June 16, 1925. 1,542,775

H. F. HUSTED

EQUALIZER FOR LADDERS

Filed Feb. 18, 1925

Fig. 1.

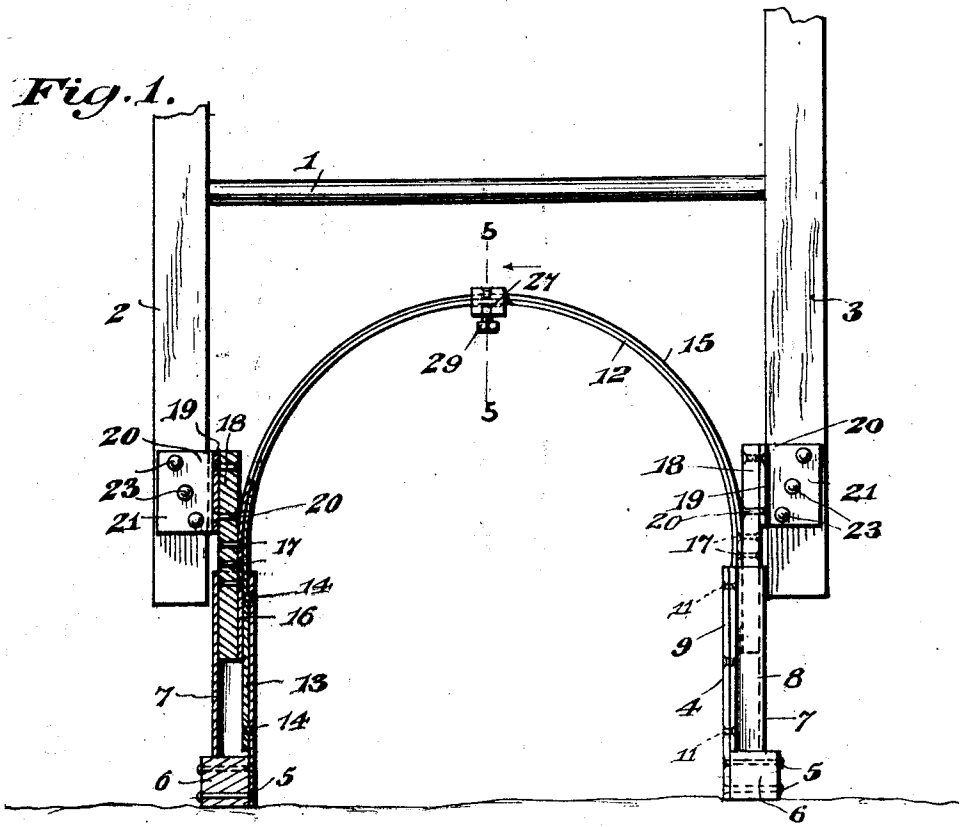


Fig. 2.

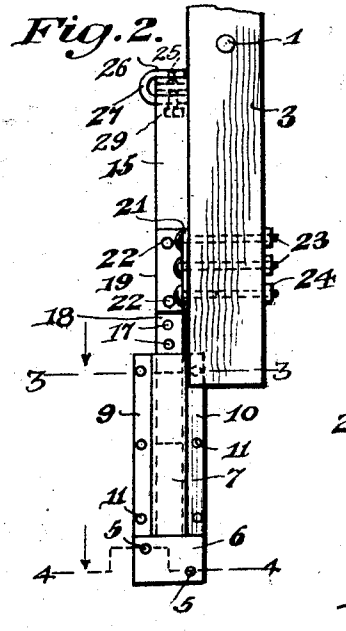


Fig. 3.

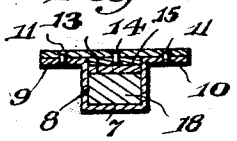


Fig. 4.

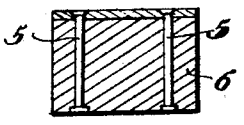
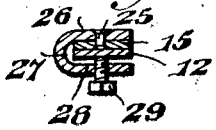


Fig. 5.



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UNITED STATES PATENT OFFICE.

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EQUALIZER FOR LADDERS.

Application filed February 18, 1925. Serial No. 10,069.

To all whom it may concern:

Be it known that I, HARRY F. HUSTED, a citizen of the United States, residing at Dallas, in the county of Luzerne and State of Pennsylvania, have invented certain new and useful Improvements in Equalizers for Ladders, of which the following is a specification.

This invention relates to an adjustable foot device for ladders and has for its object to provide, in a manner as hereinafter set forth, a device of such class with means to prevent the body of a ladder from inclining in a transverse direction from the vertical thereby maintaining the ladder equalized when mounted on an inclined or irregular shaped supporting surface.

