H. SAWYER.

APPARATUS FOR HANDLING FREIGHT.

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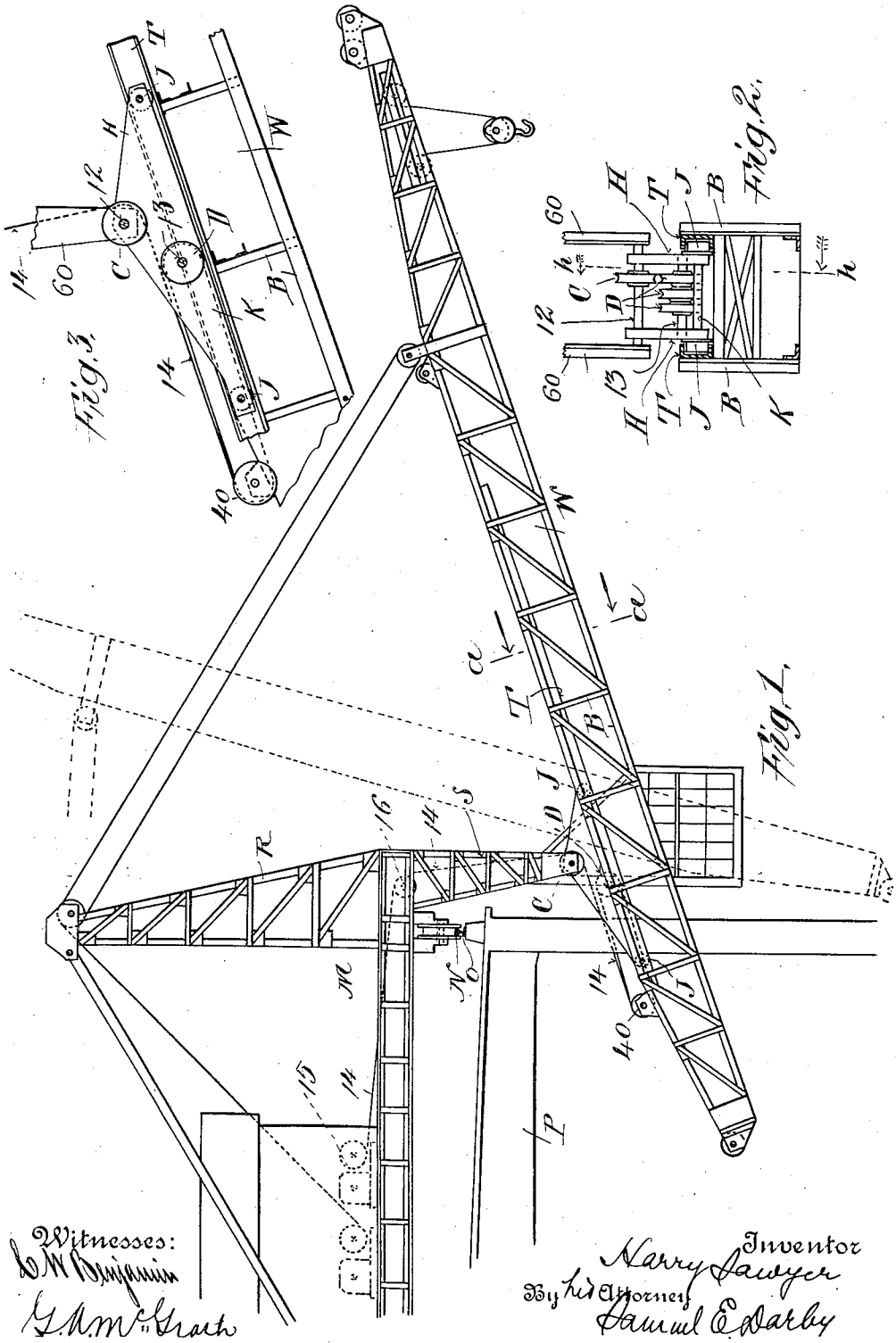
1,064,385. Patented June 10, 1913.



Witnesses:
W. M. Benjamin
G. M. McGrath

Inventor
Harry Sawyer
By his Attorney
Samuel E. Darby

UNITED STATES PATENT OFFICE.

HARRY SAWYER, OF MUSKEGON, MICHIGAN.

APPARATUS FOR HANDLING FREIGHT.

1,064,385. Specification of Letters Patent. Patented June 10, 1913.

Application filed June 24, 1912. Serial No. 705,423.

