

- [54] ICE SKATE HAVING A ONE-PIECE
SUPPORT PROVIDED WITH A HEATING
ELEMENT
- [76] Inventor: Nils Joergen Tvengsberg, Olav
Trygvassonsvei 7F, 1412-Sofiemyr,
Norway
- [22] Filed: Mar. 1, 1973
- [21] Appl. No.: 336,961
- [52] U.S. Cl. 280/11.12, 219/201
- [51] Int. Cl. A63c 1/00
- [58] Field of Search. 280/11.12, 11.18, 11.17,
280/11.37 E; 219/201
- [56] **References Cited**
- UNITED STATES PATENTS**
- | | | | |
|-----------|--------|------------------------|-----------|
| 3,119,921 | 1/1964 | Czaja | 219/201 |
| 3,212,786 | 1/1965 | Florjancic et al. | 280/11.12 |
| 3,558,149 | 1/1971 | Weidenbacker | 280/11.12 |
- FOREIGN PATENTS OR APPLICATIONS**
- | | | | |
|---------|--------|---------------------|--------|
| 526,592 | 9/1940 | Great Britain | 280/12 |
|---------|--------|---------------------|--------|

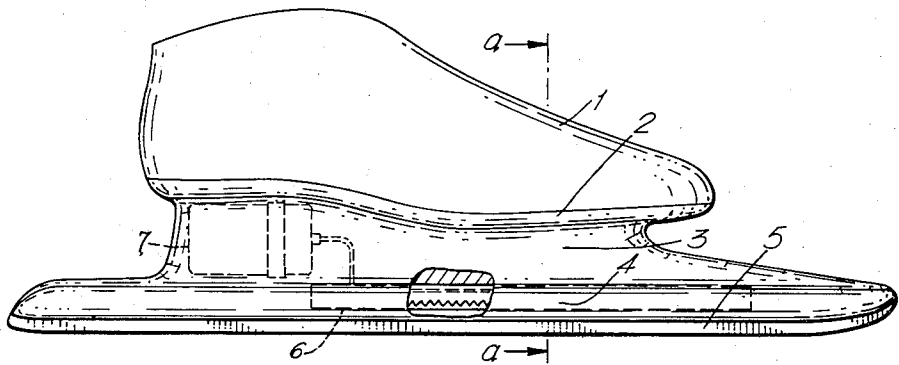
585,720 10/1959 Canada 280/11.17

Primary Examiner—David Schonberg
Assistant Examiner—Milton L. Smith
Attorney, Agent, or Firm—Howson and Howson

[57] **ABSTRACT**

A skate assembly comprising a boot plate member for mounting a boot thereon, an elongated intermediate member depending from said boot plate, a skate blade support member for supporting a skate blade therein including means defining a plurality of openings therein, said boot plate, intermediate member and skate blade support member being formed of a one-piece, uninterrupted moldable plastic material with the material in said support engaging through said openings to secure said blade thereto, said members shaped to define an aerodynamic profile, and a heating element in said support member operable to maintain said blade at a predetermined temperature.

1 Claim, 2 Drawing Figures



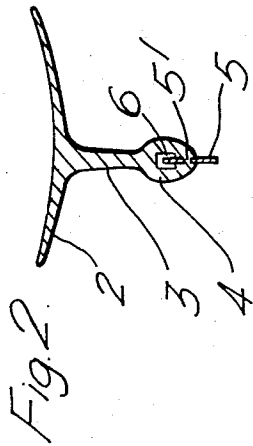
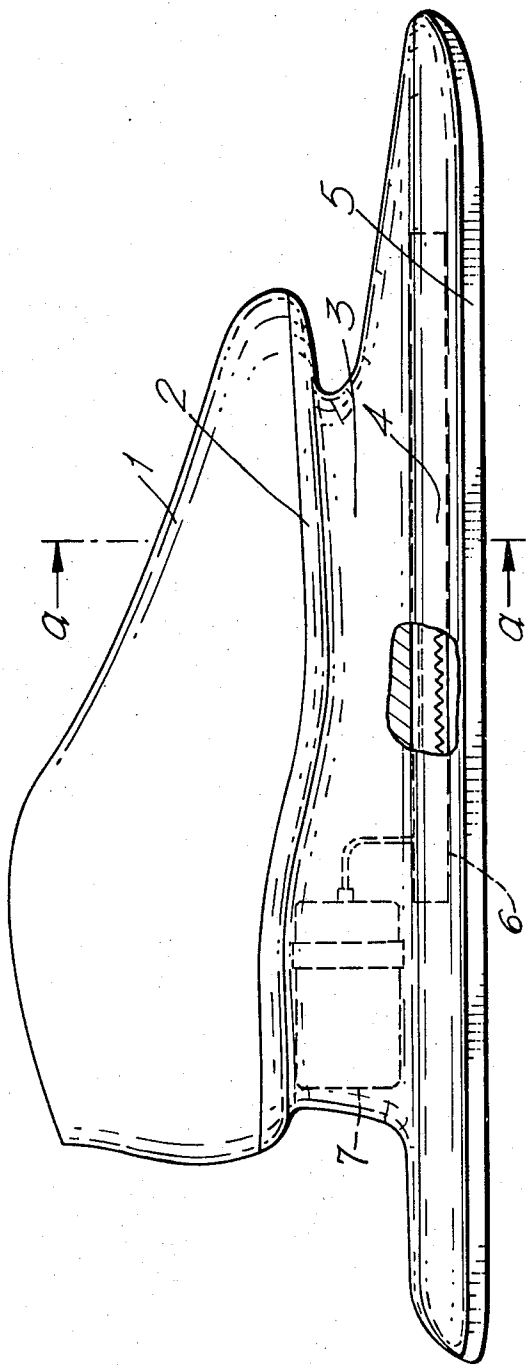


