Sept. 14, 1954 H. REDLER 2,689,154

TRESTLE

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Fig. 1.

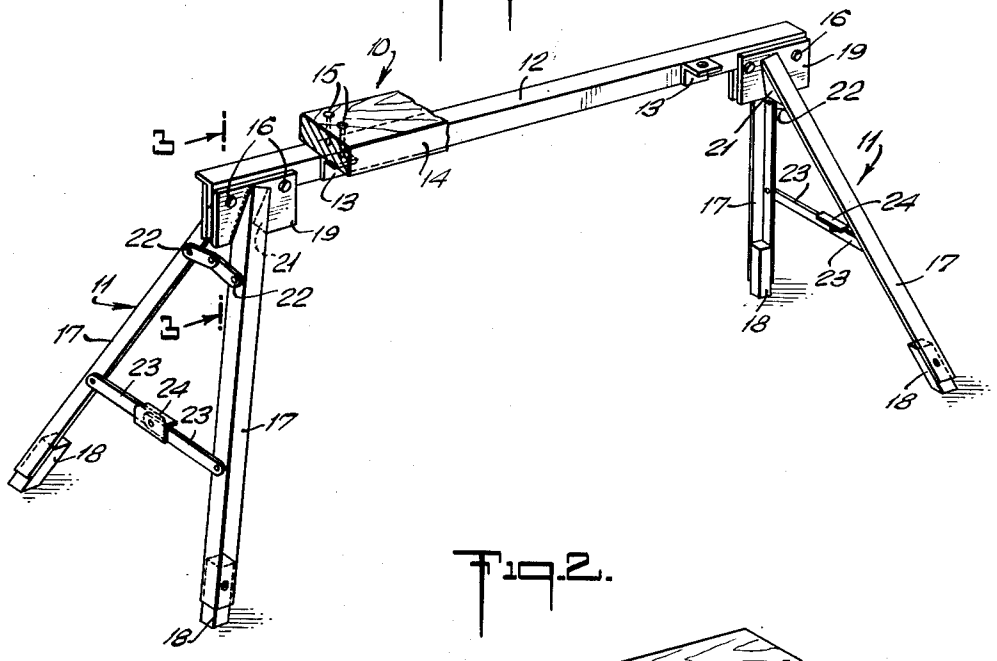
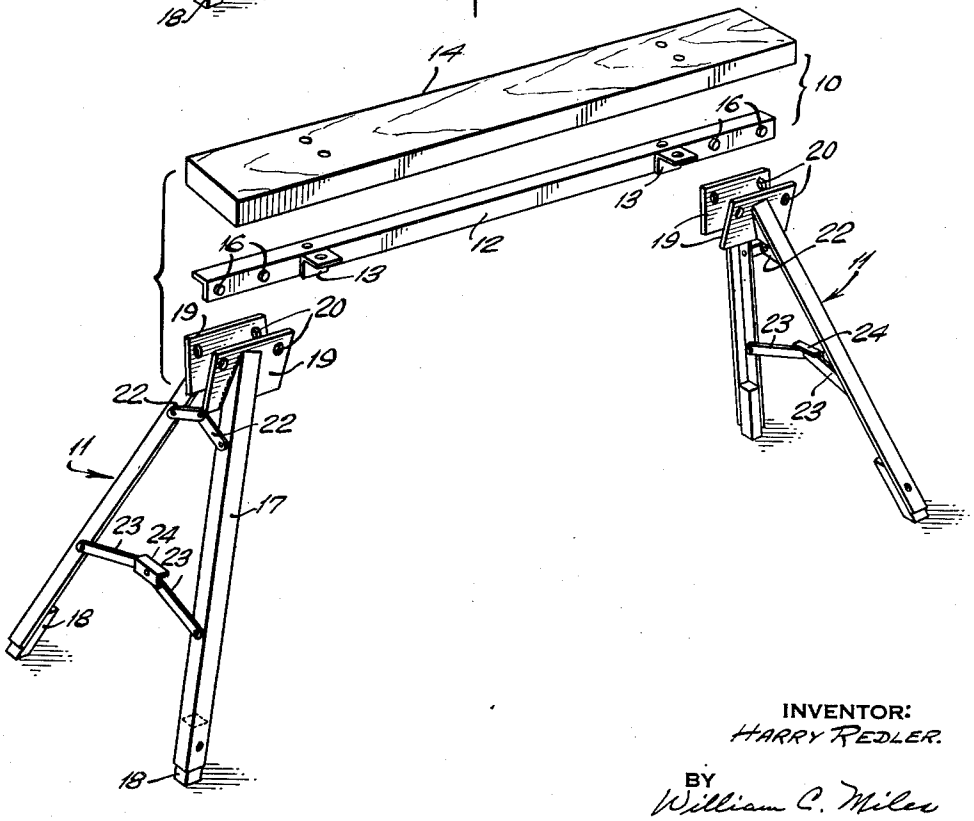


Fig. 2.



