Aug. 19, 1952 C. W. BENNINGTON 2,607,522

ADJUSTABLE LEG IRON FOR CLIMBERS

Filed May 17, 1948

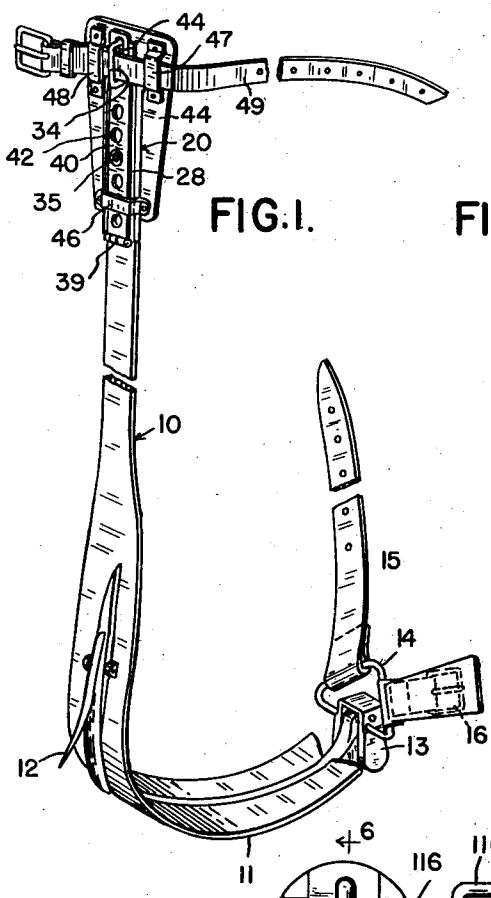

FIG.1.

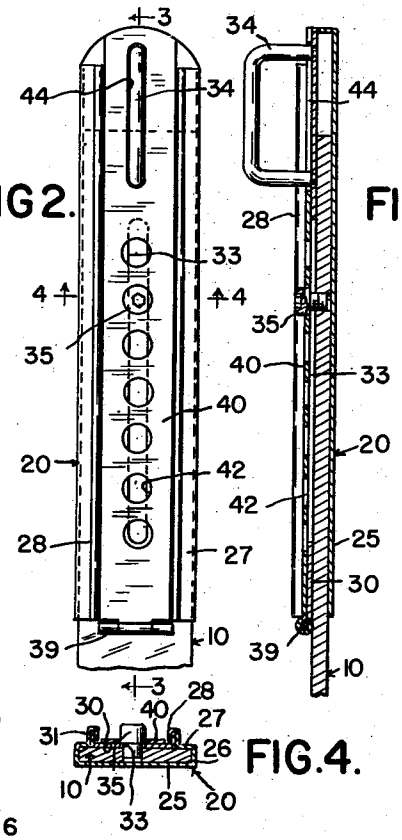

FIG2.

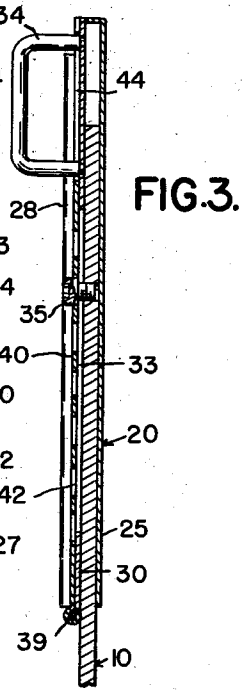

FIG.3.

FIG.4.

