Jan. 24, 1961 J. A. KING 2,968,878

ANTI-SLIP DEVICE FOR BOOTS AND SHOES

Filed May 14, 1959

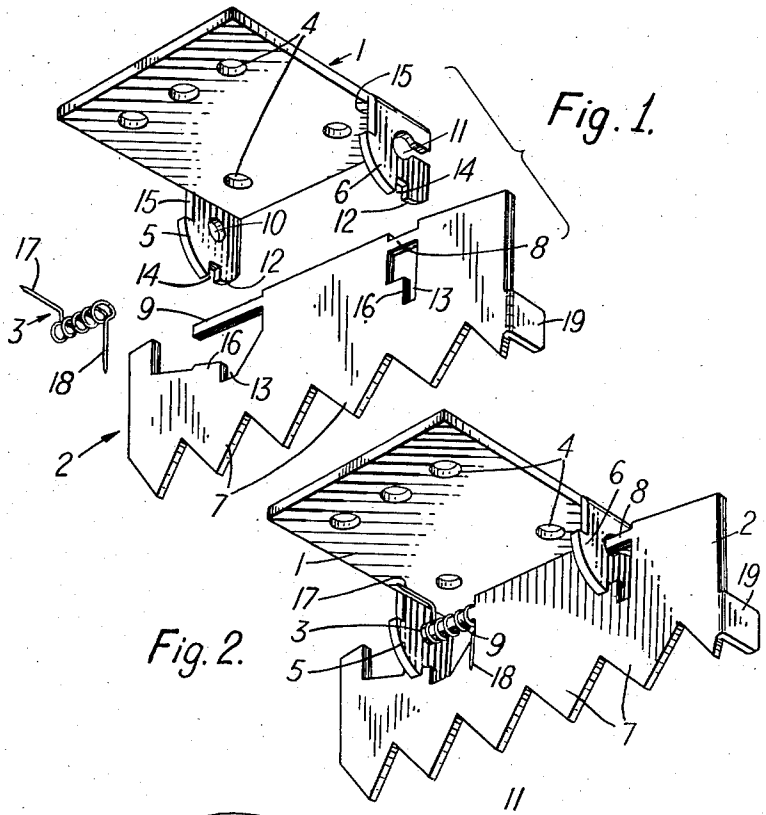


Fig. 1.

Fig. 2.

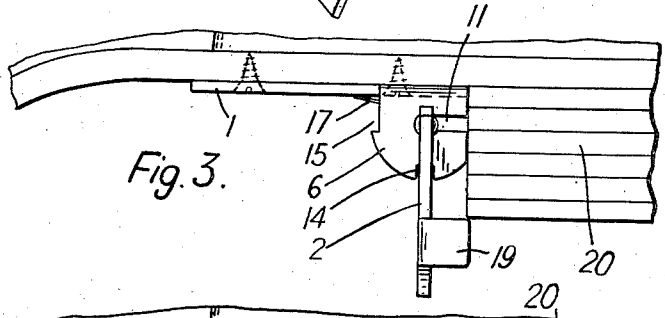


Fig. 3.

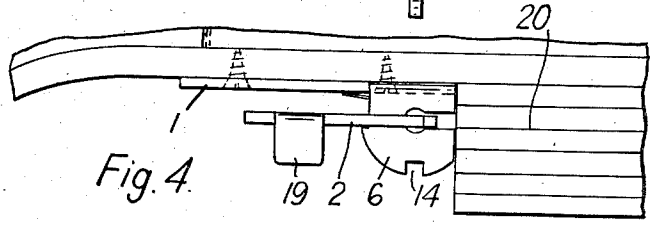


Fig. 4.

Inventor
James Archibald King

By Dowell & Dowell
Attorneys

United States Patent Office 2,968,878
Patented Jan. 24, 1961

2,968,878

ANTI-SLIP DEVICE FOR BOOTS AND SHOES

James A. King, 11 East Drive, Watford, England

Filed May 14, 1959, Ser. No. 813,303
Claims priority, application Great Britain May 31, 1958
5 Claims. (Cl. 36—61)

This invention relates to an anti-slip device for boots and shoes which has been designed to prevent slipping on icy or slippery surfaces.

The device according to the invention comprises a member having spikes or other projections so attached to a base member fixed or adapted to be fixed to a boot or shoe at a position in the front of the heel that the member having the spikes or projections can be adjusted either to an operative position in which the spikes or projections will engage the ground or icy surface or to an inoperative position in which the spikes or projections are received into the free space beneath the instep of the boot or shoe. The device is thus constructed so that it can easily be put out of action to avoid inconvenience when walking on surfaces on which the use of spikes or projections is undesirable.

