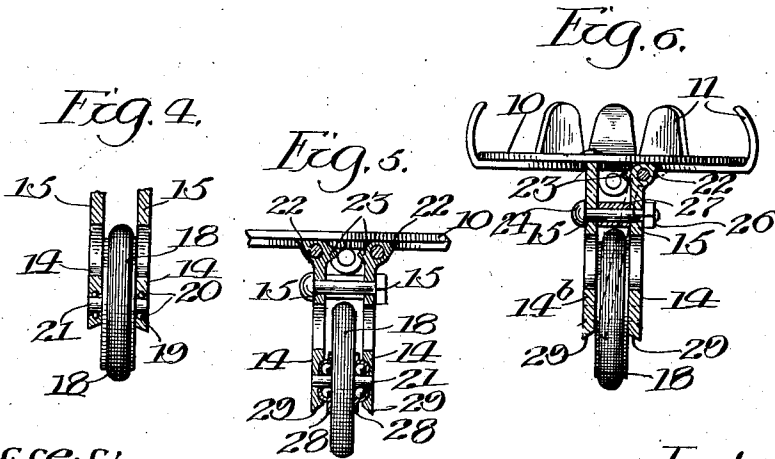
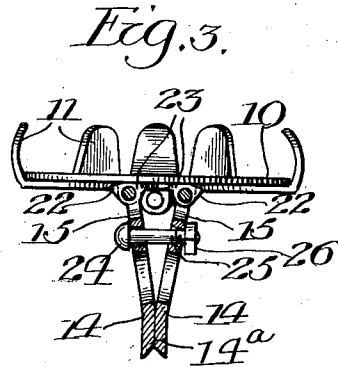
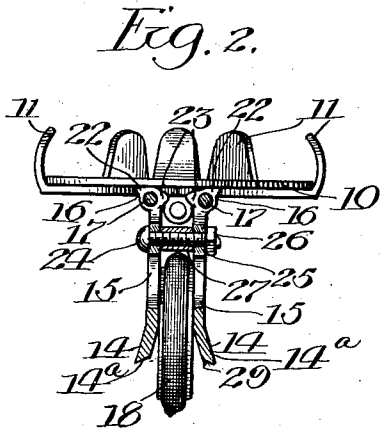
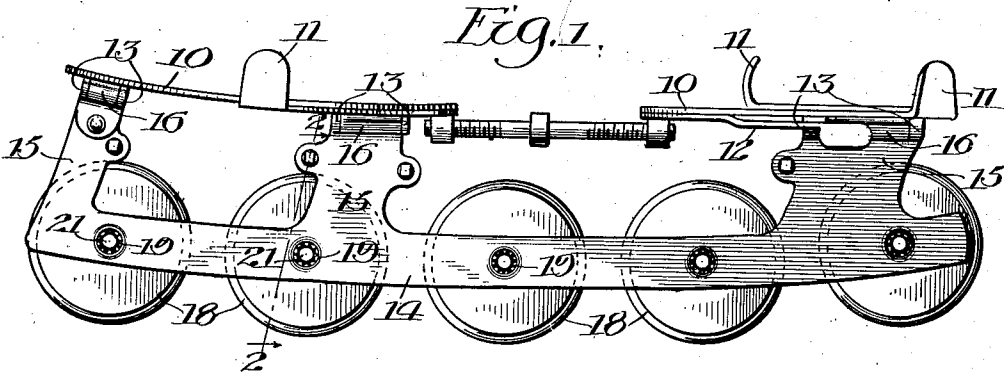


J. A. NOLAN.
 COMBINED ROLLER AND ICE SKATE.
 APPLICATION FILED JAN. 16, 1909.

938,168.

Patented Oct. 26, 1909.



Witnesses:
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UNITED STATES PATENT OFFICE.

JOHN A. NOLAN, OF CHICAGO, ILLINOIS.

COMBINED ROLLER AND ICE SKATE.

938,168.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JOHN A. NOLAN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in a Combined Roller and Ice Skate, of which the following is a specification.

This invention relates to improvements in that type of skates which can be employed either as roller-skates for use on smooth wooden floors or other hard surfaces, or for use on ice, and it consists in certain peculiarities of the construction, novel arrangement, and operation of the various parts thereof, as will be hereinafter more fully set forth and specifically claimed.

The principal object of the invention is to provide a skate which shall be simple and inexpensive in construction, strong, durable and effective in operation, and so made that when used as a roller-skate the rollers thereof may be readily removed and the other parts thereof secured together in such a manner as to provide a skate adapted for use on ice, and vice versa.