INVENTOR:
HARRY REDLER.

BY
William C. Miller
ATTORNEY:

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Fig. 4.

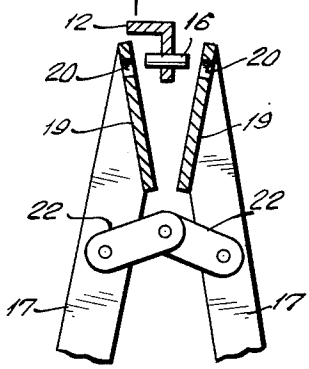


Fig. 3.

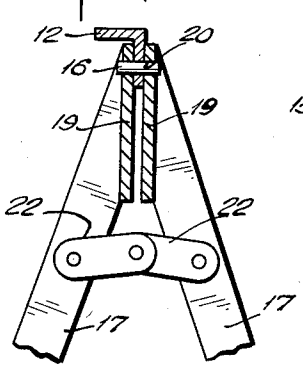


Fig. 5.

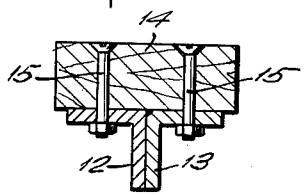


Fig. 6.

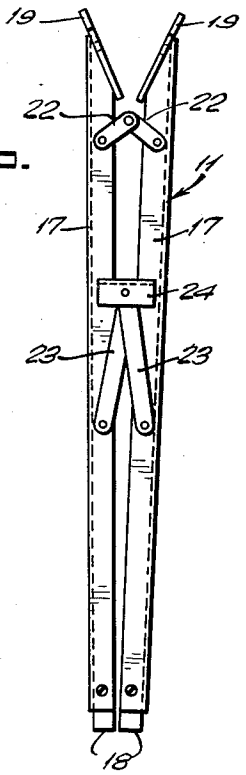
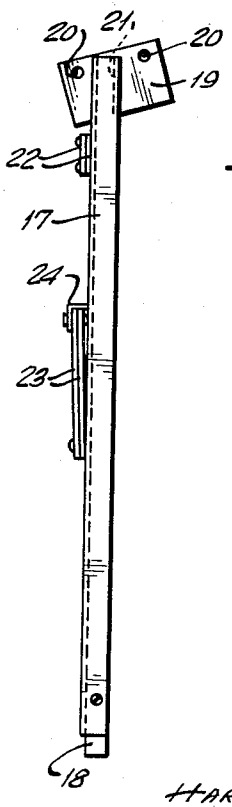


Fig. 7.



INVENTOR:
HARRY REDLER.

BY
William C. Miles
ATTORNEY:

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TRESTLE

Harry Redler, North Castle, N. Y.

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1 Claim. (Cl. 304—5)

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This invention relates to trestles of the type which includes a horizontally disposed beam supported at each of its opposite ends by a pair of diverging legs.

Trestles of the above type are extensively employed by such artisans as carpenters, plasterers, painters, paper-hangers and various other workmen in pursuing their respective trades.

Ordinarily trestles of the above character are so constructed that their respectively included beams and beam-supporting legs are permanently assembled in a fixed relation to each other with the result that such trestles obviously present extremely difficult storage and shipping problems because of their excessive space requirements.

An important object of the present invention is to provide an improved trestle which is so constructed as to enable it to be readily reduced to a highly compact unit requiring relatively little storage or shipping space but yet capable of being easily conditioned for use as a sturdy, rigid and dependable piece of equipment to be employed in the above and other fields of endeavor.

Other objects and advantages of the invention will become apparent from the following description when taken in connection with the accompanying drawings, in which—

Fig. 1 is a perspective view showing a trestle embodying this invention and illustrating the same as conditioned for use,

Fig. 2 is an exploded view showing in perspective various elements entering into the structure appearing in Figure 1,

Fig. 3 is an enlarged fragmental view taken on line 3—3 of Figure 1 and showing one of the leg-units in anchored engagement with the trestle beam,

Fig. 4 is a view similar to that of Figure 3 and showing the leg-unit in open position as when being released from the trestle beam or as when conditioned to receive such beam incident to the carrying out of the trestle-assembling operation,

Fig. 5 is a sectional view taken on a plane passing transversely through the trestle beam by way of one of the angle brackets included in that beam as one of its components,

Fig. 6 is a view showing in elevation one of the leg-units in a collapsed condition, and

Fig. 7 is a view showing in elevation the leg-unit of Figure 6 as it would appear from the right therein.

