

[54] **BUILT-IN RETRACTABLE ICE SPUR
DEVICE FOR SHOE HEELS**

[72] Inventor: **Joseph Korpei**, 63-23 50th St.,
Woodside, N.Y. 11377

[22] Filed: **Jan. 11, 1971**

[21] Appl. No.: **105,433**

[52] U.S. Cl. **36/61**

[51] Int. Cl. **A43c 15/00**

[58] Field of Search **36/61, 59 R**

[56] **References Cited**

UNITED STATES PATENTS

3,343,283	9/1967	Henry et al.	36/61
1,071,147	8/1913	East	36/61
1,200,658	10/1916	Senf	36/61

Primary Examiner—Patrick D. Lawson

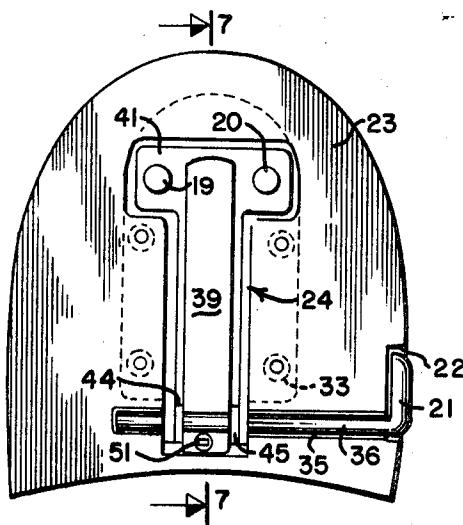
Attorney—Polachek, Saulsbury & Hough

[57] **ABSTRACT**

The shoe heel is formed of an assembly of leather layers, some of the layers being cut-out or hollowed to receive and confine a retractable spur device that is

mountable as a unit within the heel layer openings. The bottom heel layer has openings through which two spurs are projected across the rear of the heel of the shoe. The spur device comprises generally a bottom base plate, a retractable spur plate having spurs extending through the base plate and adapted to be extended through the holes in the bottom layer of the heel. Lying above the spur plate is a main pressure spring plate, pivotally connected to one end of the base plate and normally free of spring action. A lock lever having a shank with an opening therein extends over the spring plate and transversely thereto and with the spring plate lying within the opening no spring action is exerted against the spur plate. Upon the lock lever and its shank being turned, pressure is applied to the spring plate so as to activate the same and to extend the spurs. By this construction the spurs and the strong spring will engage the ice and will substantially support the weight of the wearer of the shoe so that it penetrates the ice, but upon solid concrete or rocks the spur plate will be upwardly forced against the action of the spring plate so that the spurs will not be harmed by walking upon a hard surface other than ice. The lock lever extends through the side of the heel and its handle arm lies within a recess in the side of the heel.

1 Claim, 9 Drawing Figures



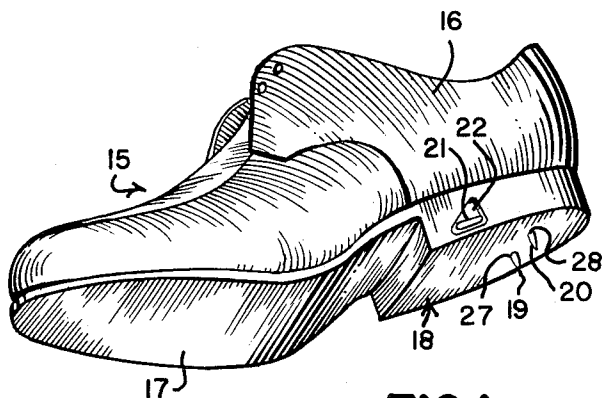


FIG. 1.

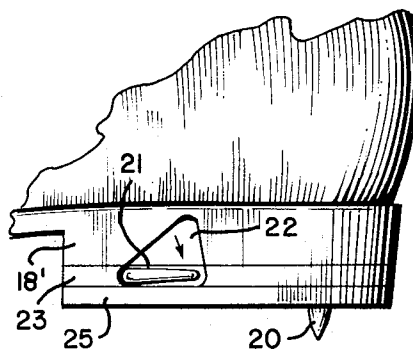


FIG. 2.

