

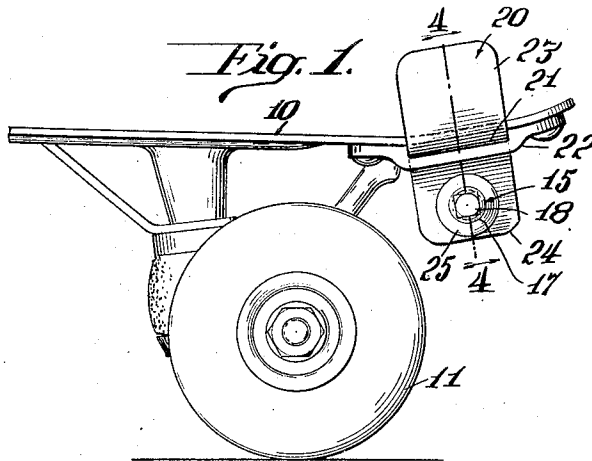
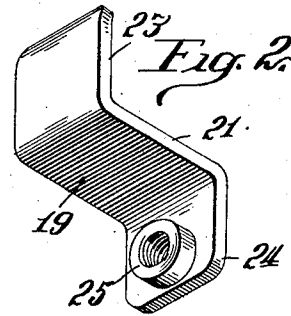
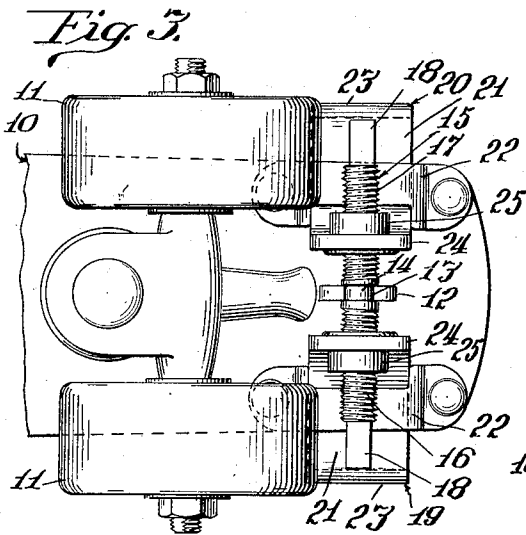
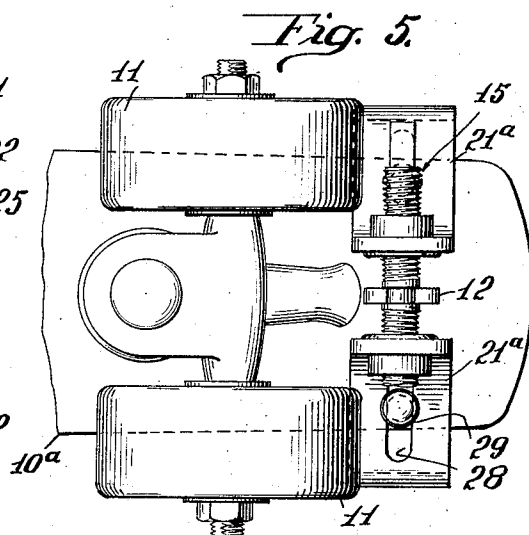
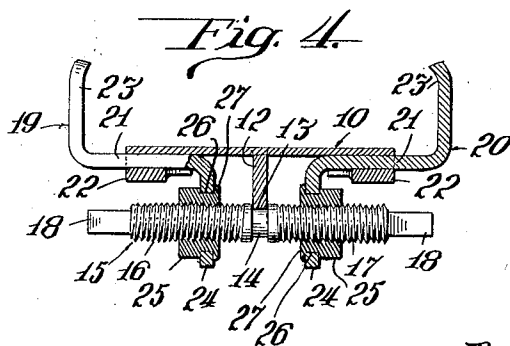
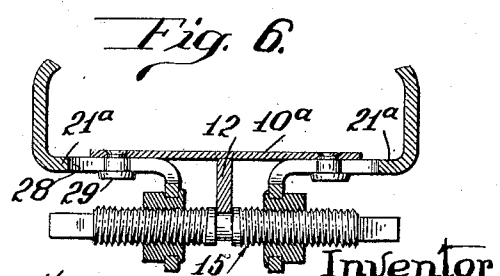
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SKATE CLAMP

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UNITED STATES PATENT OFFICE

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SKATE CLAMP

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My invention relates to adjustable clamps for skates for clamping, particularly, the toe of the shoe to the foot plate of the skate. A skate of the type under consideration is furnished near its forward end with two clamps which are drawn together by means of a clamp screw having right and left threads, the clamps sliding, ordinarily, across the under surface of the foot plate and being guided by suitable clamp guides.

These clamps have been made of integral steel stampings; but in such case the relative thinness of the metal unduly limits the extent of the threading; and this is so even when, in punching the holes for the clamp screw a bur or flange is struck out around the hole in order to increase the thickness at the place where the clamp is to be threaded.

