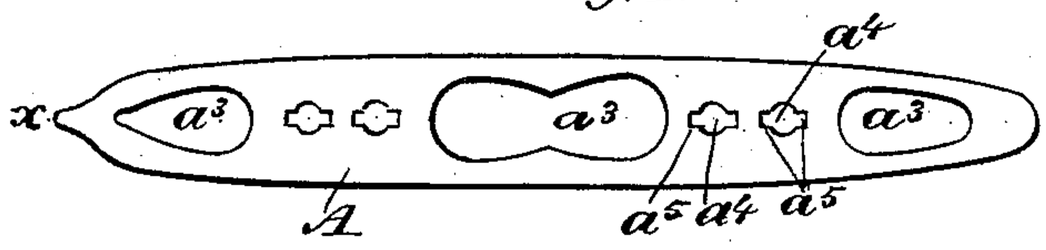


Fig 12.

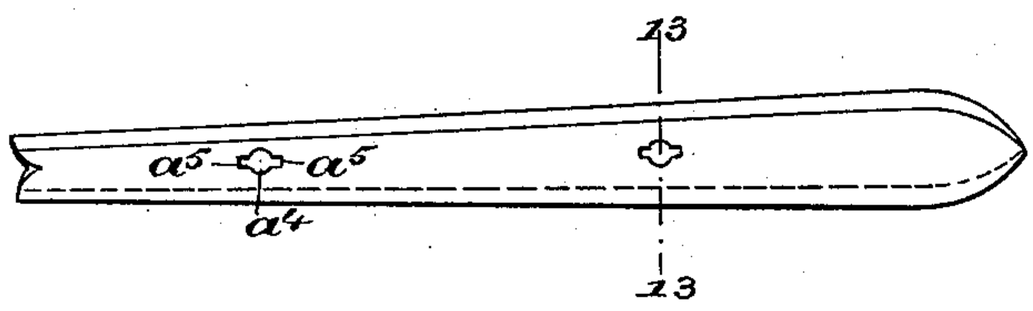


Fig. 13.

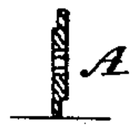


Fig. 14.

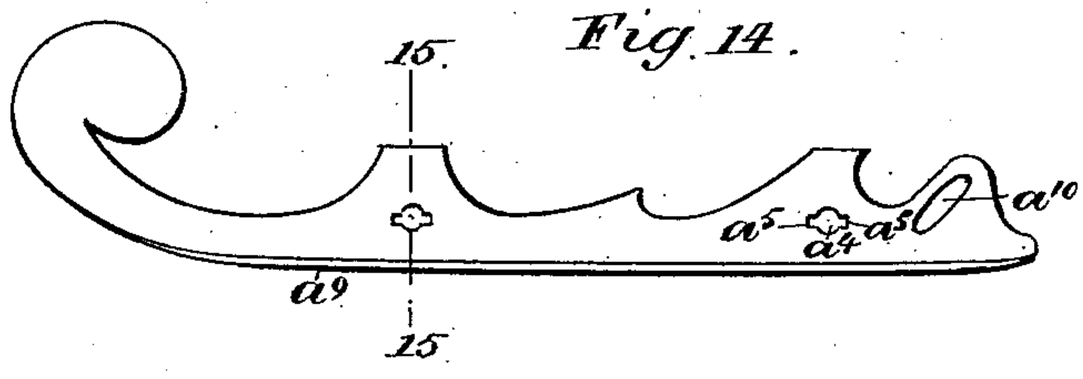
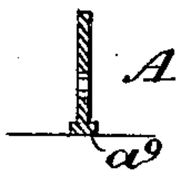


Fig. 15.



WITNESSES:

Paul Johst.

C. Sedgwick

INVENTOR:

U. Wierda

BY Munn & Co

ATTORNEYS

UNITED STATES PATENT OFFICE.

UBEL WIERDA, OF WINSUM, NETHERLANDS.

SKATE.

SPECIFICATION forming part of Letters Patent No. 475,650, dated May 24, 1892.

Application filed April 30, 1891. Serial No. 391,046. (No model.)

To all whom it may concern:

Be it known that I, UBEL WIERDA, a subject of the Queen of Holland, and a resident of Winsum, in the Province of Groningen, in the Kingdom of Holland, have invented new and useful Improvements in Skates with Reversible Blades, of which the following is a specification.

The invention relates to ice-skates; and the present improvements include a detachable blade, which is preferably made reversible and formed with two different styles of running edges; and, further, the invention includes novel means of holding the blade to the skate-body or foot-plate, all as hereinafter particularly described, and defined in the claims.

No skate has been hitherto produced which could at will be conveniently used for various kinds of skating. As is well known, the blades of skates for long-distance traveling or racing are thinner than and differently ground to those used for ornamental and figure skating. Further, the racing-skater requires the blades to be of various thicknesses and to be ground differently for hard or soft ice, and in order to be ready for all emergencies he must always carry with him a number of different kinds of skates. This invention removes all these inconveniences, as the actual blade is removably attached to the foot-piece or foot-iron and is ground differently on both edges, so that it can be used either for long-distance, ornamental, or figure skating. There is thus obtained with one pair of blades skates serving for two different purposes which can be easily taken to pieces to be cleaned and the blades reground. All the blades can be made to fit one foot-plate and can be used for various purposes and on various kinds of ice.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters and numerals of reference indicate corresponding parts in all the figures.

