C. W. SAUER, JR.

ANTISLIPPING DEVICE FOR SHOES.

APPLICATION FILED SEPT. 14, 1914.

1,154,890. Patented Sept. 28, 1915.

Fig. 1.

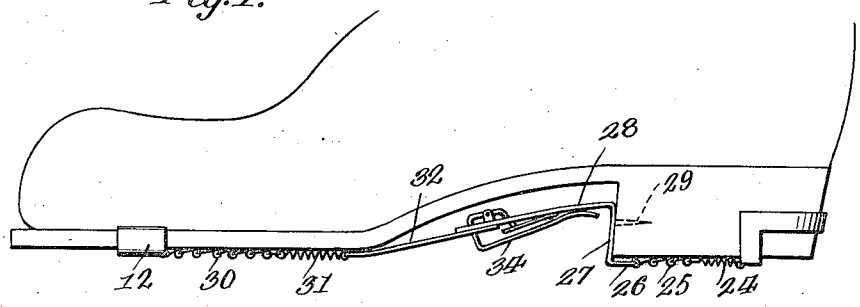


Fig. 2.

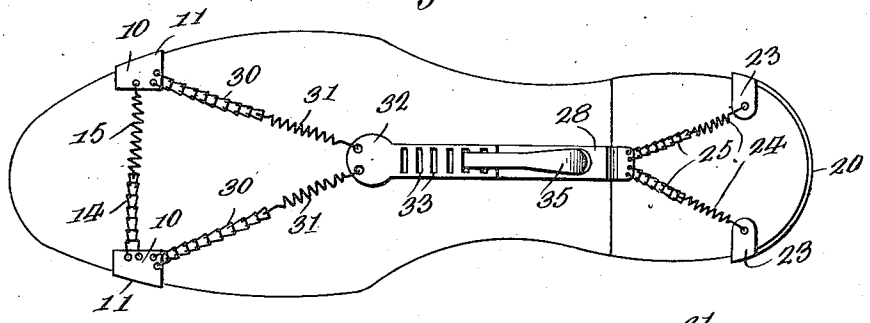


Fig. 3.

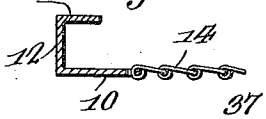


Fig. 4.

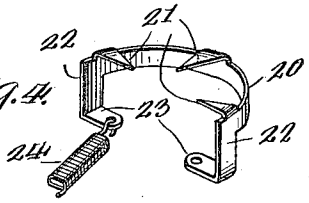


Fig. 5.

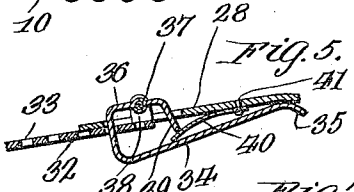


Fig. 6.

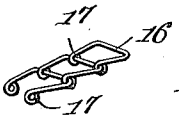
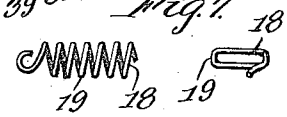


Fig. 7.



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UNITED STATES PATENT OFFICE.

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ANTISLIPPING DEVICE FOR SHOES.

1,154,890. Specification of Letters Patent. Patented Sept. 28, 1915.

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To all whom it may concern:

Be it known that I, CHARLES W. SAUER, Jr., a citizen of the United States, residing at Elizabeth, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Antislipping Devices for Shoes, of which the following is a specification.

This invention relates to devices for preventing the slipping of persons upon snowy or icy pavements or other surfaces upon which the natural friction has been reduced to a minimum and more particularly relates to a device of this character adapted to be removably attached to the sole of the wearer's shoe.

As a principal object, this invention contemplates the provision of an antislipping device which shall be extremely light, yet durable and effective in operation and at the same time which will not be noticeable to any great degree when properly positioned upon a shoe.

An object of equal importance is to provide in a device of this character, certain features of adjustability whereby its use to a number of shoes of approximately the same size may readily be undertaken.

An object of coördinate importance with the foregoing is to construct a device of the type set forth with such regard to the proportion, number and arrangement of parts as to enable it to be cheaply manufactured without any sacrifice of effectiveness.

The above and additional objects which will become apparent as this explanatory description proceeds, are accomplished by such means as are illustrated in the accompanying drawings, described in the following specification and then more particularly pointed out in the claims which are appended hereto and form a part of this application.

