No. 754,577. PATENTED MAR. 15, 1904.

N. LAUB.

REVERSIBLE MOUNTAIN CLIMBER.

APPLICATION FILED AUG. 4, 1902.

NO MODEL.

Fig. I

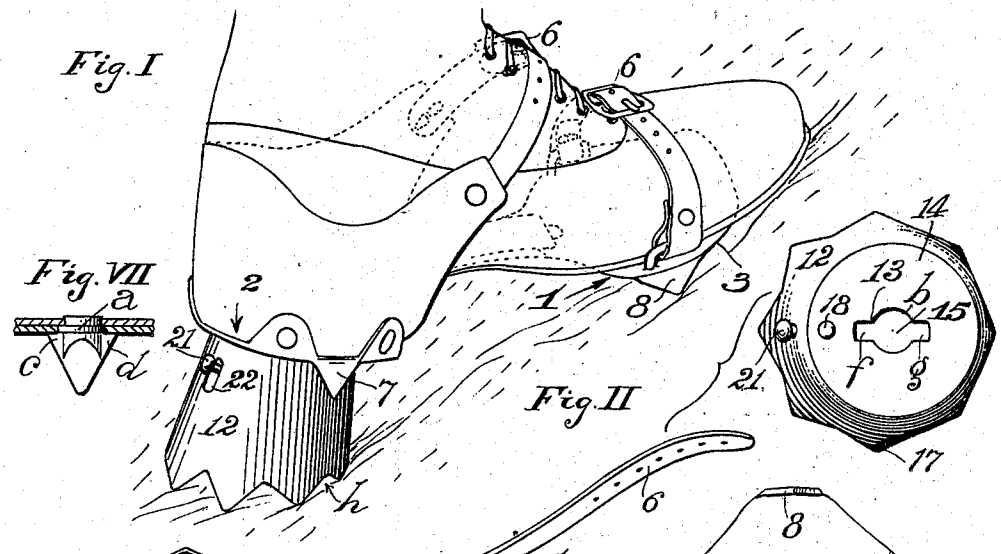


Fig. VII

Fig. II

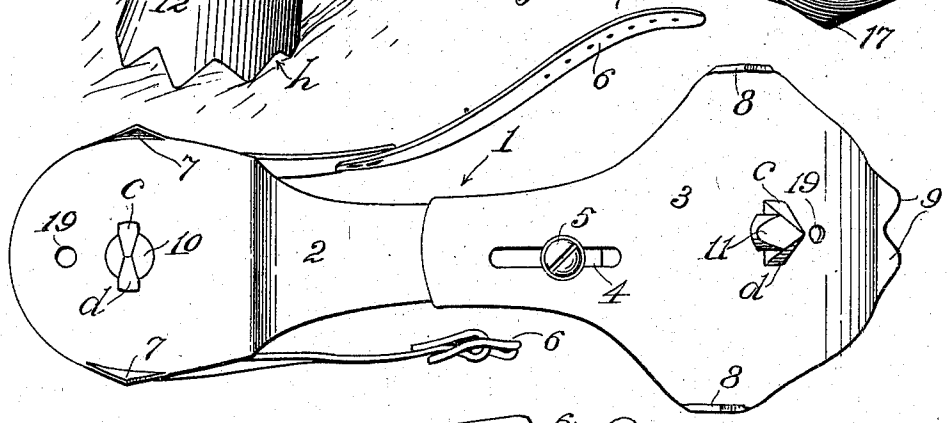


Fig. IV

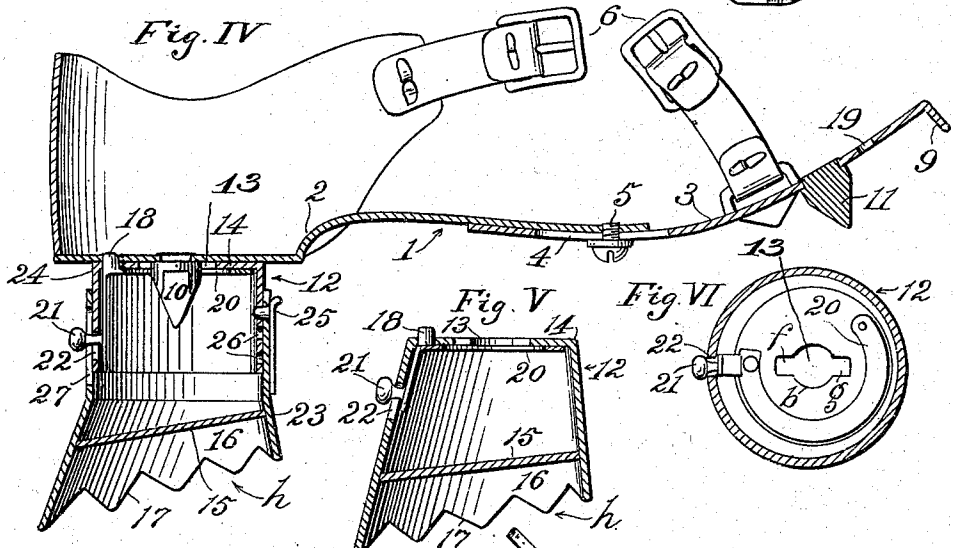
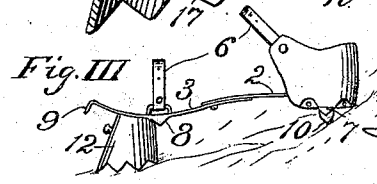


