Jan. 9, 1962 G. K. WARE 3,016,246

TOE BLOCK STRUCTURE

Filed April 27, 1960

Fig. 1.

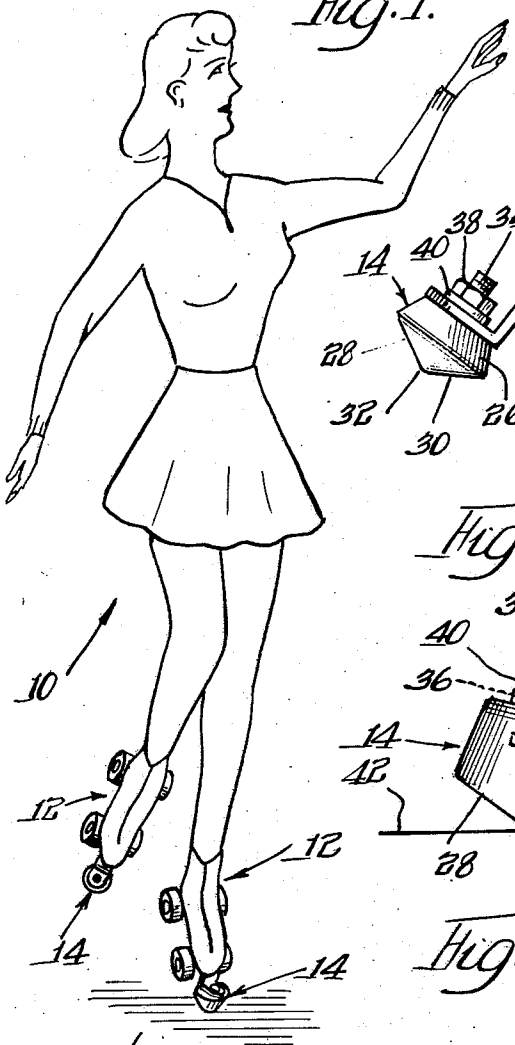


Fig. 2.

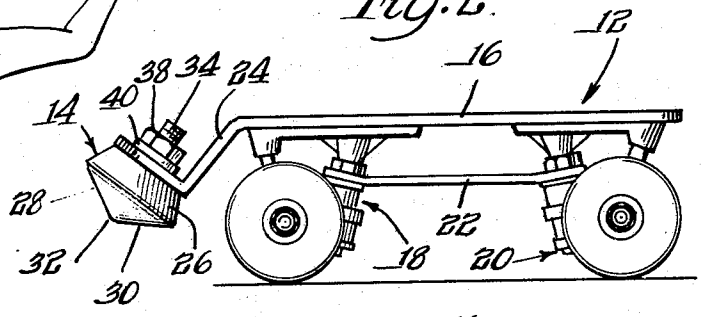


Fig. 3.

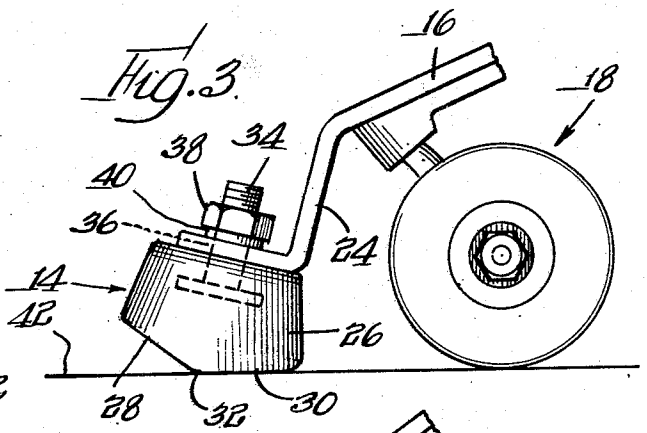


Fig. 4.

