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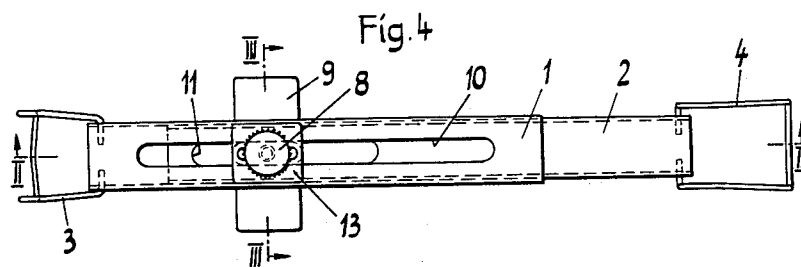
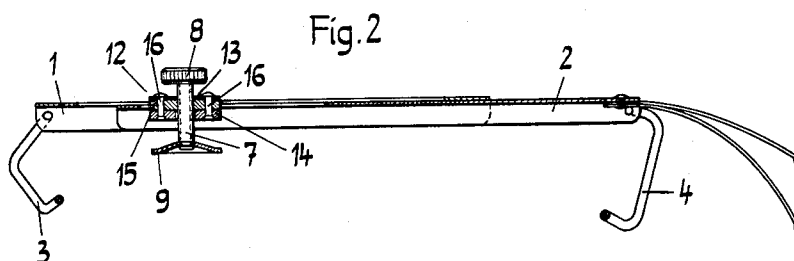
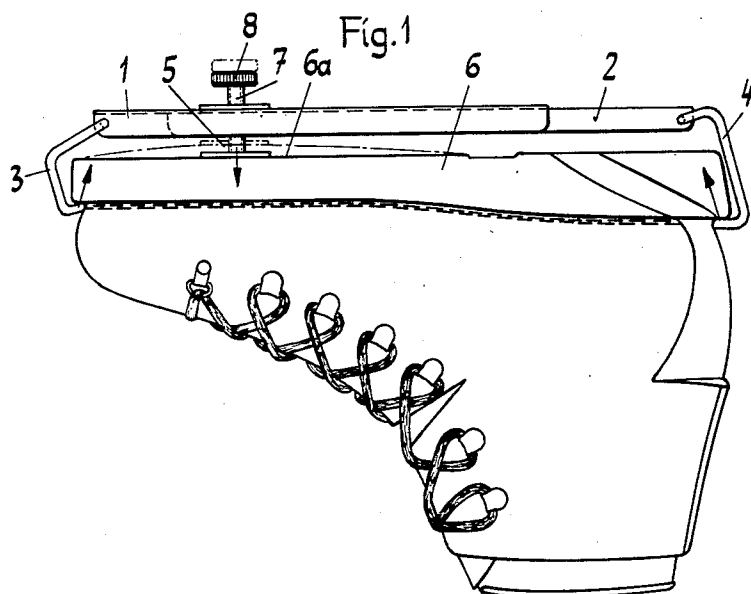
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3,199,131