Fig. V

Fig. VI

Fig. III



Witnesses
C. C. Holly.
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Nicholaus Laub
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his attys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 754,577. Patented March 15, 1904.

UNITED STATES PATENT OFFICE.

NICHOLAUS LAUB, OF LOS ANGELES, CALIFORNIA, ASSIGNOR OF ONE-HALF TO LUDWIG WUNDHAMMER, OF LOS ANGELES, CALIFORNIA.

REVERSIBLE MOUNTAIN-CLIMBER.

SPECIFICATION forming part of Letters Patent No. 754,577, dated March 15, 1904.

Application filed August 4, 1902. Serial No. 118,388. (No model.)

To all whom it may concern:

Be it known that I, NICHOLAUS LAUB, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented a new and useful Reversible Mountain-Climber, of which the following is a specification.

An object of this invention is to provide means for increasing the convenience of ascending and descending steep hills and mountains.

In carrying out this invention means are provided for the attachment of a lift interchangeably beneath either the heel or sole of the foot to adapt the device for use in ascending or descending the hill or mountain side.

Another object of the invention is to provide means for holding said adjustable device in place and when not thus in use to serve to prevent slipping.

In this invention a sole for footwear is provided with shouldered studs at the heel and ball of the sole and a lift having a slanting bottom which is adapted and arranged for interchangeable attachment to said heel and ball of the sole.

The accompanying drawings illustrate the invention and the best mode in which I contemplate applying the same.

Figure I is a perspective view of one of a pair of mountain-climbers embodying my invention, the reversible attachment being adjusted in position for climbing a mountain side. Fig. II is a view of the bottom of the same with the reversible member detached and inverted to show the top thereof. Fig. III is a view of the device, in a reduced scale, adjusted for descent. Fig. IV is a longitudinal sectional view of the device with a preferred form of extensible block or lift for the sole. Fig. V is a midsectional view of the non-extensible block or lift. Fig. VI is a sectional view of the lift, illustrating the under side of the bolt substantially shown in Figs. IV and V for fastening the block against turning. Fig. VII is a fragmental detail, partly in section, illustrating the slot-and-shouldered stud fastening between the sole and block.

1 designates in a general way a sole desirably formed of a heel-piece 2 and a toe-piece 3, connected together by a slot-and-screw connection 4 and 5, respectively. This sole is adapted to be fastened to the boot or shoe in the customary way by fasteners 6. These parts may be variously constructed and variously secured together. In the form shown the sole is formed of two pieces of sheet metal, pointed portions of which are bent down to form calks or teeth 7 at the sides of the heel-section and 8 at the sides of the toe-section.

9 designates two toe-calks formed by bending the front end of the toe-piece 3 of the sole down, as shown in Figs. II, III, and IV.

10 and 11 are shouldered studs desirably pointed to form strong calks for holding the lift 12 in position at the rear and front of the sole interchangeable.

13 is a slot in the head 14 of the lift. The slotted head 14 and the shouldered studs 10 and 11 provide the slot-and-stud connection for fastening the lift 12 to the rear or front portion of the sole interchangeably. Preferably the shouldered stud has a cylindrical portion *a* to fit a circular portion *b* of the slot 13 and has also shoulders *c* and *d*. The slot has notches *f* and *g* through which the shoulders *c* and *d* may pass when the lift is being brought into position on the sole in the usual way of making a slot-and-stud connection.

The lift has an inclined bottom *h*, which is arranged aslant relative to the head 14, and has a cross wall or plate 15, and below such cross wall or plate is a rim 16, desirably provided with teeth 17. The plate 15 is arranged aslant relative to the head 14, and the rim 16 projects downward therefrom a short distance and desirably flares so that any earthy material which might otherwise pack in the opening will not be liable to pack, and in this manner the teeth of the lift are kept in condition

for preventing slipping. The shell of the lift is preferably in the form of a truncated cone, which construction gives additional strength and a broad substantial tread.