The trestle herein illustrated as embodying the present invention includes a horizontal beam, indicated in its entirety by the numeral 10, and a

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pair of leg-units which are identical in construction and are each designated as a whole by the numeral 11. As will hereinafter more clearly appear, the beam 10 and leg-units 11—11 are of such construction that they may be quickly and easily assembled, with reference to each other, into a complete trestle ready for use and thereafter disassembled, as occasion may require, to reduce the trestle to a knocked down condition in the interest of convenience in storage or shipment.

Referring to the beam 10 in detail, it will be noted that such beam includes an angle-iron stringer 12, to the depending flange of which are welded or otherwise suitably connected a pair of angle-iron brackets 13—13. These brackets are located relatively near the opposite ends of the stringer 12 and are so disposed that their upper flanges lie flush with the oppositely extending flange of that stringer. To the stringer 12 and its associated brackets 13—13, there is connected an appropriate wood facing member 14 which is of a length at least equal to and preferably slightly longer than the stringer, the facing member, which is of substantial width and thickness, being provided with a plurality of bolt holes adapted to register with those provided in the stringer and its associated brackets, as will be readily understood from an inspection of Figure 2, so that the facing member may be conveniently anchored in place by a plurality of bolts, of which two are shown most clearly, in Figure 5 and there indicated by the numeral 15. As shown most clearly in Figures 1 and 2, the depending flange of the stringer 12 is provided at each of its opposite ends with a pair of relatively short lock-pins 16, each of which is securely anchored to the stringer flange, as by a press fit therein, and projects outwardly to a substantial extent beyond opposite faces of said flange as will be readily understood from an inspection of Figures 3 and 4.

Referring to the leg-units 11—11, it will be noted that each of them includes a pair of collapsible angle-iron legs 17—17, which, when attached to the beam 12, extend downwardly and outwardly from the beam in a diverging relation to each other, as shown in Figure 1. From that figure it will be noted that the pair of leg-units 11—11, when attached to the beam 12, also extend downwardly from the beam 10 in a diverging relation to each other. It becomes apparent, of course, that stability of the assembled trestle is enhanced by reason of the above mentioned diverging relationship of the legs 17—17 and of the leg-units 11—11.

Each of the angle iron legs 17 is so arranged that its included flanges are presented as outer leg-surfaces when the trestle is conditioned for use as shown in Figures 1. Preferably the legs 17 are equipped at their lower ends with suitable cushioning elements such as wood blocks 18, which are detachably held anchored between the leg flanges by ordinary screws so as to permit renewal of the blocks if and when such removal becomes necessary. The legs 17—17 of each leg-unit 11 are cut on a bevel at their upper ends and are there welded to a pair of clamp plates 19—19, each of which is provided with a pair of anchor holes 20—20 spaced from each other in accordance with the spacing of adjacent lock-pins 16—16. In order to lend strength and finish to the legs 11 in the vicinity of their junctures with the clamp plates 19, each of said legs is provided with a triangular-shape gusset 21, as shown most clearly in Figures 1 and 2. The leg-gussets are welded to the edge margins of the respective unbeveled leg flanges and are in turn welded at their inner edge margins to the respective clamp plates 19.

