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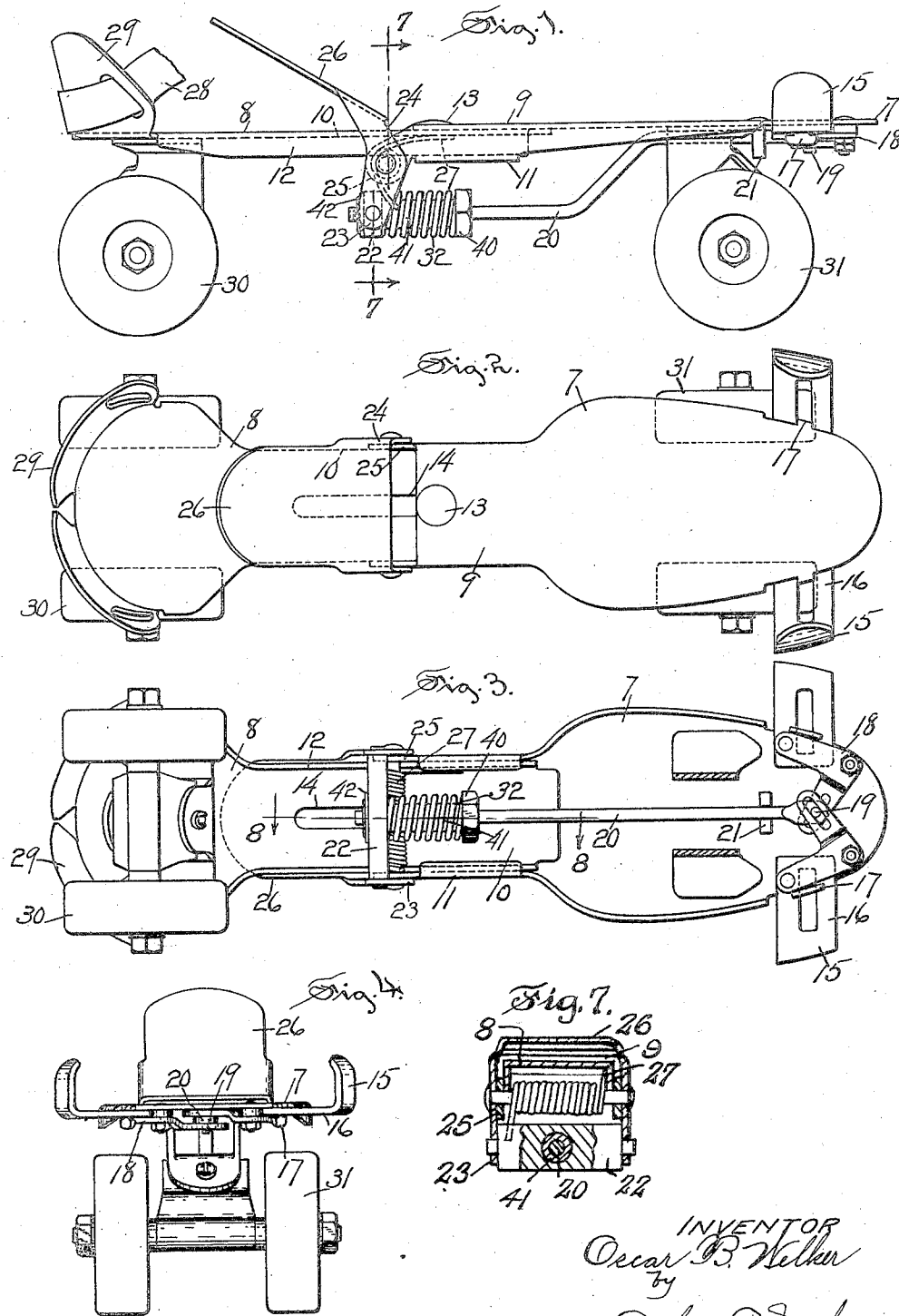
O. B. WELKER