SKI BOOT OR SHOE STRETCHER

Filed March 20, 1963

3 Sheets-Sheet 1



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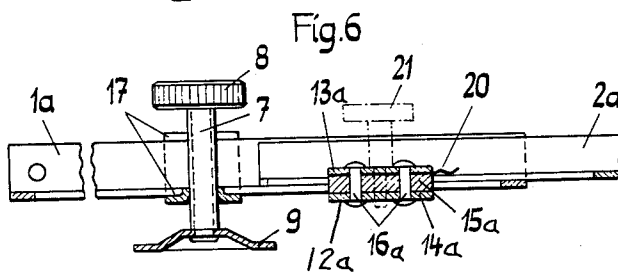
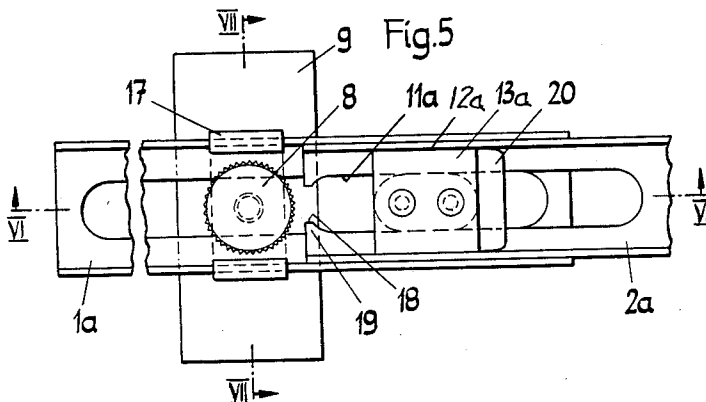
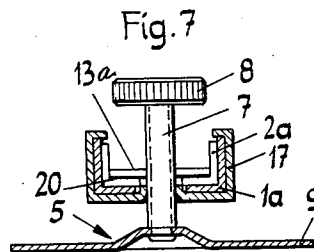
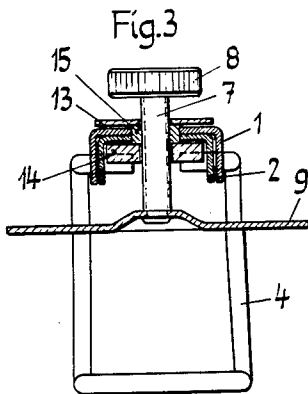
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3 Sheets-Sheet 2



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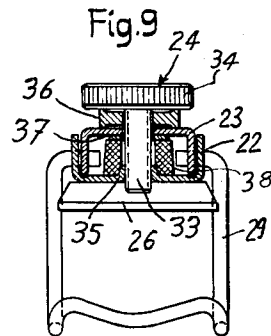
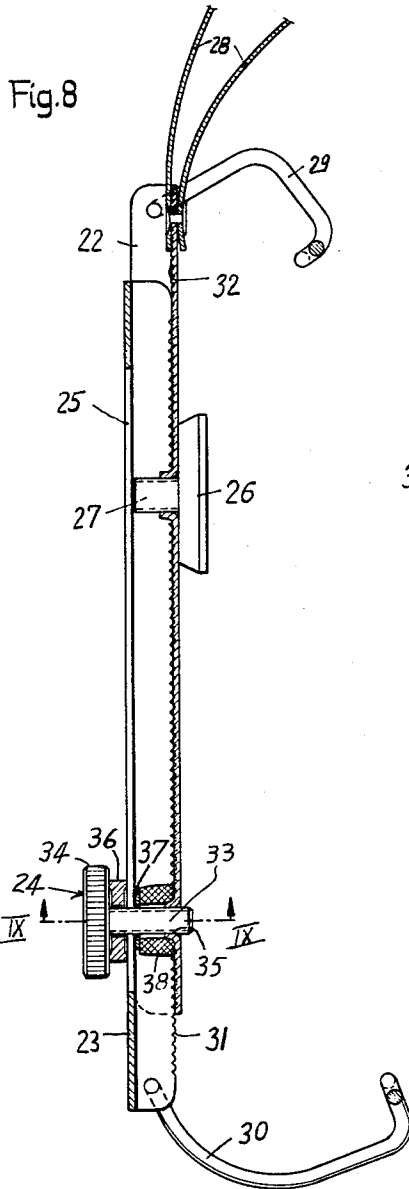
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SKI BOOT OR SHOE STRETCHER

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3 Sheets-Sheet 3



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3,199,131

SKI BOOT OR SHOE STRETCHER

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E 22,592

4 Claims. (Cl. 12—120.5)

The invention relates to a shoe stretcher, more especially for ski boots, comprising two rails which are arranged beneath the sole of the boot and which are guided longitudinally one within the other and are also relatively displaceable and two clips provided at the ends of the rails for engaging around the edge of the sole at the toe and heel of the boot. A shoe stretcher of this construction is known in which the clips are formed as closed rectangular loops, which are fitted on the toe and heel of the boot, respectively. These boot stretchers serve mainly for stretching ski boots, i.e. for holding the sole of the ski boot straight. For this purpose, it is necessary for the clips to exert a pressure perpendicularly of the sole. For this reason, the two mutually displaceable rails are tensioned relatively to one another by a tightening device and a spring fitted into the said tightening device, i.e. they can be contracted by the tightening device. With the closing of the latter, the two rails are applied to the sole, and the two clips exert on the sole a pressure which is directed at an angle to the sole and not perpendicularly. On account of the tightening device, which must also comprise a spring, the known boot stretcher is expensive to manufacture. Since the two rails are clamped relatively to one another on closing the tightening device, when the tightening device is open, they also retain the same position which they occupied when the said device was closed. It is consequently difficult to remove this known shoe stretcher from the sole. Furthermore, it is disadvantageous that the clips exert a pressure on the sole which is at an angle thereto, since thereby the sole stitching is subjected to an unnecessary load.