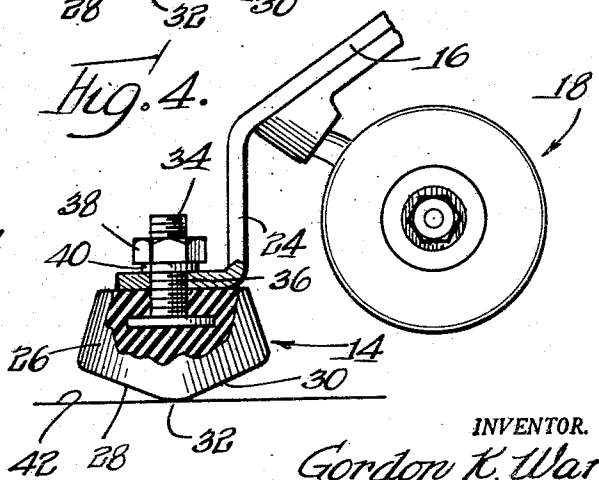
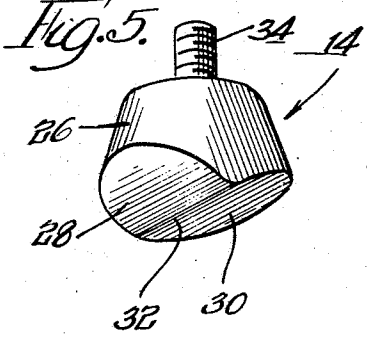


Fig. 5.



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United States Patent Office 3,016,246 Patented Jan. 9, 1962

3,016,246

TOE BLOCK STRUCTURE

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Filed Apr. 27, 1960, Ser. No. 25,144
1 Claim. (Cl. 280—11.2)

This invention relates generally to a toe block structure for attachment to a roller skate and more particularly to a toe block structure which is adapted for use as a take-off in jumps, spins and the like.

According to conventional practice, toe block structures which are intended to be attached to a roller skate are arranged to display a single flat surface or face to the floor for use as a brake. Many skaters have found that these toe block structures are also useful as a take-off in jumps, spins and other acrobatics. However, the toe blocks heretofore known and used have shapes which define an apex coincident with the particular point from which the skater desires to initiate his maneuver. The instability of this substantially point contact with the rink floor has required the exercise of considerable skill in initiating a jump, spin or other acrobatic maneuver. Moreover, the instability of this point contact has led to numerous skater injuries, especially twisted angles.

Therefore, an important object of the present invention is to provide a new and improved toe block structure for attachment to a roller skate.

A more specific object of the invention is to provide a new and improved toe block structure which affords a high degree of stability when used as a take-off in jumps, spins and the like.

Another object of the invention is to provide a toe block structure which ensures both safety and control during acrobatic maneuvers.

Yet another object of the invention is to provide a toe block structure which is adapted for use as a brake and which possesses prolonged braking life.

A further object of the invention is to provide a toe block structure which is adapted for use as a take-off and which facilitates a smooth rise for jumps, spins and the like.

A still further object of the invention is to provide a toe block structure which is permissive of a strong attachment to a roller skate.

Additional objects and features of the invention pertain to the particular structure and arrangements whereby the above objects are attained.

A toe block structure in accord with the invention includes an elastomeric element having two faces intersecting to define an elongated ridge, and means for mounting the element to the front end of a roller skate with the elongated ridge disposed transversely of the longitudinal axis of the skate.

In order that the principle of the invention may be readily understood, reference now will be made to the following disclosure and drawing forming a part thereof, wherein:

FIG. 1 is a perspective view of a skater wearing roller skates incorporating a toe block structure in accordance with the invention;

FIG. 2 is a side-elevational view of a roller skate employing a toe block structure of the invention;

FIG. 3 is a fragmentary side-elevational view of a roller skate showing the toe block structure being used as a brake;

FIG. 4 is a fragmentary side-elevational view of a roller skate showing the toe block structure being used as a take-off; and

FIG. 5 is a perspective view of the toe block structure of the invention.

Referring now in detail to the drawing, specifically to FIG. 1, a skater **10** will be seen wearing skates **12** which incorporate toe block structures **14**. Turning to FIG. 2, a roller skate **12** will be seen to include a sole plate **16** to which is affixed a front wheel truck assembly **18** and a rear wheel truck assembly **20**. A brace bar **22** is advantageously provided for linking the trucks **18** and **20** in spaced relationship.

The sole plate **16** terminates at its forward end in a depending supporting structure **24**; and the toe block structure **14** is adapted to be attached to the structure **24**.

As is best shown in FIG. 5, the toe block structure **14** includes a body **26** of an elastomeric material, desirably white rubber so that the toe block will be non-marking. The body **26** is preferably frusto-conical in shape and is arranged to have two surfaces or faces **28** and **30** intersect across a major diameter of the body **26** to define an elongated ridge **32**. In accordance with a feature of the invention, the ridge **32** is transversely rounded in order to facilitate a smooth rise to the ridge **32** when the structure **14** is used as a take-off in jumps, spins and other acrobatic maneuvers.

