

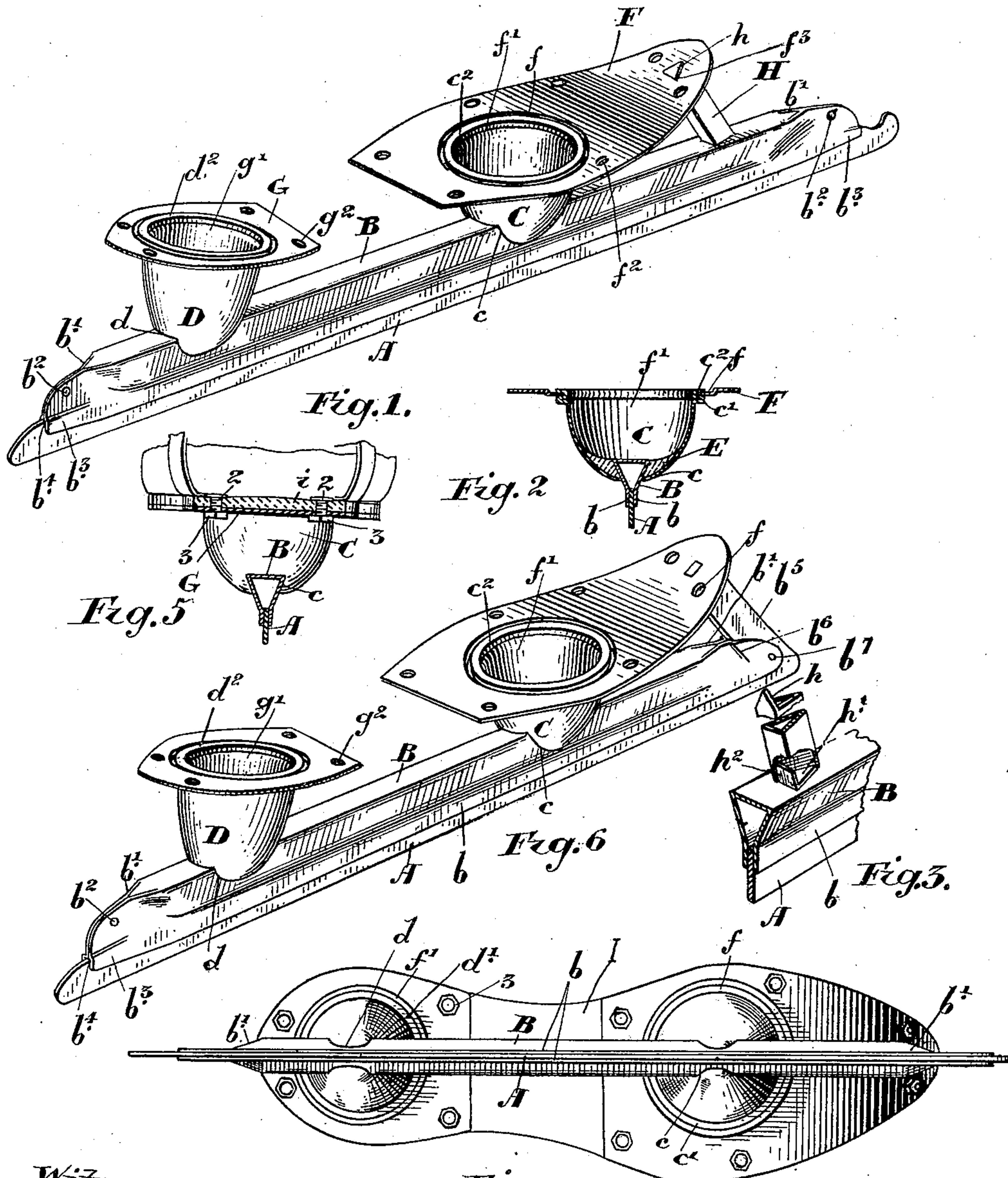
No. 612,028.

Patented Oct. 11, 1898.

A. D. FISHER.  
SKATE.

(Application filed Dec. 7, 1897.)

(No Model.)



Witnesses.  
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Fig. 4.

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# UNITED STATES PATENT OFFICE.

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## SKATE.

SPECIFICATION forming part of Letters Patent No. 612,028, dated October 11, 1898.

Application filed December 7, 1897. Serial No. 661,101. (No model.)

*To all whom it may concern:*

Be it known that I, ALEXANDER DOUGLAS FISHER, manufacturer, of the city of Toronto, in the county of York, in the Province of Ontario, Canada, have invented certain new and useful Improvements in Skates, of which the following is a specification.

My invention relates to improvements in skates; and the object of the invention is to devise a light, strong, and durable skate; and it consists, essentially, in making the blade or runner of a thin steel held rigid by a triangular tubular support having end shoulders against which the ends of the blade abut and upon which the weight of the foot is supported, the triangular tubular support having connected to it the substantially conical-shaped cups for supporting the sole and heel of the boot, such cups being connected by a dovetailed slot to the triangular support and by a double seam to the heel and sole blades and the parts being soldered together in the manner hereinafter more particularly explained.

Figure 1 is a perspective view of my preferred form of skate for general use. Fig. 2 is a cross-section through the blade, triangular tubular support, and cup and plate. Fig. 3 is a sectional perspective detail showing the manner of attaching the front post to the triangular support. Fig. 4 is a plan view showing the means of attaching the skate to the boot. Fig. 5 is a cross-section showing the fastenings. Fig. 6 is a detail of an alternative form suitable for hockey-skates.

A is the blade of the skate, which is preferably made of thin sheet-steel.

