

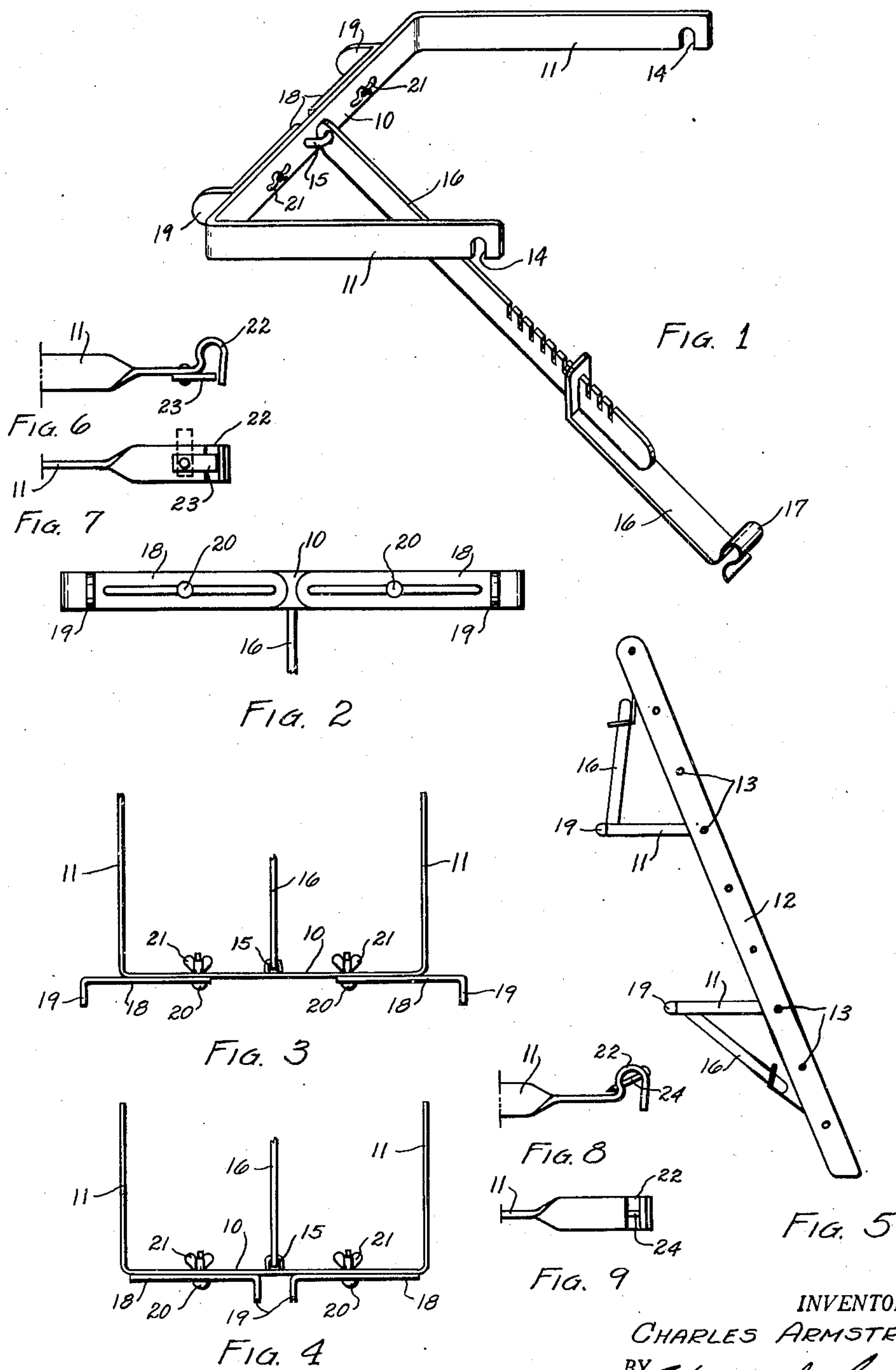
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LADDER JACK

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LADDER JACK

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This invention relates to devices for removable and adjustable association with conventional runged ladders to facilitate the operative security and convenience, and to enhance the utility, thereof, and has as an object to provide an improved such device adaptable to a wide variety of specific practical uses in association with a ladder.

A further object of the invention is to provide an improved construction and operative arrangement of elements constituting a jack for removable and replaceable, adjustable association with conventional ladders.

A further object of the invention is to provide an improved ladder jack employable as a strut to space the upper end of an associated ladder outwardly from and in supported relation with a substantially vertical surface.

