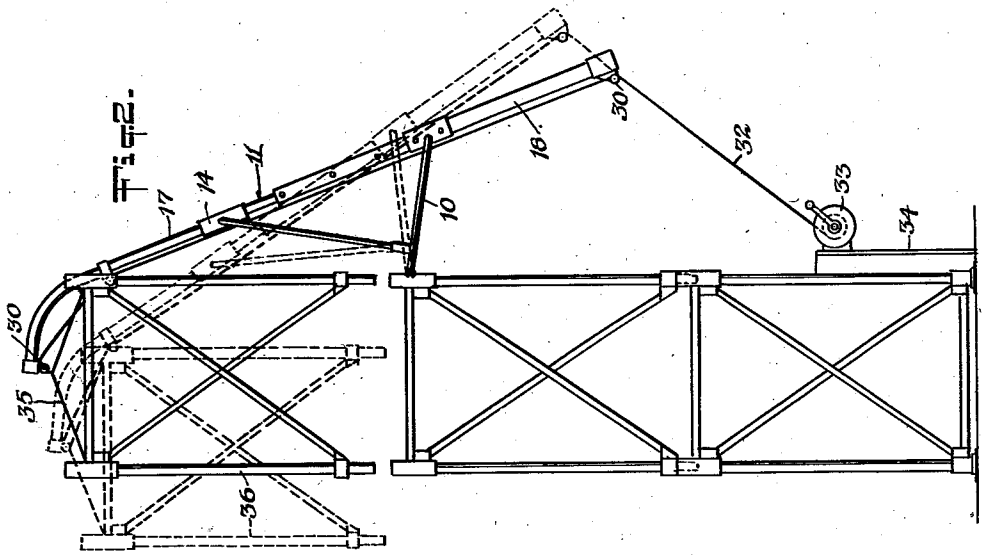
June 5, 1945. H. COHEN 2,377,758

BOOM

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Fig. 2.



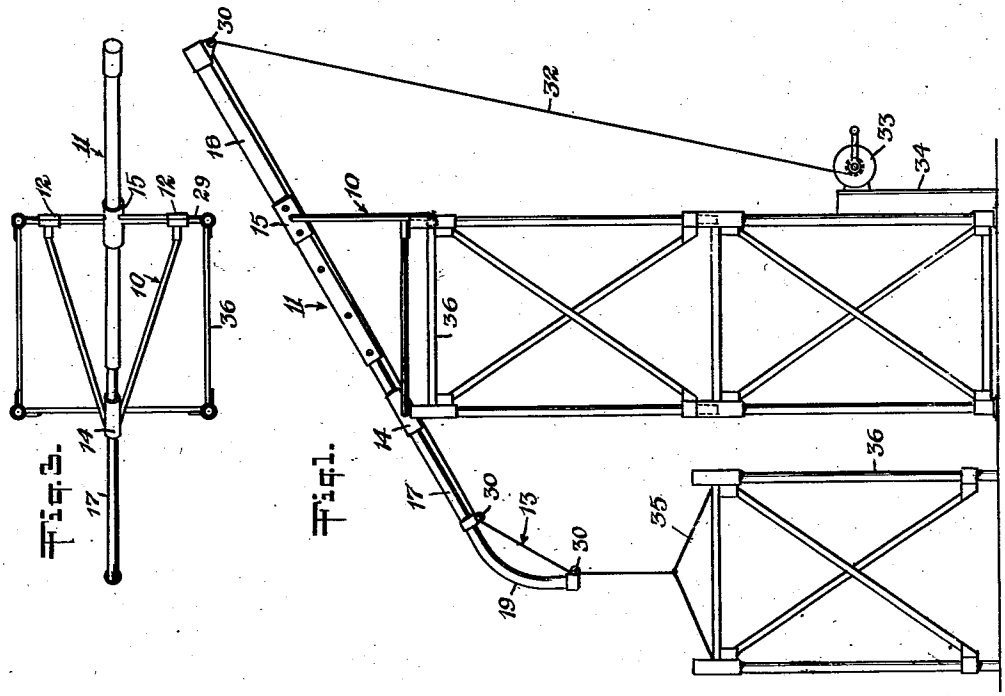


Fig. 3.