With particular reference to FIGS. 3 and 4, the faces **28** and **30** will be seen to intersect at an obtuse angle; and in one specific embodiment, the faces **28** and **30** have been arranged to intersect at approximately 128 degrees. Arranging the faces **28** and **30** to intersect at such an obtuse angle has been found to permit the use of a strong supporting structure **24** angulated from the sole plate **16** so as to best resist the forces imposed thereon in the course of acrobatic skating. Further referring to FIGS. 3 and 4, it will be noted that the portion **24** approaches a vertical position with the braking surface **30** in engagement with the ground (FIG. 3), and that this portion **24** also closely approaches a vertical position when only the ridge portion **32** is in engagement with the ground (FIG. 4). Thus, the portion **24** absorbs reaction forces in a substantially vertical direction so as to minimize bending effects between it and the sole plate.

The means for mounting structure **14** to the roller skate **12** includes a threaded stud **34** which is desirably molded as an insert in the body **26**. As shown, stud **34** extends through a cooperatively threaded aperture **36** in supporting structure **24** to receive a threaded nut **38**. A lock washer **40** may be interposed between the nut **38** and the supporting structure **24** if desired.

In use, the toe block structure **14** is attached to the skate **12** with the elongated ridge **32** disposed transversely of the longitudinal axis of the skate, as shown in FIG. 4. So disposed, the ridge **32** is available for use as a take-off in jumps, spins and other acrobatic maneuvers. Moreover, with the toe block structure **14** so disposed, one of the faces, face **30** as shown, is confrontable with a rink floor **42** for use as a drag or friction brake in accordance with the showing of FIG. 3.

As the toe block structure **14** becomes worn in use and the symmetry thereof is impaired, the structure **14** will be reversed, i.e. the face **28** will be arranged to confront the floor for use as a brake. This rearrangement is achieved by loosening the nut **38** and rotating the toe block structure **14** a half turn. When the structure **14** has been rearranged with the face **28** confronting the floor, the nut **38** is again tightened into firm contact in order to position the structure **14** positively with respect to the skate **12**.

It is also to be recognized that the length of the stud **34** affords a certain amount of longitudinal or axial adjustment in the position of the toe block structure **14**. Within the limits established by the length of the stud **34**, the structure **14** will be extended generally toward the floor and away from the structure **24**; and when a desired

configuration is achieved, the toe block will be secured by means of the lock washer **40** and the nut **38**.

Thus, the invention provides a toe block structure which is particularly well adapted for use as a take-off in jumps, spins and the like, proffering an elongated ridge **32** for such purposes. As a result, skaters utilizing the toe block structure of the invention realize greater control in their acrobatic maneuvers and enjoy greater stability and safety as well.

Therefore, the specific example herein shown and described should be considered as illustrative only. Various changes in structure will, no doubt, occur to those skilled in the art; and these changes are to be understood as forming a part of this invention insofar as they fall within the spirit and scope of the appended claim.

The invention is claimed as follows:

In a roller skate including a sole plate and wheel truck assemblies positioned in longitudinally spaced relationship therealong to defined fore and aft rolling centers, the provision of a toe block support structure depending from the front of the sole plate and including a plate portion projecting forwardly from said sole plate at an angle between the horizontal plane of the sole plate and a vertical plane therethrough, an elastomeric ground engaging element having fore and aft downwardly facing surfaces intersecting at an obtuse angle along a transversely elongated and narrow central ridge portion, and means mounting the elastomeric element to the depending support structure forwardly of the said plate portion, the rearwardly disposed downwardly facing surface of the elastomeric element constituting a braking surface and the transversely elongated ridge portion constituting a take-off surface, the angular disposition of the braking surface with relation to the angular disposition of the plate portion being such that the braking surface assumes a ground engaging planar position with the plate portion approaching a vertical position with respect to the ground surface and with the plate portion also approaching a similar vertical position when the transversely elongated ridge portion is used for take-off with the braking surface out of contact with the ground surface, whereby reactive thrusts from engagement of the braking surface and take-off surface with the ground surface are transmitted through the plate portion acting as a strut member approaching vertical positions.

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