Figure 1 is a side view of a skate adapted for the left foot, shown attached to a shoe. Fig. 2 is a rear elevation thereof. Fig. 3 is a plan view of the skate-body or foot-plate. Fig. 4 is a front view. Fig. 5 is a vertical section on line 5 5 in Fig. 3 with the sole-plate of the skate-body omitted. Fig. 6 is a vertical section showing a different mode of fastening. Fig. 7 is a side view of a long-racing skate embodying my invention. Fig. 8 is a plan view thereof. Fig. 9 is a plan view of a modification wherein provision is made for employing straps for securing the skate in place. Fig. 10 is a cross-section on line 10 10 of Fig. 9. Figs. 11, 12, and 14 illustrate different forms of blades adapted to be interchangeably attached to the body or foot plate. Fig. 13 is a cross-section on line 13 13 of Fig. 12; and Fig. 15 is a cross-section on line 15 15, Fig. 14.

The skate-blade A (shown in Figs. 1 and 2) is formed with a comparatively broad edge a (the lower one in the drawings) and longitudinally curved, and at the opposite edge it is ground to a substantially straight edge a', and the said blade at and near the said straight edge is of reduced cross-section, as indicated by the letter a^2. Further, in order to reduce the weight of the blade portions of the same are or may be removed, as at a^3 a^3 a^3.

The longitudinally-curving edge a is suitable for fancy and figure skating, and the edge a' is adapted for speed-skating, the blade thus forming a duplex skate-blade. The blade A is reversible and is therefore detachably held to the skate-body B. The body B consists of an elongated bar, to which are secured or on which are formed the sole-plate B′ and heel-plate B^2, Fig. 3. Below the said sole and heel plates the body B is provided with suitable studs for engaging the blade A. In the form shown in Figs. 1 and 2 these studs (indicated by the letter B^3) are so secured to the body B as to be capable of turning and are formed with laterally-projecting lugs b, and with studs so formed a skate-blade having openings or recesses a^4 a^5 is employed, as shown best in Figs. 11, 12, and 14, the recesses a^5 extending laterally from the mainly circular openings a^4. Thus it will be seen that when the studs are so turned as to be coincident with the corresponding openings a^4 a^5 the said studs may be readily passed into the said openings in the blade, and when the studs are given a partial rotation the lugs b will be brought out of register with the recesses a^5 of the openings, and thus lock the blade securely in place. The stud may be conveniently turned

by placing a skate-blade, knife-blade, or other device in the slot b' thereof. The form of stud just described is shown in Figs. 1, 2, and 5 and at the heel portion of Fig. 3.

In Fig. 2, the stud B^3 is shown as secured by upsetting its end b^2 and in Fig. 5 by a threaded connection b^3. It may in practice be secured in any suitable manner.

In Figs. 4, 6, 7, and 8 and at the front of Fig. 3 is shown a construction in which the blade A is locked in place by a key C. In this form the stud B^4 is preferably fixed, and it is formed with a vertical aperture or opening for receiving the lower end of the key C, the latter being movable vertically in a vertical opening in the heel-plate B^2 or sole-plate B', as the case may be. In practice the key C is raised clear of the locking-stud B^4 and the latter passed through the openings made therefor in the blade A, after which the key C is lowered to enter the stud B^4, thus securely holding the blade to the skate-body. The lower end of the key C is wedge-shaped, which prevents it from dropping through the opening in stud B^4. The key is held against upward movement by the heel of the shoe, as at 10. In order that the key may be held against displacement when the skate is removed from a boot or shoe, a plate-spring c is employed, which is effective for its purpose. This spring c is secured at its lower end to one side of the key above the stud B and is bowed outward, so that when the key is passed down through the opening in the heel-plate the spring will yield and then expand and prevent upward movement of the key through said opening.

The openings in the skate-blade that receive the locking-studs B^3 or B^4 are formed at one side of the longitudinal center, in order that the edge for speed-skating may be projected a greater distance from the body than in the case of fancy or figure skating.

The sides of the sole and heel plates are bent upward and slightly inward, as at b^4, in order to better clamp the sole and heel, and the heel 10 is preferably undercut, as at 10^a, to enable the clamp b^4 to take firm hold even when the heel shall have become worn. The sole-plate is preferably arranged diagonal to the body, and one of its clamping-ears b^4 is formed on an adjustable section b^5, as best shown in Fig. 4.

For skaters who prefer employing straps a suitable skate-body is provided, as in Figs. 9 and 10. In this form the sole and heel plate B^5 B^6 are of the general contour of the sole and heel of a boot or shoe and are provided with laterally-extending lugs b^6, having slots b^7 for receiving straps.