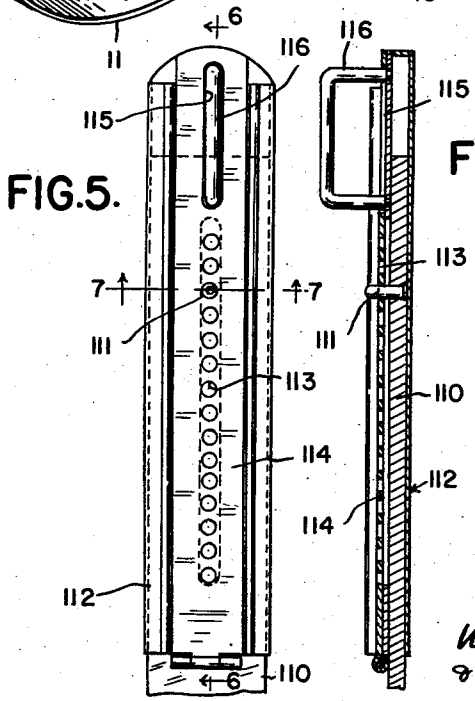

FIG.5.

FIG.6.

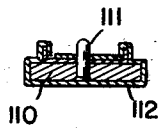

FIG.7.

INVENTOR.
CLYDE W. BENNINGTON

BY Whittemore, Hulbert & Belknap

ATTORNEYS

Patented Aug. 19, 1952

2,607,522

UNITED STATES PATENT OFFICE

2,607,522

ADJUSTABLE LEG IRON FOR CLIMBERS

Clyde W. Bennington, Ferndale, Mich., assignor to Detroit Edison Company, Detroit, Mich., a corporation of New York

Application May 17, 1948, Serial No. 27,469

10 Claims. (Cl. 227—27)

1

The present invention relates to an adjustable leg iron for climbers.

It is an object of the present invention to provide an extensible leg iron for climbers.

It is a further object of the present invention to provide an extensible leg iron for climbers characterized by the simplicity of construction, the ease with which adjustments as to length of the leg iron may be made, and means effective to lock the leg iron in desired extended position, and the provision of means preventing accidental unlocking thereof.

Other objects and features of the invention will become apparent as the description proceeds, especially when taken in conjunction with the accompanying drawings, wherein:

Figure 1 is a perspective view of a pole climber embodying the present invention.

Figure 2 is a fragmentary enlarged side view of the top of the leg iron illustrating the extensible feature.

Figure 3 is a section on the line 3—3 of Figure 2.

Figure 4 is a section on the line 4—4 of Figure 2.

Figure 5 is a view similar to Figure 2 illustrating a somewhat different embodiment of the invention.

Figure 6 is a section on the line 6—6 of Figure 5, and

Figure 7 is a section on the line 7—7 of Figure 5.

Referring now to Figures 1–4, the pole climbers comprise a leg iron 10 formed of strap metal and having a lower transversely bent portion 11 adapted to be engaged beneath the foot of the user. Projecting outwardly from the leg iron 10 is a spur or prong 12. At the outer end of the laterally extending portion 11 is a bracket 13 supporting a ring 14 to which a strap 15 and buckle 16 are secured.

The invention is intended to provide for extensibility of the leg iron and for this purpose there is provided an extensible sleeve 20 which is slidably mounted adjacent the upper end of the leg iron 10. As best seen in Figure 4 the sleeve comprises two pieces of sheet metal, the first being indicated at 25 and having forwardly extending flanges 26, inwardly extending portions 27, and crimped portions 28. The second piece of sheet metal is in the form of an elongated strip 30 having forwardly extending flanges 31 over which the crimped portions 28 are formed. The sleeve may be completed by welding the crimped portions 28 to the flanges 31.

As best seen in Figures 2 and 3, the sleeve portion 20 is provided with an elongated slot 33 and a forwardly extending loop 34.

2

The upper end of the leg iron 10 is provided with an outwardly projecting pin 35 which in Figure 3 is illustrated as formed by a socket headed bolt. The pin 35 passes through the slot 33 and in this embodiment of the invention the head of the pin 35 overlies the edges of the slot as well illustrated in Figures 2 and 4.

At its lower end, as indicated at 39, the sleeve 20 has pivoted thereto a locking leaf 40, this leaf having a plurality of openings 42 therein, any-one of which may fit over the projecting end of the pin or bolt 35. In addition, the locking leaf 40 has adjacent its upper end an elongated eye or slot 44 for receiving the loop 34.