Fig. 1.

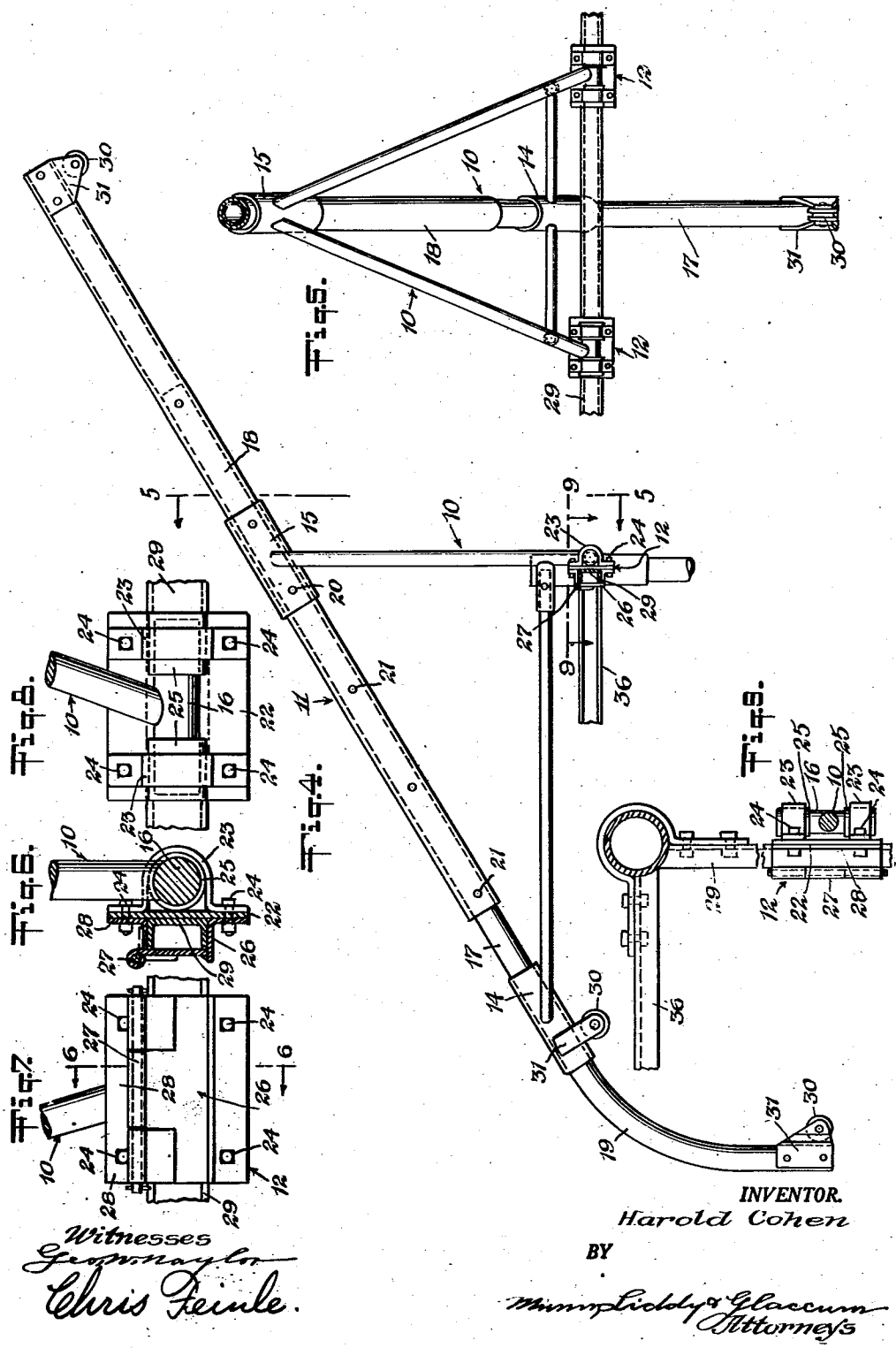
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UNITED STATES PATENT OFFICE

2,377,758

BOOM

Harold Cohen, Elizabeth, N. J.

