

April 29, 1924.

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A. W. RYBECK

MATERIAL HANDLING MACHINE

Filed May 29, 1922

Fig. 1.

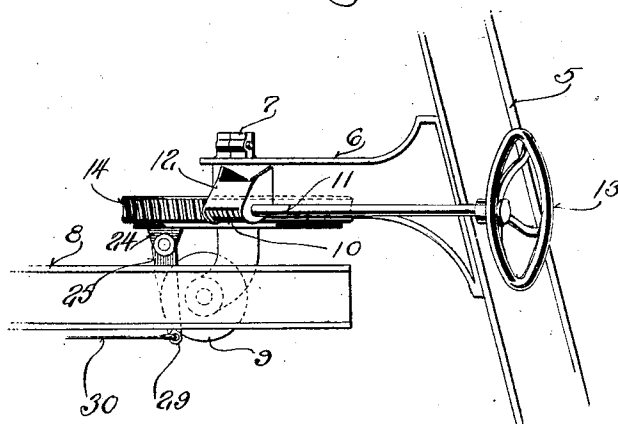


Fig. 2.

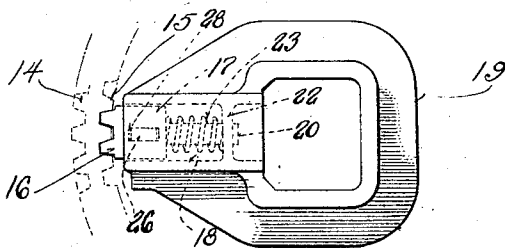
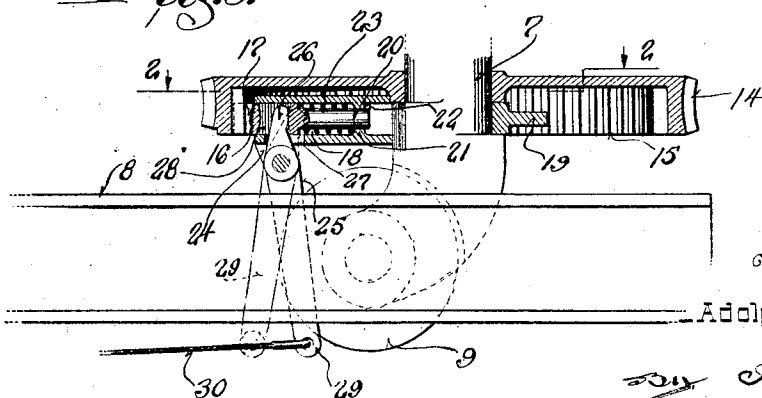


Fig. 3.



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UNITED STATES PATENT OFFICE.

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MATERIAL-HANDLING MACHINE.

Application filed May 29, 1922. Serial No. 564,488.

To all whom it may concern:

Be it known that I, ADOLPH W. RYBECK, a subject of the King of Sweden, and resident of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented new and useful Improvements in Material-Handling Machines, of which the following is a description, reference being had to the accompanying drawing, which is a part of this specification.

This invention relates to certain new and useful improvements in material handling machines and refers more particularly to a cement mixing machine having a distributing boom along which travels a distributing hopper, the boom being mounted for lateral or swinging movement to permit discharge of the distributing hopper at any desired point.

The present manner of swinging the distributing boom is by a hand wheel located adjacent the operator's platform, the hand wheel working a worm which is in mesh with a worm wheel made fast to the boom. This construction serves to swing the boom, but is objectionable as oftentimes the operator is occupied with some of his many other duties and, as a result, the men working with the material are delayed.

Therefore, it is one of the objects of this invention to provide a distributing boom capable of being swung to any desired position independently of the operator controlled means for swinging the boom.

Another object of this invention resides in the provision of a distributing boom having a pivot which is journaled in the machine frame structure and carries a locking member normally urged to engagement with another member mounted about the boom pivot whereby the boom may be readily swung to any desired position and then locked in such position.

This invention has for a further object to provide a distributing boom mounting whereby the boom may be readily swung to any position by means operated from the operator's platform of the machine or by means independent of the first mentioned means and capable of operation from any point along the boom.

A still further object of this invention resides in the provision of an improved distributing boom mounting of the class described which may be readily applied to

machines without materially increasing the cost of manufacture thereof and which may be applied to machines either at the time of their manufacture or to machines now in use.

With the above and other objects in view which will appear as the description proceeds, my invention resides in the novel construction, combination and arrangement of parts substantially as hereinafter described and more particularly defined by the appended claims, it being understood that such changes in the precise embodiment of the herein disclosed invention may be made as come within the scope of the claims.

In the accompanying drawings, I have illustrated one complete example of the physical embodiment of my invention constructed according to the best mode I have so far devised for the practical application of the principles thereof, and in which:

Figure 1 is a side view of a boom mounting employing my invention, but a portion of the machine frame structure and the distributing boom being illustrated;

Figure 2 is a top view of the distributing boom pivot carried locking member detached therefrom, said view being taken through Figure 3 on the plane of line 2-2, and

Figure 3 is an enlarged detail view of the distributing boom mounting, the boom swinging and locking means being in section.

Referring now more particularly to the accompanying drawing, in which like numerals designate like parts throughout the several views, the numeral 5 designates two upwardly and inwardly inclined side brace beams, but one being illustrated in the drawing, positioned one at each side of the discharge opening of a mixing drum, not shown.