Referring again to Figure 1 there is provided a leg strap and guard assembly at the upper end of the sleeve 20 which comprises a flat leather guard 44 having leather loops 46, 47 and 48 and carrying a leg strap 49 which extends through the loops 47 and 48 and which may be passed through the loop 34 carried by the upper end of the sleeve 20.

With the construction just described, it will be apparent that with the parts in the relationship illustrated in Figure 1, the leaf 40 is retained in position with the pin 35 extending through a desired or selected one of the openings 42 and is held in this position by the strap 49 which passes through the loop 34 and overlies the upper free end of the leaf 40. In order to adjust the effective length of the leg iron 10, it is necessary first to withdraw the leg strap 49 from the loop 34 and to move the strap 49 downwardly below the pivot 39. Thereafter the leaf 40 may be swung outwardly about its pivot 39 to release it from the locking pin 35 at which time the sleeve 20 may be slid upwardly or downwardly to effect the desired adjustment. When this adjustment is made the leaf is again moved inwardly to cause the pin 35 to project through the desired one of the openings 42 and to cause the slot 44 to pass over the loop 34. Thereafter, the guard 45 is moved upwardly to the position shown in Figure 1 and the leg strap 49 is passed through the loop 34.

Attention is directed to the fact that the provision of the forwardly projecting flanges 31 on the sleeve element 30 and the crimped portions 28 of the sleeve element 25 provides guard flanges which lie closely adjacent to the edges of the leaf 40 when the leaf is in locking position. The leaf 40 may conveniently be of relatively light sheet metal and the provision of these guard flanges protect the leaf during use from being engaged at its edges and bent.

Referring now to Figures 5–7, a substantially similar construction is illustrated and only the points of difference will be described. In this case the upper end of the leg iron 110 is provided with an outwardly projecting pin 111, in this case the pin being shown as suitably secured in an opening formed in the leg iron 110. The adjustable sleeve 112 is similar to the sleeve 20 with the exception that the pin receiving openings 113 formed in the pivoted locking leaf 114 are correspondingly small to cooperate with the relatively small locking pin 111. The leaf 114 is provided at its upper end with an elongated slot 115 for receiving the leg strap loop 116 which is carried by the upper end of the sleeve 112.

Both embodiments of the present invention provide ready operable means for adjusting the effective length of the leg iron. In both cases means are provided which positively prevents accidental disengagement between the leg iron proper and its extension. In both embodiments of the invention, protecting means are provided adjacent the lateral edges of the locking leaf. More particularly, both embodiments of the invention include means for positively insuring that the locking means for the leg iron extension cannot become released while the leg iron is in use, since the means for preventing disengagement of the locking means is the leg strap 49 which of course is buckled in place when the climber is in use.

As a further modification the strip 30 which carries the eye 34 may if desired be only sufficiently long to support the ends of the eye 34, the remainder being omitted. In this case the leaf 40 may be pivoted by a pin passing through openings formed in the flanges 31 and crimped portions 28. This construction provides access to the interior of the extensible sleeve 20 to permit clearing it out as required.

The drawings and the foregoing specification constitute a description of the improved adjustable leg iron for climbers in such full, clear, concise and exact terms as to enable any person skilled in the art to practice the invention, the scope of which is indicated by the appended claims.

What I claim as my invention is:

1. A climber leg iron having a locking pin adjacent its upper end, an extension slidably carried at the upper end of said iron, a locking element having a series of pin receiving openings and effective, when said pin is engaged in one of said openings, to prevent sliding of said extension on said leg iron, said element being mounted on said extension for movement relative to said extension between pin engaging and pin releasing position, a leg strap releasably carried by said extension and disposed to prevent movement of said element to pin releasing position when said strap is in operative position in any position of adjustment of said extension.