A further object of the invention is to provide means whereby when the skate is used as a roller one the rollers thereof will be held with respect to one another so that the lower extremities of their peripheries will describe an arc of a circle with respect to one another, to the end that the innermost roller may act as a pivot on which the skate may be sharply or abruptly turned.

A further object of the invention is to provide means for rigidly holding the skate-blades against the lower surface of the foot-plate of the skate when the same is used with or without the rollers.

A still further object is to provide means for furnishing to the lower edges of the skate-blades what is commonly termed "hollow ground" surfaces to be effective when the skate is used on ice.

Other objects and advantages of the invention will be disclosed in the subjoined description and explanation.

In order to enable others skilled in the art to which my invention pertains, to make and use the same, I will now proceed to describe it, referring to the accompanying drawing, in which—

Figure 1 is a view in side elevation of a skate embodying one form of the invention, showing the rollers thereof in position on the

skate-blades and ready for use; Fig. 2 is a cross-sectional view taken on line 2—2 of Fig. 1 looking in the direction indicated by the arrows, showing the position the parts will occupy when used as a roller-skate; Fig. 3 is a similar view taken on the same line, showing the position the parts will occupy when ready for use as an ice-skate; Fig. 4 is a fragmental view partly in section and partly in elevation, showing one form, or arrangement of anti-friction ball bearings for the axles of the rollers; Fig. 5 is a similar view showing a modified form or arrangement of the ball bearings for the rollers; and Fig. 6 is a view partly in cross-section and partly in elevation of another modified form of the skate.

Like numerals of reference, refer to corresponding parts throughout the different views of the drawing.

The reference numeral 10 designates the foot-plate of the skate upon the front portion of which the sole of the shoe will rest while the rear portion thereof will support the heel. This foot-plate may be provided with any suitable means for securing it to the shoe of the user, but in the present instance is shown as being provided with clamps 11 operated by a lever 12 in the well-known way. As the invention does not relate to the means for securing the foot-plate to the shoe of the user, and as any desired means for this purpose may be employed, a detail description of such securing means is deemed unnecessary and will not be herein given. Depending from the lower surface of the foot-plate at a slight distance on each side of the longitudinal center or axis thereof are a number of lugs 13 which are formed with longitudinally extended openings, and are arranged in pairs as shown in Fig. 1 of the drawing. These lugs may be made integrally with the foot-plate or may be otherwise secured on its lower surface, and are for the purpose of pivotally securing the skate-blades 14 to the foot-plate, each of which blades is provided with a number of vertical extensions 15 each of which has at its upper end a longitudinally extended tubular portion 16 to fit between the lugs 13 of each pair thereof, and said tubular portions are secured to the lugs by means of pintles 17 extended through the openings of the lugs and the openings of the tubular parts 16, thus pivotally securing or hinging the blades 14 to the foot-plate. When thus

secured in place it is apparent that the blades 14, as well as their extensions 15, will be held in parallelism with one another at a sufficient distance apart to permit of the reception and operation therebetween of the rollers 18, which may be made of any suitable size and material and may be of any desired number, but preferably of an odd number. Each of the skate-blades 14 is provided with a number of openings 19 in which may be fitted in the ordinary or any desired way anti-friction balls 20 to provide ball bearings for the axles 21 of the rollers. Each of the parts 16 of each of the extensions 15 is provided on its outer surface with a beveled lug 22 to rest against the lower surface of the foot-plate 10 when the skate-blades are in the positions shown in Figs. 1 and 2 of the drawing and equipped with the rollers. Each of the parts 16 of the extensions 15 is provided on its inner surface with a beveled lug 23 to contact with the lower surface of the foot-plate when the blades and their extensions are in the positions shown in Fig. 3 of the drawing and when the skate has its parts adapted or arranged for use as an ice-skate. The lower portion of each of the blades 14 is outwardly deflected throughout its entire length as at 14^a so that when the rollers 18 are removed and the blades are brought together at their lower portions their adjacent surfaces will contact with one another throughout their entire lengths, in which positions they will be held by means of bolts 24 passed through suitable openings 25 in the extensions 15 and nuts 26 on the end of said bolts, all of which will be clearly understood by reference to Fig. 3 of the drawing. In order to more rigidly secure the blades 14 in parallelism with one another when the rollers 18 are employed therebetween a collar 27 is located on each of the bolts 24 between the extensions 15, as is clearly shown in Fig. 2 of the drawing.

