July 17, 1956 J. D. SIMMONS 2,755,144

FOLDING TRESTLE

Filed Nov. 20, 1951 3 Sheets-Sheet 1

Fig. 2

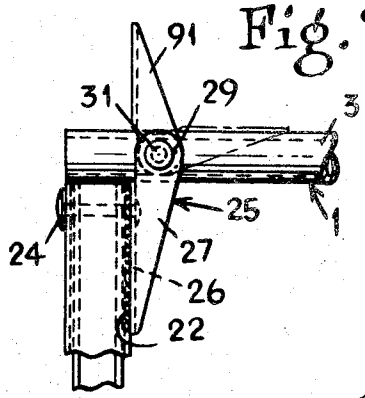


Fig. 1

Fig. 3

INVENTOR:
James D. Simmons,
BY
Ralph F. Staubly
ATTORNEY.

July 17, 1956 J. D. SIMMONS 2,755,144

FOLDING TRESTLE

Filed Nov. 20, 1951 3 Sheets-Sheet 2

Fig. 4

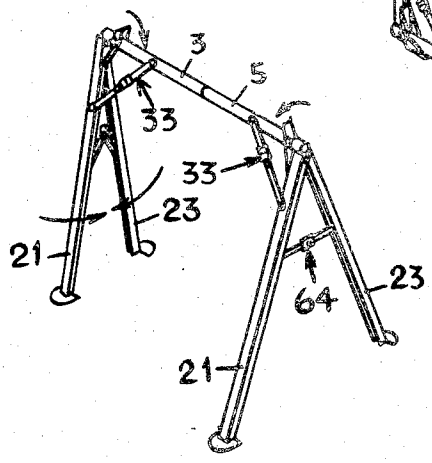


Fig. 5

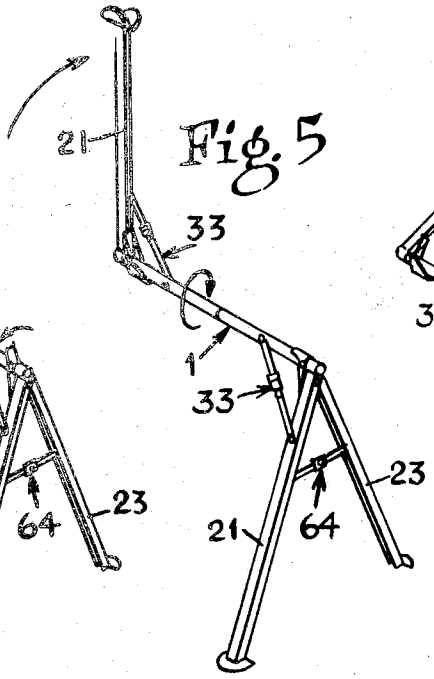


Fig. 6

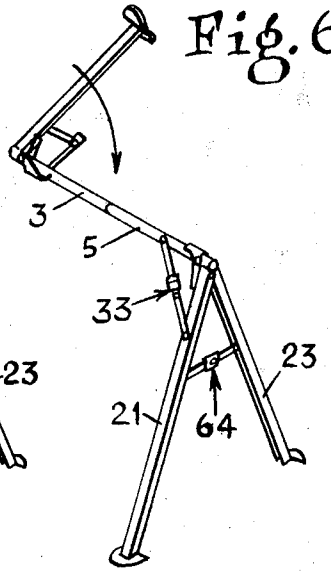


Fig. 7

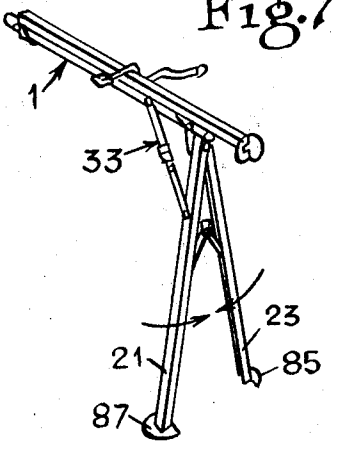


Fig. 8

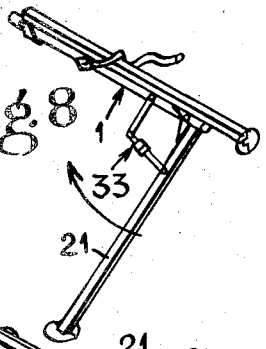


Fig. 9

Fig. 10

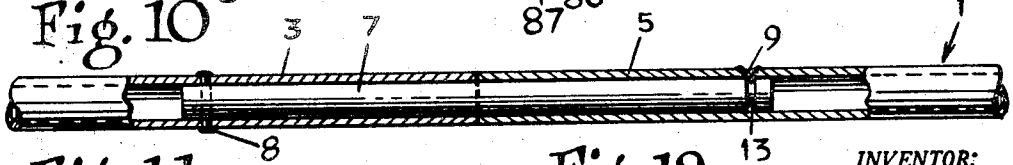