A further object of the invention is to provide, in a manner as hereinafter set forth, an adjustable foot or equalizing device for a ladder including means for locking the device in adjusted position to maintain the ladder equalized when the device is mounted on an inclined or irregular shaped supporting surface.

A further object of the invention is to provide, in a manner as hereinafter set forth, a foot or equalizing device for a ladder including a bodily shiftable ladder carrier automatically adjustable by the weight of the ladder to equalize the same when the device is mounted on an inclined or irregular shaped supporting surface.

A further object of the invention is to provide, in a manner as hereinafter set forth, an adjustable foot or equalizing device for a ladder and which includes a pair of spaced supporting elements arranged in parallelism and permanently connected together and which provide housings for the slidable terminals of an automatically adjustable, resilient, bodily shiftable ladder equalizing carrier.

Further objects of the invention are to provide, in a manner as hereinafter set forth, an equalizing device for ladders which is simple in its construction and arrangement, strong, durable, compact, thoroughly efficient and comparatively inexpensive to manufacture.

With the foregoing and other objects in view, the invention consists of the novel construction, combination and arrangement of parts, as hereinafter more specifically described and illustrated in the accompanying drawings, wherein is shown an embodiment of the invention, but it is to be understood that changes, variations and modifications can be resorted to which fall within the scope of the claims hereunto appended.

In the drawings wherein like reference characters denote corresponding parts throughout the several views:

Figure 1, is a sectional elevation of an adjustable foot or equalizing device, in accordance with this invention, and further showing the adaptation thereof in connection with the lower end of a ladder.

Figure 2, is a fragmentary view, in front elevation, upon an enlarged scale.

Figure 3, is a section on line 3—3, Figure 2.

Figure 4, is a section on line 4—4, Figure 2.

Figure 5, is a section on line 5—5, Figure 1.

Referring to the drawings in detail 1 denotes the lower round and 2, 3, the side bars of a ladder and connected to, arranged between and projecting from the lower ends of said side bars is an adjustable foot or equalizing device in accordance with this invention.

The foot or equalizing device comprises a pair of supporting elements each forming a housing and consisting of a vertically disposed rectangular flat metallic plate 4, having secured against the lower terminal portion of its inner face, by the countersunk holdfast devices 5, a polygonal shaped block 6, preferably constructed of wood and which constitutes a foot piece. Positioned against the inner face of the plate 4, as well as mounted on the top of the foot piece 6, is a vertically disposed channel-shaped member 7, which in connection with the plate 4 provides a polygonal-shaped socket 8. The member 7 is formed with a pair of oppositely disposed lengthwise extending flanges 9, 10, which abut against the inner face of the plate 4 and are fixedly secured to the latter by the countersunk hold-fast devices 11. The member 7 is flush with the top edge of the plate 4, and the flanges 9, 10, are flush with the side and top edges of the latter.

Extending into each socket 8 to the bottom of the latter formed by the top of the foot piece 6 is one end terminal portion of a contractile and expansible arch-shaped combined coupling and supporting member 12 formed from a strap of spring metal. The end terminal portions of the member 12, are indicated at 13 and each is positioned

against the inner face of a plate 4, as well as being fixedly secured to the latter, by a series of spaced countersunk hold-fast devices 14.

Slidably mounted in the sockets 8, supported by the member 12 and secured to side bars 2, 3 of the ladder is an automatically adjustable, contractible and expansible bodily shiftable ladder equalizing carrier comprising an arch-shaped coupling member 15, formed from a strap of spring metal and having its end terminal portions 16 slidably mounted in the sockets 8. Secured to the outer face of each end terminal portion 16, by the countersunk hold-fast devices 17, is a vertical disposed polygonal-shaped guide bar 18 which is of greater length than an end terminal portion 16, flush at its lower end with the lower end of the latter, and further extending a substantial distance above the end terminal portion 16, and spaced from the intermediate or curved portion of the member 15. Secured to the outer side face of each of the bars 18 at the upper portion thereof, is the inner arm 19 of an angle-shaped bracket 20. The outer arm of the bracket 20, is indicated at 21 and is secured to the lower portion of the front face of a side bar of the ladder. The arms 19 space the bars 18 from and maintains the carrier inwardly with respect to the side bars of the ladder. The arms 19 are secured to the bars 18 by countersunk hold-fast devices 22 and each of the arms 21 is detachably connected to a side bar 2 or 3 by a set of bolts 23 each provided with a securing nut 24. The bolts of each set are offset with respect to each other.

Fixedly secured to the coupling member 15, centrally thereof, by the countersunk hold-fast device 25, is the upper arm 26 of a transversely extending yoke 27 which has its lower arm 28 overlapping the member 12. The arm 28 carries an adjustable clamping screw 29 employed for binding the member 12 against the member 15, see Figure 5, to maintain the carrier in adjusted position.