Application December 1, 1943, Serial No. 512,449

5 Claims. (Cl. 212—144)

This invention relates to a device for carrying out hoisting operations, and which may be used advantageously for hoisting and emplacing components of a structure in the course of its erection. The device is useful, for instance, in erecting towers, structural metal framework and other analogous structures by hoisting the materials where wanted.

The principal object of the invention is the provision of a device of the indicated character which is designed and adapted to facilitate the work of hoisting materials for the stated purposes.

A further object of the invention is the provision of a boom which is adjustable to pick up and deposit different size loads from different locations; a boom which may be readily moved from one place to another and anchored in the hoisting operations; and a boom which is of efficient and substantial design and easy to operate.

The nature of the invention and its distinguishing features and advantages will appear when the following specification is read in conjunction with the accompanying drawings, in which—

Figs. 1 and 2 are side elevations showing the device of the present invention in use, in the erection of a tower by hoisting the sections of the tower in place.

Fig. 3 is a top plan view.

Fig. 4 is an enlarged side view of the device, and a portion of a tower section on which the device is mounted.

Fig. 5 is a sectional view taken on the line 5—5 of Fig. 4.

Fig. 6 is a detail sectional view of one of the anchors, the section being taken on the line 6—6 of Fig. 7.

Fig. 7 is a view of one side of the anchor shown in Fig. 6.

Fig. 8 is a view of the other side of the anchor shown in Fig. 6.

Fig. 9 is a sectional view taken on the line 9—9 of Fig. 4.

Referring now more particularly to Figs. 4 to 9 inclusive of the drawings, it will be apparent the device of the present invention, generally stated, comprises a rocker 10, a boom or gib 11 on the rocker, means 12 on which the rocker 10 is mounted, which detachably secures the device in place for use, and means 13 for operating the rocker to move the boom or gib when hoisting or lowering a load.

The rocker 10 consists of a triangular frame structure of welded parts. The rocker includes two short tubes 14 and 15 respectively, arranged in axial alinement and in spaced relation to each other. The rocker also includes two short rods 16 in axial alinement and in spaced relation to each other, which serve as the pivot or fulcrum for the rocker.

The boom or gib 11 consists of two sections 17 and 18 respectively, the same being in the form of tubing, and the sections being telescopically related, the section 17 being slidable inwardly and outwardly of the section 18. The outer end of the section 17 is curved downwardly as at 19. The section 18 extends through the tube 15 and is fixedly secured thereto by suitable fasteners 20. The section 18 is therefore the fixed section on the rocker 10, whereas the section 17 is the adjustable section. The section 17 extends loosely through the tube 14 which helps the section 18 to support the section 17. Since the section 17 is adjustably engaged with the section 18, it is possible to vary the length of the boom 11. The section 17 is secured in the desired adjusted position by suitable fasteners 21. These fasteners may be set screws carried by the section 18 and engaging the section 17, or screw bolts which pass through both sections.