It is the object of the present invention to provide a shoe stretcher, more especially for ski boots, which does not have these disadvantages. This is achieved according to the invention by the rails being arranged at a distance from the sole of the boot, and by a pressure member being provided on the rail facing the toe of the boot, the said member acting on the ball section of the sole. A tightening device and a spring are therefore not provided with the new shoe stretcher. As a result, the manufacture thereof is substantially simplified and made less costly. With the new shoe or boot stretcher, the necessary spring action required when the sole of the boot is straightened after some time is displaced into the two rails. The two relatively displaceable rails, which can be made of sheet metal, have in fact sufficient resilient properties. These resilient properties can consequently become operative because the rails are arranged spaced from the sole of the boot. In the new shoe or boot stretcher, the two rails are not pulled together, as was formerly the case, when fitting the stretcher to the sole, so that the clips no longer exert a force obliquely of the sole, but a force which is perpendicularly of the latter. The shoe stitching is therefore no longer so heavily stressed as formerly. Since the pressure member acts on the ball section of the sole, which experience shows has the strongest flexion with ski boots, the forces of the new boot stretcher are applied at the most favourable positions. Consequently, a comparatively small stretching force is sufficient, so that the ski boot is protected by the new shoe or boot stretcher.

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Other advantages and details are more fully explained by reference to the constructional examples illustrated in the drawing, wherein:

FIG. 1 is a side elevation of a first constructional example of the new shoe or boot stretcher with a ski boot clamped in position,

FIG. 2 is a longitudinal section through the first embodiment on the line II—II of FIG. 4,

FIG. 3 is a cross-section through the ski boot stretcher on the line III—III of FIG. 4,

FIG. 4 is a plan view of the first constructional example,

FIG. 5 is a plan view of the second constructional example,

FIG. 6 is a longitudinal section through the second constructional example on the line VI—VI of FIG. 5,

FIG. 7 is a cross-section through the second constructional example on the line VII—VII of FIG. 5,

FIG. 8 is a longitudinal section of a third constructional example, and

FIG. 9 is a cross-section on the line IX—IX of FIG. 8.

A first embodiment of the new shoe or boot stretcher is shown in FIGS. 1—4 of the drawings. The references 1 and 2 represent two rails which are arranged beneath the sole and which are guided one within the other longitudinally and are also relatively displaceable. Provided at each of the two ends of these rails is a clip 3 or 4, these being formed as hooks in the embodiment illustrated and being articulated on the rail. As shown in FIG. 1, these hooks engage over the edge of the boot sole at the toe and heel. As can also be seen from FIG. 1, the two rails 1, 2 are arranged spaced from the sole. Provided on the rail 1 facing the toe of the boot is a pressure member 5, which acts on the ball section 6a of the sole 6. The pressure member is preferably arranged in the middle of the front sole, so that it acts on the sole 6 at the point where its flexion is strongest. The sole can best be straightened in this way. This pressure member 5 can either be displaceable longitudinally of the rails 1, 2 or it can be arranged in a fixed position. If the pressure member 5 is arranged to be displaceable longitudinally, the shoe or boot stretcher is suitable for all expected sizes of boots or shoes. If the pressure member 5 is fixedly arranged, it would be necessary to manufacture several different sizes of shoe stretchers, although one size could also be used for several sizes of boots.