B is a triangular tubular support formed so that the apex is at the bottom and the base at the top, the continuation of the sides  $b$  being parallel and extending on both sides of the blade A, to which they are soldered from end to end. The ends of the tubular support B are tapered until the sides meet at  $b'$  above the blade, such sides being held together by rivets  $b^2$ . The sides  $b'$  have downwardly-extending L-shaped flanges  $b^3$  at each side of the blade, thus forming a shoulder  $b^4$ , against which the top of the blade abuts. The construction is the same at each end of the skate, and both shoulders  $b^4$  serve to sustain the weight of the tubular support upon

the blade, thus relieving the solder on the sides  $b$  throughout the length of the blade from any strain and consequent tendency to part asunder.

The top of the tubular support is preferably flat, as indicated, and has connected to it the conical cups C and D. The sole and heel conical cups C and D have formed at the apex thereof the dovetailed slots  $c$  and  $d$ , by which they are slipped onto the ends of the triangular tubular support and held in position, it being of course impossible, as will be understood from the shape shown particularly in Fig. 2, for the cones to be withdrawn, come apart, or become loose upon the triangular support, especially as I use solder E at the interior of the cone at each side of the triangular support. The upper end of the conical cups C and D have formed or spun up upon them beads  $c'$  and  $d'$ , upon which the edges  $f$  and  $g$  of the holes  $f'$  and  $g'$  of the sole and heel plates F and G, respectively, rest. The upper edges of the conical cups C and D are turned over into gripping-flanges  $c^2$  and  $d^2$ , between which and the beads  $c'$  and  $d'$  are gripped or held the edges of the holes  $f'$  and  $g'$  of the sole and heel plates F and G, respectively. By this means it will be readily seen that the plates F and G are secured to the conical cups C and D without the use of rivets or solder in a very rigid and secure manner.

The plates F and G are provided with screw-holes  $f^2$  and  $g^2$ , by which they may be secured to the bottom of the boot.

H is a toe-piece, which is made, preferably, triangular in form and has a triangular upper end  $h$ , which is passed through a slot  $f^3$  in the plate F and bent over, so as to secure the upper end of the toe-piece in position. The lower end of the toe-piece H is provided at its interior with a triangular plate  $h'$ , having a rear upper extension  $h^2$ . This plate  $h'$  is soldered to the flat top of the triangular support, and as the solder is passed around to the outside of the extension  $h^2$  the lower end of the post is also firmly secured to the upper side of the triangular tubular support B.

In Fig. 6 I show a different form of toe more applicable for hockey-skates. In this form the blade A is made with the ordinary



obliquely-formed toe portion A', which is riveted at the top in the plate F in the usual manner. In this case the front end of the tubular support will be provided with a shoulder  $b^5$ , formed by the flanges  $b^6$  at an incline parallel to the toe portion of the blade and the shoulder abutting the rear side of the toe portion. A rivet  $b^7$  is in this case provided, which extends directly through the blade.

In Figs. 4 and 5 it will be noticed that I secure the skate to the shoe by means of bolts and nuts 2 and 3. The bolts are inserted through the sole  $i$  of the shoe I, such bolts having very flat heads, which sink into the leather of the sole, and thereby form no obstruction which will hurt the foot. The bolts 2 pass through the sole and through the holes  $f^2$  and  $g^2$  in the plates F and G and are secured in position by means of the shallow nuts 3.

The shoe I use with my skate has no heel, and it will be noticed that I make the conical cup D much higher than the cup C in order to provide for this deficiency. The utility of the hollow cups will consequently be understood.

From the construction above described it will be readily seen that the blade is effectually prevented by the shoulders  $b^4$ , hereinbefore described, from being forced up into the triangular tubular support and the solder is altogether relieved from any strain. All the parts are made of steel and light and the conical cups are securely held to the support, and the skate throughout is of an extremely strong and light construction.

In my form of skate, also, the hollow cups in the sole and heel portions of the skate form a cushion for the ball of the foot and the heel, whereby they are rendered much more comfortable than by the solid plates now commonly in use, as the cords of the foot are prevented from becoming strained or being made sore.

What I claim as my invention is—

1. In a skate, in combination a flat blade, a triangular tubular support with the flat base thereof presented upwardly, the ends of said support being converged to provide vertical extensions formed of the vertical sides of said support, said sides being bent to provide angular shoulders or seats for the upper edge of said blades.

2. In combination, the blade and a triangular tubular support secured thereto, having the ends thereof converged to form vertical portions, and a fork in each vertical portion extending downwardly to provide a seat for the blade.

3. In combination, the blade, a tubular cup and the support connecting the cups to said blades, said support being triangular in cross-section with the flat base thereof presented uppermost, said cups having corresponding slots therein to fit said support, substantially as described.

4. In combination, the blade, the tubular cups and the support connecting the cups to said blades, said support being triangular in cross-section with the flat base thereof presented uppermost, said cups having corresponding slots therein to fit said support, and the solder inserted between the flat sides of said support and the cups, substantially as described.

5. In combination in a skate, a runner, cylindrical heel and toe cups having the upper ends open and the heel and toe plates having corresponding openings secured to said cups, substantially as described.

6. In a skate, in combination the blade, the triangular tubular support connected thereto, the sole and heel plates, means for supporting them on the triangular tubular support and the toe-piece provided with a bent upper end extending through a slot in the sole-plate and having the lower end soldered to the top of the triangular tubular support and a triangular reinforcing-piece with upturned lip located within the triangular toe-piece as and for the purpose specified.

7. In a skate, in combination, the blade, the tubular support connected to the blade, the hollow cups connected to the tubular support and provided at the upper end with a bead and flange, the sole and heel plates with circular openings in them having depressed flanges around such openings, such flanges being designed to fit between the upper bead of the cup and the top flange, so that such latter flange is flush with the top of the plate as and for the purpose specified.

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Witnesses:

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