The base member may be fixed to the front of the heel block of a boot or shoe but we find it preferable to fix it to the sole at a position beneath the instep and close to the front edge of the heel block. One embodiment of the invention, in which the base member is adapted to be so fixed to the sole of a boot or shoe, will now be described more in detail, by way of example, with reference to the accompanying drawing in which:

Figure 1 is an "exploded" view showing the separate parts of which the device is composed,

Figure 2 is a perspective view of the assembled device,

Figure 3 is a side elevation showing the device fixed to a shoe and moved to the operative position, and

Figure 4 is a similar view, but showing the device moved to the inoperative postion.

As can be seen most plainly from Figures 1 and 2, the device is composed of a base plate 1, a spike plate 2 and a coiled spring 3.

The base plate is provided with holes 4, i.e. holes to receive screws or like means for fixing it to the sole of a boot or shoe. The base plate also has two bent down lugs 5 and 6 at opposite sides of its rear end for supporting the spike plate 2.

The spike plate is formed with spikes or projections 7 at one edge and has cut-out portions adjacent its opposite edge so shaped as to form two aligned hinge pins 8 and 9 out of the material of the plate and lying in the plane thereof, the hinge pin 8 being joined at both ends to the plate itself, whereas the pin 9 has one free end.

The device is assembled by first threading the spring 3 onto the pin 9 and then pushing the pin 9 through a hole 10 provided for it in the lug 5 so that the spring 3 is compressed axially between the lug 5 and the portion of the plate 2 to which the root of the pin 9 is attached. The pin 8 is then pushed edgewise into a slot 11 provided for it in the lug 6 whereupon the plate 2 is rotated about the axis of the pins 8 and 9 so as to cause the edges 12 of the lugs 5 and 6 to enter gaps 13 provided for them in the spiked plate. Each lug 5 and 6 has two notches 14 and 15 and the spike plate 2 is formed with shoulders 16 adjacent the gaps 13 arranged so that, when

the spike plate has been rotated so as to bring the notches 14 or 15 into alignment with the shoulders 16, the shoulders are brought into engagement with the notches by a sliding movement of the plate 2 on the pins 8 and 9 under the pressure of the spring 3. The notches 14 are arranged to lock the spike plate in the operative position at right-angles to the base plate shown in Figure 3 and the notches 15 are arranged to lock the spike plate in the inoperative position parallel with the base plate shown in Figure 4. The plate 2 is of such depth that, when it is swung down into the operative position, the tips of the spikes or projections 7 project somewhat below the bottom of the heel as shown so that they will engage the ground or icy surface.

The two ends of the spring 3 are extended to form lever arms 17 and 18 which engage the plates 1 and 2 as shown so as to exert a constant pressure tending to rock the plate 2 from the inoperative position to the operative position.

The spike plate 2 is formed with a projecting lug or fingerpiece 19 by which it can easily be manipulated to move it either to the operative or inoperative position. This lug or projection is preferably arranged at the right-hand side for the left foot and at the left-hand side for the right foot to make it easy for the user to adjust the devices while wearing them.

The spike plate is moved to the inoperative position when required by sliding the plate 2 against the action of the spring 3 sufficiently to withdraw the shoulders 16 from engagement with the notches 14, then rocking it upwards against the action of the spring and finally allowing the shoulders 16 to engage the notches 15. The shoulders 16 are then held firmly in engagement with the notches 15 by the axial pressure of the spring so that the spike plate is locked in the position shown in Figure 4. In this position it is contained entirely within the free space beneath the instep of the boot or shoe and is thus out of the way.

To move the spike plate to the operative position the user has merely to push against the lug 19 so as to slide the plate 2 against the action of the spring 3 sufficiently to disengage the shoulders 16 from the notches 15. The spike plate will then swing down under the action of the spring 3 until the shoulders 16 come into alignment with the notches 14. The spike plate will then be slid by the axial pressure of the spring 3 sufficiently to engage the shoulders 16 with the notches 14. The spike plate will thus be locked in the position shown in Figure 3. In this position, the tips of the spikes or projections 7 project below the bottom of the heel 20 so that they will engage the ground or icy surface.

The device shown in the drawing is designed for a right shoe. For a left shoe, the device is preferably made as a mirror image of the right shoe.

The holes 4 of the device illustrated in the drawing enable it to be fixed to a boot or shoe by a boot repairer or by the ultimate user. When a boot or shoe is manufactured with an anti-slip device in accordance with the invention, the base member may be fixed to the boot or shoe bottom by screws in the same way as the plate 1 shown in the accompanying drawing or it may be attached to or built into the bottom of the boot or shoe by any suitable method chosen by the boot or shoe manufacturer.

