

Sept. 28, 1943.

E. H. HURLEY

2,330,288

PORTABLE CLIMBER

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2 Sheets-Sheet 1

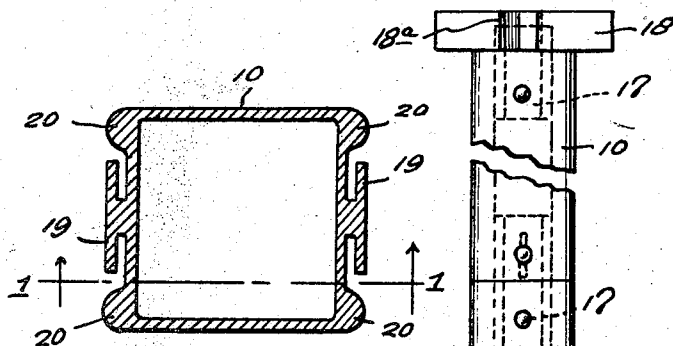


Fig. 2.

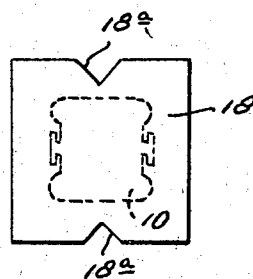


Fig. 3.

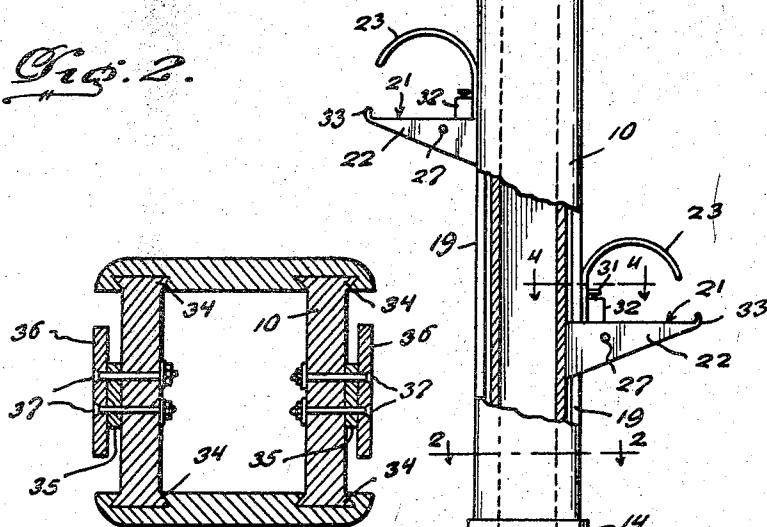
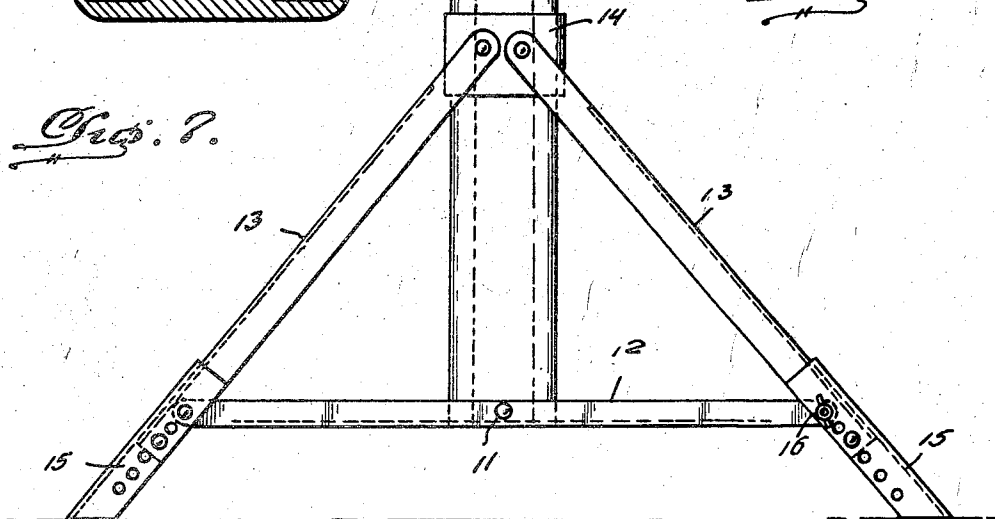


Fig. 1.