2,016,406

SKATE

Filed April 17, 1934

2 Sheets-Sheet 1



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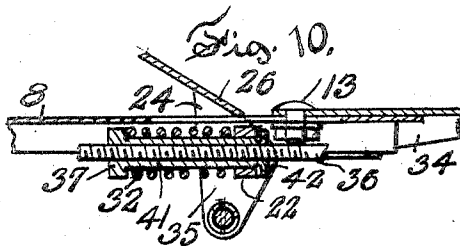
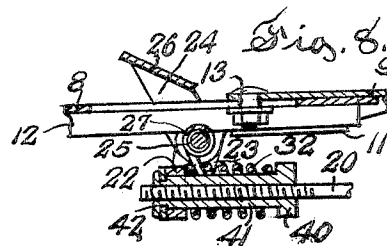
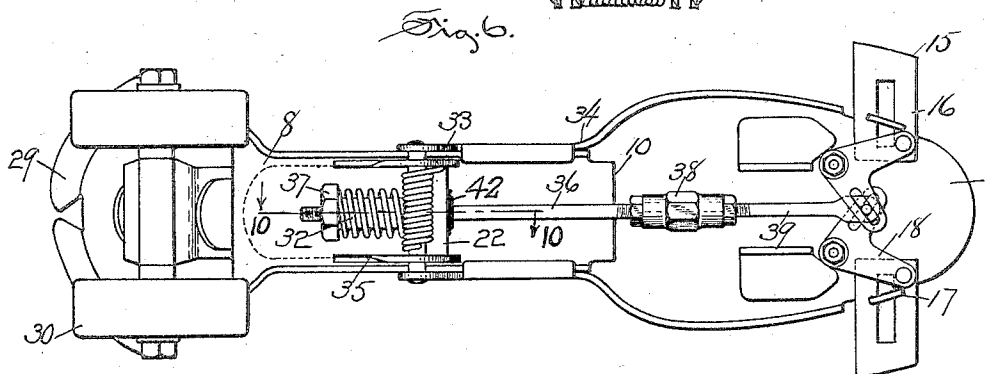
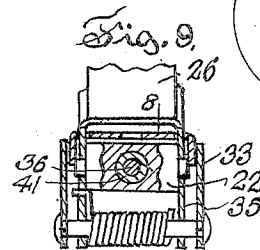
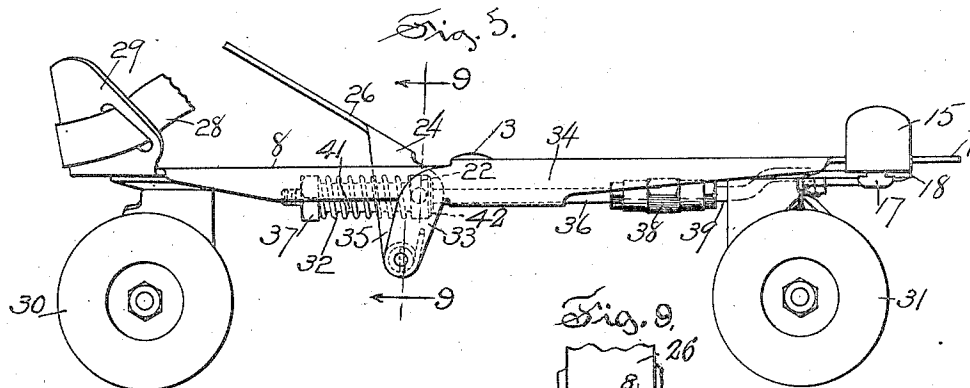
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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

2,016,406

SKATE

Oscar B. Welker, Middletown, Conn.

Application April 17, 1934, Serial No. 720,994

12 Claims. (Cl. 208—180)

My invention relates to the class of articles hereinabove mentioned, and an object of my invention, among others, is the production of a skate that may be readily attached to a shoe or boot in a particularly efficient manner.

One form of a skate embodying my invention and in the construction and use of which the objects herein set out, as well as others, may be attained, is illustrated in the accompanying drawings, in which—

Figure 1 is a side view of my improved skate.

Figure 2 is a top view of the same.

Figure 3 is a bottom view with the front wheels or rollers removed by breaking off the bracket therefor.

Figure 4 is a front view with parts beyond omitted.

Figure 5 is a side view showing a modified form of construction of the skate.

Figure 6 is a bottom view of the latter with the front wheels or rollers removed.

Figure 7 is a view in cross section on a plane denoted by the dotted line 7—7 of Figure 1.

Figure 8 is a view in longitudinal section on a plane denoted by the dotted line 8—8 of Fig. 3.

Figure 9 is a view in cross section on a plane denoted by the dotted line 9—9 of Figure 5.

