

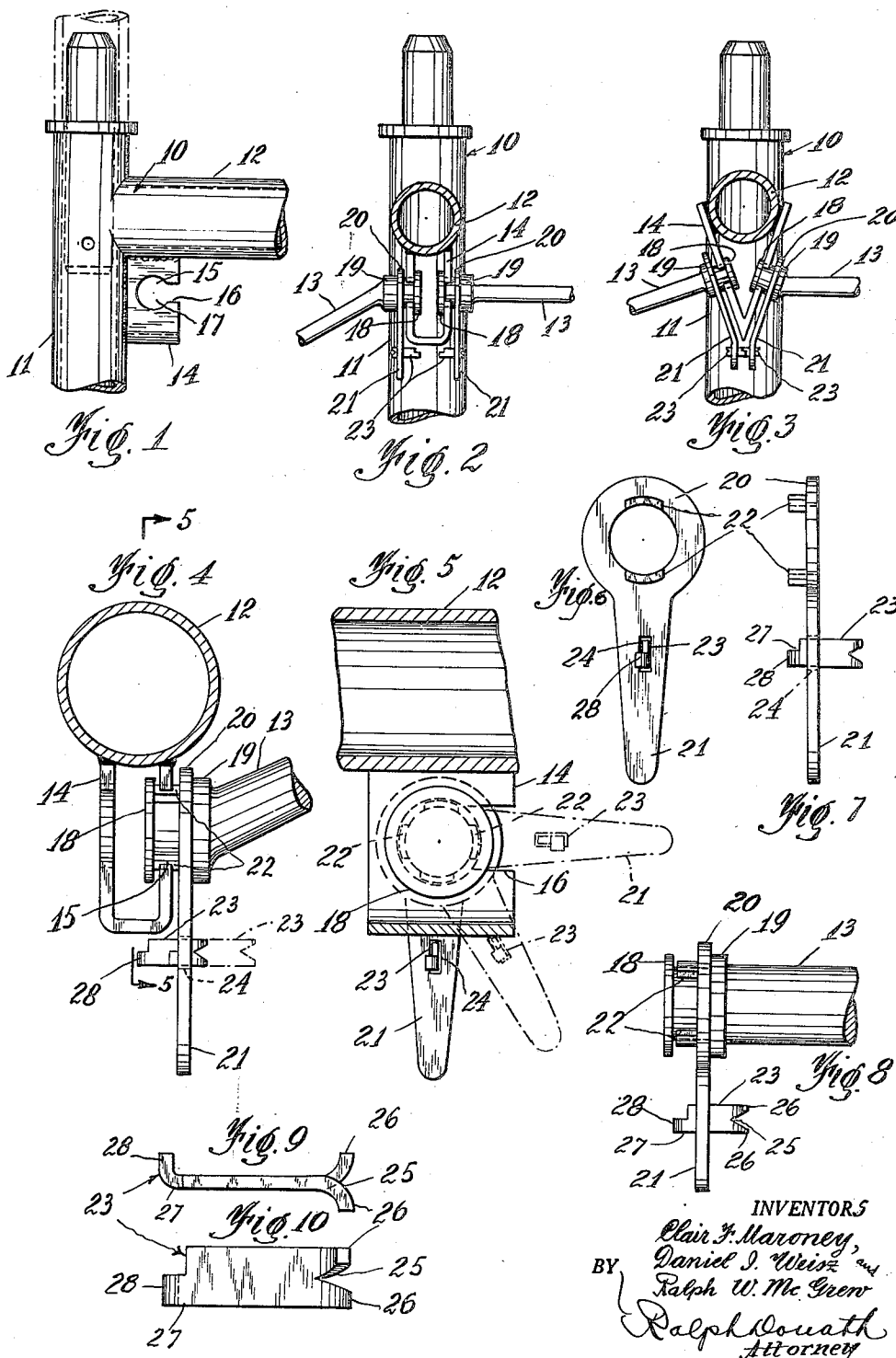
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KNOCKDOWN SCAFFOLD HAVING SAFETY LOCK

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KNOCKDOWN SCAFFOLD HAVING SAFETY LOCK

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2 Claims. (Cl. 304-40)

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This invention relates generally to knockdown scaffold and, in particular, to an improvement of the connector for securing diagonal braces or stays to the spaced rectangular end frames of such scaffolds in order to form a rigid self-sustaining structure.

Knockdown scaffolds are used extensively but as made prior to this invention they were not quickly and easily assembled but required considerable time and labor as well as the use of tools for erection and dismantling.

It is the object of this invention to provide a positive locking device for use with a scaffold.

In a preferred embodiment of the present invention, there are provided gusset plates at the junction of the horizontal and vertical members of the end frames. These plates are provided with keyhole slots extending thereinto from an exposed edge, adapted to receive the end of a brace or a stay. There is also provided a brace with a head at each end and a flange spaced inwardly thereof. Between each head and flange there is rotatably mounted a collar having a segmental flange and a handle for turning it. The segmental flange is adapted to enter the restricted outer neck of the keyhole slot when turned to the proper position and to lock the brace in the gusset plate when the segmental flange is turned perpendicular to the position for entering the keyhole slot. A locking member is slidably mounted in the segmental flange handle so as to be slidable transversely to its plane of rotation. In the locked position the locking member lies beneath the gusset plate so as to be adjacent the lower edge thereof and prevent the rotation of the handle to the unlocked position.