To all whom it may concern:

Be it known that I, HARRY SAWYER, a citizen of the United States, residing at Muskegon, county of Muskegon, State of Michigan, have made a certain new and useful Invention in Apparatus for Handling Freight, of which the following is a specification.

This invention relates to apparatus for handling freight.

The object of the invention is to provide means in connection with a traveling or shifting crane, employing a swinging jib or boom, for use in handling freight, whereby the crane supporting the swinging boom may be shifted along its track without the jib or boom interfering with rigging or other obstructions.

A further object of the invention is to provide means in an apparatus of the nature referred to wherein the jib or boom may be shifted endwise so as to withdraw the outer end thereof while permitting it to swing up and down without interference.

Other objects of the invention will appear more fully hereinafter.

The invention consists substantially in the construction, combination, location and relative arrangement of parts, all as will be more fully hereinafter set forth, as shown in the accompanying drawings, and finally pointed out in the appended claims.

Referring to the accompanying drawings and to the various views and reference signs appearing thereon:—Figure 1 is a view in side elevation of a cargo or freight handling apparatus embodying the principles of my invention. Fig. 2 is a view, in transverse section, on the line *a*, *a*, Fig. 1, looking in the direction of the arrows, parts being broken off. Fig. 3 is a broken view in section on the line *h*, *h*, Fig. 2, looking in the direction of the arrows.

The same part is designated by the same reference letter wherever it occurs throughout the several views.

In my pending applications Serial Nos. 638,425 and 638,427, filed July 14th, 1911, I have shown, described and claimed crane structures for handling freight wherein are employed traveling or shiftable cranes upon which are pivotally mounted booms arranged to be swung out over a freight or canal boat, barge, or the like, lying alongside a dock or pier, or over a freight car, or for use in other suitable or convenient situations, by means of which freight may be transported to and from or loaded on or unloaded from the boat, barge, lighter, freight car, or the like, alongside which the crane structure is operated. The freight to be handled is hoisted and transported along the jib or boom from the dock or wharf or from the boat, freight car, lighter, or the like, by means of a trolley carrier operating along the boom, or otherwise, as by swinging the boom, the trolley carrier or boom being controlled in the operation thereof in suitable and convenient manner. The present invention relates generally to apparatus of this class. I have shown a crane structure which I will designate generally by reference letter M. This crane structure has supporting wheels, one of which is shown at N, designed to operate along track rails O. I have shown the invention as applied to a crane structure M, which is supported above the roof of an elevated structure P, so as to operate from an overhead position. The present invention, however, is not designed or intended to be limited in this respect.

Carried by the frame of the crane structure, or the upwardly and downwardly extending portions R, S, thereof is a pivotally mounted crane boom which I have designated by the reference numeral W and which may be of any suitable or convenient construction, the specific details of construction of which except as hereinafter noticed, form no part of my present invention. In the form shown the boom W, comprises the side frames B, suitably connected by cross braces in the usual manner. The side members B of the boom are provided on their opposed upper edges or faces with channel members T. These channel members T form track ways within which operate the wheels marked J of a carriage indicated by reference letter K. This carriage has side members marked H, which are journaled or pivoted upon a shaft or axle 12, mounted in the side members 60 of the depending frames of the crane structure.

From the foregoing description it will be seen that the weight of the boom, except that portion thereof carried by the boom operating tackle, is carried by the depending portions of the crane structure through the pivoted carrier K, the latter being suspended pivotally upon the axle 12, by means of the

side members H. This construction affords a pivotal support for the boom enabling the same to be rocked or swung into or toward vertical position, as indicated by the dotted lines in Fig. 1, or into substantially horizontal position when required for use.

