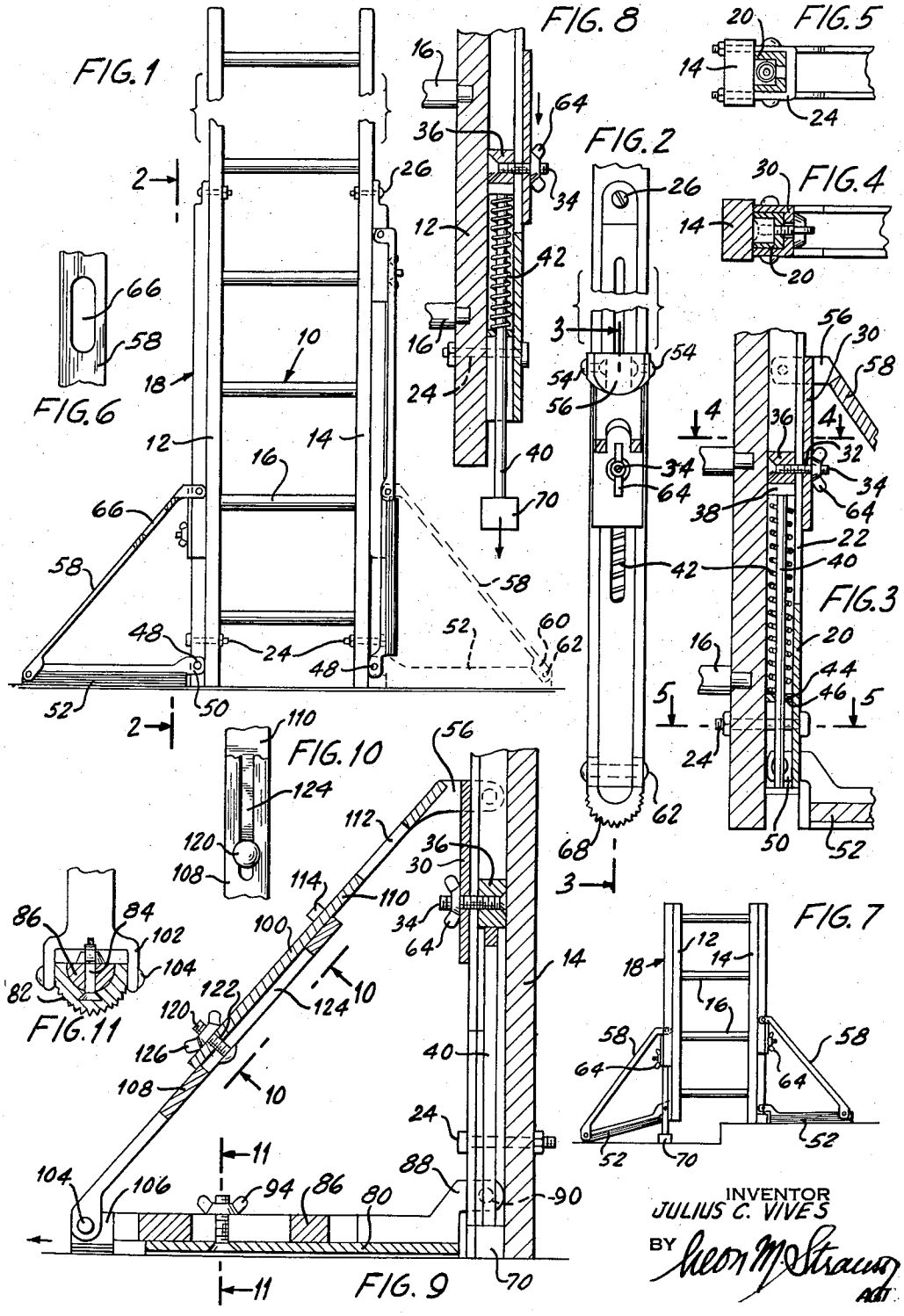
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SAFETY LADDER DEVICE

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INVENTOR
JULIUS C. VIVES
BY Leon M. Strauss
ATT

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SAFETY LADDER DEVICE

Julius C. Vives, 82—77 159th St., Jamaica Hills, N.Y.