I claim:

1. An anti-slip device for boots and shoes comprising a base member adapted to be fixed to the footwear at a position in front of the heel thereof, and a spiked plate having spikes or projections at one edge and hinged to said base member adjacent an opposite edge so as to be movable to an operative position in which the spikes or

projections will engage the ground or to an inoperative position in which the spikes or projections are received into the free space beneath the instep of the footwear, said spiked plate having cut-out portions so shaped as to form aligned hinge pins out of the material of the plate that engage in bearing holes provided for them in lugs projecting from the base member, the said plate also having shoulders that can be engaged with notches provided for them in the lugs by sliding the plate in the direction of the axis of the hinge pins to lock the plate in the operative position, the sliding movement of the plate being controlled by a spring which constantly tends to move the plate in the direction to engage the shoulders with the notches.

2. An anti-slip device for boots and shoes comprising a spiked plate having a number of spikes at one edge thereof and formed adjacent its opposite edge with cut-out portions so shaped as to form axially aligned hinge-pins out of the material of the plate, one of said hinge pins being joined to said spiked plate at one end only whereas the other is joined thereto at both ends; a base plate adapted to be attached to a boot or shoe and having spaced lugs one of which has a bearing hole into which said first mentioned hinge-pin can be pushed endwise whereas the other has a bearing slot into which said second-mentioned hinge-pin can be pushed laterally, said hinge-pins, bearing hole, and bearing slot forming a hinge about which the spike plate can swing either to a stowed position or to an operative position, and one of said lugs having a notch and said spiked plate having a shoulder that can be engaged with said notch by sliding the spiked plate in the direction of the common axis of the hinge pins to lock the plate in an operative position and spring means constantly tending to hold said spiked plate in the locked position.

3. An anti-slip device for boots and shoes comprising a base plate having two spaced apart lugs thereon pierced with mutually aligned bearing holes, a spike plate having a number of projecting spikes at one edge and mutually aligned hinge-pins adjacent an opposite edge thereof, said hinge-pins being mounted for limited sliding and rotational movement in said holes thereby permitting said spike plate to be displaced laterally relatively to said base plate and also to be rotated either to a stowed position close to said base plate or to a working position projecting from said base plate, said spike plate having shoulders and one of said lugs having a notch engageable with either of said shoulders by lateral displacement of said spike plate to lock the same in either the stowed or working position, and spring means constantly urging said spike plate laterally in the direction to cause engagement of said notch with said shoulder.

4. An anti-slip device for boots and shoes comprising a base plate having two spaced apart lugs thereon pierced with mutually aligned bearing holes, a spike plate having

a number of projecting spikes at one edge and mutually aligned hinge-pins adjacent an opposite edge thereof, said hinge-pins being mounted for limited sliding and rotational movement in said holes thereby permitting said spike plate to be displaced laterally relatively to said base plate and also to be rotated either to a stowed position close to said base plate or to a working position projecting from said base plate, said spike plate having shoulders and one of said lugs having a notch engageable with either of said shoulders by lateral displacement of said spike plate to lock the same in either the stowed or working position, and a spring constantly tending to rotate said spike plate towards said working position and constantly urging said spike plate laterally in the direction to cause engagement between one of said notches and said shoulders.

5. An anti-slip device for boots and shoes comprising a base plate adapted to be attached to the sole of a boot or shoe at a position in front of the heel thereof and having spaced apart lugs bent up from said plate parallel to one another and pierced with mutually aligned bearing holes, a spike plate having spikes or projections at one edge and having cut-out portions adjacent its opposite edge so shaped as to form aligned hinge-pins out of the material of the plate engageable with said bearing holes for both sliding and rotational movement therein permitting both lateral and rotational displacement of said spike plate relatively to said base plate, one of said hinge-pins having one end joined to said spike plate and one end free and being insertable endwise into one of said bearing holes, said spike plate having a shoulder and one of said lugs having a notch engageable with said shoulder by lateral displacement of said spike plate to lock the same in a rotational position in which said spikes will engage the ground, and a coiled spring threaded on said last-mentioned hinge-pin and constantly urging said spike-plate laterally in the direction to cause locking engagement between said notch and shoulder.

References Cited in the file of this patent

UNITED STATES PATENTS

351,966	Cottrell	Nov. 2, 1886
652,488	Rush	June 26, 1900
749,342	Toscan et al.	Jan. 12, 1904
896,158	Roche	Aug. 18, 1908
907,172	Pratt	Dec. 22, 1908
986,763	Scaramella	Mar. 14, 1911
992,773	Holderbaum	May 23, 1911
995,784	Gerry	June 20, 1911
1,259,705	Ajello	Mar. 19, 1918
1,292,212	Zaun	Jan. 21, 1919

FOREIGN PATENTS

483,865	Germany	Oct. 9, 1929