A further object of the invention is to provide an improved ladder jack employable to minimize lateral slipping of an associated ladder upper end relative to and along an arcuate-surfaced, substantially vertical, supporting wall or element.

A further object of the invention is to provide an improved ladder jack adapted to conveniently function as a ladder-associated bracket for the support of planks, shelves, and analogous scaffold elements.

A further object of the invention is to provide an improved ladder jack conveniently engageable in securely-positioned, readily-adjustable relation with conventional ladders.

A further object of the invention is to provide an improved device of ladder jack type that is simple and inexpensive of manufacture, compact and convenient in form, practical throughout a wide range of specific uses, readily adaptable in a few standard sizes to operative conformity with all usual types and sizes of conventional runged ladders, and which is sturdy in proportion to its bulk and weight.

With the foregoing and other objects in view, my invention consists in the construction, arrangement, and combination of elements hereinafter set forth, pointed out in my claims, and illustrated by the accompanying drawing, in which—

Figure 1 is a perspective view of a typical, simple embodiment of the invention as positioned and arranged for operative association in one adjusted relation with a ladder. Figure 2 is a front elevation of the device according to Figure 1, certain extending elements being broken away to conserve space. Figure 3 is a top plan view, on a reduced scale, of the device according to Figure

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1 with certain of the movable elements of the device at one extreme of their range of adjustment and the brace member broken away. Figure 4 is a view similar to Figure 3 illustrating an alternative adjusted position of certain of the device movable elements. Figure 5 is a side elevation of a typical ladder equipped with a pair of alternately-arranged, reduced-scale specimens of the improvement. Figure 6 is a fragmentary, detail, side elevation and Figure 7 a fragmentary, detail, bottom plan view of a hook construction advantageously employable in substitution for the analogous constructions of Figure 1. Figure 8 is a fragmentary, detail, side elevation and Figure 9 a fragmentary, detail, bottom plan view of yet another hook construction alternatively employable in and with the improvement.

In the construction of the improvement as shown, a preferably integral, substantially U-shaped, rigid yoke is formed, as by bending opposite end portions of a straight metallic strap or bar into spaced parallelism perpendicular to the bar portion intercepted therebetween, to present a flat, straight base element 10 fixedly engaged with and between a pair of like arms 11 extending in spaced parallelism from the opposite ends and in perpendicular relation with the length of said element. The specific size, shape, and character of material from which the element 10 and arms 11 are formed may be proportioned to the contemplated use requirements of the device at the time of yoke fabrication, and the spacing between the arm 11 free ends is preferably correlated at the time of yoke manufacture with the width dimension of conventional runged ladders so that said arm free ends may be simultaneously entered between the stiles 12 of such a ladder and engage the opposite end portions of a rung 13 thereof to mount the yoke with its element 10 in hinged, parallel relation with the so-engaged rung, the said arm 11 free ends being formed or provided with laterally-opening notches 14, or hook elements hereinafter to be described, for reception of and cooperation with the engaged rung 13 end portions.

Hingedly connected at one of its ends to the midportion of the element 10 inner face, as by means of an eye 15 or equivalent member secured to said element, a longitudinally-adjustable brace 16 is associated with and to swing through a vertical arc in a plane perpendicular to that of the yoke. The free end of the brace 16 is equipped with rung-engaging means, such as an offset hook 17, adapted to clip over and hold

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against accidental displacement to a rung 13 central portion, and said brace 16 preferably has an effective length considerably greater than that of the arms 11, so that, the arms 11 of the yoke being engaged with a given ladder rung 13, the hook 17 of the brace may clip to a rung 13 spaced, either above or below, some distance from that supporting the yoke and thereby angularly dispose said brace to support and hold the yoke in substantially horizontal projection from either side of the ladder. To adequately perform its function with various specific ladders and with various inclinations of a given ladder, provision must be made for selective adjustment of the brace 16 effective length, for which purpose the said brace may consist of separate, slidably-associated sections adapted for locked or clamped inter-relation in various positions of relative adjustment, the notch and detent arrangement illustrated as suitable for a toggle-joint type brace being but representative of a wide range of functionally-equivalent length adjustments heretofore commonly known and extensively used.

Complete as thus far described, the improvement is adequate for a number of specific uses helpful to those who work on and from ladders and ladder-supported scaffolding. Mounted with its yoke projecting horizontally from the upper end rung of a ladder at an obtuse angle with the ladder stiles, the improved jack functions efficiently as a strut engageable against a supporting wall or surface to space the ladder end outwardly therefrom and as a bracket for the support of material, tools, and the like. Associated with intermediate rungs of a ladder, and on either side thereof, the device provides either an open or a closed bracket, depending upon the relative disposition of the brace 16, available for support of material, scaffolding, tools and facilities, and for use as a workman's seat, with consequent obvious convenience and advantage.