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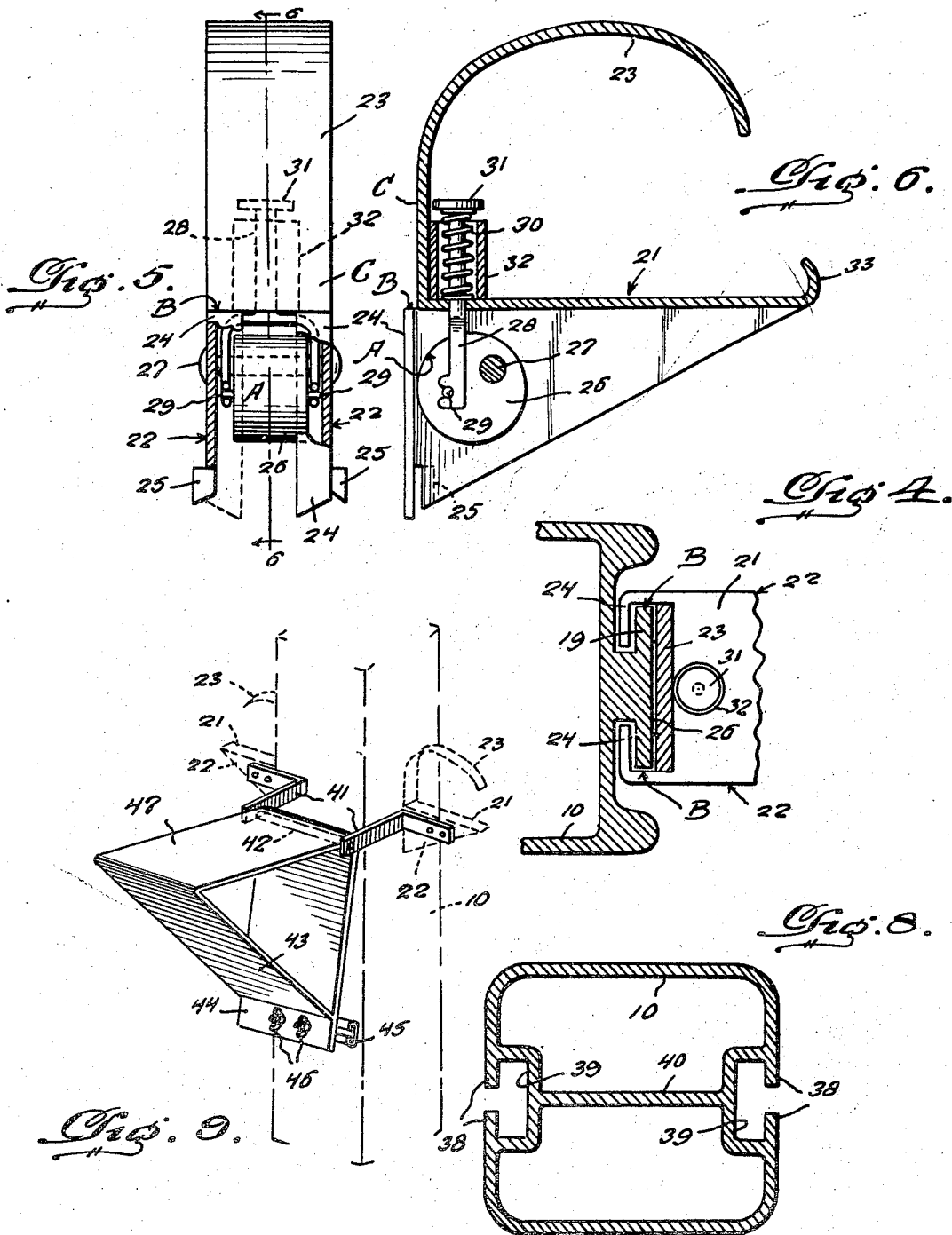
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2 Sheets-Sheet 2



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PORTABLE CLIMBER

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Application November 10, 1942; Serial No. 465,150

4 Claims. (Cl. 304—1)

This invention relates to portable climbers and has for its primary object the provision of a climber of this character which may be readily and easily transported from place to place and one which embodies few parts, to render the climber exceptionally light.