Ski boots, for which the new stretcher is to be particularly employed, have soles which are of very different thicknesses and of which the flexion is also different. It is accordingly desirable to arrange for the pressure member to be adjustable perpendicularly of the sole. For this purpose, the pressure member 5 can be vertically adjusted by means of a screw bolt 7. As shown in FIGS. 2 and 3, the screw bolt 7 is mounted to be rotatable but not axially displaceable in the pressure member 5. A knurled head 8 can be provided for actuating the screw bolt 7.

In order that there should not be any too strong flexion of the sole at the point where the pressure member 5 engages when clamping the boot sole, the said member should be supported with a broad support surface on the sole. For this purpose, a rectangular plate 9 can be provided, the width of which corresponds approximately to the width of the rails 1, 2 and the length of which is approximately the same as the width of the shoe sole at the point where this plate engages. When fitting the clamp to the ski boot, the plate 9 can be arranged perpendicularly of the length of the sole or also longitudinally thereof. When packing the shoe or boot stretcher, it is expedient to arrange the rectangular plate longitudinally of the rails.

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In order that the two rails 1, 2 can be displaced longitudinally relatively to one another, a slotted guide 10 or 11 is provided in each of these rails. Displaceably arranged in these two slotted guides 10, 11 is a rivet connection 12. In the constructional examples illustrated, this rivet connection consists of a slide plate 13 arranged on the external surface of the rail 1 and a slide plate 14 arranged on the internal surface of the rail 2, and also a spacer plate 15 arranged in the slots 10, 11. The three plates 13 to 15 can be held together by rivets 16.

In the constructional example illustrated in FIGS. 1-4, the pressure member 5 is also arranged on the rivet connection 12. For this purpose, the spacer plate 15 is formed with an internal thread in which the screw bolt 7 is arranged so that it can be screwed. The rivet connection 12 thus has a double function in this case. It permits the mutual longitudinal displacement of the two rails 1, 2 and it serves at the same time for the displaceable mounting of the pressure member 5 longitudinally of the rails 1, 2. In this way, the pressure member 5 can always be arranged at the highest point of the ball section of the sole 6. In order to impart a higher rigidity to the rails 1, 2, these are of U-shaped cross-section, as can be seen more especially from FIG. 3.

The operation and manipulation of the new shoe or boot stretcher is as follows:

The front clip 3 is first of all fitted on the sole welt at the toe end, the pressure member 5 being in its uppermost position, i.e. bearing on the rail 1. This position is shown in dotted lines in FIG. 1. The two rails 1, 2 are then pushed together until the clip 4 comes into engagement with the sole edge on the heel of the ski boot. Thereafter, by turning the knurled screw 8, the pressure member 5 is forced downwardly. As a result, the previously curved boot sole (shown in dotted lines in FIG. 1) is straightened. The forces which are exerted on the sole are operative in their most favourable direction, i.e. they act perpendicularly or substantially perpendicularly of the sole, as indicated by arrows in FIG. 1. Therefore, no forces are exerted on the boot sole longitudinally thereof. In this way, not only is the shoe upper protected, but the positioning and tightening of the new boot stretcher is substantially facilitated. For this reason, it is also possible for example for the boot stretcher to be brought into engagement with the ski boot when the pressure member is in its position as shown in FIG. 1, i.e. when it is wholly or partially screwed down. On fitting the boot stretcher to the ski boot, the clip 3 is first of all brought into engagement with the toe, as previously described, then pressure is applied to the rear rail 2 until the clip 4 can be hooked on the heel of the boot. By virtue of the long lever arm of the two rails 1, 2, the downward pressing of the rail 2 can be effected by using comparatively little force.

In the constructional example illustrated in FIGS. 1-4, the pressure member is arranged on the rivet connection 12. With a short construction of the rails 1, 2 which is desirable in order to achieve smallest possible packing dimensions of the boot stretcher, it can however happen that the pressure member no longer engages the highest point of the ball section of the sole, but is disposed more in the middle thereof. However, this would be undesirable for the action of the boot stretcher. In order to overcome this disadvantage, in the constructional example shown in FIGS. 5-7, the pressure member 5 is arranged on a slide 17 provided so as to be displaceable on the rail 1a. The pressure member 5 can also be constructed as a rectangular plate 9 and be vertically adjustable by means of a screw bolt 7. In a similar manner to the constructional example shown in FIGS. 1-4, a rivet connection 12a is also provided, which interconnects the two rails 1a and 2a so that they are displaceable. In order that the two rails 1a and 2a can be pushed completely one within the other when the stretcher is not

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in use, the slot guideway 11a of the rail 2a is made open on one side. The screw bolt 7 can pass through this opening 18 on pushing the two rails together. The rivet connection 12a is prevented from sliding out of the slotted guideway 11a by a constriction 19 of the latter at the opening 18. The sliding out can however also be prevented by the web or side section of the U-shaped rail 2a being bent over at its end.