In order that the leg units 11—11 may be readily attached to and detached from the beam 10, the legs 17 of each of said units are pivotally connected together at their upper ends by a pair of hinge-links 22 and are similarly connected together at points substantially midway of their lengths by a well known type of toggle unit which includes a pair of toggle arms 23. The hinge-links 22 are so pivotally connected to each other at their overlapping ends as to there provide a relatively stiff hinge-like joint and are so pivotally connected at their opposite ends to the legs 17—17 of the respective leg-units 11 as to there provide a relatively free hinge-like joint. Here it is to be noted that the hinge-links 22—22 are of such length that they of necessity move from a pronounced off-set or broken position, as shown in Figure 4, into only a slightly off-set or broken position, as shown in Figure 3, during such time as the respective leg units 11—11 are being attached to the beam 10 when conditioning the trestle for use. The slightly off-set or broken position just mentioned in connection with the hinge-links 22 plays an important part under certain conditions, as will hereinafter more clearly appear, in increasing the clamping action which is exerted on the beam 10 by the leg-units 11 after the trestle is conditioned for use. Referring again to the toggle arms 23—23, it will be noted that such arms are pivotally connected to each other at their overlapping ends and are likewise connected at their opposite ends to the legs 17—17 of the respective leg-units 11. Here it is to be observed that the toggle arms 23—23 are of such length that they move from a pronounced off-set or broken position, as shown in Figure 2, into a position of alignment with each other, as shown in Figure 1, during such time as the respective leg-units 11—11 are being attached to the beam 10 when conditioning the trestle for use. In order that the toggle arms 23—23 may be limited to a position of alignment with each other as they are being moved from broken position, as shown in Figure 2, into locking position, as shown in Figure 1, each pair of toggle arms is equipped with a keeper 24 in the form of a short length of angle iron, one flange of which is pivotally connected to said arms at their over-lapping ends and the other flange of which so overlies such arms as to engage them as they move into alignment with each other.

From the foregoing, it becomes apparent that the trestle embodying this invention may be readily conditioned for use, as shown in Figure 1, by introducing the opposite ends of the beam stringer 12 into the space afforded between the clamp plates 19—19, as shown in Figure 4, and then, by aid of the toggle arms 23—23, causing the legs 17—17 of the leg units 11—11 to so move outwardly at their lower ends as to urge their upper ends inwardly, thus causing the clamp plates to move into intimate clamping engagement with the depending flange of said stringer 12. In this connection it will be understood, of course, that as the clamp plates 19—19 move inwardly towards each other, the lock pins 16—16, which are carried by the stringer 12, enter the anchor holes 20—20, with which said plates are provided, and there serve to establish a highly effective interlocking connection between said stringer and the respective leg-units 11—11, the connection thus afforded and the aforementioned clamping effect that is exerted on the depending stringer flange being collectively utilized to insure rigidity, safety and reliability of the trestle as a unitary structure.

Now, after having described generally the manner in which the leg-units 11—11 are clamped to the beam 10, it becomes apparent that since the hinge links 22—22 assume a slightly off-set position with respect to each other, as when the trestle is assembled as shown in Figure 1, such links are free to adjust themselves to such further slight off-set position as might be prompted when a relatively heavy load is placed on the trestle beam 10 and thereupon so transmitted, by way of the lock-pins 16, to the upper ends of the legs 17—17, as to cause such ends to move downwardly and inwardly towards each other and thereby urge their associated clamp plates 19—19 into a more intimate clamping engagement with the depending flange of the stringer 12, especially along its areas of contact with the extreme upper margins of said plates. Aside from the advantage just described in connection with the hinge links 22—22, it is to be further observed that since these links are normally off-set with reference to each other, they are obviously free to adjust themselves transversely in one direction or the other from their position shown, for example, in Figure 3, in order that a highly effective clamping engagement may be attained as between the clamp plates 19—19 and the depending flange of the stringer 12 even though the angle iron from which such stringers are fabricated were to vary in flange-thickness to a substantial extent within reasonable limits.

From the foregoing description of the trestle herein shown, it becomes apparent that the leg-units 11—11 may be readily detached from the beam 10 by simply breaking the toggle arms 23—23 out of their leg-locking positions and thereupon collapsing the leg-units, as illustrated in Figure 6, so that they together with said beam may be conveniently stored, shipped or otherwise transported as a compact unit in knocked down condition.

What is claimed is:

A metal trestle of the knock-down type comprising: a trestle beam having a depending flange and a laterally projecting flange forming a top, said depending flange having adjacent its ends pins spaced apart longitudinally thereof and ar-

ranged in pairs and protruding from opposite sides of the flange; a pair of metal leg units each comprising a pair of legs, each leg having secured at its top a metal plate extending laterally of opposite sides of the leg and angularly disposed with relation to the leg axis, each of said plates having a pair of openings adjacent its upper edge and of such size and location as to closely engage said pins, said legs being foldably connected intermediate their ends by a hinged toggle unit and at their upper ends closely adjacent said plates by a pair of links pivoted together and to said legs, the length of said links being such that they are movable from a pronounced offset position with relation to each other when the legs are folded to a slightly offset position when said plates are in flange-clamping position, whereby said plates are free to move into tighter clamping position on said depending flange when weight is applied to the trestle, the interlocking engagement of said plates with said depending

flange and said pins providing the only support for said legs relative to said beam.

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