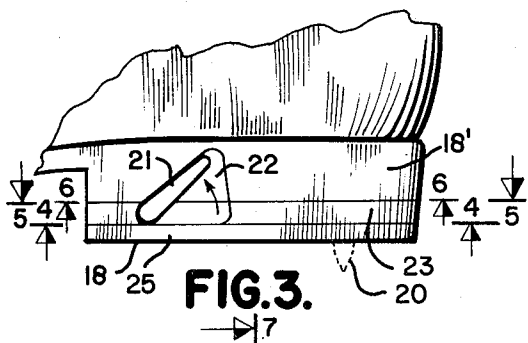


FIG. 3.

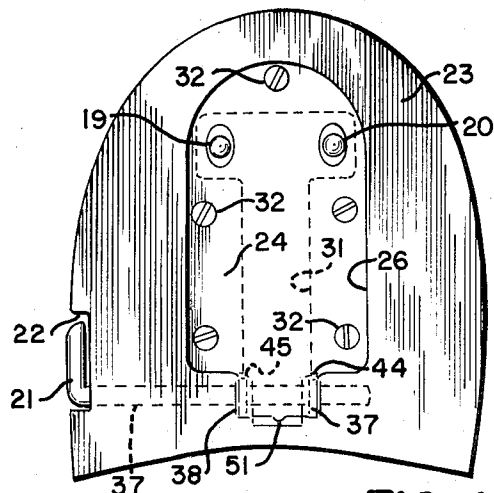


FIG. 4.

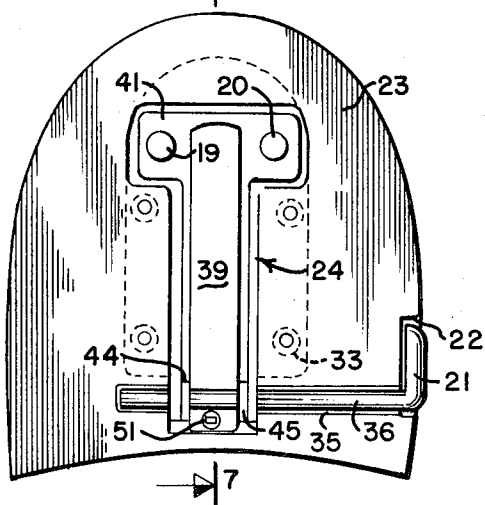


FIG. 5.

FIG. 6.

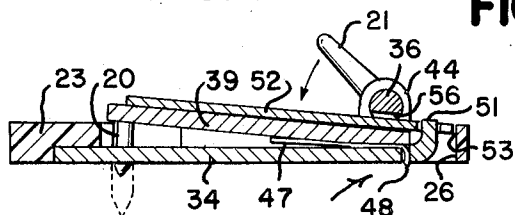
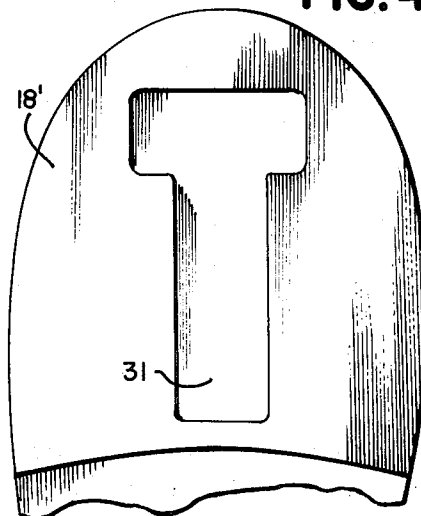


FIG. 7.

INVENTOR.

JOSEPH KORPEI

BY

Polachek & Saulsbury
ATTORNEYS

FIG. 8.

