

UNITED STATES PATENT OFFICE.

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SKATE.

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My invention relates to skates and has for its object to provide the same with replaceable blades adapted to be easily applied and easily removed and hence be substituted one for the other, at will.

To the above end, the invention consists of the novel devices, combinations of devices and arrangement of parts hereinafter described and defined in the claims.

In the accompanying drawings, which illustrate the invention, like characters indicate like parts throughout the several views.

Referring to the drawings:

Fig. 1 is a side elevation showing a skate provided with a detachable blade in accordance with my invention;

Fig. 2 is a side elevation of the blade removed from the skate;

Figs. 3, 4 and 5 are details in transverse section taken respectively on the lines 3—3, 4—4 and 5—5 of Fig. 1;

Fig. 6 is a fragmentary section taken on the line 6—6 of Fig. 3; and

Fig. 7 is a detail showing one of the clamping bolts removed.

The skate illustrated is of the type generally designated as a tubular skate and the body thereof is shown as made up of a blade-holding sheath 8, a sole plate 9, a heel plate 10, a bracket 11 connecting the heel plate 10 to the sheath 8, and brackets 12 and 13 connecting the sole plate 9 to the sheath 8. Attention is here called to the fact that the sheath 8 at its front and rear portions is U-shaped in cross section and has parallel sides only slightly spaced while the intermediate portion of the sheath between the points marked $y-y$ is made tubular at its top as indicated at 14 but at its lower portion is blended into and forms continuations of the parallel sides of the sheath. This tubular portion 14 very greatly stiffens the sheath at its intermediate portion and particularly between the plates 9 and 10.

The blade 15 is a thin flat bar of properly tempered steel and near its front and rear ends is formed with L-shaped lock notches 16 that co-operate with bolts 17 to form bayonet joints. As shown, there are two of these notches and two co-operating bolts 17. These bolts have square shanks that are extended through square holes in the parallel sides or flanges of the sheath 8 but their outer ends are threaded and equipped with

nuts 18. At the extreme rear the sides or flanges of the sheath 8 are pressed together as shown at 8^a and are solidly connected by a rivet 19. The central portion of the blade 15 is preferably cut down as shown at 15^a. At its extreme front end and at its upper edge the blade 15 is formed with a shallow notch 20. When the blade is applied in working position as shown in Fig. 1 the bottom of the notch 20 and the front extremity thereof are engaged against a rivet or small bolt 21 that is passed through the lower prongs of the bracket 12 and through the front ends of the side flanges of the sheath 8. Also, when the blade is in position, the upper edge of its central portion bears against a rivet or small bolt 22 applied through the side flanges of the sheath just below its tubular portion 14, as best shown in Figs. 1 and 4; and, moreover, at such time the reduced rear end 15^b bears against the lower edge of the rear end of the flanges 8^a, as best shown in Figs. 1 and 5.

When the blade 15 is to be applied in working position or removed therefrom, the nuts 18 on the bolts 17 must be loosened up. When this is done, the blade may be interlocked with the square portions of the bolts 17 by first pressing the blade upward and then moving the same slightly rearward so as to position said bolts in the forward horizontally extended portions of the lock notches 16. This slight rearward movement of the blade brings the front extremity of the notch 20 against the shaft 21 as a stop and also forces the vertical rear end portion 15^c of the blade against the flanges 8^a as a stop.

Fig. 6 shows the same position of the parts that is shown in Fig. 1. When the blade is inserted between the parallel side flanges of the sheath it will quite closely fit the same even when the nuts 18 are loose, but when the nuts 18 are tightened said side flanges will be firmly clamped against the blade and the blade will be solidly and positively held to the sheath. The clamping action of the nut-equipped bolts 17 will be sufficient to hold the blades against displacement under most conditions, but sometimes a skater will jump with great force on the toes of the skate, thereby producing a very powerful rearward driving action of the blade which, in the arrangement, is positively resisted at four points, to wit: at the

front extremities of the lock notches 16, at the front extremity of the notch 20, and by the front portions of the flanges 8^a.