It is desirable to have a considerable number of threads (turns of the threading) on the clamp, since the more threads that are engaged by the clamp screw the longer will be the life not only of the clamp but of the screw also; and at the same time with more threads engaged it is not necessary, in order to hold the skate firmly to the shoe to tighten the clamps on the sole of the shoe as tightly as it is with fewer threads in engagement.

For these reasons, particularly, it has been the commoner practice to make skate clamps of malleable iron, by which it is possible to have two or three more threads than with steel clamps; and on this account malleable iron clamps have, generally speaking, given greater satisfaction than steel clamps. However, there is a limit to the thickness of the malleable clamp, and consequently a limit to the number of turns of the threading on such clamp. This limitation results from the fact that it is not practical to punch or pierce a malleable iron casting of more than a certain thickness. Moreover, malleable iron skate clamps have the disadvantages of being somewhat irregular in size, due to variations in shrinkage in casting, of being liable to internal and undetectable flaws, and of being somewhat rough on their surfaces, which latter is objectionable because interfering with the free sliding movements of the clamps on the foot-plate. Furthermore,

faulty annealing which frequently occurs in the manufacture of malleable castings is the cause of the breaking of punches and also of cracked castings. The breakage in piercing malleable iron skate clamps, due to improper annealing, is extremely high.

My invention provides an improved skate clamp consisting of a body portion, preferably a steel stamping, to which is secured, preferably but not necessarily by an upsetting process, a cylindrical internally threaded ferrule, which may be of any desired length so that it can have as many threads as may be desired in order to properly engage the clamp with the clamp screw and obtain the above stated advantages. In this respect the clamp is an improvement particularly upon the old type of integral sheet metal clamp but also upon clamps made of malleable cast iron. The threads may be cut more smoothly and accurately than is possible with a malleable iron clamp and the clamp is stronger and more reliable than when made of malleable iron. The improved clamp may be made at a cost not substantially in excess of the skate clamps heretofore in use.

The invention is illustrated in certain preferred embodiments in the accompanying drawings, wherein:

Fig. 1 is a side elevation of the front portion of a roller skate furnished with toe clamps constructed in accordance with my invention.

Fig. 2 is a view in perspective of one of the clamps.

Fig. 3 is an inverted plan view of the forward end of the skate.

Fig. 4 is a sectional view on line 4—4 of Fig. 1, and

Fig. 5 and Fig. 6 are views corresponding to Figs. 3 and 4 illustrating a different mode of guiding the clamps on the foot plate.

The improved clamp may be used on ice skates as well as upon roller skates.

Referring first to Figs. 1 to 4 inclusive, 10 designates the foot plate of the skate which is supported on rollers in any suitable manner, the forward rollers being designated 11—11. Projecting from the under side of the for-

ward part of the foot plate 10 is a bracket 12, the lower edge of which is formed with a groove 13, semi-circular at its inner portion, for receiving the smooth reduced middle portion 14 of the clamp screw 15.

5 The clamp screw is formed with two threaded portions 16, 17, having opposite threads, and with milled portions 18, square in cross section, for application of a key. The
10 toe clamps 19, 20 consist, in each case, of a horizontal or slide portion 21, bearing against the under surface of the foot plate and guided by a keeper 22, a clamping portion 23 with inwardly bent upper edge to engage the sole
15 of the shoe, and a flange portion 24 depending from the inner edge of the slide portion 21, this much of the clamp being made, preferably, of a steel stamping.

To provide the clamp with an apertured internally threaded part for engaging the ex-
20 ternally threaded portion 16 or 17, as the case may be, of the clamp screw 15, a separately made ferrule 25 is furnished, having a portion 26 of reduced diameter constituting a shoulder to bear against the outer surface
25 of the flange 24 of the clamp, the portion of reduced diameter extending through a perforation in the flange 24 and being upset against the inner surface thereof, as indicated at 27, to provide a firm attachment of
30 the ferrule to the clamp. The ferrule 25 is internally threaded to correspond with the thread 16 or 17 on the adjusting screw which it engages. These ferrules may be made of
35 steel bars or tubing, threaded, reduced in diameter for portions of their length, on a lathe, for example, and cut to proper lengths. The operations of making the ferrules and securing them to the clamps are simple and in-
40 expensive and the composite clamp thus provided is an improvement upon the integral clamps, either of malleable iron or of integral steel type, referred to above, for the reasons which have been stated.

45 In Figs. 5 and 6 the slide portion 21^a of the clamp is formed with a slot 28 for a headed guiding stud 29 riveted to the foot plate 10^a.

I claim:

50 In combination with the clamp screw of a skate, a clamp comprising a steel stamping forming the body of the clamp and provided with a perforated depending flange, and a ferrule internally threaded to engage the
55 threading of the clamp screw and formed with a portion of reduced diameter to provide a shoulder, the reduced portion extending through the perforation of said flange and being upset at its end against the flange
60 to secure the ferrule to the stamping.

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