With reference to the drawings, wherein there is illustrated the preferred embodiment of this invention as it is reduced to practice, and throughout the several views of which like characters of reference designate similar parts, Figure 1 is a side elevation of a boot or shoe to which the antislipping device comprehended by this invention is attached, Fig. 2 is a bottom plan view of the matter disclosed in Fig. 1, Fig. 3 is a vertical section taken through one of the toe clamps, Fig. 4 is a perspective view of the heel clamp, Fig. 5 is a detail section taken through the tongue and buckle adjusting means, Fig. 6 is a perspective view of the type of chain which may preferably be employed, and Fig. 7 is a composite view illustrating the flattened type of spring, the use of which is desirable.

There is illustrated an antislipping device which is designed for ready attachment to the boot or shoe of the wearer so that steel chains and springs will be interposed between the surface of the foot and the icy or otherwise slippery walking surface. To this end, the invention may be said to consist of a forward part adapted for clamping about the forward portion of the shoe sole, a rearward portion to be positioned upon the heel and an inter-connecting portion containing the features of adjustability.

The forward clamping portion includes a pair of sole clamps 10 having their outer sides 11 shaped to conform to the curvature of the respective edge of the sole and having formed on the main portion or bottom, an upward lateral extension 12 and an inward extension 13 which as is clearly illustrated are adapted to grip the projecting edges to be found upon shoe soles. These clamps are made of spring steel, preferably in order to give them the necessary durability and resiliency, for it is desirable that they be furnished to the user in such shape that the distance between the inward extension 13 and the bottom of the clamp 10 will be less than the thickness of the sole edge, so that a wedging action of the clamp will be necessitated in its positioning upon the shoe, such wedging force being against the resiliency of the spring steel and accordingly holding the clamps firmly in place. To one of the forward clamps, a chain 14 is securely fastened and to the other a spring 15 is similarly secured, the chains and the spring meeting each other midway and being linked together at their point of meeting. The chain may be preferably of that form illustrated in Fig. 6, in which will be seen a succession of U-shaped members 16 formed with eyes 17 at the extremities of their bent portions which are utilized to grip the shank of the immediately preceding portion. A chain such as this, as will readily be seen when interposed between a person's shoe and a slippery walking surface will effectually prevent slipping of the wearer due to the tremendous friction set up. The spring 15 is illustrated in detail in Fig. 7 and is pref-

erably of the flattened form there shown, having the comparatively elongated tops and bottoms 18, with the shorter connecting ends 19, so that one of the flattened surfaces may bear against the slippery surface in the same manner as the chain 14. The presence of this spring positioned as described and illustrated in Fig. 2, of course permits of some degree of lateral adjustability of the forward clamps 10.

The rearward clamp includes essentially an arcuate portion 20, the upper edge of which is formed with radial and circumferentially spaced inwardly directed prongs 21 which are adapted to be sunk into the leather of the heel in order to firmly secure the clamp when the device is first put on. Downwardly directed extensions 22 are formed at the extremities of this arcuate portion and terminate in laterally diametrical flanges 23 which occupy a corresponding portion in this clamp to the bottoms of the forward clamps 10. Springs 24 are connected directly to these flanges 23 and are secured to chains 25 similar in all respects to the chains 14 which are in alinement with the springs 24 and connected at their other extremities with a flange 26 formed on the vertical portion 27 of the instep bridge 28, the former being provided with an inwardly directed prong or needle point 29 adapted to sink into the heel of the shoe as illustrated in Fig. 1. Similarly to these rearward springs and chains there are provided chains 30 and springs 31 for the forward clamps 10, the former being secured directly to the clamps and to the latter which are also secured to the adjusting tongue 32 formed with the transverse apertures 23 for a purpose to be hereinafter set forth.