Figure 10 is a view in longitudinal section on a plane denoted by the dotted line 10—10 of Fig. 6.

My invention, as will be apparent, applies to that type of skates known as roller skates, in the drawings herein the numeral 7 denoting a toe plate and the numeral 8 denoting a heel plate, these plates having shanks 9 and 10 overlapping one another, the shank 9 having overturned lips 11 within which downwardly bent sides 12 of the shank 10 slidably extend for purposes of adjustment, which adjustment may be obtained by means of a headed stud 13 secured to the shank 9 and projecting through a slot 14 in the shank 10, said shanks being secured together as by means of a nut (not shown) screwed onto the threaded lower end of the stud. This adjustment is for the purpose of fitting the skate to different sized shoes or boots.

Toe clips 15 are slidably attached to the bottom of the toe plate 7 as by means of slotted extensions 16 underneath the plate, the clips projecting above the plate in position to be clamped against the edges of a sole of a shoe or boot. A T-shaped stud 17 projects from the edge of the toe plate 7 through said slot, the T-shaped end being given to the stud as by forming a head after the clip has been placed in position.

Bell crank levers 18 are pivotally secured to

the underside of the toe plate, one arm of each lever being pivotally attached to one of the extensions 16 and the other arm of each lever having a slot which is engaged by a pin 19 at the end of an actuating rod 20 extending rearwardly through a notch in the bottom edge of a guide 21 projecting from the underside of the plate 7. The rear end of this rod extends through a bar 22 projecting across the skate underneath the shanks 9 and 10 and secured at its opposite ends to ears 23 of a clamp lever 24 pivotally mounted in lever supports 25 projecting downwardly at opposite edges from the shank 9 of the toe plate 7. The upper end of the clamp lever is formed into a foot pad 26 positioned to underlie the heel of the wearer, so that when the skate is placed in position on a boot or shoe the weight of the wearer pressing the foot pad 26 downwardly will force the actuating rod 20 forwardly and thereby swing the arms of the bell crank levers attached to the toe clips inwardly and clamp the forward part of the skate tightly against the edge of the sole of the boot or shoe. A spring 27 is employed to hold the foot pad 26 in its raised position and as shown in Fig. 1 of the drawings.

The heel of the skate is secured in place to a boot or shoe as by means of a strap 28 passed through a holding plate 29 projecting upwardly from the heel plate, and wheels or rollers 30—31 may be secured to the heel plate 8 and to the toe plate 7 in any suitable manner, this forming no part of my present invention. An important feature of my invention resides in the structure whereby all of the clamping mechanism is mounted on the forward portion of the skate so that in adjustments of the forward part with respect to the rear portion the clamping mechanism will be carried by the front portion.

It will have been observed that the heel and toe plates comprise a foot rest to support the foot of the wearer, and that the size of this foot rest may be readily changed to fit different sizes of boots or shoes, as may be desired. An important feature of my invention is embodied in means to provide for a yielding grip of the toe clips 15 on the soles of the boots or shoes and in means for varying the amount of such grip, and to this end I place a spring 32 on the rod 20, with one end of the spring thrusting against the bar 22 and the opposite end of the spring thrusting against a nut 40 threaded onto the rod and as shown in Figs. 1 and 3 of the drawings. As shown this nut has a sleeve 41 rigid therewith and extending loosely through the bar 22, a lip 42 on the end of the sleeve preventing it from being withdrawn

from the bar. The rod 20 passes loosely through said sleeve and by means of the nut the toe clips 15 are readily fitted to the sole of a boot or shoe and then the nut is further turned to increase the tension of the spring to such extent as may be desired.

In that form of the device shown in Figures 5 and 6 the parts are mainly of the same construction as hereinbefore described, the main difference being that the clamp lever 24 is pivotally mounted at its lower end in ears 33 projecting downwardly from opposite sides of the flanges 34 of the toe plate, the bar 22 extending between the side parts 35 of the lever which project downwardly through slots at opposite edges of the heel plate. The connecting rod 36 passes through the bar, as in the structure hereinbefore described, and a nut 37 threaded onto the end of the rod is employed for adjusting the tension of the spring 32 as in the former instance.

In order to provide for an adjustment of the toe clips 15 in this later construction a turn buckle 38 is threaded onto adjacent ends of the rod 36 and a section 39 thereof, which section is attached to the bell crank levers as hereinbefore described.