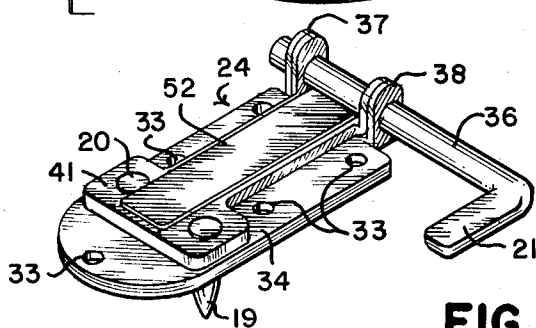
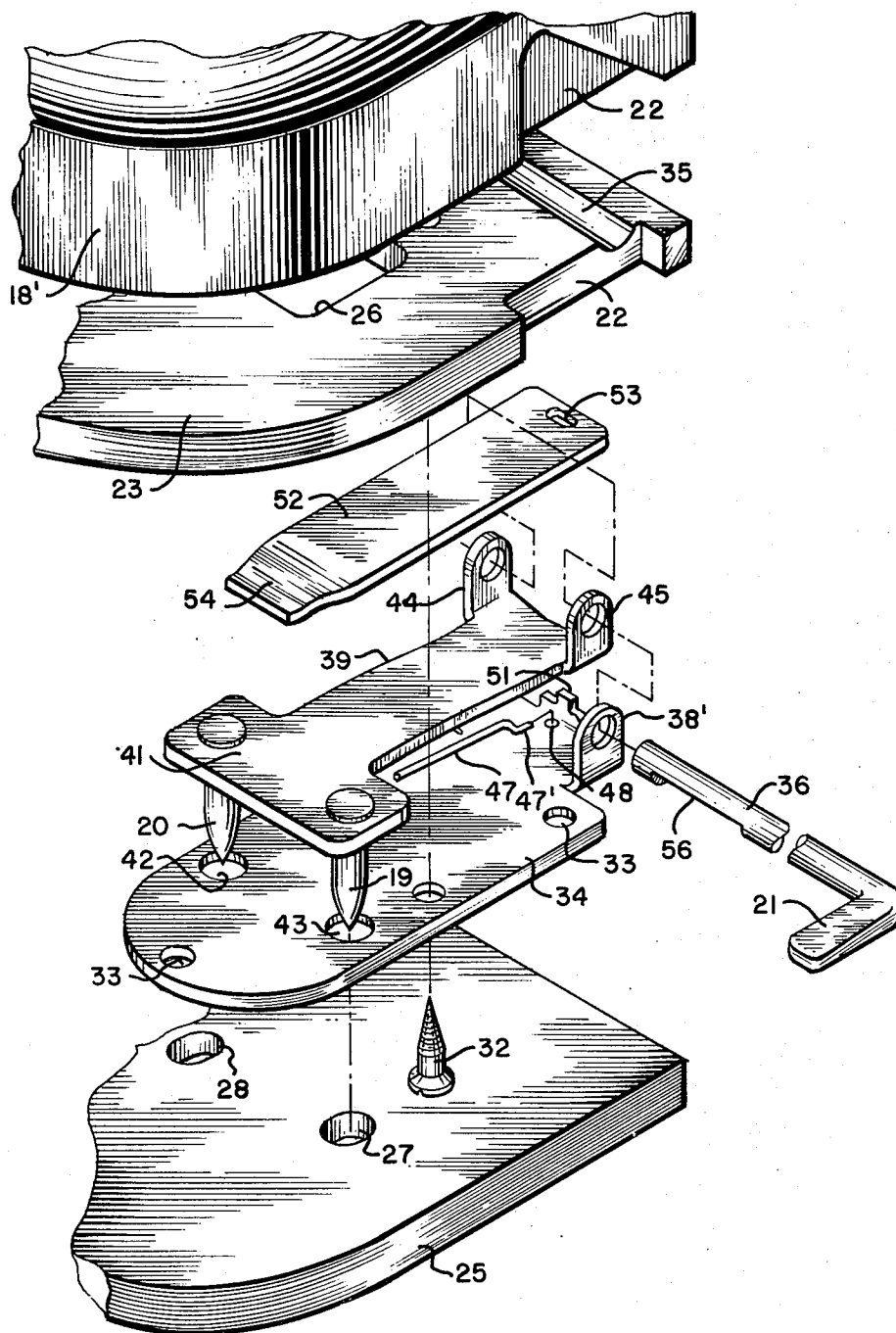


FIG. 9.

INVENTOR.
JOSEPH KORPEI
BY *Plachek & Saulsbury*
ATTORNEYS

BUILT-IN RETRACTABLE ICE SPUR DEVICE FOR SHOE HEELS

This invention relates to a shoe having a built-in ice spur device.

It is an object of the present invention to provide a shoe which will have a retractable ice spur device that upon the wearer about to walk over the ice can easily and readily cause the ice spurs to be extended from the bottom face of the heel and when not in use can readily by turning a lock lever cause the spurs to be retracted.

It is another object of the invention to provide a shoe with retractable ice spurs that will be automatically fully retracted when released and held within the shoe heel by a return spring but when returned for use the spurs will be biasingly retained, a strong spring overcoming the return spring made effective and such that upon walking on a surface other than ice, such as a hard rock surface, the spurs will not be subject to breakage, but will be readily retracted under the weight of the wearer yet extended under such spring pressure that they can penetrate ice under the weight of the wearer.