To guard against any longitudinal play of the skate when adjusted on a boot or shoe, the heel 10 of the latter is provided with a pin or stud 15 at one side, which stud is adapted to contact by its outer end with the back edge of one of the clamps b^4, and thus limit the forward movement of the boot. The stud 15 is adapted to be engaged by a spring-latch D, which is pivotally secured at one end to one of the clamps b^4 to have a vertical movement within the limits of a keeper d. The outer end of this spring-latch is formed with a thumb-piece d'. The latch may thus be forced outward and upward and allowed to spring inward, whereby the stud 15 on the boot-heel will enter an aperture d^2 in said latch, and thus further secure the skate in place.

If desired, a groove d^3 may be provided in the inner face of the latch D to lead to the aperture d^2, as indicated in Figs. 1 and 3. With this construction the shoe may be moved forward upon the heel-skate when securing the latter, and the stud 15 thus enter the groove d^3 and finally the aperture d^2 and without the wearer taking hold of the latch D.

A modification of the last-named feature is shown in Figs. 6, 7, and 8. In this form the stud 15^a in the heel 10 is threaded at the outer end and it does not project beyond the heel 10; but the material of the heel immediately around said outer end is removed, in order to enable the internally-threaded shank e of a winged screw E to be screwed over said threaded stud. The wing-screw E is also externally threaded and passed through the clamp b^4 of the heel-plate, and then engages by its internal threads with the threaded stud or pin 15^a of the heel.

In Figs. 7 and 8 there is shown a blade specially adapted for racing long distances, the same having long broad edges. In order to prevent any bending of the long blade, two stays F F are employed, the same being pivoted at one end to the blade A, as at f, and adapted to engage by their opposite ends with studs f' on the sole-plate B'. When the blade is reversed, the stays F are correspondingly turned, and in either portion of the blade they will engage their studs f. In the last-mentioned figures, also, the curved forward end A' of the blade is formed in a separate piece and is eccentrically pivotally secured to the body by a pivot a^6. The end A' at a portion of its periphery is formed with the angular straight edges a^7 a^7, which are each adapted to contact with the angularly-shouldered forward end a^8 a^8 of the body of the blade. With this construction the circular edge of the pivoted end A' may be brought into alignment with and form a continuation of that edge of the blade which is lowermost.

In Fig. 11 is shown a skate-blade having two pairs of holes or openings a^4 a^5 for receiving the locking-studs B^3 or B^4, alternate holes being adapted to engage said studs. As the blade is reversible, this enables it to be secured in eight different positions. To perform the "Pirouette," the point x may be brought either to the back or front of the skate. For the different styles of skating and the different conditions of the ice variously-fashioned edges may be provided. In Figs. 12 and 13 both edges are reduced in cross-section.

In the form shown in Figs. 14 and 15 there is shown a skate suitable for ladies or children in figure-skating. It has but one broad cutting-edge a^9 and is quite low. A slot a^{10} is produced at the heel for receiving a strap.

From the above it will be seen that blades suitable for all styles of skating and for hard or soft ice may be provided and interchangeably employed in connection with one common body and the latter may be fashioned to suit individual tastes as to the means of securing the skate on the shoe or adjusting the blade.

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

1. An invertible skate-blade provided with the pivoted end piece A′, having a rounded edge, substantially as set forth.

2. The combination, with the flat plate B, set vertically edgewise and provided on its upper edge at its ends with rigidly-attached heel and foot plates, and studs on one side of the said flat plate, of a blade resting flatwise against one face of the plate B throughout the entire length of said plate and having apertures through which said studs pass, and means for securing the blades on the studs, substantially as set forth.

3. The combination, with the flat plate B, set vertically edgewise and having heel and foot plates rigidly secured on its upper edge and provided with transverse headed studs, the said heads being provided with peripheral projections $b\ b$, of the blade resting flatwise against one face of plate B throughout the entire length thereof and having transverse apertures to receive the studs, and recesses a^5 to register with the projections $b\ b$ and hold the blade on the studs when the projections and recesses are out of register, substantially as set forth.

4. The combination, with the flat plate B, having heel and foot plates on its upper edge, and transverse rotary studs provided with heads having projections, of the reversible blade resting flatwise against one face of plate B throughout the entire length thereof and having transverse apertures a^4 and communicating recesses a^5 to register with the stud-heads and their projections, whereby by turning the studs their projections may be thrown out of register with the recesses to lock the blade on the studs, substantially as set forth.

5. A skate provided with rigid heel and foot plates having the heel and sole engaging lugs on opposite sides, inclined as shown, of a spring-latch secured to one of the heel-lugs and having an aperture to receive a projection inserted in the heel of a boot or shoe, substantially as set forth.

6. A skate having opposite heel-engaging lugs $b^4\ b^4$, in combination with a latch D, pivoted to the outer face of one of the lugs and apertured between its ends at the rear end of said lug to receive a projection secured on the boot or shoe heel and having a handle portion d', substantially as set forth.

7. The combination, with a skate having heel-receiving lugs at its opposite sides, of a transverse wing-screw E, projecting through one of said lugs and longitudinally bored at its inner end to receive a pin projecting from the boot or shoe heel, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 6th day of March, 1891.

UBEL WIERDA.

Witnesses:
ANTHONI KEIZER,
JACOBUS VAN LITH.