Fig. 1.



ICE SKATE HAVING A ONE-PIECE SUPPORT PROVIDED WITH A HEATING ELEMENT

The present invention relates to skates in general, and in particular to skates for racing, bandy, ice-hockey and dancing, said skates consisting of skate-iron, foot-support and boot.

The requirements for a skate used in skate-racing are large both as regards the gliding properties of the skate and the fit of the skate-boot. The known types of skates have most frequently a boot made of leather under which boot a boot-plate, a reinforced intermediate piece and the skate-iron itself are fixed. The said intermediate piece may vary in construction, but is usually divided so that open intermediate spaces between the reinforced parts of the said piece are created. The boot-plate and the said intermediate piece is usually made of steel, aluminum or the like. This results in that the skate may be relatively heavy. Besides, the open spaces in the intermediate piece may cause air-turbulence around the skate at normal competition speed of 46.5 km/hour. The leather-boot may likewise, as a result of the heat- and fluid-loss from the foot or external moisture, expand, said expansion requiring such a tight tie-up of the boot that the blood-circulation may be arrested.

The present invention avoids these problems in that the boot-plate, the intermediate piece and the skate-iron-support and molded in a continuous, uninterrupted piece with internal cavities, into which molded piece the skate-iron is fixed during the embedding process.

The skate-iron is at the top provided with a series of holes or removals in the upper part of the iron for fixing of the skate-iron to the skate-iron support.

The one piece sole support may be a hollow member and an electric powered heating element may possibly be arranged in the hollow sole support, said element emitting heat to the skate-iron itself and/or the boot and thus the foot.

By constructing a skate according to the invention, the aerodynamic properties are improved to a great extent simultaneously with the weight being reduced to approx. one-fifth - one-third of the usual weight of racing-skates.

By letting the skate-iron be surrounded by insulating synthetic organic material it is achieved that the heat in the skate, in addition to the heat which results from the friction between steel and the skate ice, remains in

the glidingface layer, and is not cooled down to the ambient air temperature as was the case with the large metalface on the previously known skate-models.

The aerodynamic, weight and insulating advantages which the racing-skate according to the invention possesses may yield an increase in speed of 2-5 percent which will be of great importance during competition-conditions.

By inserting an electric heating-element in the skate-iron-support the temperature of the gliding-layer between the skate-iron glidingface and the ice may be slightly increased in order to improve the gliding properties of the skate.

FIG. 1 shows a side-view of the skate.

FIG. 2 shows the skate-iron, the skate-iron-support, the intermediate piece and the boot-plate in a cross-sectional view along the line a-a.

In FIGS. 1 and 2 the boot 1 is fixed to the boot-plate 2 which continues into the intermediate piece 3 and terminates in the skate-iron-support 4, into which support the skate-iron 5 is embedded by means of a series of holes 5' or similar removals along the upper edge of the iron 5 which are penetrated by the material of the skate-iron support. The boot-plate, the intermediate piece and the skate-iron-support may advantageously be made of polycarbonate, plastics such as polyurethanes, polyamides, polyesters, polyvinyl and polydivinyl compounds and copolymerizates or similar synthetic organic material. The iron with the glidingface may be approx. 45 cm long, approx. 0.9 - 1.1 mm wide and approx. 10-15 mm high.

The support 4 may be provided with a heating element 6 connected through suitable leads to a rechargeable electric battery 7.

I claim:

1. A skate assembly comprising a boot plate member for mounting a boot thereon, an elongated intermediate member depending from said boot plate, a skate blade support member for supporting a skate blade therein including means defining a plurality of openings therein, said boot plate, intermediate member and skate blade support member being formed of a one-piece, uninterrupted moldable plastic material with the material in said support engaging through said openings to secure said blade thereto, said members shaped to define an aerodynamic profile, and a heating element in said support member operable to maintain said blade at a predetermined temperature.

* * * * *

50

55

60

65