It is a further object of the invention to provide a key operated ice spur device adapted to be installed into the heel of a shoe which is inactivated by the turning of a locking key accessible to one side of the heel with its handle lying within a recess so that it will not interfere with the normal use of the shoe and with spring devices effective on opposite sides of the spur plate to retract the spurs and to place the spurs resiliently out of the heel.

Other objects of the invention are to provide a shoe heel ice spur device that is of simple construction, has a minimum number of parts, easy to operate, easy to install within the shoe heel, light in weight, spring biased, effective and efficient in use.

For a better understanding of the invention, reference may be had to the following detailed construction taken in connection with the accompanying drawings, in which:

FIG. 1 is a perspective view of a shoe having in its heel the built in ice creeper of the present invention.

FIG. 2 is a fragmentary side elevational view of the heel of the shoe and looking upon the creeper lock lever set to a position to extend the pointed spikes or spurs.

FIG. 3 is a fragmentary side elevational view of the heel of the shoe with the lock lever positioned for retraction of the spikes, this view being similar to FIG. 2.

FIG. 4 is a transverse view with a layer of leather removed from the heel and looking in plan upon the spring biased device disposed within the heel and the lock lever, the spikes or spurs being retracted, the view being taken looking upwardly on line 4—4 of FIG. 3.

FIG. 5 is a horizontal sectional view taken above the inserted spring biasing device with the lock lever being shown and as viewed looking downwardly upon line 5—5 of FIG. 3.

FIG. 6 is a horizontal transverse view of still a further layer of the heel in which is struck an opening for receiving the spring biasing spur device and as viewed on line 6—6 at the same level as line 5—5 upon FIG. 3, but looking upwardly therefrom, the spring biasing spur device being removed from the heel.

FIG. 7 is a longitudinal sectional view of one layer of the leather of a heel with an opening and with the spring biased spike device fitted in an opening in the leather heel layer.

FIG. 8 is an exploded fragmentary sectional view of the leather layers of the heel and of the spring biasing device adapted to be fitted within the heel.

FIG. 9 is a top perspective view of the spring biasing spur device with its parts assembled together and looking downwardly on the top thereof and upon its lock key.

Referring to the figures, 15 represents a shoe having the usual upper part 16 into which the foot is fitted, a sole 17 therefor and a heel 18 to which the spring biasing spur or spike device is built. Adapted to extend through the bottom face of the heel are two laterally spaced spikes or spurs which will penetrate the ice when the shoe is worn. These spikes are indicated at 19 and 20. At the side of the heel 18 is a lock lever handle 21 operable in a triangular shaped recess 22 in the side face of the heel preferably on the inner side of the shoe so that it will not generally be seen as much as it would if it was located on the outer side of the shoe. The shoe heel 18 is built up of layers of leather, the main body of several layers of leather being indicated at 18' to which there is attached an intermediate layer 23 adapted to contain the spring biasing spur device, generally of T-shape and as indicated at 24 and a bottom leather layer 25 through which the spikes or spurs 19 and 20 are extended from the spring biasing device 24 disposed in an opening 26 in the leather layer 23. This spur device carries the spikes 19 and 20 and they are adapted to be extended through holes 27 and 28 respectively in the lower layer 25 of the heel assembly 18.

The spring biasing spur device 24 can be assembled as a unit and installed in the heel 18 readily by first locating the device centered relative to a T-shaped recess 31 in the major heel portion 18' and then placing over the portion 18' as best seen in FIG. 6, the layer 23 so that the device 24 will be extended into the opening 26 of the layer 23. The spring biasing device 24 will be fixed to the portion 18' of the heel by five screws or nails 32 that are extended through holes 33 in a base plate 34 of the spring biasing spur device 24. The heel layer 23 also has a laterally extending opening or groove 35 that communicates with the side recess 22 to accommodate laterally extending shank 36 of lock key 21.

The base plate 34 has upwardly extending projections 37 and 38 having openings for receiving the lock lever shank 36. Lying above the base plate is a spike plate 39 generally of T-shape having a wide end 41 to which there is fixed the depending spikes or spurs 19 and 20 that can respectively be extended through holes 42 and 43 in the base plate 34 that are vertically aligned and lie above the holes 27 and 28 respectively in the bottom leather layer 25.