In order that the two rails 1a and 2a maintain their length, once this has been adjusted to the specific size of sole, a leaf spring 20 can be provided under one of the sliding plates 13a or 14a. In the example illustrated in FIGS. 5-7, this leaf spring is arranged under the inwardly disposed sliding plate 13a. This leaf spring 20 obstructs the mutual displacement of the two rails. A similar leaf spring could also be arranged on the slide 17 in order also to impede the displacement thereof relatively to the rail 1a. In this way, when the boot stretcher is frequently used on the same size of boot, it will always have the correct adjustment. It is also possible to provide a similar leaf spring with the rivet connection 12 shown in FIGS. 1-4. The leaf spring shown in FIGS. 5 and 6 could also be replaced by a clamping screw 21 which is shown in chain-dotted lines. The plates 13a-15a and the rivets 16a should then be of such dimensions that the plates 13a-15a are only loosely held together by the rivets. On adjustment to the correct size of boot, the plates 13a and 15a could then be pressed together by the clamping screw 21, so that a mutual displacement of the rails 1a and 2a is avoided.

FIGS. 8 and 9 show a still further, especially simple constructional example. In this construction also two rails 22 and 23, slidable within one another, are provided and these rails possess a U-shaped profile. The open sides of the two U-profiles are turned towards one another as is particularly apparent from FIG. 9. A clamping screw 24 has a threaded shank 33 and an enlarged head 34. The shank 33 extends through a slot 25 in the rail 23 and is threaded into a threaded opening 35 in the rail 22. A sleeve 36 encircles the shank 33 and is disposed between the head 34 and the rail 23. A washer 37 and a further sleeve 38 encircle the shank 33 and are disposed between the rails 22 and 23. Thus, when the threaded shank 33 is threaded into the opening 35, washer 37 engages the rail 23 and urges it toward rail 22 whereby said rails firmly engage the washer 37 and sleeve 38 and are clamped thereagainst to releasably secure the rails 22 and 23 against relative longitudinal movement. A pressure member 26 is also fixed in the rail 22 and is not longitudinally slidable therein. A screw bolt 27 which is screwably arranged in the rail 22 is fast with this pressure member. In this manner by turning of the pressure member 26 a height setting of the latter can be effected. A strap loop 28 serves for the carrying of the shoe stretcher and the shoes stretched thereon. Hooks 29 and 30 are provided at the ends of the rails 22 and 23, as in the foregoing embodiments, which engage over the shoe sole from below.

The fitting of this shoe stretcher on a shoe is carried out in the following manner:

First the two rails 22 and 23 are slid past each other corresponding to the desired shoe size and are then fastened against one another by means of the clamping screw 24.

In order to prevent sliding back of the two rails 22 and 23 with weaker clamping force of the screw 24, serrations 31 can be provided on the front edge of the limb of the profile 23 and corresponding serrations 32 on the cross-piece of the profile 22, which mutually interengage in one another. Further, markings corresponding to the various shoe sizes can also be provided on one limb of the rail 23, which facilitate the mutual positioning of the rails.

After the two rails have been adjusted to the correct length, the hook 29 is hooked onto the front end of the

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sole. As a result the pressure member 26 rests on the ball part of the sole. By pressing down of the rail 23 at its free end the hook 30 can also be hooked onto the heel of the shoe. This operation can be carried out very rapidly, so that the stretching of a shoe only takes a few seconds. According to the strength and curvature of the sole the pressure member can be screwed more or less into the rail 22.