In order that the crane structure may be shifted along its track rail O, so as to bring the boom into coöperative relation with respect to a particular hatchway, on a boat for instance, or into suitable relation to a particular compartment or pocket, of the pier or dock structure, warehouse or the like, without interfering with any extending rigging, smoke-stack or other obstruction, it may be necessary to swing the boom to a more nearly vertical position, as shown by dotted lines, but before doing so, it may be necessary to shift it endwise away from the ship so it may swing up without interference with wires, cables, rigging or other obstacles, and it is among the special objects and purposes of my present invention to provide means whereby the swinging boom may be shifted endwise or withdrawn from extended or projected relation beyond the edge of the dock or pier so as to enable the crane structure to be shifted along its track rails. The provision of carriage or frame K, which is pivotally suspended on the axle 12, and which in turn has its wheels J, operating in the tracks afforded by the channel members T, in the sides of the boom members B, enables the boom to be bodily shifted or withdrawn endwise as may be desired. The endwise movement of the boom to withdraw the same is accomplished without interfering with the rocking or swinging movement thereof about the axis of axle 12, and is controlled by means of a cable or rope, or other suitable tackle indicated at 14, operated by the hoisting mechanism or motor 15 (see Fig. 1). The operating motor 15, is preferably located upon the traveling crane structure M. Near the edge of the frame of the crane structure M, is located a wheel or pulley 16, over which the cable 14 operates. The depending portions of the crane structure carry a sheave C, in the lower end thereof, and preferably this sheave is located upon the axle 12, and over this sheave C, the cable connection 14, operates. From the sheave C the operating cable 14 passes around a sheave 40, located at the lower or inner end of the boom frame; thence the operating cable 14, passes around the sheaves or pulleys indicated at D, in the carrier or frame K. In the construction shown the pulleys D, are mounted upon an axle 13, carried or supported at its ends in the side members H of the carrier K. By suitably slacking up on, or paying out the cable 14, by means of the operating motor 15, the boom W is permitted to move endwise upon the carrier frame K. This movement withdraws the outer or free end of the boom inwardly toward the pier, carrying the inner end thereof inwardly and under the shed or pier house. Similarly, by winding up the cable connection 14, by the operation of the motor 15, the boom is again projected or moved endwise outwardly to carry the outer or free end outwardly over the boat or other freight receptacle. It will be observed that the endwise movement of the crane boom or jib does not interfere in any manner with the vertical swinging movement of the boom.

I have not specifically described the connection for swinging the boom vertically as the same, in the specific details thereof, forms no part of my present invention. Nor have I specifically described the trolley carrier for handling the freight. Any suitable or convenient trolley operating lengthwise of the boom may be employed and it may be operated and controlled in any suitable or convenient manner. These details form no part of my present invention. The essential and principal feature of my present invention is the provision of means for shifting the boom endwise without interfering with its vertical swinging or rocking movement.

As above indicated, my invention may be applied with ease and facility to any suitable or convenient form of crane structure. I do not desire, therefore, to be limited or restricted in respect to the particular crane structure employed.

Having now set forth the object and nature of my invention and a construction embodying the principles thereof what I claim as new and useful, and of my own invention, and desire to secure by Letters Patent is:—

1. In an apparatus for handling freight, the combination with a traveling crane, of a boom pivotally mounted thereon and suspended therefrom and below the same, the inner end of the boom when in horizontal position for use extending inwardly inside of the crane structure, and means for shifting the boom endwise with reference to its pivotal connection to the crane and without interfering with its rocking or swinging movement.

2. In an apparatus for handling freight, a crane structure, an elevated support therefor, a boom pivotally supported upon the crane structure adjacent the edge of the elevated structure, the inner end of the boom extending inwardly underneath the elevated support when the boom is in substantially horizontal position for use, and means for bodily shifting the boom endwise relative to its pivotal connection to the crane structure.

3. In an apparatus for handling freight, a crane structure, a carrier pivotally suspended from and depending below the crane

structure, a boom mounted in said carrier frame for bodily endwise shifting movement therein, and means for longitudinally and bodily shifting said boom within said depending carrier frame.

4. In an apparatus for handling freight, a crane structure, an overhead support therefor, a carrier frame pivotally suspended from and depending below the crane structure adjacent the outer edge of the overhead supporting structure, a boom mounted in said carrier frame and means for bodily shifting said boom endwise in said carrier frame.

5. In an apparatus for handling freight, a crane structure, a boom having channel ways, or tracks, a carrier having wheels operating in said channel ways, said carrier being pivotally suspended from the crane structure, cable connections for controlling the endwise movement of the boom with reference to said carrier, and means for controlling said cable connections.

6. In an apparatus for handling freight, a crane structure having a depending frame, a shaft mounted therein, a carrier hinged upon said shaft, and provided with operating wheels, a boom structure having track ways in which said wheels operate, whereby said boom is shiftable endwise relative to said carrier, cable sheaves respectively carried by said depending frame, the boom and said carrier, and a cable operating over said sheaves.

In testimony whereof I have hereunto set my hand in the presence of the subscribing witnesses, on this eighth day of June A. D. 1912.

HARRY SAWYER.

Witnesses:
F. E. HAMMOND,
FRED M. BREUNINGER.