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The present invention relates to a safety device for a ladder and more particularly to an attachment adapted to be conveniently secured to either or both sides of a ladder for providing supplementary support for the ladder.

An important object of this invention resides in the provision of a safety device for a ladder which will provide a secure footing and support for the ladder even though the device is being used on uneven surfaces which may be slanted upwards and downwards, and which will provide a greater supporting area for the base of the ladder notwithstanding severe differences in the ground or surface because of contour or material.

Another object of the present invention resides in the provision of means facilitating the positioning of a ladder alongside another structure even on uneven surfaces.

Still another object of the invention resides in the provision of a safety ladder device in the form of an attachment that can be easily folded out of the way when not in use, which is comparatively light in weight, and which is substantially foolproof in operation.

One of the particular features of the present invention lies in the novel use of an extension member which may be spring-pressed within a housing bolted to a ladder, which extension member may extend below a side of a ladder for allowing use of the ladder on very severely sloping terrain.

A further important object of the present invention resides in the provision of a safety device that will stabilize the ladder to the extent that a dangerous tilting while reaching out too far sideways is practically eliminated, thereby creating a broad margin of safety in this type of work operation.

Yet another object of the present invention resides in the provision of a safety device that due to its stabilizing arrangement of parts practically eliminates vibration to the ladder, thereby preventing the loss of balance to the person on the ladder.

Still further objects and features of this invention reside in the provision of a safety ladder device that is simple in construction, efficient in operation, inexpensive and easy to manufacture, which may be used in combination with a ladder, scaffolding or other similar structure, yet which may be marketed simply as an attachment for the ladder, and which may be constructed out of readily available materials.

These, together with the various ancillary objects and features, which will become apparent as the following description proceeds, are attained by this ladder structure, preferred embodiments being shown in the accompanying drawing by way of example only wherein:

FIG. 1 is a front elevational view of a ladder having the safety device comprising the present invention installed thereon, showing the invention in operative position and in stored position;

FIG. 2 is a side elevational detail view of a portion of the ladder attachment looking in the direction of line 2—2 in FIG. 1;

FIG. 3 is a vertical sectional detail view as taken along the plane of line 3—3 in FIG. 2, illustrating particularly the internal construction of the safety ladder device;

FIG. 4 is a horizontal sectional detail view as taken along the plane of line 4—4 in FIG. 3, illustrating particularly the rectangular cross-sectional configuration of the housing and extension member;

FIG. 5 is a sectional detail view taken in a horizontal plane of line 5—5 in FIG. 3, particularly illustrating the U-bolt securing the housing to the ladder side;

FIG. 6 is a partial plan view illustrating the opening in one of the brace members utilized in the present invention;

FIG. 7 is a schematic elevational view illustrating one manner of use of the invention;

FIG. 8 is a sectional detail view similar to that of FIG. 3, illustrating a modified form of the invention;

FIG. 9 is a vertical sectional detail view illustrating a further embodiment of the invention;

FIG. 10 is a view of a portion of the modified brace member looking in the direction of line 10—10 in FIG. 9; and

FIG. 11 is a vertical sectional detail view as taken along the line 11—11 in FIG. 9.

With continuing reference to the accompanying drawing wherein like reference numerals designate similar parts throughout the various views, reference numeral 10 generally designates a ladder having sides 12 and 14 together with rungs 16. The safety attachment comprising the present invention is indicated by numeral 18 and is adapted to be attached to either side of the ladder 10.

The safety attachment 18 includes a housing 20 of substantially rectangular or channel shape, which is provided with an elongated slot 22 therein and which is secured by means of U-bolts 24 to the ladder sides 12 or 14 and by other suitable fasteners 26.

The U-bolt embraces the housing 20 and rigidifies the entire construction (FIG. 5). Slidably disposed and embracing the housing 20 is a channel-shaped slide 30 having an opening 32 therein through which a bolt 34 extends, the bolt being seated in a block 36 adapted to engage the headpiece 38 of an extension member 40. A coil spring 42 is disposed about the extension member 40. A collar 44 is secured to and disposed within the housing 20 and is provided with an aperture 46 therethrough, through which the extension member 40 extends. Pivoted as at 48 to the housing 20 is an ear portion 50 of a foot member 52.