Supplementing the already described advantages of the new shoe stretchers, there is here added the extremely careful stretching which they effect. The pressure member operates substantially at right-angles to the ball part of the shoe sole, while the hooks also press perpendicularly from above on the front and rear ends of the shoe sole. Thus no force will be exerted in the longitudinal direction of the sole. As a result the hooks cannot press into the upper or the welt. Moreover, the sole is not stressed in the longitudinal direction so that it cannot become distorted and separation of the several leather layers of the sole from one another is avoided.

The present invention is not restricted to the constructional examples shown. One could in a somewhat simpler construction renounce the height adjustment of the pressure member, if a corresponding downwardly-directed projection were provided in the rail 1a, which engaged the ball part of the shoe sole upon fitting of the shoe stretcher. One could also, if necessary, slidably guide the two rails relative to one another by means of housing-like edges or the like.

I claim:

1. A shoe stretcher, especially for ski boots, comprising: two elongated U-shaped rails each having a base wall and two spaced-apart side walls extending away from said base wall, said rails being disposed with their base walls facing each other and their side walls extending toward the base wall of the opposite rail and with the side walls of one rail being received between the side walls of the other rail; means defining an elongated lengthwise extending slot in the base wall of one rail and means defining a threaded opening in the base wall of the other rail; a clamping screw extending through said slot and threaded in said opening; means defining a second threaded opening in the base wall of said other rail spaced longitudinally from said first-named opening; a pressure member having a threaded shank threaded in said opening so that said pressure member can be moved in a direction substantially perpendicular to said rails; one end of one rail extending past the adjacent end of the other rail and the opposite end of said other rail extending past the other end of said one rail; and two sole-gripping hooks mounted respectively on the extended ends of said rails for pivotal movement about substantially parallel axes which are substantially perpendicular to the lengthwise extent of said rails and also substantially perpendicular to the lengthwise axes of said screw and said shank.

2. A shoe stretcher, especially for ski boots, comprising: two elongated rails which are relatively longitudinally slidable with respect to each other and means for releasing securing said rails together to prevent such movement, said rails being of U-shaped cross section and each having a base wall and two spaced-apart side walls extending away from said base wall, said base walls of said rails being disposed in opposing relation and said side walls on each rail extending toward the base wall of the other rail, the free edges of the side walls on one rail being serrated and the base wall of the other rail having

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corresponding serrations for interengaging with the serrations on said side walls; a pressure member attached to at least one of the rails and screw means for moving said pressure member in a direction substantially perpendicular to said rails; and two sole-gripping members mounted at the opposite ends of said rails, said members being hook-shaped and being pivotally mounted on their associated rails.

3. A shoe stretcher, especially for ski boots, comprising: two elongated rails which are relatively longitudinally slidable with respect to each other, said rails having opposing base walls; means defining an elongated lengthwise extending slot in the base wall of one rail and means defining a threaded opening in the base wall of the other rail; a clamping screw extending through said slot and threaded in said opening; means defining a second threaded opening in the base wall of said other rail spaced longitudinally from said first-named opening; a pressure member having a threaded shank threaded in said second opening so that said pressure member can be moved in a direction substantially perpendicular to said rails; one end of one rail extending past the adjacent end of the other rail and the opposite end of said other rail extending past the other end of said one rail; and two sole-gripping hooks mounted respectively on the extended ends of said rails for pivotal movement about substantially parallel axes which are substantially perpendicular to the lengthwise extent of said rails and also substantially perpendicular to the lengthwise axes of said screw and said shank.

4. A shoe stretcher, especially for ski boots, comprising: two elongated rails which are relatively longitudinally slidable with respect to each other, said rails having opposing base walls; means defining an elongated lengthwise extending slot in the base wall of one rail; clamping means extending through said slot and connected to the other rail for clamping said rails against relative longitudinal movement; a pressure member mounted on the base wall of the other rail spaced longitudinally from said clamping means and means for moving said pressure member in a direction substantially perpendicular to said rails; and two sole-gripping members mounted at the opposite ends of said rails, one member being mounted on one rail and the other member being mounted on the other rail, said members being hook shaped and means pivotally mounted on said members on their associated rails for pivotal movement toward and away from each other about axes substantially perpendicular to the direction in which said pressure member moves and substantially perpendicular to the lengthwise extent of said rails.

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