Fig. 11

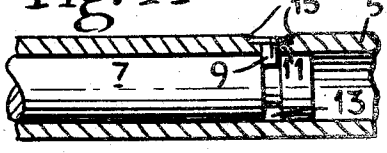
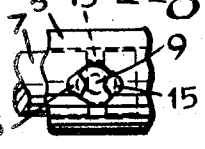


Fig. 12



INVENTOR:
James D. Simmons,
BY
Ralph P. Staubly
ATTORNEY.

July 17, 1956 J. D. SIMMONS 2,755,144

FOLDING TRESTLE

Filed Nov. 20, 1951 3 Sheets-Sheet 3

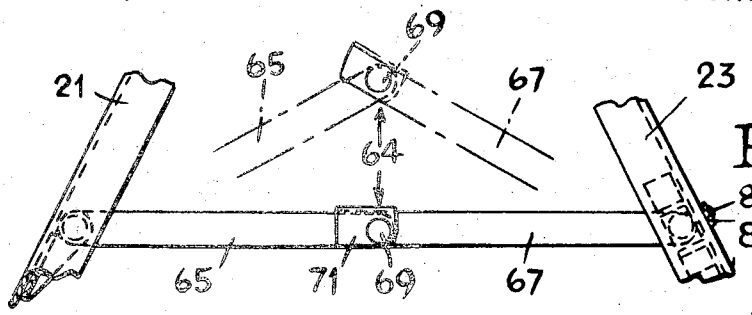


Fig. 13

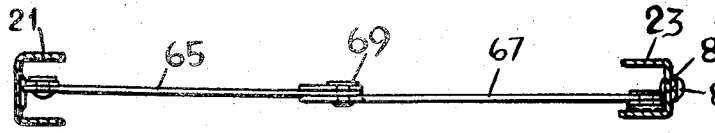


Fig. 14

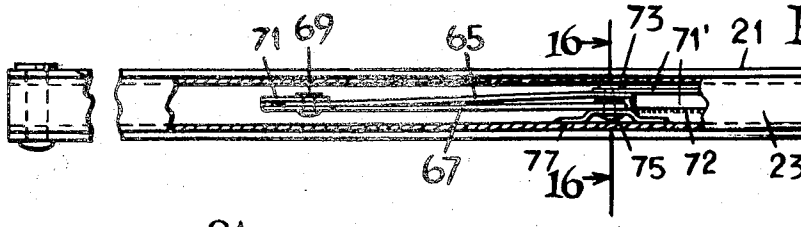


Fig. 15

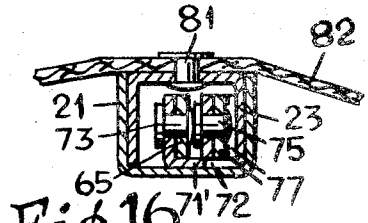


Fig. 16

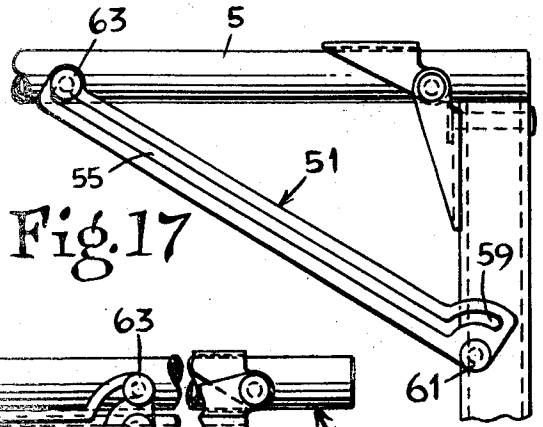


Fig. 17

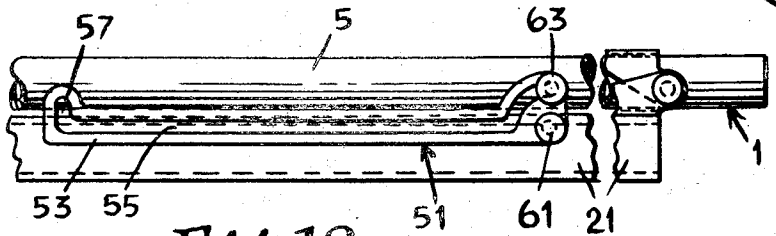


Fig. 18

INVENTOR:
James D. Simmons,
BY Ralph F. Staubly
ATTORNEY.