An important object of the invention is to provide a climber of this character comprising a plurality of sections, means being provided to removably connect the sections whereby the length of the climber may be adjusted to adapt the climber for various purposes.

Another object of the invention is to provide a climber including an elongated body portion and vertically movable step members operated by movements of the feet during the ascending and descending of the said elongated body portion; the said step members embodying means to secure themselves in progressive positions on the body member as they are successively moved longitudinally of the body member.

A still further object of the invention is to provide a portable climber which will be exceptionally rigid, means being provided to support the body portion in a substantially upright position while in use.

Still another important object is the provision of a scaffold bracket or support which is detachably secured to the step members and which, when used at least in pairs will support a horizontally disposed scaffold platform therebetween.

The invention contemplates a plurality of elongated sections which may be quickly and easily assembled to form a body portion or standard which is supported on a suitable base and is provided with a cap at its upper extremity. The standard has two tracks, one on each side, on which the steps or stirrups are slidably mounted. The stirrups embody means to frictionally grip the track automatically, said gripping means being releasable at the will of the user. All of which will be explained in detail as the description proceeds.

With the above noted and other objects in view which may appear as the description proceeds the invention resides in the novel construction, combination and arrangement of cooperating parts, as will hereinafter be explained in detail, claimed and shown in the accompanying drawings forming part of this application, and in which—

Fig. 1 is a fragmentary elevational view of my invention shown partly in section to illustrate the disposition of the stirrups on the standard.

The section is taken off-center or along a plane indicated by the line 1—1 on Figure 2.

Fig. 2 is a transverse sectional view of the standard taken, for example on the line 2—2 of Figure 1.

Fig. 3 is a plan view of the cap which is disposed at the top of the uppermost section of the standard.

Fig. 4 is a fragmentary sectional view taken on the line 4—4 of Figure 1, to illustrate the action of the stirrup clamping and sliding means.

Fig. 5 is an end view of the stirrup, the flanges being broken away to expose the mechanism therebehind.

Fig. 6 is a sectional view of the stirrup along the line 6—6 of Figure 5.

Fig. 7 is a transverse sectional view of a modification of the standard construction necessitated by a change of materials.

Fig. 8 is a transverse sectional view of a further modification of the standard, and

Fig. 9 is a perspective view of my scaffold bracket which is mounted on a climber indicated by dotted lines.

Referring more in detail to the drawings in which similar reference characters designate corresponding parts throughout the several views it will be seen that the invention consists of an elongated standard which consists of any number of sections 10. The lower section is bolted or riveted as indicated at 11, to a length of channel iron 12. Legs 13, consisting of two members made of channel iron are bolted or otherwise secured through a collar 14, disposed around the lower section as indicated in Figure 1. The bottom of the legs 13, are provided with extension feet 15, which may be adjusted to compensate for uneven ground on which the standard is supported to the end that the said standard will be properly positioned against a building or the like. I prefer to use thumb nuts 16, opposite pivotal connections so that the base just described may be folded in a compact manner for moving or storing.

The top of each section has a sleeve 17, secured therein which extends into the next adjacent section and is secured thereto by means of a thumb nut; thus the sections may be quickly and easily assembled one above the other until the desired length is obtained. Finally a cap 18, is disposed on the top of the uppermost section by means of the sleeve 17, located at the top of the uppermost section. I prefer to use a rubber cap so that the standard will not slip when it is positioned against

a building or the like. The cap is also provided with right angled notches 18a, for positioning against a corner of a building. The sections are substantially rectangular, hollow extrusions in outline.

