W. VAN WIE.

ADJUSTABLE COUNTERBALANCE PIVOT CRANE.

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911,632.

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Fig. 1.

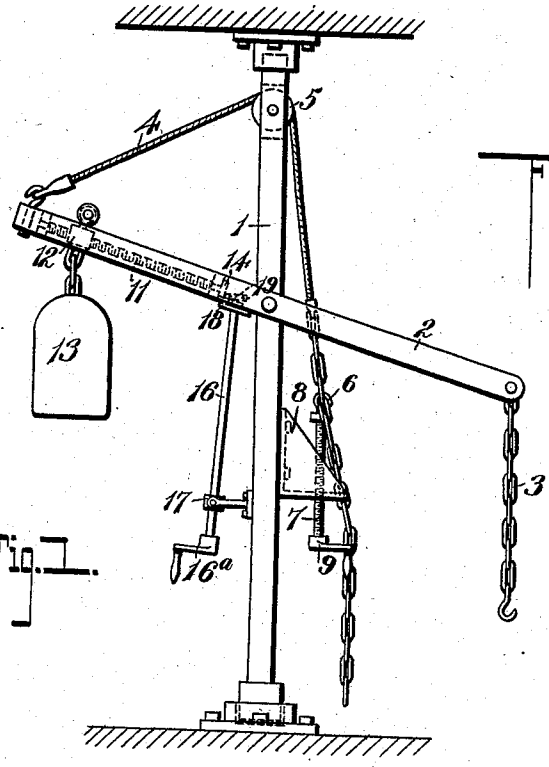


Fig. 2.

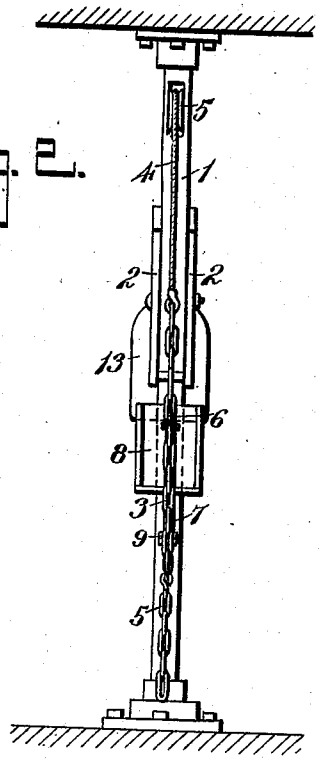


Fig. 3.

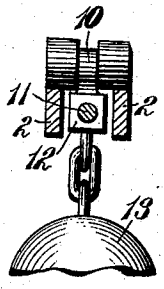


Fig. 4.

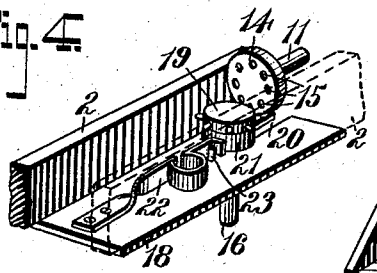
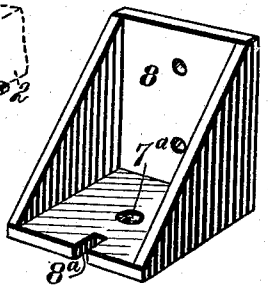


Fig. 5.



Witnesses

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ADJUSTABLE COUNTERBALANCE PIVOT-CRANE.

No. 911,632. Specification of Letters Patent. Patented Feb. 9, 1909.

Application filed April 27, 1908. Serial No. 429,549.

To all whom it may concern:

Be it known that I, WALTER VAN WIE, a citizen of the United States, residing at Oakland, in the county of Alameda and State of California, have invented a new and useful Improvement in Adjustable Counterbalance Pivot-Cranes, of which the following is a specification.

This invention relates to an adjustable counter balance pivot crane and is an improvement upon devices of this kind for which separate applications have been made.

The object of this invention is to provide a crane having a central pivotal point upon which it swings vertically, and a rotatable upright standard carrying said crane, whereby the entire device may be swung horizontally in a circle.

The invention consists of the novel features of construction hereinafter described, pointed out in the claims, and shown in the accompanying drawings, in which;—

Figure 1 is a side elevation. Fig. 2 is an end elevation. Fig. 3 is a detail sectional view illustrating the construction of a beam and a traveling carriage. Fig. 4 is a detail perspective view illustrating a special gearing. Fig. 5 is a perspective view of a bracket.

In constructing this device I provide a vertically arranged rotatable standard 1 mounted at its upper and lower ends in suitable bearings of any desired kind, and a beam 2 is pivotally mounted midway its ends upon said standard. I prefer to form this beam in two parallel sections as shown in Fig. 3, a section of the beam being pivotally arranged upon opposite sides of the standard 1. The beam 2 however could be formed in one piece longitudinally slotted if so desired. To one free end of this beam is secured a hoisting chain 3 by means of which the work or other article to be lifted is engaged. To the other end of the beam is secured a cable 4 which runs over a pulley 5 mounted in the upper portion of the upright 1, and from said pulley the cable 4 passes downwardly between the two sections of the beam 2 and in position to be engaged by a hook 6 carried at the upper end of a threaded rod 7 which rod works upwardly through a threaded opening 7^a in an angle plate or bracket 8 secured to one side of the standard 1. An operating handle 9 is secured upon the lower end of the rod 7. The front edge of the bracket 8 is notched at 8^a, said notch being just large enough to receive one link of the chain forming a part of the cable 4, but not large enough to permit said chain to run through the notch.