United States Patent Office 2,755,144 Patented July 17, 1956

2,755,144

FOLDING TRESTLE

James D. Simmons, Nashville, Tenn.

Application November 20, 1951, Serial No. 257,241

9 Claims. (Cl. 304—5)

This invention relates to a folding trestle of the type commonly used in pairs as the supports or legs for table-tops, platforms, etc., for indoor or outdoor use.

More particularly the invention relates to a very compactly folding, all-metal, light-weight yet sturdy trestle which is especially adapted for use in the field by the armed services, for example as litter racks.

Objects of the invention

Accordingly, it is an object of this invention to provide a compactly folding all-metal trestle which is sturdy and durable, yet light in weight and economical to manufacture.

It is another object to produce a folding trestle which automatically adjusts itself to irregular terrain.

It is a further object to provide a folding trestle having feet designed for good frictional and non-marring engagement with hard surfaces and for minimal sinking into soft surfaces, said feet being so shaped as to produce the effect of large-area ground-contact without detracting from the overall compactness of the folded trestle.

It is another object to provide such a trestle with folding stops which may be erected to form abutments for preventing a table-top or the like from sliding off or beyond the ends of the trestle.

It is a further object to produce a folding trestle having folding braces which are safe and reliable.

It is a still further object to provide a folding trestle having an attached binding strap designed for effectively binding one or a pair of trestles into a compact bundle.

These and other objects and advantages of the invention will become apparent as the following detailed description thereof proceeds.

Detailed description

In the drawings, in which like reference characters designate like parts thruout the several views:

Fig. 1 is an isometric view showing two set up trestles supporting a platform on uneven ground.

Fig. 2 is an enlarged side elevational view of the hinge and abutment-clip portions of the trestle.

Fig. 3 is an enlarged end elevation, viewed from the right of Fig. 2.

Figs. 4–9 are isometric views (arranged in clock-wise progression) showing several stages in the trestle-folding operation.

Fig. 10 is an enlarged detailed elevational view, partly in section, of the swivel connection between the abutted sections of the trestle beam.

Fig. 11 is a further enlarged detailed elevational view in section of the second quintile, from the right, of the disclosure of Fig. 10.

Fig. 12 is a plan view of the right half of the showing of Fig. 11.

Fig. 13 is a partial elevational view of the folding brace between each pair of legs.

Fig. 14 is a plan view from beneath the showing of Fig. 13.

Fig. 15 is a partial plan view, partly in section, of a pair of legs in folded or nested condition.

Fig. 16 is a cross-sectional view in elevation taken on the line 16—16 of Fig. 15.

Fig. 17 is a detailed elevational view of a modified form of corner brace.

Fig. 18 is a view similar to that of Fig. 17 but showing the elements in folded position.

With reference now to the drawings, the numeral 1 generally designates the beam or support portion of the trestle. The beam 1 is composed of two tubular sections 3 and 5 (Fig. 10) of approximately equal length and which are held in abutted axial alinement by a cylindrical bar or shaft 7 snugly fitted into the bores of the tubular sections 3 and 5 and extending half its length into each bore. The shaft 7 is preferably anchored firmly in one of said sections, as by a pin 8 passing thru alined openings in the section 3 and the shaft 7; but is sufficiently loosely received in the section 5 for relative rotation therebetween. This relative rotation produces the double function of permitting the compact folding hereinafter more fully explained, and also renders the trestle automatically adjustable to irregular terrain (schematically illustrated by the block B in Fig. 1.)

The section 5 of the beam 1 is held against axial displacement along shaft 7 by a headed pin 9 seated in a countersunk hole 11 in tubular section 5 (Figs. 11 and 12). The inner end of the pin 9 rides in an annular groove 13 in shaft 7. The head of pin 9 is held firmly in countersunk opening 11 by upsetting the edges of the enlarged portion of the opening 11, as at 15.