From the foregoing it will be seen that I have provided a comparatively light yet durable and rigid standard which is composed of sections to be assembled one above the other until the desired length is obtained. The standard is supported on a relatively wide, adjustable base and provided at the top with a friction cap to the end that a firm positioning of the standard may be accomplished. Although I have shown the preferred type of base I intend to use other equally apparent modifications thereof.

It should be noted here that the illustration of Figure 1, is not to scale but is shortened for purpose of clarity, that is the collar 14, would be, in practice, a convenient step above the ground, about 18 inches, while the top of that section would extend a much greater distance by comparison than is shown in the drawing.

Referring now to Figure 2, it will be seen that the sections are provided with T-shaped rails 19, as seen in cross section, along each side of the sections. The rails extend to each extremity so that the said rails at the extremity of one section abut the rails at the extremity of the next adjacent section thus forming a track along each side of the standard from the collar 14, to the cap 18. The corners of the sections are rounded at 20, and extend outward to partially protect the said rails 19.

The stirrups consist of an integral body portion bent to form a top or foot plate 21, and sides 22. A curved guard 23, is formed integral therewith or preferably, is welded to the inner end of the stirrup. This end is provided with inwardly extending flanges 24, bent from the sides 22. The sides are also cut and bent to form outwardly extending tabs 25.

An eccentric 26, is mounted on an axle 27, which is supported in the sides 22, of the stirrup as most clearly shown in Figures 5 and 6. The said eccentric is supported in a manner so that its bearing surface A faces the channel D formed between the flanges 24 and the face C of the guard 23, by means of a bifurcated bolt 28, which engages a pin 29, through the eccentric. The bolt extends through the foot plate 21, beside the guard 23. A coil spring 30, disposed around the bolt and retained thereon by means of a threaded head or the like 31, normally urges the bolt upward. A sleeve 32, is welded to the foot plate to protect the bolt and spring. It should be noted that the sleeve is short enough to permit the bolt to be pressed downward sufficiently to swing the bearing surface A of the eccentric away from the channel B. 33, is an upturned flange at the outer extremity of the stirrup to prevent an operator's foot from inadvertently sliding off the said stirrup.

A stirrup is mounted on each track, one on each side of the standard. As most clearly shown in Figure 4, the track is disposed in the channel so that the bearing surface A abuts the face of the track, and the flanges 24, together with the side tabs 25, prevent the track from rocking or moving other than longitudinally thereof.

The operation of the device is as follows:

The stirrups are disposed on the end of the rails of the bottom section and the required number of sections then secured together until the desired

length is obtained thus forming longitudinally disposed tracks extending the length of the standard on which the stirrups are free to move. An operator, by placing his weight on one stirrup causes the eccentric to frictionally grip the face of the track so that the stirrup will not slip downward; by raising his foot under the guard 23, of the other stirrup it is caused to slide upward on the track until the weight of his foot, lowered to the foot plate 21, causes the eccentric of that stirrup to frictionally grip its track. This maneuver is repeated until the operator has climbed to the desired height.

To descend the operator puts his weight on one stirrup as hereinbefore described and presses the bolt 28 downward on the opposite stirrup thus releasing the eccentric and permitting the stirrup to descend a convenient distance or step. Upon releasing the pressure on the bolt the eccentric frictionally reengages the face of the track and the maneuver is repeated on the other stirrup until his descent is accomplished.

It will be noticed that the stirrups are actuated solely by the feet of the operator and that the action of the eccentric will obviate inadvertent slipping of the said stirrups.

I have shown, in Figure 2, an integral metal extrusion which is produced to form the sections 10. As shown in Figure 7, I may also use plywood, plastic or other types of material to form the sections 10, of the standard. In Figure 7, I have devised an elongated box-like structure, the walls of which are jointed together as indicated at 34. Spacer blocks 35, support the rails 36, from the sides. Countersunk bolts 37, disposed through the rails, spacer block and sides securely retain the tracks in position. This structure, while not possessing all the advantages of the original, provides an exceptionally sound standard having the general advantages inherent in my invention.

