

April 17, 1928.

1,666,690

C. B. DREVITSON

SKATE

Filed June 30, 1927

Fig. 1.

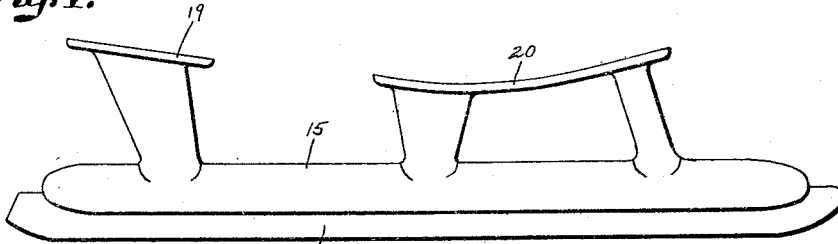


Fig. 2.

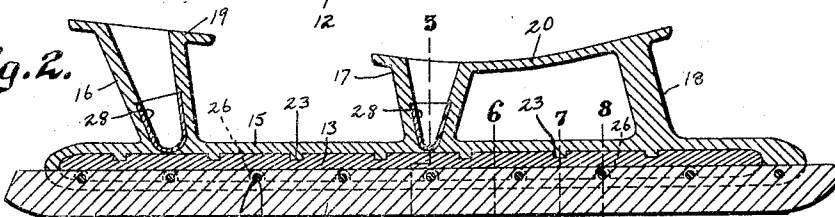


Fig. 4.

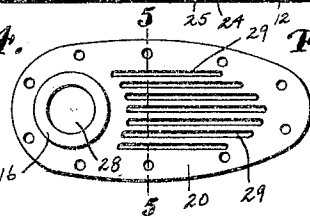


Fig. 5.

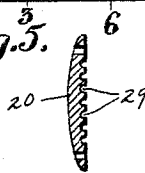


Fig. 6.

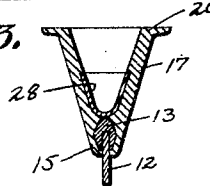


Fig. 7.

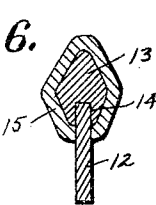


Fig. 8.

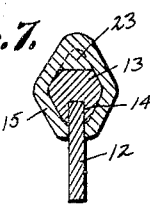


Fig. 9.

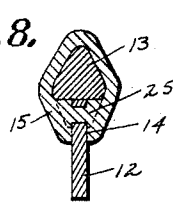


Fig. 10.

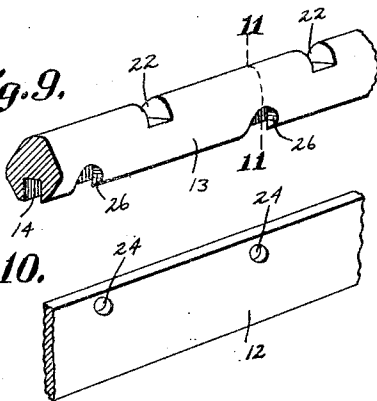
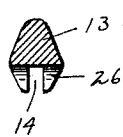


Fig. 11.



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UNITED STATES PATENT OFFICE.

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SKATE.

Application filed June 30, 1927. Serial No. 202,606.

This invention relates to an ice skate which includes a one-piece casting, composed of metal, such as aluminum, or an alloy of which aluminum forms a considerable part, said casting including a base portion and up-
 5 standing foot supports integral therewith, as in the skate disclosed by my Patent No. 1,115,790, dated November 3, 1914, the base portion containing the upper edge portion of the steel skate runner.

The chief object of the invention is to decrease the weight, and increase the strength of the base portion of the casting.

I accomplish this object by applying to
 15 the upper edge of the runner, before the casting operation, a non-metallic core, preferably composed of hard wood, although other materials may be used, and forming the base portion of the casting on the core
 20 and on portions of the runner below the core, so that said base portion, while having the desired external surface area, may have a relatively thin wall, the core displacing a considerable portion of the metal heretofore
 25 employed.

Another object is to provide a skate including a runner, a non-metallic core, and a one-piece casting, the runner, the core, and the base portion of the casting being formed
 30 to cooperate in preventing fracture of the base portion, when the metal thereof contracts in cooling, and in preventing distortion of the runner by the contraction of the base portion.

Other objects will appear hereinafter.

Of the accompanying drawings forming a part of this specification,—

Figure 1 is a side view of a skate embodying the invention.

40 Figure 2 is a longitudinal section of the same.

Figure 3 is a transverse section on line 3—3 of Figure 2.

Figure 4 is a top plan view of the elongated sole plate shown by Figures 1 and 2.

45 Figure 5 is a section on line 5—5 of Figure 4.

Figure 6 is a section on line 6—6 of Figure 2.

50 Figure 7 is a section on line 7—7 of Figure 2.

Figure 8 is a section on line 8—8 of Figure 2.

55 Figure 9 is a fragmentary perspective view, showing a portion of the core.

Figure 10 is a fragmentary perspective view, showing a portion of the runner.

Figure 11 is a section on line 11—11 of Figure 9.

The same reference characters indicate the
 60 same parts in all of the figures.

12 designates the runner, and 13 the core constituting elements of my improved skate. The core may be made of any suitable non-metallic material, preferably kiln-dried hard
 65 wood, which may be impregnated with a material such as oil, pitch or wax, rendering the wood impervious to moisture. Any other suitable material, such as bakelite,
 70 may be employed.