Adjacent each end of the beam 1 there is a pair of spreadable legs 21 and 23. These legs are formed of channel bars of such different widths that the narrower leg 23 of each pair will snugly nest within the wider leg 21. A pivot pin 24 joins the two legs adjacent their upper ends. The channels of the legs 21 and 23 preferably face each other. At the upper end of the inner side of each of the wider legs 21 is attached, as by welding at 22, a wedge-shaped hinge member 25. This hinge member 25 is formed of sheet-metal, bent so as to form a wedge-shaped parallel web 27 on each side, joined by a central rectangular web 26 adapted for flat engagement with a like area on the leg 21 for welding thereto. The side webs 27 have upwardly extending enlarged ear portions 29, which have centrally thereof round pin-receiving holes, thru which a pivot pin 31 passes to pivotally connect the wider leg 21 to the end of the beam 1. Pin 31 also passes snugly thru a transverse bore in the beam 1 to connect the leg 21 thereto so that said leg may pivotally swing into parallel adjaceny to said beam. The narrower leg 23, when folded so as to nest in the larger leg 21, also lies closely parallel to the beam 1.

Each pair of legs is provided with a folding corner brace 33 (best shown in Figs. 1 and 9). The brace 33 comprises a metal strap 35 pivotally pinned to the beam at 37, and a second metal strap 39 similarly pivotally pinned to leg 21 at 41. The two straps 35 and 39 are joined near the center of the brace formed thereby by another pivot pin 43. The strap 39 extends beyond the pivot pin 43 at 45 to overlap the strap 35 for a short distance. Carried on the strap 35 is a slide band 45 which snugly embraces the overlapped portions of the straps 35 and 39 to hold them in alined brace-forming positions.

Fig. 18 shows a modified form of corner brace, generally designated as 51. The brace 51 consists of a sheet-metal arm 53, having a longitudinal slot 55 therein. Arm 53 is enlarged at its upper end to permit the slot 55 to have a short upwardly extending right-angled bend therein. The lower end of arm 51 is enlarged to accommodate an arcuate extension 59 of the slot 55. Arm 51 is

pivotally connected to leg 21 by a headed pin 61. Another headed pin 63, anchored to beam 1, rides in slot 55 as the parts 5 and 21 move to and from functional and folded positions, in which they are locked by entrance of the pin 63 into extensions 57 and 59, respectively, as shown in Figs. 17 and 18.

In Figs. 13–16 are shown the details of construction of the leg-spread brace 64. This brace 64 comprises two metal straps 65 and 67 pivotally connected by a headed pin 69. Strap 67 has an integral tab 71 bent down over the overlapping portion of strap 65 to form a stop or brace-locking element, which, assisted by gravity and friction, holds the straps in substantially alined brace-forming positions (Fig. 13).

Brace strap 67 is attached to the wider leg 21 by an angle member 71' welded to said leg 72 and pivotally connected to strap 67 by headed pin 73. The other brace strap 65 is attached to the narrower leg 23 by a pivot pin 75 passing thru alined holes in the end of strap 65 and in the center of an omega-shaped metal strip 77 welded at its ends to the side wall of the leg 23. By this construction the leg-spread braces fold safely and completely within the enclosure formed by the nested channel-shaped legs.

Figs. 13–16 also disclose details of the rivet fastener 81 by which the bundling strap 82 is attached to the face of leg 23 opposite the center of beam 1 in the folded condition of the trestle. As shown in Fig. 9, each strap 82 is long enough to bind together a pair of trestles of the present design. The use of a buckle 83 or other quick fastener is preferred, but not necessary, since the strap ends could be tied instead.

The lower ends of the legs are preferably provided with laterally spread foot plates 85 and 87 to prevent sinking into soft ground and/or to increase friction on smooth surfaces. These foot plates 85 and 87 may be conveniently stamped from sheet-metal disks to form generally semicircular plates, which are then welded to the lower ends of the legs. The plate 85 is welded to the narrower leg 21 and has a central tongue 86 matching the cross-section of said leg. The plate 87 has a tongue-receiving opening formed where the tongue 86 was stamped out. The foot plates 85 and 87 may have attached thereto cushion pads or grommets 88 of rubber or other resilient material. The foot plates may also be provided with holes 89 to receive nails or screws for more permanent or secure installations.

The circular, interlocking design of the foot plates affords a maximum of foot-extent for a minimum of storage-space requirement.

At each end of the beam 1 it is desirable to provide a foldable stop member 91 (Figs. 2 and 3) for preventing planks, etc., from sliding off the ends of the trestle. These stop members 91 may be conveniently formed of sheet-metal curved to lie close against the beam when folded to the dotted-line position of Fig. 2. They may also be formed from short sections of metal tubing. Stops 91 can be attached in any desired manner, but for simplicity and economy may be pivoted on the pivot pin of hinge 25.