The modification of Figure 8, discloses a female track 38. The eccentric abuts the wall 39, which is reinforced by means of the rib 40. The flanges 24, on the stirrup must, perforce, be bent outward rather than inward toward each other as indicated in the drawings to engage the rails shown in this figure.

I have provided a scaffold bracket in combination with my climber so that at least a pair of climbers may be used to support a horizontal scaffold platform or plank therebetween. In one form the bracket consists of two L-shaped members 41, each of which is bolted to a side 22, of each stirrup. The members 41, extend outward past the front wall of the standard and are joined together by means of a pintle 42, across the front of the said standard. A unitary bracket 43, bent in the form of a triangle in side elevation, with an extending lower portion 44, is pivotally supported on the pintle 42. A plate 45, provided with rotatably secured bolts 46, abuts the aforementioned front wall, the said bolts extend through threaded apertures in the lower portion 44, to the end that the top 47, of the unitary bracket may be levelled regardless of the inclination of the standard when it is placed against the wall of a building or the like. Thus the scaffold will always be in a horizontal plane.

It is believed that the construction and advantages of the structure shown may be apparent from the foregoing paragraphs taken in conjunction with the accompanying drawings without further detail description.

While the preferred embodiment of the invention has been disclosed it is understood that minor changes in the details of construction, combination and arrangement of co-operating parts may be resorted to within the scope of what is claimed without departing from the spirit of the invention.

I claim:

1. A portable climber comprising a standard consisting of a plurality of sections adapted to be removably secured together, a base for the standard, oppositely disposed rails arranged lengthwise on each section adapted to align with the rails of the next adjacent section when the sections are secured together to form tracks lengthwise of the standard, a stirrup slidable on each track, the said stirrups each consisting of a homogeneous housing formed to provide a foot plate and sides, flanges bent inward from the sides to slidably engage the track, an eccentric mounted between the sides adapted to frictionally engage the face of the track to prevent inadvertent slipping of the stirrup on the track and a spring actuated bolt through the foot plate connected to the eccentric adapted, when pressed by the foot to release the said eccentric, and means whereby the stirrup may be raised.

2. A portable climber comprising a standard including a plurality of sections adapted to be removably secured together, a base for the standard, oppositely disposed rails arranged lengthwise on each section adapted to align with the rails of the next adjacent section when the sections are secured together to form tracks lengthwise of the standard, a stirrup slidable on each track, an eccentric mounted in the stirrups to prevent slipping of the stirrups on the tracks, foot operable means to release the eccentric, an L-shaped member removably secured to each stirrup, a pintle joining the L-shaped members across the front of the standard, an angle plate resting on

the pintle, and means to adjust the angle plate with respect to the standard so that the top of said angle plate will be disposed horizontally.

3. A portable climber comprising a standard including a plurality of homogeneous sections, each section having oppositely disposed rails formed along the sides and extending to the extremities of each section, the said sections adapted to be removably secured together so that the rails of each adjacent section align thus forming tracks lengthwise of the standard, a foldable base support for the standard, a rubber cap at the top of the uppermost section having right angled notches formed therein, a stirrup slidable on each track, an eccentric mounted in the stirrup adapted to frictionally engage the tracks to prevent slipping of the stirrup thereon and foot operable means to release the eccentric.

4. A portable climber comprising a standard consisting of a plurality of sections adapted to be removably secured together, a base for the standard, oppositely disposed rails arranged lengthwise on each section adapted to align with the rails of the next adjacent section when the sections are secured together to form tracks lengthwise of the standard, a stirrup slidable on each track, the said stirrups each consisting of a homogeneous housing formed to provide a foot plate and sides, flanges bent inward from the sides to slidably engage the track, an eccentric mounted between the sides adapted to frictionally engage the face of the track to prevent inadvertent slipping of the stirrup on the track, and a spring actuated bolt through the foot plate connected to the eccentric adapted, when pressed, to release the said eccentric, a guard integral with and above the stirrup, the whole arranged so that the stirrups may be raised and lowered on their tracks at the will of the operator.

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