The core is provided with a longitudinal groove 14, in its lower edge, receiving the upper edge of the runner, to locate the core in a predetermined position on the runner, the sides of the groove overlapping portions
 75 of the sides of the runner.

15 designates the base portion of a one-piece metal casting composed of aluminum, or an alloy of which aluminum forms a considerable part, cast in a die-casting die
 80 on the core 13, and on portions of the runner below the core. The casting includes upstanding supporting standards 16, 17 and 18, the rear standard 16 having a flange constituting a heel-supporting plate 19. The
 85 intermediate and forward standards 17 and 18 are connected by an elongated sole plate 20, cast integral therewith.

The cast metal contracts in cooling, so that the base portion 15 firmly grips the core.
 90 The base portion 15 is reinforced by the core so that, although the wall of the base portion may be considerably thinner than heretofore, the reduction of thickness is compensated for by the core, and a structure is pro-
 95 duced of relatively light weight, and at the same time sufficiently strong. By using a core of non-metallic material, as described, I sufficiently insulate the upper portion of the tempered runner from the hot casting
 100 to prevent the possibility of distortion of the runner by the heat, and loss of temper of the runner. The core may be coated with asbestos paint to prevent liability of charring its surface.

I prefer to so form the runner, the core and the base portion 15, that these parts cooperate in preventing crosswise fracture of the base portion, due to the contraction of the metal thereof in cooling, and in pre-
 105 110

venting distortion of the runner by the stress and strain exerted thereon by the contraction of the cast metal.

To these ends I form said parts as next described.

In the upper edge of the core 13, I form transverse grooves or notches 22 (Figure 9) which receive portions of the cast metal, so that the base portion of the casting is provided with keys 23 (Figures 2 and 7) interlocked with the ends of the notches, to so distribute the longitudinal contraction of the base portion as to prevent liability of crosswise fracture thereof, which might otherwise exist when the base portion contracts in cooling.

The runner is provided with orifices 24 (Figure 10), adjacent its upper edge and arranged to receive portions of the cast metal, so that the casting is provided with studs 25 (Figures 2 and 8) interlocked with the walls of the orifices, the lower edge of the core 13 being provided with transverse notches 26 (Figures 2, 9 and 11), arranged to coincide with the runner orifices 24, and permit free access of molten metal to the orifices during the casting operation. The interlocking of the studs 25 with the runner orifices 24, also so distributes the longitudinal contraction of the base portion as to prevent liability of a distorting curvature being imparted to the runner and base portion, by the contraction of the cast metal. This liability exists in the construction shown by my former Patent No. 1,459,050, said construction requiring the provision disclosed by said patent, for preventing distortion.

I am enabled by the improved construction above described to obviate the necessity of any other distortion-preventing provision.

It will be seen that the orifices 24 are formed wholly below the upper edge of the runner, so that said edge is uninterrupted or continuous. The continuity of said edge is a factor in preventing distortion.

It has been found that in a skate of this type shown, the rear and intermediate standards 16 and 17, which are made hollow for lightness, are liable to break at the necks which join them to the base portion 15. To prevent this liability, I locate in each of said standards a reinforcing ferrule 28 of hard metal such as steel, the ferrules being placed on portions of the casting die before the casting operation, so that the standards are cast around the ferrules. The inner ends of the ferrules are preferably closed, as shown by Figures 2 and 3, each ferrule being thimble shaped. The closed ends bear on the core 13, and prevent the admission of molten metal to the cavities of the standards.

The sole plate 20 is provided during the casting operation, with grooves 29, formed by suitable ridges on the die. Said die ridges

cause a distribution of the shrinkage of the sole plate and prevent liability of fracture thereof when the metal shrinks in cooling.

I claim:

1. A skate comprising a runner, a non-metallic elongated core formed to bear on the major portion of the upper edge of the runner, and having a longitudinal groove receiving said upper edge to locate the core on the runner, the sides of the groove overlapping portions of the sides of the runner, and a one-piece metal casting including an elongated base portion cast on the core and on portions of the sides of the runner below the core, the casting including upstanding supporting standards.

2. A skate as specified by claim 1, the core being provided in its upper portion with transverse notches above the longitudinal groove, said notches receiving portions of the cast metal so that the casting is provided with keys interlocked with the ends of the notches to prevent liability of crosswise fracture of the base portion of the casting when the cast metal contracts in cooling.

3. A skate as specified by claim 1, the runner being provided with transverse orifices adjacent its upper edge, said orifices receiving portions of the cast metal, so that the casting is provided with studs interlocked with the walls of the orifices, whereby liability of distortion of the base portion and the runner, when the cast metal contracts in cooling, is prevented.

4. A skate as specified by claim 1, the runner being provided with transverse orifices adjacent its upper edge, said orifices receiving portions of the cast metal, so that the casting is provided with studs interlocked with the walls of the orifices, whereby liability of distortion of the base portion and the runner, when the cast metal contracts in cooling, is prevented, the core being provided in its lower portion with transverse notches arranged to coincide with the runner orifices and permit free access of molten metal to the orifices.

5. A skate as specified by claim 1, a foot-supporting standard element of the casting being hollow and provided with an internal reinforcing ferrule at its junction with the base portion, to prevent liability of fracture at said junction.

6. A skate as specified by claim 1, a foot-supporting standard element of the casting being hollow and provided with an internal reinforcing ferrule at its junction with the base portion, to prevent liability of fracture at said junction, the ferrule having a closed inner end bearing on the core.

In testimony whereof I have affixed my signature.

CARL B. DREVITSON.