Upon the rear end portion of the beam 2 is mounted a traveling carriage or truck 10 which travels upon the beam and may be of any desired construction. This carriage is provided with the usual threaded feed rod 11 and nut 12 through which the rod works. A counter balance weight 13 is carried by said traveling carriage 10 and is moved along the beam 2 by rotation of the feed rod 11. In order to rotate the rod 11 I form upon its forward end, or the end nearest the standard 1, a gear 14 which consists of a disk having upon its face a plurality of sockets 15. An operating shaft 16 has a handle 16^a at its lower end and works loosely and slidably in a guide bracket 17 carried by the standard 1. The upper end portion of the shaft 16 passes through a metal plate 18 carried by the beam 2, and carries at its upper end a toothed gear 19, the teeth of which are in the form of pins which pins engage the sockets 15 of the gear 14. In order that the gears will always mesh no matter what position the beam 2 is thrown into I slot the plate 18 as shown at 20 so that the shaft 16 can move longitudinally with respect to said plate, and I fix loosely upon the shaft 16 immediately above the plate 18 a collar 21 to which is secured the end portion of a spring 22, the other end being fixed to the plate 18, and the spring being bent upon itself between its ends. Pins 23 are arranged on the plate 18 upon opposite sides of the spring 22 to guide the movement of the spring, the construction being such that the spring will always tend to force the shaft 16 along the slot 20 and hold the gear 19 in engagement with the gear 14. Owing to the tilting of the beam 2 the gears will mesh at various angles, and it is therefore necessary to allow for considerable play between them.

The operation of the device is as follows:— The article to be lifted is attached to the hoisting chain 3 and by operating the handle 16^a the plate 12 is run out toward the rear end of the beam 2 until it overbalances the weight of the article which when it is ascended to the desired height may be locked in said position by engaging the hook 6 with a link of the chain forming a part of the cable 4. This hook can be adjustable by means of the handle 9 and threaded rod 7. The

entire device can then be swung horizontally by rotation of the standard 1 and when the article is in position above the place upon which it is to be deposited the hook 6 is disengaged from the cable 4 and the weight 13 run back toward the standard 1 thus permitting the weight to descend. The hook 6 may then be again engaged with the cable 4 and the hoisting chain 3 disengaged from the work. This leaves the weight 13 in position for further use, the weight end of the beam 2 being held elevated by engagement of the cable 4 with the hook 6. If at any time it is desired to obtain a new grip by the hook 6 upon a link of the chain of the cable 4, in order to relieve the chain 3 of any weight or strain so that it can be readily disengaged, a link of the chain of the cable 4 can be slipped into the notch 8[a] which will lock the parts in position, and by means of the handle 9 the rod 7 can be run higher up for engagement with a new link, and by then reversing rotation of said handle and rod the elevated or weight end of the beam 2 will be slightly lifted thus causing a slight slack in the chain 3, so that it can be easily disengaged from the work.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. A device of the kind described comprising a rotatable standard, a beam pivotally mounted midway its ends upon said standard, a hoisting chain carried by one end of said beam, an adjustable weight traveling along the opposite end portion of the beam, a pulley carried by the standard, a cable running over said pulley, one end of the cable being connected to the weight end of the beam, and means carried by the standard for engaging a portion of the last mentioned cable.

2. A device of the kind described comprising a vertically swinging and horizontally rotatable beam, a traveling carriage mounted thereon, a threaded feed rod for moving said carriage, a gear wheel consisting of a disk having sockets formed in its face, said gear being mounted upon said feed rod, a vertically extending operating shaft, a gear carried by the upper end of said shaft said gear having teeth engaging the sockets of the first mentioned gear, a plate carried by the beam and slotted, the operating shaft passing through said slot, a collar fixed loosely upon said shaft, a spring secured at one end to said collar and at the other end to the plate adapted to force said operating shaft along the slot and into engagement with the first mentioned gear, as and for the purpose set forth.

3. A device of the kind described comprising a rotatable standard, a beam pivotally mounted midway its ends upon said standard, said beam swinging vertically independent of rotation of the standard, a carriage movable upon said beam, a counter balance weight carried by the carriage, a feed rod carried by the beam and operating said carriage, a vertically arranged operating shaft for driving said feed rod, a guide bracket carried by the standard, the operating shaft being slidably held in said bracket, a pulley carried by the standard, a cable secured to the weight end of said beam and running over the pulley, a vertically adjustable hook for engagement with links of the cable, and a hoisting chain carried by the free end of the pivot beam.

4. In a device of the kind described a vertically swinging beam, a traveling carriage thereon, a counter balance weight supported by said carriage, a threaded feed rod operating said carriage, a slotted plate carried by the beam, a guide bracket arranged below said beam, an operating shaft slidably held in the guide bracket and passing loosely through the slot of the plate, intermeshing gears carried by the feed rod and the operating shaft and a spring carried by the slotted plate, said spring holding the said gears in engagement during swinging movement of the beam.

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Witnesses:
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