Jan. 31, 1933. J. HEIN 1,895,571

STRUCTURAL IRON WORK CLIMBER

Filed May 14, 1931

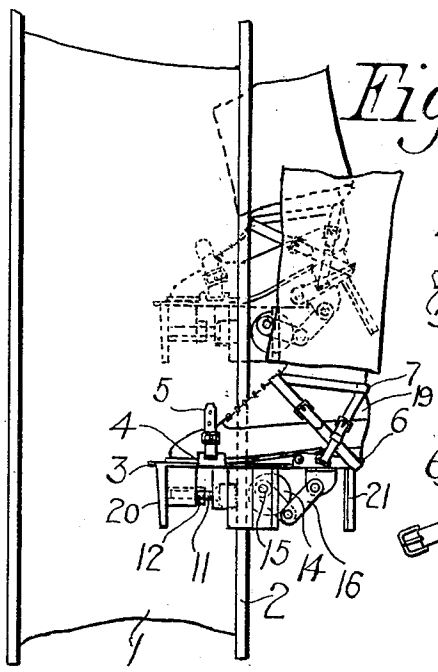


Fig. 1

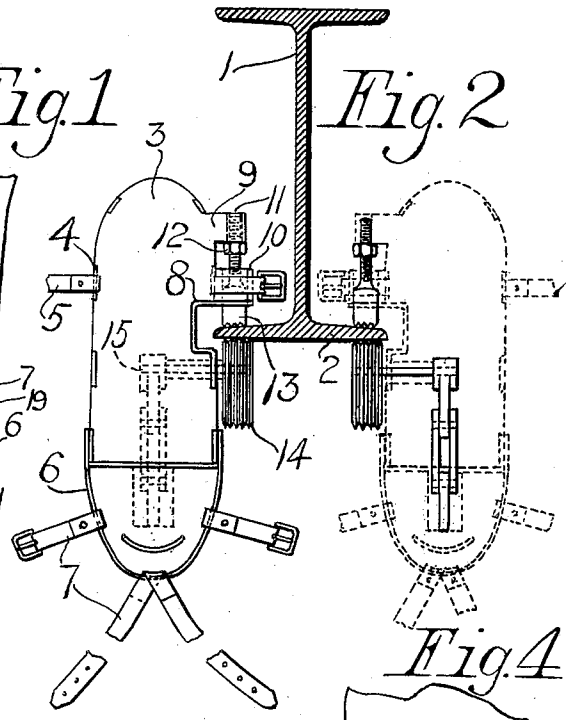


Fig. 2

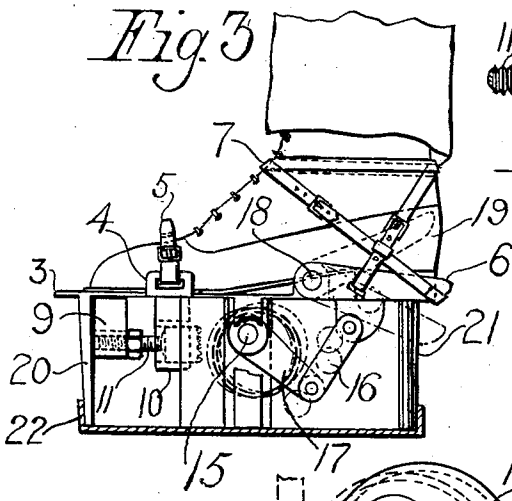


Fig. 3

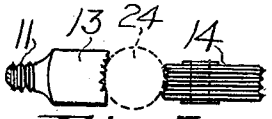


Fig. 5

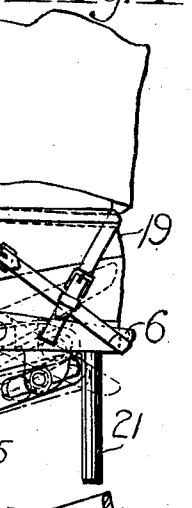


Fig. 4

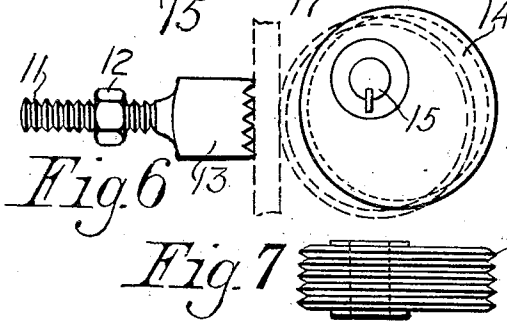


Fig. 6

Fig. 7

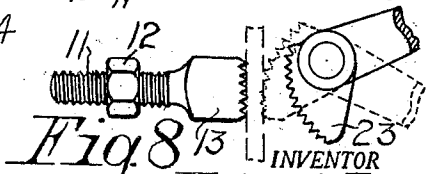


Fig. 8

INVENTOR

John Hein,

BY

Wm. Aug. T. Wilkins

ATTORNEY

Patented Jan. 31, 1933 1,895,571

UNITED STATES PATENT OFFICE

JOHN HEIN, OF NEW YORK, N. Y.

STRUCTURAL IRON WORK CLIMBER

Application filed May 14, 1931. Serial No. 537,477.