It is highly important that the sides of the sheath be free so that they can be sprung together by tightening the bolts and that the interposed blade is the only element that keeps the sides of the sheath from being pressed together. This yielding action permits the blade to be tightly and frictionally clamped between the sides of the sheath. The rivets 21 and 22 do not interfere with this lateral yielding action of the sides of the sheath but simply limit separation thereof.

Obviously, blades of the best character may be very quickly and easily applied or removed. It enables substitution of blades having different lines; that is, blades especially adapted for fast skating or for hockey skating or even for figure skating. Moreover, it is possible with this arrangement to provide blades of such low cost that when dull they may be thrown away and others substituted at practically the same cost as sharpening of the skates. In any event, it provides an arrangement in which a plurality of sharp blades may be carried and the one quickly substituted for the other. Moreover, if a blade should be broken it can be easily replaced by a new blade.

What I claim is:

1. A skate having a sheath with sides spaced to receive a blade and be pressed against the same, in combination with a blade fitted between the sides of said sheath, and means applied to the sheath for clamping the sides thereof onto the blade, the said blade and sides of the sheath having interlocking bayonet joints.

2. A skate having a sheath with side spaced to receive a blade and be pressed against the same, in combination with a blade fitted between the sides of said sheath, and means applied to the sheath for clamping the sides thereof onto the blade, the said blade and sides of the sheath having interlocking bayonet joints, and the said sheath having front end and intermediate rivets located for engagement with the upper edge of the blade.

3. A skate having a sheath with sides spaced to receive a blade and be pressed against the same, in combination with a blade fitted between the sides of said sheath, and means applied to the sheath for clamping the sides thereof onto the blade, the said blade and sides of the sheath having interlocking bayonet joints, the said sheath having front end and intermediate rivets located for engagement with the upper edge of the blade, the sides of the sheath at the rear end thereof being pressed together and

affording a stop for the rear end of the blade.

4. A skate having a sheath with sides spaced to receive a blade and be pressed against the same, in combination with a blade fitted between the sides of said sheath, and means applied to the sheath for clamping the sides thereof onto the blade, the said blade and sides of the sheath having interlocking bayonet joints, the said sheath having front end and intermediate rivets located for engagement with the upper edge of the blade, the sides of the sheath at the rear end thereof being pressed together and affording a stop for the rear end of the blade, the extreme rear end of the blade having a reduced portion that engages directly under the pressed together rear end portion of said sheath.

5. A skate having a sheath with sides spaced to receive a blade and be pressed against the same, in combination with a blade fitted between the sides of said sheath, and means applied to the sheath for clamping the sides thereof onto the blade, the said blade and sides of the sheath having interlocking bayonet joints, the said sheath having front end and intermediate rivets located for engagement with the upper edge of the blade, said blade at the upper edge of its extreme front portion having a notch that engages the front rivet.

6. The structure defined in claim 2 in which said sheath at its upper intermediate portion is tubular, the remaining side portions thereof being parallel for flat engagement with the blade.

7. A skate having a U-shaped sheath formed with substantially flat parallel sides completed at its front and rear ends but having a tubular upper intermediate portion, the sides of the sheath at the rear end being pressed together and rigidly secured, in combination with nut-equipped bolts passed through the parallel side flanges of said sheath at the front and rear portions thereof, and a blade having L-shaped lock notches fitted between the sides of said sheath and engageable with said nut-equipped bolts by a bayonet joint and end-wise movement of the blade, the nuts on the bolts when tightened serving to tightly clamp the side flanges of the sheath against said blade.

8. The structure defined in claim 7 in which rivets are passed through the front and intermediate portions of said sheath and in which said blade is engageable with said rivets when the blade is interlocked with the sheath and secured in working position.

In testimony whereof I affix my signature.
HELMER M. SMILDEN.