18 is a bolt desirably arranged to enter the hole 19 in the sole 1 to hold the lift 12 from turning to release it from the shouldered stud 10. Said bolt may be mounted on a spring 20 inside the shell which forms the lift. Said spring 20 may be curved, as shown, to avoid the attaching-studs.

21 is a knob or finger-piece by which the bolt 18 may be manually withdrawn from the hole or bolt-socket 19 to allow the lift to be disengaged from the sole. Said knob may play through a slot 22 in the shell of the lift 12. It is to be understood, however, that any suitable kind of latch may be used to retain the lift in the locked or operative position by preventing a turning movement thereof.

In practice the lift may be applied to the rear stud 10 for ascending the mountain or hill side and to the front stud 11 for descending. In Figs. I and III these reverse positions of the lift are shown.

The lift may be made extensible, as shown in Fig. IV, in which case an outer shell 23 telescopes upon an inner shell 24 and is held by a spring-catch 25, which catches in seats 26 in the inner shell 24.

27 is a slot in the outer shell to allow said shell to play freely without interfering with the finger-piece 21.

The holes 19 near the studs 10 and 11, respectively, are oppositely arranged relative to their respective studs, so that when the lift is applied to the stud 10 and is turned to bring the bolt 18 into the hole 19 the downward slant of the lift will be rearward, and when the lift is applied to the front stud 11 and the bolt 18 is brought in the hole 19 for said stud 11 the downward slant of the lift will be forward.

The heel-piece 2 and the toe-piece 3 may be adjusted to fit the boot or shoe by loosening the screw 5, adjusting the parts, and again tightening said screw in the ordinary manner.

The teeth and calks serve to prevent slipping on ice or crusted snow, and the device may be used as an ice-creeper on the level by removing the lift.

When the device is in use on the boot or shoe, it protects the same and preserves it from wear.

It is to be understood that this invention comprises a sole for footwear and a beveled lift for a shouldered stud-and-slot fastening for holding the lift and sole together and a bolt to prevent the lift from turning to release said fastening regardless of the specified form and arrangement which I have shown in the drawings

Having shown the form which I at the present deem preferable, I reserve the right to make any and all modifications of the invention which may be covered by the following claims.

Having described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. A sole having downwardly-projecting studs at front and rear, a lift which has its bottom aslant, and means for attaching the lift interchangeably to the front and rear of the sole.

2. A sole, a detachable lift applicable interchangeably to front and rear of the sole, having its bottom aslant, and means detachably attaching the lift to the sole.

3. A sole, a detachable lift applicable interchangeably to front and rear of the sole, having its bottom aslant, and arranged with points to prevent slipping, and means for interchangeably attaching the lift to front and rear of the sole.

4. A sole having shouldered studs at front and rear, a lift having a slotted head to receive and retain the studs, respectively, and a bolt to prevent the lift from turning.

5. A sole having shouldered calks at front and rear and a lift adapted for attachment to said calks interchangeably and having a slanting bottom, and means to prevent the lift from turning.

6. A sole adapted to be secured to a boot or shoe and formed of sheet metal having downbent points at the sides and with calks at the heel and ball of the sole, and a lift having a slanting bottom, said lift being provided with means for interchangeable attachment to said heel and ball calks.

7. A sole adapted to be secured to a boot or shoe and having calks at front and rear, a lift provided with means for attachment to the front or rear calk of said sole, said lift having a slanting bottom.

8. A sole adapted to be secured to a boot or shoe and having calks at front and rear, a lift having a slanting toothed bottom, said lift provided with means for interchangeable attachment to the front and rear calk of said sole.

9. A sole, a detachable lift for said sole, said lift having an inclined tread, means for attaching said lift to the rear portion of the sole with the tread inclined in one direction, and means for attaching the lift to the forward portion of the sole with the tread inclined in the reverse direction.

10. A sole, a hollow detachable lift for said sole, a slot-and-stud connection for securing said lift to said sole, the slotted portion of said connection being formed in the lift, a movable bolt mounted in the lift adjacent to the slot, and adapted to engage a socket pro-

vided therefor in the sole, a spring normally retaining said bolt in engagement with said socket, said spring being curved to avoid the stud, and means for manually withdrawing the bolt from the socket.

11. A sole formed of a heel-piece and a toe-piece adjustably connected together, fasteners adapted to secure said sole to a shoe, a lift having an inclined tread, a slot-and-stud connection for securing said lift to said sole, a spring-pressed bolt normally engaging a socket provided therefor in the sole, and means for manually withdrawing said bolt from said socket.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, at Los Angeles, in the county of Los Angeles and State of California, this 30th day of July, 1902.

NICHOLAUS LAUB.

Witnesses:
JAMES R. TOWNSEND,
LUDWIG WUNDHAMMER.