While a preferred embodiment of the invention has been disclosed, it is to be understood that numerous changes in the size, construction and arrangement of the parts can be made without departing from the spirit of the invention as defined by the subjoined claims.

Having thus described the invention, what I claim as new and desire to secure by Letters Patent of the United States is:

1. A folding trestle, comprising: a normally horizontal beam; a pair of legs near each end of said beam; pivotal means joining the legs of each pair adjacent said beam for relative movement to and from a contiguous storage position and a lambda-shaped use position; hinged means connecting each pair of legs to said beam to a trestle-forming position approaching perpendicularity to the axis of said beam; said beam including at least two aligned and swivelly connecting portions including means for holding said portions against relative axial movement while permitting free relative rotation thereof, whereby the lower ends of all of said legs may rest on an irregular terrain, and whereby said sets of legs may be folded on opposite sides of said beam.

2. A folding trestle according to claim 1 and in which said beam portions comprise two axially aligned tube sections, a shaft fixed in the bore of the first of said section and extending therefrom into a bore of the second section to form a journal-and-bearing connection therewith, and means co-acting with the parts of said journal-and-bearing connection for preventing relative axial displacement thereof.

3. A folding trestle according to claim 2 and in which said means for preventing relative axial displacement comprises a headed pin, lying in a countersunk aperture in said second tube section and extending inwardly into a circumferential groove in said shaft.

4. A folding trestle according to claim 3 and in which said headed pin is anchored in said counter-sunk aperture by at least one upset portion of the edge of said aperture overhanging the head of said pin, whereby said pin may be easily removed from the trestle by a chipping away of said portion.

5. A folding trestle according to claim 1 and in which said hinge-means comprises a yoke attached to at least one leg of each pair of legs and embracing said beam, and a pin passing through aligned apertures in the arms of said yoke and in said beam for pivotally connecting said yoke thereto, said yoke being trough-shaped to embrace said beam when folded thereagainst.

6. A folding trestle according to claim 5 and in which another trough-shaped yoke embraces said beam diametrically opposite said first-mentioned yoke and is movable to erect position to form stop means for preventing endwise displacement of planks or the like to be rested on said trestle, said yokes being attached to said beam by a common pivot pin.

7. A folding trestle according to claim 1 and in which each of said pairs of folding legs comprises channel-shaped bars arranged to fold with the side portions of the bars overlapping each other, and in which each of said legs carries an outwardly extending foot-plate having a configuration corresponding to the overlapping of said bars, whereby, with a minimum of material and of storage-space requirement, a maximum of support area is provided.

8. A folding trestle according to claim 1 and in which each of said pairs of legs comprises a pair of bars of U-shaped cross-section, one bar being sufficiently smaller than the other to nest therein when the legs are folded and in which a pair of foot-plates are welded to the lower end of said legs. said foot-plates being stamped from a single piece of metal, the foot-plate welded to the smaller bar having a tongue bridging the end thereof and the foot-plate welded to the larger bar having a U-shaped notch adapted to snugly embrace said tongue in folded condition of said legs.

9. A folding trestle according to claim 1 and in which each pair of spread legs is held in beam-supporting position under said beam by a brace extending between a pin on said beam and another pin on one of said legs, said brace having means thereon for locking it in leg-bracing position, said means for locking comprising a pair of abutments formed by a short right-angled bend in a longitudinally extending slot in said brace, said longitudinally extending slot being adapted to slide over one of said pins as said legs are folded against said beam, the end of said slot opposite said right-angled bend having an arcuate extension, permitting swinging of said brace alongside of said beam and folded legs, and serving also as a means for holding the same in folded relationship.

(References on following page)

References Cited in the file of this patent

UNITED STATES PATENTS

445,199	Pomeroy	Jan. 27, 1891
482,625	Dunbar	Sept. 13, 1892
1,143,397	Horn	June 15, 1915
1,385,021	Mintz	July 19, 1921
1,418,054	Bayer	May 30, 1922
1,446,924	Nicholson	Feb. 27, 1923
1,519,581	Gorden	Dec. 16, 1924
1,633,000	Culver	June 21, 1927
2,008,311	Nebel	July 16, 1935
2,410,330	Ashenfelter	Oct. 29, 1946
2,594,464	Loucks, Jr.	Apr. 29, 1952

FOREIGN PATENTS

373,710	Great Britain	June 2, 1932
798,792	France	Mar. 11, 1936