Instead of placing the balls 20 within the openings 19 of the skate-blades they may sometimes be held around the axles 21 by means of suitable cups 28 secured to the sides of the wheels, thus permitting them to be removed therewith, as will be readily understood by reference to Fig. 5 of the drawing.

In Fig. 6 is shown a modification in the construction of the skate, which consists in rigidly securing the extensions 15 of one of the skate-blades 14^b to the foot-plate 10 instead of pivotally securing the extensions 15 on both of said blades as in the other construction, in which modified form it will be seen that the pivoted blade will assume the position shown by dotted lines in Fig. 6 when the rollers 18 have been removed so that the skate may be adapted for ice, and it will be seen by reference to the last-named

figure of the drawing that the lower edges of the blades 14 and 14^b will be located a little to one side of a vertical line through the middle of the foot-plate, which latter location will be so slight that it will not interfere with the operation of the skate. By hinging one of the blades only to the foot-plate 10 as shown in Fig. 6 it is apparent that by removing the bolts 24 the hinged blade may be moved outwardly, and thus permit the rollers and their axles to be easily removed, and especially is this so when the ball bearings are secured to the rollers, as shown in Fig. 5, instead of to the blades 14, as shown in Fig. 4 of the drawing.

From the foregoing and by reference to the drawing it will be seen and readily understood that by employing an odd number of rollers on the blades 14 and arranging them so that the lower parts of their peripheries will describe an arc with respect to one another the innermost roller will act as a pivot on which the skate may be sharply turned, which could not be performed were all of the rollers located in a straight line at their lower portions. By slightly beveling the lower edges of each of the skate-blades as at 29 it is apparent that when said blades are brought into contact and secured in such position by means of the bolts 24 and nuts 26 the "hollow ground" effect or shape will be produced, which is often very desirable. It will be understood that the invention is susceptible of considerable modification without departing from the principles and spirit thereof, and for this reason I do not desire to be limited to the exact construction and arrangement of the parts herein shown and set forth.

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

1. In a skate the combination with a foot-plate, a pair of spaced apart skate-blades secured to the lower surface thereof in parallelism with one another, means to adjustably secure at least one of the blades to the foot-plate, and a series of rollers journaled between the blades.

2. In a skate the combination with a foot-plate, of a pair of spaced apart skate-blades adjustably secured to the lower surface thereof, and a series of rollers journaled between said blades and adapted to be detached therefrom.

3. In a skate the combination with a foot-plate, of a pair of spaced apart skate-blades secured to the lower surface thereof in parallelism with one another, means to adjustably secure at least one of said blades to the foot-plate, a series of rollers journaled between the blades, and means to secure the blades together.

4. In a skate the combination with a foot-plate having on its lower surface a series of

longitudinally apertured lugs arranged in pairs on each side of the longitudinal axis of the plate, of a pair of skate-blades each having vertical extensions provided at their upper ends with apertured portions to fit between the lugs of each pair, pintles extended through the openings of the lugs and apertured portions of said extensions, and means to secure said extensions together.

5. In a skate the combination with a foot-plate having on its lower surface a series of longitudinally apertured lugs arranged in pairs on each side of the longitudinal axis of the plate, of a pair of skate-blades each having vertical extensions provided at their upper ends with apertured portions to fit between the lugs of each pair, pintles extended through the openings of the lugs and apertured portions of said extensions, a series of rollers detachably journaled between the blades, and means for securing the said extensions together.

6. In a skate the combination with a foot-plate, of a pair of skate-blades hinged to the lower surface thereof at a distance apart and in parallelism with one another, and means to secure said blades together.

7. In a skate the combination with a foot-

plate, of a pair of skate-blades hinged to the lower surface thereof at a distance apart and in parallelism with one another, a series of rollers detachably journaled between the blades, and means to secure said blades together.

8. In a skate the combination with a foot-plate, of a pair of skate blades having vertical extensions hinged to the lower surface of the foot-plate in parallelism with one another and at a slight distance apart, each of said extensions having on its upper portion an outwardly extended lug, a series of rollers journaled between the blades, and means to secure said extensions together.

9. In a skate the combination with a foot-plate, of a pair of skate-blades having vertical extensions hinged to the lower surface of the foot-plate in parallelism with one another and at a slight distance apart, each of said extensions having on its upper portion an inwardly extended lug, and means to secure said extensions together.

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