This invention relates to structural iron work climbers which are worn by iron workers and are constructed to exert a gripping force upon flanged or other suitably fashioned iron bodies of which the work consists, to enable the worker to ascend at any portion of the frame under construction.

An object of this invention is the provision of strong and simple devices attached to and operated by the movements of the feet of the wearer whereby the flange of a girder may be certainly and securely gripped with force to sustain the weight of the worker, and which may be readily released and replaced in a different or higher position. It is further an object of this invention to produce such devices of special construction and disposition by which it is believed an unusually reliable and convenient aid to iron workers is afforded.

In the accompanying drawing the preferred form of this invention is illustrated, but it is thought that the particular shapes and arrangements of parts may be variously modified within the purview of this invention. Of the drawing, Fig. 1 represents all parts of this invention assembled upon the feet of an iron worker showing the same applied to the flange of a vertical iron beam. Fig. 2 is a top view of this invention as set forth in Fig. 1. Fig. 3 is a side view, somewhat enlarged and showing the removable sole plate which is used to prevent the climbers when worn from sinking into soft ground. Fig. 4 is a side view of this invention upon the foot of a wearer, and showing a slightly modified form. Fig. 5 shows the gripping members applied to a piece of round structural iron. Fig. 6 illustrates somewhat enlarged the relations as to position and operation of the gripping bolt and ridged disk. Fig. 7 is a top view of the ridged disk member. Fig. 8 is a side view of a slightly modified form of the gripping members.

Throughout the drawing and description the same number is used to refer to the same part.

Considering the drawing, the beam 1 has a flange 2, and this invention has a foot plate 3 usually provided with side ears 4 for the toe straps 5. A pivotal heel cap 6 is connected with the shoe by the heel straps 7.

As best shown in Fig. 2 the foot plate 3 has a side recess 8, and into this recess there extends through bearings or like supports 9 and 10 on the plate a gripping bolt 11 which may be secured in place by the lock nut 12 and which has a toothed gripping head 13. As set out in Figs. 3 and 6 there is included in the operating means a ridged disk 14 eccentrically mounted on a transverse shaft 15 and actuated by the movements of the heel of the wearer through the links 16 and 17. It will be understood that the eccentric disk 14 is secured firmly to the shaft 15 by means of a key and key way, or in any other common manner. The connection between the disk 14 and the shaft 15 is illustrated in Fig. 6. In other words, the gripping head 13 of the bolt may be drawn and pressed into contact with the flange of the beam by the weight of the wearer in the heel cap 6. The pivot of the cap is marked 18 and the heel of the shoe 19.

In Figs. 3 and 4 it is represented that the foot plate 3 has toe and heel downwardly extended portions or legs 20 and 21 between which the operating means are located below the foot plate. Obviously on the more or less yielding ground about a building under construction the downward portions 20 and 21 would sink into the earth as the wearer walked thereon in the course of his employment. To avoid this inconvenience, there is provided a removable sole plate 22 as illustrated in Fig. 3, which engages the downwardly extending front and rear legs 20 and 21. With the sole plate in place the worker may walk yielding earth or the like.

In Figs. 4 and 8 there is shown a modified form of the heel-operated pivotal gripping member 23. This is in fact a segment of a disk with teeth instead of ridges.

In the operation of this invention, as indicated in Fig. 2, the flange of the beam or whatsoever iron piece is adapted to engage in the recess 8 is caused to enter the recess while the heel cap 6 is raised and an interval afforded between the gripping head of the bolt and the eccentrically pivoted cam or disk member. The flange is passed between

the bolt and the pivoted disk and when the weight of the wearer is returned upon the cap 6 the flange is clamped so that the wearer may raise his weight and set the climber upon the other foot at a higher point, as illustrated in Fig. 1. As the operation is repeated, the wearer rises upon the beam. It will be observed that it is entirely within the choice of the wearer to place the sole plate 22 upon the climbers he is wearing, which will permit him to climb a ladder or to ascend stairways in the customary manner.

Having now described this invention and its use I claim:—

1. In a structural iron work climber, a plate provided with toe and heel straps, said plate having a side recess, an adjustable gripping bolt provided with a lock nut and extending into the recess, said bolt being attached to the plate, and means operated by the movements of the heel of the wearer for drawing said bolt against an iron body capable of engaging in the said recess.

2. In a structural iron work climber, a plate provided with toe and heel straps, the said plate having a side recess, an adjustable gripping bolt provided with a lock nut and extending into the said recess, and means including an eccentrically revoluble member extending into said recess and operated by the movements of the heel of the wearer for pressing the said plate and bolt upon an iron body capable of engaging in the said recess.

3. In a structural iron work climber, a plate provided with toe and heel straps, said plate having a side recess, an adjustable gripping bolt provided with a lock nut and extending into the said recess, and means including a circumferentially ridged disk extending into said the recess and eccentrically revoluble and adapted to be operated by the heel of the wearer for pressing the plate and bolt upon an iron body capable of engaging in the said recess.

4. In a structural iron work climber, a plate provided with toe and heel straps, means operated by the foot of the wearer and constructed for gripping structural iron bodies, said plate having portions extending downwardly, and a sole plate constructed to removably engage the said downward portions to prevent same from sinking into soft ground.

In testimony whereof I affix my signature.

JOHN HEIN.