The means 12 cooperate with the rods 16 and are detachable anchoring attachments, one of which is shown most clearly in Figs. 6, 7 and 8. Each attachment 12 includes a plate 22. Straps 23 are secured to the plate 22 on one side thereof by screw bolts 24. These straps 23 securely clamp bearings 25 respectively. Each bearing is in the nature of a socket, and there being two such bearing sockets for each rod 16. In this manner the rocker 10 is connected with the related attachment 12 for rocking movement. The plate 22 on the other side has hingedly connected therewith a double right angle clip 26 by a hinge 27 and an angle iron 28, the leaves of the hinge being welded to the clip 26 and angle iron 28 respectively. Two of the bolts 24 secure the angle iron 28 to the plate 22 and the remaining lower bolts 24 detachably secure the clip 26 to the plate 22. The plate 22, clip 26 and angle iron 28 in operative relation may be attached to a structural element or component, such as a channel 29 constituting a part of a tower in the course of erecting it, as will be seen from Figs. 1 and 2. It will be understood the attachments 12 serve for anchoring the device in its entirety, so that the rocker 10 may be rocked on the pivots 16 and causing the boom 11 to move with the rocker. The device may be readily detached and shifted to a new position in which it is anchored for use.

The means 13 consists of pulleys 30, there being one on the outer end of the section 17, one

on the tube 14 and one on the butt end of the section 18. Each of pulleys 30 is supported by hangers 31 secured to the section 17, tube 14 and section 18, as the case may be. A cable 32 is trained over the pulleys 30, and has one end connected with the drum 33 of a suitable winch 34 or the like, while the other end of the cable has a sling or grapple 35 for tackling the load to be hoisted or lowered.

In Figs. 1 and 2, the device is shown in use, by way of example, in the erection of a tower constructed of a plurality of prefabricated units 36 which are set in place one after the other and secured to each other according to known methods. The boom 11 is adjusted to the required length in order that each unit in turn may be grappled and then be hoisted and swung into place. As shown in Fig. 1, the boom 11 is normally tilted toward the load and the means 35 is secured to a unit 36. By operating the winch 34, the cable 32 is wound on the drum 33, causing the upward movement of the unit 36 while the boom remains stationary. When the grapple 35 engages the end of the section 17, the pulling force on the cable causes the rocker 10 to rock, thereby bodily moving the boom with it, and so swinging the unit 36 into registry with the uppermost unit on which the device is mounted, as shown in Fig. 2. The added unit then may be secured in place after which the device is detached and moved up and anchored to the added unit for a repetition of the operations hereinabove described, as will be understood.

It is at once obvious the device has many other uses where it is desired to facilitate hoisting or transferring of material for different purposes. It is to be understood that details in the construction of the device may be modified and rearranged without departing from the invention as expressed in the appended claims.

I claim:

1. A raising and lowering device comprising a rocker, a boom composed of sections, the first of said sections being fixed on said rocker and the second section being adjustably engaged with the first section to vary the length of the boom, and pulleys on said sections respectively to accommodate a cable which serves for raising and lowering a load and also operating the rocker.

2. A device comprising a rocker, a boom adjustable as to length mounted on said rocker to move therewith, pulleys on the boom and rocker respectively, a cable trained over said pulleys, said rocker consisting of a frame structure having axially alined supports for supporting the boom, attachments for detachably connecting the device for use, and means supported by the attachments on which the rocker rocks.

3. A raising and lowering device comprising a rocker and a boom, said rocker consisting of a frame having two short tubes arranged in axial alinement and in spaced relation to each other, and means serving as a pivot or fulcrum for the rocker, said boom consisting of two sections telescopically related so that the first section is slidable inwardly and outwardly of the second section, means to hold the first section in the adjusted position with respect to the first section, the second section extending through one of said short tubes and secured thereto, the first section extending through the other of said tubes and slidable therein.

4. A raising and lowering device as set forth in claim 3, and pulleys on the sections of the boom and the short tube which supports the slidable section of the boom respectively.

5. A device comprising a frame structure having pivots and constituting a rocker, a boom mounted on said rocker to move therewith, attachments for detachably connecting the device for use, and bearing means connected with said attachments for said pivots to mount the rocker for rocking movement, each of said attachments including a hinged clip adapted to engage a suitable support for the device, and means to secure the clip in engagement with the support.

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