A more complete understanding of the invention may be obtained from the following detailed description and the drawings in which:

Figure 1 is a partial elevation of one end of a scaffold frame.

Figure 2 is a section through a horizontal member of one frame showing the ends of braces secured thereto.

Figure 3 is a section through a horizontal member of a different frame embodiment showing the ends of braces secured thereto.

Figure 4 is a section of the horizontal member and gusset plate of Figure 2.

Figure 5 is a section on the line 5-5 of Figure 4.

Figure 6 is a front elevation of the locking collar.

Figure 7 is a side elevation thereof.

Figure 8 is a side elevation of a segment of

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brace member showing locking collar in place thereon.

Figure 9 is a top plan view of the locking member of the invention.

Figure 10 is a side elevation thereof.

Referring to the drawings there are illustrated end frames 10 composed of posts 11 and beams 12 welded together. While both the posts 11 and beam 12 are shown as fabricated from tubular members they may be made of any other section or combination of sections. The end frames 10 of a multiple section scaffold are spaced apart and connected by braces or stays 13 extending from one end frame to another. The braces 13 are shown in the drawings as round bar stock but they may be of any other desired section. Gusset plates 14 are welded to the posts and beams in the corners of the frames. Keyhole slots 15 are provided in the gusset plates, each having a restricted neck 16 adjacent an exposed edge of the plate and an eye 17 spaced from the edge. The neck 16 is slightly greater in width than the diameter of the braces 13. As shown in Figures 2 and 3 there are gusset plates in each corner of the frame, which plates may be parallel to each other (Figure 2) or in the form of a V (Figure 3).

Each brace 13 has a head 18 in the form of a disc welded thereon or upset from the body of the brace. A flange 19 is welded at each end of the brace a short distance inwardly of the head 18. A collar 20 having a manipulating lever or handle 21 is rotatably mounted on the brace between each head 18 and flange 19. The collar 20 has a segmental portion 22 extending laterally thereof, which portions are of such width that they will pass through the necks of the slots 16. The eyes 17 of the slots have a diameter slightly greater than the outside diameter of the segmental portions 22 so as to permit rotation of the collars and segmental portions after they have entered into the eyes of the slots.

The method of operation of these scaffolding members is believed to be apparent from the foregoing description; however, a brief description is as follows: The handles 21 are turned to the horizontal position (chain lines, Figure 5). This aligns the segmental portions 22 with the necks of the slots 16 and permits them to pass there-through. When the ends of the braces have thus been brought into the eyes of the slots, the handles 21 are turned down to the vertical position. The braces are thus centered in the eyes 17 with the segmental portions 22 in such relation to the necks 16 of the slots that they cannot be removed. So long as the handles 21 remain in the verti-

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cal position, the assemblage above described constitutes a rigid, self-sustaining structure. However, the handles 21 may be accidentally moved by being bumped etc. to the horizontal position thus releasing the braces. In order to overcome this undesirable feature a locking member 23 is slidably mounted in a slot 24 in the handle 21 of the rotatable locking collar. One end 25 of the locking member is divided and the portions so formed turned outwardly from the body thereof in the form of wings or stops 26. The other end 27 is notched to form a single projecting wing 28 turned outwardly from the body thereof. These outwardly turned wings 26 and 28 prevent the locking member from falling out of the slot 24. The single wing 28 permits the use of two such locking members on adjacent handles where the space is limited by reason of one being able to overlie the other in the manner shown in Figure 3. When the locking member is in the position shown in chain lines on Figure 4 the handle 21 can be freely moved to insert or release the braces. When the locking member is moved inwardly beneath the gusset plate (solid lines, Figure 4) then the handle cannot be moved to the horizontal position since the locking member strikes the bottom of the gusset plate preventing movement of the handle.

While there has been illustrated and described but a single embodiment of this invention it will be understood that it may be otherwise embodied within the scope of the following claims.

We claim:

1. In a separable connection for securing diagonal braces to the rectangular end frames of a knockdown scaffold having at least one gusset plate on the end frame, each having a keyhole slot therein including an eye and a restricted neck, a collar rotatably mounted on each end of the braces, said collar having a portion shaped

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and dimensioned to enter said neck when turned to one position and be held against removal when turned to another position, retaining means integral with the brace on either side of the collar whereby the collar is maintained against axial or longitudinal movement, and handle means on the collar for rotation thereof, the combination with said separable connection of a pin mounted in an opening in the handle means for movement transverse to the plane of rotation of said collar whereby rotation of said handle is prevented when said pin is in one extreme position and freely rotatable when the pin is in the other extreme position, said pin being slotted at one end and bent outwardly in opposite directions from the plane of the body of the pin preventing removal from the opening in the handle at said end, the opposite end having a notched portion and an outturned portion whereby the pin is removable at said end by turning the pin into a plane parallel to the plane of rotation of the collar.

2. In a separable connection as claimed in claim 1 having a pair of gusset plates in each corner of the frame and a pin slidably mounted in the handle of each collar, said notched portion of one pin being arranged to receive the outturned portion of the adjacent pin whereby each collar is locked against rotation.

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