The plate 39 is also provided with upwardly extending spaced projections, as indicated at 44 and 45, that are disposed between the projections 37 and 38 of the base plate and made secure therebetween by shank 36 of the lock lever 21, but permitting the spur plate 39 to be pivoted and to be worked in the opening 26 of the leather layer 23 and in the opening 31 in the heel portion 18'.

Beneath the spur plate 39 is anchored a return spring 47 within a hole 48 at one end of the base plate 34, the end of the spring 47 being double bent as indicated at 47' to serve as a stop when extended through the hole 48 so that a cantilever action of the spring 47 is effected.

Extending upwardly from a main spring plate 52 that has an opening slot 53 at one end for receiving the projection 51 and a depending finger end 54 that engages the top of the key head 41 to urge pressure thereagainst.

This spring plate 52 is heavy and will strongly urge the spikes 19 and 20 downwardly when being walked upon ice.

The spring plate 52 is normally free and urges no pressure when spikes 19 and 20 and the plate 39 are retracted and held retracted by the return spring 47. The shank 36 has a cutaway portion 56 for accommodating the plate 52 when the lock key is pivoted to the position shown in FIG. 7 and no spring action will be had from this plate 52 at this time. The return cantilever spring 47 will have retracted the spikes or spurs 19 and 20 from the bottom face of the heel 18.

Upon rotating the shank 36 from the position shown in FIGS. 3 and 7, to a position shown in FIG. 2 to extend the spikes or spurs 19 and 20 the shank 36 is pivoted to cause the rounded surface thereof to depress the spring plate 52 and the spike plate 39 against the action of the return spring 47 so as to biasingly hold the spikes 22 outwardly of the shoe against the spring 52. By biasingly holding the spikes outwardly a better action is effected in contact with the ice and will prevent the spikes 19 and 20 from accumulating ice on their extended ends thereof. The spring 52 is a strong spring and is generally of such strength as to permit the person wearing the shoes to be more or less supported upon the pointed ends of the spurs 19 and 20, but with any thrust of weight the spurs 19 and 20 can be forced inwardly so as to prevent breakage upon engaging a hard surface other than ice as upon concrete or upon a stone or the like.

When it is desired to retract the pins 19 and 20 the lock lever 21 is swung to the position shown in FIG. 3 upwardly in the recess 22 so that the spring plate 52 will no longer function to provide the heavy spring action that is needed and the cantilever return spring 47 will cause the plate 39 to be lifted free of the spring 52

since the spring plate 52 is then lying within the slot 56 of the lock lever shank 36 as shown in FIG. 7.

It should further appear that the spring 47 is a return spring and the heavy spring plate 52 is the actuating spring when the lock lever 21 is positioned to render the same effective.

It should be apparent that the spur device is a self contained unit and that it is installed in the heel of the shoe simply by releaving layers of the heel of the shoe of material to provide openings to contain the parts of the spur device.

Various changes may be made in the detailed construction of this device, but such changes shall be within the spirit and scope of the present invention as defined by the depending claims.

What is claimed is:

1. A shoe having a heel assembly with an inner layer having an opening therein, a spur device installed in the opening in the heel assembly, said heel assembly including a bottom layer having spur openings therein, said spur device having spurs aligned with the openings of the bottom layer of the heel assembly, a spur plate carrying said spurs, a base plate and said spur plate being pivotally connected to the base plate, a lock lever means pivotally connected to the base plate and operable upon the spur plate to pivot the spur plate to extend the spurs through the bottom heel openings and return spring means acting between the spur plate and the base plate upon release of the lock lever to retract the spurs from the bottom of the heel, said base plate of the spur device having an upstanding mounting projection, a strong leaf spring mounted upon the upstanding projection and extending longitudinally over the spur plate, said lock lever means including a shank with a flat opening thereacross, said leaf spring traversing the opening in the lock lever shank and normally inoperative when lying therewithin, said lock lever when turned engageable with the load spring to activate the spring and pivot the spur plate to extend the spurs from the bottom of the heel, said locking lever having a handle bent at right angles to its shank and operable in the side recess of the heel; said spur plate being freely carried upon the base plate and lying flush with the underface of the leaf spring, said spur plate being pivotable upwardly about the lock lever shank when turned to locking position to spring bias the spur plate in its lowered position.

* * * * *

50

55

60

65