Enlarging the functions and extending the utility of the improvement, similar, complementary shoes 18, each formed with an outturned end lug 19, are slidably secured against and for adjustment longitudinally along the outer face of the element 10 with their end lugs 19 parallel to and directed oppositely from the arms 11. Each of the shoes 18 is associated with a half of the element 10 at one side of the eye 15 and is independently secured to said element in a manner permitting of longitudinal shifting and end-for-end reversal of the shoe relative to said element, for which purpose it is convenient to form each shoe 18 with an elongate, longitudinal slot in slidably-embracing relation with a headed bolt 20 engaged through the element 10 half for cooperation of its inner threaded end with a wing-nut 21, or like adjustable clamping agent, adapted to bear against the element inner face. As so mounted, the shoes 18 may be shifted along the element 10 and selectively clamped thereto to vary the spacing between the end lugs 19 as may be desired within the operative range provided by the slots, and said shoes may be rotated about the bolts 20 to bring their lug ends into adjustably-spaced juxtaposition, as shown in Figure 4, according to the operative needs and problems to be met by the device. When so equipped, the end lugs 19 of the assembly serve as contact points of reduced area engageable against a flat wall or supporting surface to space the ladder end and element 10 outwardly therefrom when the device is used as a spacing strut, thereby facilitating

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painting and other surfacing of the supporting wall, and in positions of properly spaced adjustment, said end lugs 19 operate to engage against convex surfaces of large radius, Figure 3, and on the opposite sides of trees, poles, and the like, Figure 4, for the support of a ladder upper end thereagainst in a manner that minimizes the hazard of lateral slipping.

While the device, in simple form, is illustrated as equipped with laterally-opening, plain notches 14 and a simple, open hook 17 for engagement with the rungs 13 of a ladder, the invention contemplates provision of means on the free ends of the arms 11 and brace 16 for secure latchable engagement with the ladder rungs, typical such means being illustrated in Figures 6, 7, 8 and 9. As shown in Figures 6 and 7, a downwardly-opening, rung-engageable hook 22 may be upwardly offset from the arm 11 or brace 16 free end in closable cooperation with a manually-adjustable latch bar 23 pivotally carried by the arm or brace adjacent the throat of said hook and in position to at times obstruct said throat beneath an engaged rung and thereby inhibit unintentional disengagement of the hook from said rung, while in Figures 8 and 9 the hook 22 is intersected by one or more holes through which a nail or pin 24 may be engaged with the rung embraced by said hook to pass either partially or entirely through said rung and secure the hook against accidental displacement.

Since many changes, variations, and modifications in the specific form, construction, and arrangement of the elements shown and described may be had without departing from the spirit of my invention, I wish to be understood as being limited solely by the scope of the appended claims, rather than by any details of the illustrative showing and foregoing description.

I claim as my invention:

1. In a ladder jack, a unitary, U-shaped yoke member having a flat, elongate base and like integral arms projecting in spaced parallelism perpendicularly from the base ends, hooks adjacent the free ends of said arms engageable with the opposite end portions of a ladder rung to hingedly mount said yoke with its base parallel to the engaged rung, a brace hinged to the yoke midportion and selectively engageable at its free end with a ladder rung either above or below that engaged by said yoke arms to operatively support said yoke in substantially horizontal projection from the associated ladder with the yoke base face in opposition to a vertical surface toward which the ladder is inclined, like shoes spaced apart in slidable and rotatable bearing engagement against the yoke base outer face, means for clamping said shoes to said base in any position of their relative adjustment thereon, and outturned, vertical-surface-engaging ends on said shoes.

2. In a ladder jack having a U-shaped yoke member formed with a flat, elongate base operatively paralleling the rungs of an associated ladder and means for supporting said yoke on and in substantially horizontal projection from a ladder with the yoke base face in opposition to a vertical surface toward which the ladder is inclined, means adjustably carried by the yoke base outer face for secure, ladder-supporting engagement with vertical surfaces of varying type and contour, said means comprising a pair of flat shoes spaced apart in slidable engagement against the base outer face, an elongate slot in each of

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said shoes, a bolt received through each of said slots and a registering hole in the yoke base, a clamp nut on each of said bolts, and an out-turned end lug on each of said shoes.

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