When the member 12, is released from the member 15, and the foot pieces 6 mounted on an inclined or irregular supporting surface, the weight of the ladder will automatically shift the carrier until the position of the ladder has become equalized, after which the members 12 and 15 are clamped together by the screw 29 and the carrier will be retained in the position to which it has been adjusted. The member 15 shifts upon the member 12, the latter providing a support for the former. The carrier is guided by the bars 18, in connection with the walls of the sockets 8, and furthermore the bars 18, in connection with the walls of the sockets 8 prevent the spreading relatively to each other of the end terminal portions 16 of the member 15. The two members 12 and 15, owing to their being constructed of spring metal and one engaging the other set up a frictional lock therebetween.

It is thought that the many advantages of an adjustable foot or equalizing device for ladders, in accordance with this invention, can be readily understood, and although the preferred embodiment of the invention is as described and claimed, yet it is to be understood that changes in the details of construction can be had which will fall within the scope of the invention as claimed.

Having thus described the invention what I claim is:

1. An equalizing device for ladders comprising a pair of socketed supporting elements opposing each other, an arch-shaped resilient member coupling said elements together, and an arch-shaped, resilient, automatically adjustable ladder carrier slidably extending into said elements, mounted on said member and having means for connection to the lower ends of the side bars of a ladder, said carrier adjusted by the weight of the ladder when said elements extend one above the other.

2. An equalizing device for ladders comprising a pair of socketed supporting elements opposing each other, an arch-shaped resilient member coupling said elements together, and an arch-shaped, resilient, automatically adjustable ladder carrier slidably extending into said elements, mounted on said member and having means for connection to the lower ends of the side bars of a ladder, said carrier adjusted by the weight of the ladder when said elements extend one above the other, and means secured to said carrier and engaging said member for securing the carrier in adjusted position.

3. An equalizing device for ladders comprising a pair of socketed supporting elements opposing each other, an arch-shaped resilient member coupling said elements together, and an arch-shaped, resilient, automatically adjustable ladder carrier slidably extending into said elements, mounted on said member and having means for connection to the lower ends of the side bars of a ladder, said carrier adjusted by the weight of the ladder when said elements extend one above the other, and said carrier having a pair of guide bars slidably mounted in said elements and carrying the means of connection with the side bars of the ladder.

4. An equalizing device for ladders comprising a pair of socketed supporting elements opposing each other, an arch-shaped resilient member coupling said elements together, and an arch-shaped, resilient, automatically adjustable ladder carrier slidably extending into said elements, mounted on said member and having means for connection to the lower ends of the side bars of a ladder, said carrier adjusted by the weight

of the ladder when said elements extend one above the other, and means secured to said carrier and engaging said member for securing the carrier in adjusted position, and said carrier having a pair of guide bars slidably mounted in said elements and carrying the means of connection with the side bars of the ladder.

5. An equalizing device for ladders comprising a pair of socketed supporting elements opposing each other, an arch-shaped resilient member coupling said elements together, and an arch-shaped, resilient, automatically adjustable ladder carrier slidably extending into said elements, mounted on said member and having means for connection to the lower ends of the side bars of a ladder, said carrier adjusted by the weight of the ladder when said elements extend one above the other, the means for connection to the ladder consisting of a pair of brackets each formed of a pair of arms disposed at right angles to each other.

6. An equalizing device for ladders comprising a pair of socketed supporting elements opposing each other, an arch-shaped resilient member coupling said elements together, and an arch-shaped, resilient, automatically adjustable ladder carrier slidably extending into said elements, mounted on said member and having means for connection to the lower ends of the side bars of a ladder, said carrier adjusted by the weight of the ladder when said elements extend one above the other, and means secured to said carrier and engaging said member for securing the carrier in adjusted position, the means of connection to the ladder consisting of a pair of brackets each formed of a pair of arms disposed at right angles to each other.

7. An equalizing device for ladders comprising a pair of connected, spaced socketed supporting elements opposing each other and an arch-shaped, resilient automatically adjustable ladder carrier having vertical guide bars slidably mounted in and projecting upwardly from said elements and adjusted by the weight of the ladder to equalize the position thereof when one of said elements projects above the other.

8. An equalizing device for ladders comprising a pair of spaced socketed supporting elements opposing each other and having an arch-shaped connection therebetween, and an arch-shaped, resilient automatically adjustable ladder carrier having vertical guide bars slidably mounted in and projecting upwardly from said elements and adjusted by the weight of the ladder to equalize the position thereof when one of said elements projects above the other, and means for detachably securing said carrier in adjusted position to the connection between said elements.

In testimony whereof, I affix my signature hereto.

HARRY F. HUSTED.