I claim:

1. A skate including a foot rest, a clamp lever pivotally supported by said rest and having a pad overlying the heel portion of the foot rest, toe clips movably attached to the toe portion of the foot rest for clamping action against the sole of a boot or shoe, and an operative connection between said clamp lever and said toe clips for operation of the latter.

2. A skate including a foot rest, a clamp lever pivotally supported by said rest and having a pad overlying the heel portion of the foot rest, toe clips movably mounted on the toe portion of the foot rest for clamping action against the sole of a boot or shoe, actuating levers connected with said toe clips for operating them, and a rod connecting said actuating levers with said clamp lever for operation of the former by the latter.

3. A skate including a foot rest, a clamp lever pivotally supported by said rest and having a pad overlying the heel portion of the foot rest, toe clips movably mounted on the toe portion of the foot rest for clamping action against the sole of a boot or shoe, bell-crank levers pivotally mounted on the toe portion of said foot rest with one end of each lever pivotally attached to a toe clip, and a connecting rod pivotally attached to the opposite end of each of said levers and operatively connecting them with said clamp lever.

4. A skate including a foot rest, a clamp lever, having ears pivotally mounted at opposite sides of said foot rest and having a pad overlying the heel portion of the foot rest, a bar extending between said ears, toe clips movably attached to the toe portion of the foot rest, actuating levers pivotally connected with said toe clips, and a connecting rod attached at one end to said actuating levers and at its opposite end extending through said bar and secured thereto.

5. A skate including a foot rest, a clamp lever pivotally supported by said rest and having a pad overlying the heel portion of the foot rest, toe clips movably attached to the toe portion of the foot rest for clamping action against the sole of a boot or shoe, an operative connection between said clamp lever and said toe clips for op-

eration of the latter, and means for effecting lengthwise adjustment of said connecting rod to vary the width between said toe clips.

6. A skate including a foot rest, embodying a heel plate and a toe plate, means for adjustably securing said plates together to vary the length of the foot rest comprising said plates, toe clips movably attached to the toe portion of the foot rest for clamping action against the sole of a boot or shoe, a clamp lever pivotally supported by said foot rest, and an operative connection between said clamp lever and said toe clips for operation of the latter by the former.

7. A skate including a foot rest comprising a toe plate and a heel plate overlapping one another, toe clips movably supported by the toe portion of the foot rest, a clamp lever pivotally mounted on the toe portion of said foot rest and having a pad overlying the heel portion of said foot rest, and an operative connection between said clamping lever and said toe clips for operation of the latter by the former.

8. A skate including a foot rest comprising a heel plate and a toe plate overlapping one another at their adjacent ends, means for adjustably securing said plates together for varying the length of said foot rest, overturned lips from one of said plates to receive opposite edges of the other of said plates, toe clips movably supported by the toe portion of said foot rest, a clamp lever pivotally mounted on the foot rest, and a connecting rod operatively connecting said clamp lever and toe clips for operation of the latter by the former.

9. A skate including a foot rest comprising a heel plate and a toe plate, one of said plates having down turned flanges between which the other plate is located, lips on one of said plates turned about the edge of the opposite plate to prevent separation of said plates, toe clips movably supported by said toe plate, a clamp lever pivotally mounted on said foot rest and a connecting rod operatively connecting said toe clips and clamp lever for operation of the former by the latter.

10. A skate including a foot rest, a clamp lever pivotally attached to said rest, toe clips movably supported by the toe portion of the foot rest for clamping action against the sole of a boot or shoe, and an operative connection between said clamp lever and toe clips for operation of the latter and for varying the amount of grip of said toe clips against said sole.

11. A skate including a foot rest, a clamp lever pivotally attached to said rest, toe clips movably supported by the toe portion of the foot rest, a connection between said toe clips and clamp lever including a rod operatively connected at one end with said toe clips and at its opposite end with said lever, a spring mounted on said rod to exert its force thereagainst, and means for varying the tension of the spring to vary the grip of said toe clips against the sole of a boot or shoe.

12. A skate including a foot rest, a clamp lever movably supported by and having a pad overlying said foot rest, clips movably attached to the foot rest for clamping action against the bottom of a boot or shoe, and an operative connection between said clamp lever and said clips whereby weight upon the pad will exert clamping action on said toe clips.

OSCAR B. WELKER.