Pivoted by rivets or pins 54 to the slide 30 is the bifurcated portion 56 of a brace member 58, the brace member 58 also being provided with a bifurcated portion 60 which is pinned as at 62 to the outer extremity of the foot member 52.

The bolt 34 is provided with a wing nut 64 for tightening so that the slide 30 can be held in an adjusted position. When the slide is in a raised position, as is shown on the right-hand side of FIG. 1, the ladder attachment is folded and stored out of the way. However, upon loosening the wing nut 64, the slide can be lowered, which will allow the foot member 52 to assume the position as is shown on the left-hand side of FIG. 1.

The brace member 58 is provided with an opening 66 therein, permitting the wing nut to pass therethrough when the attachment is in the folded position.

As may be best seen in FIG. 2, the foot member is of a similar circular cross-sectional configuration and has suitable serration forming teeth 68 allowing the foot member to securely grip the ground or other surface with which it is engaged. Of course, the spring 42 will be compressed as the slide 30 is lowered thereby continuously urging the foot member 52 into the ground.

In lieu of the foot member 52, as can be best seen in FIG. 9, the extension member 40 may be provided with a toe portion 70 for engaging the ground, when used on an uneven surface. The bottom of toe portion 70 may be of any suitable grip configuration.

In FIG. 7, there are shown in operative position both the foot members 52 and the toe portions 70 which in

this case form the lower portion of the extension member.

Referring now to FIGS. 9–11, it will be seen that in this form of the invention the foot member **80** is formed of two parts, a serrated lining **82** which is secured by fastener **84** to the bar **86** which has its ear portion **88** pinned as at **90** to the housing **20**. A wing nut **94** is used to enable the removal of the lining **82** so that in lieu of the two linings, a lining with another type surface, such as ribbed rubber lining, a smooth surface lining, or a spiked lining can be used.

Further, the brace member **100**, which has its bifurcated portion **102** linked as at **104** to the enlarged portion **106** of the bar **86** is formed in two parts or sections **108** and **110**, section **110** being provided with an opening **112** similar to the opening **66**. The ring or slide **114** may be provided for the section **108**, which embraces the part **110**, and a bolt **120** extends through an opening **122** in section **110** and is adjustable within a slot **124** in section **108**. A wing nut **126** is provided for the bolt **120** so as to allow the brace member **100** to be adjusted and locked at a particular desired size.

The use of the nuts **64** and **126**, respectively, permits greater adjustment of the device and henceforth facilitates its use due to the fact that the lining can be adjusted and the brace member can be lengthened or shortened for greater strength.

It is noted that in this form of the invention, the toe **70** is employed and it is to be recognized that optionally the spring **42** can be eliminated, with of course the loss of function thereof.

Thus, it can be seen that there has been defined a safety ladder device for attachment to a ladder, which includes a rectangularly shaped housing with a slide disposed outwardly of the housing, locking means for securing said slide in adjusted position relative to said housing, an extension member movable within said housing, a foot member pivoted to said extension member and slidably mounted on said housing, and a brace member terminally pivoted to said extension member and said foot member.

Various changes and modifications may be made without departing from the spirit and scope of the present

invention and it is intended that such obvious changes and modification be embraced by the annexed claims.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is:

1. A safety ladder device for attachment to an upwardly extending ladder member comprising a housing, a slide slidable along the length of said housing, locking means for securing said slide in an adjusted position relative to said housing, a foot member pivotally connected to said slide at one end and at its opposite end to the lower end of said housing and having an articulated intermediate portion, said slide being movable downwardly along said housing to dispose a portion of said foot member in alignment with the contour of the ground, an extension element slidable in said housing below said slide, and means biasing said extension element in a direction toward said slide.

2. A safety ladder device for attachment to an upwardly extending ladder member comprising a housing, a slide movable along said housing, locking means for securing said slide in an adjusted position relative to said housing, a foot member comprising pivotally connected elements one end of one of said elements being pivotally connected to the lower end of said housing and the outer end of said other element being pivotally connected to said slide, and an extension toe member in said housing movable with said slide outwardly from said housing below the bottom level of said ladder.

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