2. A climber leg iron, a longitudinally slidable extension at the upper end of said leg iron, a leg strap loop on said extension, a leaf pivoted to said extension having a loop-receiving eye therein, and cooperating locking means on said leaf and leg iron engageable to prevent sliding of said extension on said leg iron when said loop is in said eye, and a leg strap removably carried by said loop and overlying said leaf to prevent accidental displacement of said extension.

3. A climber leg iron, a longitudinally slidable extension at the upper end of said leg iron, a leg strap loop on said extension, a leaf pivoted to said extension having a loop-receiving eye therein, and cooperating locking means on said leaf and leg iron engageable to prevent sliding of said extension on said leg iron when said loop is in said eye, and a leg strap removably carried by said loop and overlying said leaf to prevent accidental displacement of said extension, said locking means comprising a pin and a plurality of spaced pin receiving openings.

4. A climber leg iron having a pin spaced from but adjacent to its upper end; an extension sleeve slidable on the upper end of said leg iron, having a slot receiving said pin, and having a strap-receiving loop located above said slot; a leaf pivoted at its lower end to said sleeve, having a plurality of pin receiving openings, and having a loop-receiving eye at its upper free end.

5. A climber leg iron having a pin spaced from but adjacent to its upper end; an extension sleeve slidable on the upper end of said leg iron, having a slot receiving said pin, and having a strap-receiving loop located above said slot; a leaf pivoted at its lower end to said sleeve, having a plurality of pin receiving openings, and having a loop-receiving eye at its upper free end; said sleeve having outwardly projecting flanges disposed to lie closely adjacent to the edges of said leaf when said leaf is in position to engage said pin and said loop.

6. A climber leg iron, an extension slidable on the upper end of said leg iron, means for carrying a leg strap on said extension, locking means including a releasable locking member mounted on said extension for movement thereon between locking and release position for securing said extension to said leg iron in adjusted position, the leg strap, when in position, engaging said member and preventing accidental release of said locking member in any position of adjustment of said extension.

7. A climber leg iron, an extension slidable on the upper end of said leg iron, means for carrying a leg strap on said extension, locking means including a releasable locking member carried by said extension for securing said extension to said leg iron in adjusted position, the leg strap, when in position, engaging said member and preventing accidental release of said locking member in any position of adjustment of said extension.

8. A climber leg iron, an extension slidable on the upper end of said leg iron, means for carrying a leg strap on said extension, locking means including a member carried by said iron and a releasable locking member carried by said extension for engaging said first member and securing said extension to said leg iron in adjusted position, said member having a portion engaged by the leg strap to hold said member in locked position in any position of adjustment of said extension.

9. A climber leg iron, an extension slidable on the upper end of said leg iron, means for locking the extension in adjusted position, means for securing the leg iron to the leg of a user, said last mentioned means being removable to permit adjustment of said extension and being effective when in operable position to retain said locking means in locked position in any position of adjustment of said extension.

10. A climber leg iron having a shank formed of a flat metal strip, an extension sleeve formed of sheet metal, said sleeve comprising a first element fitting around one surface and both edges

of said shank and having inturned flanges overlying the other surface of said shank and a second element intermediate said flanges, the edges of said elements being crimped to define outwardly extending beads, a pin on said shank, one of said elements having a slot in which said pin is movable as said sleeve is adjusted along said shank, a locking leaf pivoted to said sleeve formed of sheet metal and disposed to fit between said beads in locking position, said leaf having a plurality of pin receiving openings, a strap receiving loop carried by said sleeve adjacent its upper end, said leaf having a slot therein to receive said loop, the upper attaching strap receivable in said loop thereby preventing swinging of said leaf to pin-releasing position.

CLYDE W. BENNINGTON.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
613,007	Howard	Oct. 25, 1898
693,433	Owens	Feb. 18, 1902
743,211	Alexander	Nov. 3, 1903
1,174,347	Ranney	Mar. 7, 1916