Secured to beams 5 is a bracket member 6, in the outer end of which is journaled the pivot 7 of a distributing boom 8. The lower end of pivot 7 has the inner end of boom 8 secured thereto and carries a guide sheave 9 about which are trained the cables for operating a distributing bucket, not shown, along the boom.

The boom may be swung to any position to govern the discharge of the distributing bucket, not shown, and in the past this has been accomplished by a worm 10, fixed

to a shaft 11 journaled in brackets 12 carried by member 6. Shaft 11 is extended rearwardly to a position adjacent the operator's platform, not shown, and has a hand wheel 13 mounted thereon to permit its convenient manipulation. Worm 10 meshes with a worm wheel 14 made fast with the boom so that rotation of the worm, through the medium of hand wheel 13, will swing the boom to the desired position.

In the structure illustrated in the drawing, wheel 14 is freely rotatable about pivot 7 and is provided with an internal gear 15 with which the outer toothed end 16 of a locking member 17 is engageable. Locking member 17 is longitudinally slidably mounted within a guideway 18 formed in a collar or yoke member 19 fixed to pivot 7 and carries a shank or guide stem 20 on its inner end which passes through an opening 21 in a web 22 closing the inner end of the guideway.

Locking member 17 is normally resiliently urged to engage its outer toothed end with the teeth of gear 15 by a spring 23 coiled about stem 20 and confined between web 22 and the locking member proper. As will be readily obvious, when locking member 17 is in engagement with internal gear 15, worm wheel 14 is fast to pivot 7 and may be operated to swing the boom from the operator's platform.

As it is oftentimes desirable that the distributing boom be moved to a new position without waiting on the machine operator, member 17 may be disengaged from internal gear 15 to permit free swinging movement of the boom. Member 19 is provided with two spaced, depending lugs 24 positioned centrally with respect to guideway 18 and between which is pivotally mounted a lever 25, the upper short arm 26 of which passes into the guideway through an opening 27 and is engaged within an aperture 28 in the locking member. The longer arm 29 of lever 25 has one end of a cable 30 secured thereto, the other end of which is secured to the outer end of boom 8, not shown.

With this construction it will be readily obvious that a pull on cable 30 will swing end 29 of lever 25 to its dotted line position, illustrated in Figure 3, thus disengaging the toothed end of the locking member from internal gear 15 and permitting the free swinging of the boom on its pivot. Instantly on the release of cable 30, spring 23 will expand and engage the toothed locking member with the internal gear 15 and lock the boom in position to permit its swinging by manipulation of wheel 13.

What I claim as my invention is:

1. A device of the class described, comprising a pivoted boom member, manually operated means for swinging said member

about its pivot and locking the same against further movement, and a second means permitting the swinging of the boom member independent of the first said means.

2. In a machine of the class described, a substantially horizontal boom member, means pivotally mounting the boom member adjacent its inner end to permit lateral swinging of the outer end thereof, means remote from the boom member for effecting the swinging thereof on its pivot, said last-mentioned means normally locking the boom member against swinging movement, and a second means included in the first said means and operable from any point along the boom member to render the boom swinging means inoperable and permit the free swinging of the boom member independent of said swinging means.

3. In a machine of the class described, a supporting frame structure, a boom member, a pivot securing the boom member to the frame structure, an internal gear freely journaled about the pivot, means normally restraining the internal gear from rotation with respect to the supporting frame structure, and a locking member secured to the boom member and engageable with the teeth of the internal gear to move the boom member to any position of adjustment with said gear.

4. In a machine of the class described, a supporting frame structure, a boom member, a pivot securing the boom member to the frame structure for swinging movement, an internal gear freely journaled about the pivot, means operable to rotate the internal gear with respect to the frame structure, a locking member secured to the boom member and yieldably urged to engagement with the teeth of the internal gear to make the boom member fast to the internal gear, whereby rotation of the internal gear swings the boom member on its pivot, and means for disengaging the locking member from the internal gear, whereby the boom member may be swung on its pivot independently of the internal gear.

5. In a machine of the character described, a supporting frame, a pivot journaled in the supporting frame, a boom member supported from said pivot and adapted for swinging movement about the axis of the pivot, an internal gear rotatable about the axis of said pivot, means engageable with said internal gear and operable from a point spaced from the pivot to rotate said gear, said means normally locking the internal gear against rotation, a collar member fixed to the pivot and disposed within the internal gear, a locking member reciprocally carried by the collar member, a spring normally urging the locking member to engage its outer end with the teeth of the internal gear, whereby the pivot member is normally

held against rotation and the boom member against swinging movement except by actuation of said first-mentioned means, a lever pivottally mounted on the collar member and having one end thereof engaged with the locking member, and an actuating member for the lever and extending along the boom member whereby the lever may be actuated from any point along the boom member to disengage the locking member from the internal gear against said yieldable means to permit the rotation of the pivot and the swinging of the boom independently of the internal gear.

6. A device of the class described, comprising a pivoted boom member, means connected to said boom member for swinging

the same about its pivot, and said means adapted to be disconnected from said boom member from a remote point to permit a further swinging movement of said boom member.

7. A device of the class described, comprising a boom member, means pivottally mounting the same upon a support, manually operated gears for swinging said boom member about its pivot, and means for disconnecting certain of said gears from said boom member to permit a movement of the same independent of said manually operated means.

In testimony whereof I affix my signature.

ADOLPH W. RYBECK.