The tongue 32 is bent upwardly and rearwardly from the sole of the shoe in order to fill the space inclosed by the arch of the instep so that an adjusting buckle 34 will be out of contact with the ground when the device is being worn. The instep bridge 28 and the tongue 32 are designed to overlap as illustrated in Figs. 1 and 5 and the buckle portion 34 is designed to pass through the apertures 33 of the overlapping portion of the tongue as a means of adjusting the distance between the forward clamps and the rear clamp 20. This buckle is formed at one extremity with a finger press 35, its other end being bent at right angles to the body thereof, and again bent to form the substantially parallel portion 36 which is transfixed by a pin 37 whereby the buckle is pivoted to suitable ears 38 carried by the portion 28. A downwardly directed angular continuation 39 is formed upon the portion 36 in order to contact with the leaf spring 40 which is secured as indicated at 41 to the under portion of the instep bridge and so disposed as to resist the unlocking movement of the buckle. As illustrated in Figs. 1 and 5, this buckle is shown in its secured position, its releasing movement being obviously one of rotation about the pivot 37 until the body portion 34 occupies substantially the position of the first bent portion between the parallel sides 34 and 36 at which time the tongue 33 may be moved outwardly until it may be released over the finger press 35 and which time the forward and rear portions of the device may be completely separated. Ordinarily however, a person having once adjusted the device to fit their particular boot or shoe need not readjust it at each time of donning this antislip contrivance. At all times however, care should be taken that when the device is adjusted that the springs 15, 31 and 24 be kept in a state of partial tension, at least, since by this means casual disengagement of the device is absolutely prevented.

To readily position one of the antislip devices, the heel portion 20 is first fixed on the heel so that the prongs 21 sink into the leather and the prong 29 of the instep clamp is firmly positioned on the opposite side of the heel. The forward clamps are then placed over the edge of the sole in the obvious manner so that all the springs are tensioned and then if need be, the buckle 34 is manipulated as has been already described to adjust the tongue 32 and instep clamp 38 as may be desired. Upon a perusal of the drawings taken in connection with the foregoing, it will be clearly apparent that there has been provided by the preceding disclosures a device capable of accomplishing the previously mentioned objects and accordingly be claimed as possessing the advantages and desirabilities set forth in such objects. While in the foregoing however, there has thus been illustrated in the drawings and described in the specification such combination and arrangement of elements as constitute the preferred embodiment of this invention, it is desired to emphasize the fact that such changes in the matters of proportion and degree may be made in later adaptations of this device as shall not alter the spirit of the invention as defined in the appended claims.

What is claimed is:—

1. A device of the character described including sole clamps, heel clamps, an instep bridge, a tongue adjustably connected to said bridge, resilient connections between said sole clamps and said tongue, and resilient connections between said heel clamps and said bridge.

2. An anti-slip device as set forth including sole clamps, heel clamps, an instep bridge, a tongue adjustably overlapping said bridge, rigid means connecting said heel clamps, semi-rigid and resilient means connecting said sole clamps, resilient con-

nections between said sole clamps and said tongue, and resilient connections between said heel clamps and said bridge.

3. An anti-slip device as set forth including sole clamps, heel clamps, an instep bridge, a tongue adjustably overlapping said bridge, rigid means connecting said heel clamps, semi-rigid and resilient means connecting said sole clamps, a chain connected to each sole clamp, a spring connecting each chain to said tongue, a spring carried by each heel clamp, and a chain connecting each of last said springs to said bridge.

4. The combination with a pair of forward sole clamps resiliently separated, of a heel clamp, an instep bridge resiliently connected to said heel clamp, an apertured tongue resiliently connected to said forward clamps, and a buckle portion pivoted to said instep bridge and adapted to coöperate with said apertured tongue in order to maintain the longitudinal adjustment of the device.

5. The combination with a pair of sole clamps, of semi-rigid and resilient means connecting said clamps, a rearwardly directed tongue, semi-rigid and resilient connections between said tongue and each of said clamps, a heel clamp, an instep bridge, semi-rigid and resilient connections between the last mentioned clamp and bridge, means pivoted on said instep bridge and adjustably coacting with said tongue, and resilient means operable on said pivoted means intending to hold it in its adjusted position.

6. The combination with a pair of sole clamps, of a chain and spring in series connecting said clamp as an antislip device, a rearwardly directed tongue, chain and spring device connecting each of said clamps with said tongue, a heel clamp formed with a plurality of prongs, and a pair of bottom portions, a forwardly directed instep bridge overlapping said tongue, spring and chain connections between first said bridge and each of said bottom portions, and means resiliently pivoted upon said instep clamp to coact with said tongue in adjusting the tension of said spring.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES W. SAUER, Jr.

Witnesses:
WALTER M. SCHMIDT,
FRANK D. WALSH.