

C. L. TAYLOR.
LADLE CRANE.
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974,205.

Patented Nov. 1, 1910.

Fig. 1.

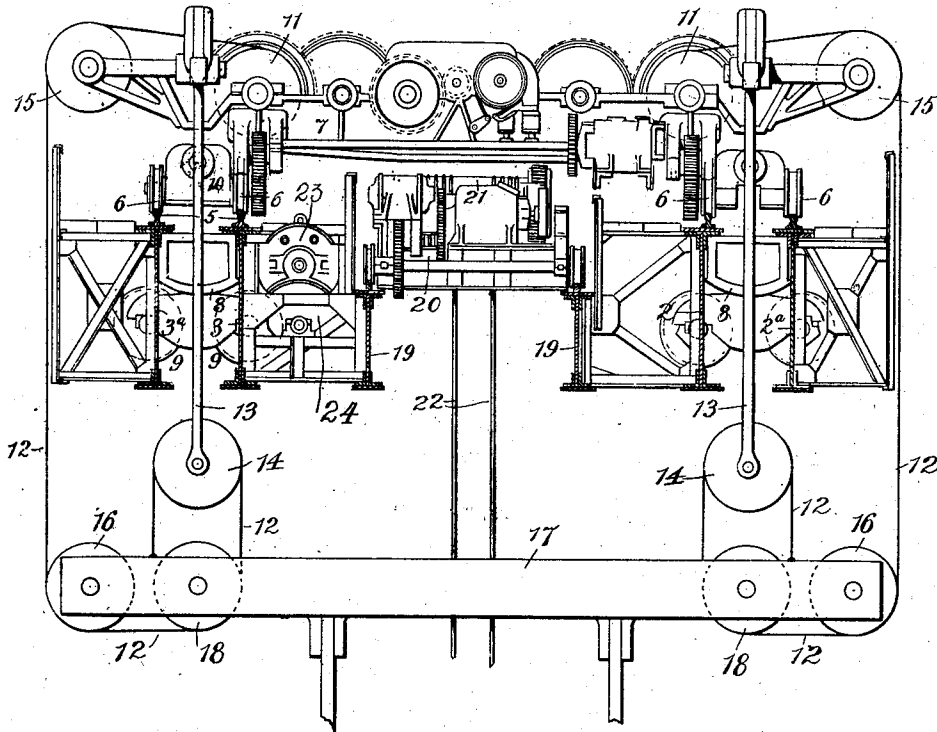
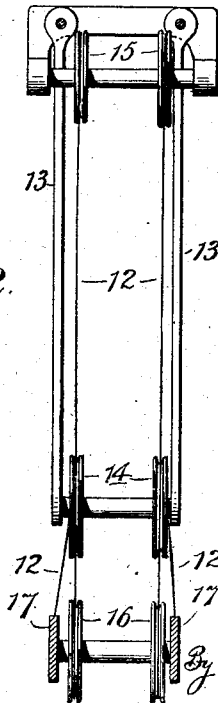


Fig. 2.



Witnesses:

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UNITED STATES PATENT OFFICE.

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LADLE-CRANE.

974,205.

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To all whom it may concern:

Be it known that I, CLARENCE L. TAYLOR, of Alliance, in the county of Stark and State of Ohio, have invented certain new and useful Improvements in Ladle-Cranes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improvement in ladle cranes, and more particularly to the type of crane shown in Patent No. 821,136, granted to me May 22nd, 1906, wherein the hoist chains or cables from the main trolley pass downwardly between the sections of each main girder of the bridge, thus supporting the load in a plane passing between the section of the main girder, and overcoming all tendency of the main trolley to tilt in the event of the breakage of a hoist cable at one side.

The object of the present invention is to provide a crane wherein the hoist chains pass outside of the main girders, with means suspended in a plane intermediate the main girder sections for supporting part of the load thus dispensing with moving cables intermediate said main girder sections, and preventing chafing of the cable due to its contact with said sections when the latter are located close to one another.

A further object is to provide means for suspending the load in such manner that the stresses on the ladle bar will be more nearly in line with the links suspending the ladles.

A further object is to provide means for suspending the load partly inside and partly outside the outer half of the main split girders.

With these and other objects in view my invention consists in the combination and arrangement of parts as will be more fully described and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in transverse section of a crane bridge with the two trolleys thereon and showing the ladle carrying bar suspended from the main trolley, and Fig. 2 is a view in side elevation of a portion of the bridge and showing one end of the main trolley.

The crane bridge is composed of two end carriages, two sectional main girders, the sections of each girder being parallel and disconnected from end to end, and two par-

allel intermediate girders secured to the inner sections of each main girder. One main girder is composed of the sections 2 and 2^a, and the other is composed of the sections 3 and 3^a, the four sections constituting the two girders, being secured at their ends to the end carriages. These girder sections 2 and 2^a, and 3 and 3^a are each preferably single webs flanged at tops and bottoms, and each is provided on its upper flanged end with a rail 5 on which the flanged wheels 6 of the main trolley 7 rest and move. The bridge is pivoted to the trucks 8, two to each end carriage, and each truck is mounted on two flanged track-wheels 9, which latter travel on rails secured to elevated supports.

The main trolley 7 is pivotally mounted adjacent to its four corners, on the compensating trucks 10, each of which has two track-wheels 6, arranged side by side. The compensating trucks 10 span the spaces between the sections 2 and 2^a, and 3 and 3^a of the main girders, and support the main trolley 7 on the four sections of the two girders above referred to. This trolley carries two hoisting drums 11, arranged with their axes in line with the travel of the trolley, and are so located with relation to the bridge girders, that the hoisting cables or chains therefrom pass outwardly over the sheaves 15 carried by the trolley frame 7 and thence downwardly to the outside of the outer sections 2^a and 3^a of the main girders. This trolley is provided with the usual motor and gearing whereby the two hoist-drums are rotated, so as to wind and unwind their cables or chains 12 in unison, and also provided with a travel motor and gearing whereby the trolley may be propelled lengthwise the bridge.

Carried by the main trolley 7 and depending between the sections 2 and 2^a and 3 and 3^a of the main girders are the links or rods 13, one at each side of the main trolley, which links or rods terminate in a plane below the main girders, as shown in Fig. 1, and carry a plurality of sheaves 14. Each hoist cable or chain passes from its hoist drum outwardly over its sheave 15 and downwardly under sheave 16 at the outer end of the ladle carrying bar 17, thence under sheave 18 also journaled to bar 17, up and over sheave 14 carried by the link or bar 13, and down to the bar 17 to which the free end of the cable

or chain is secured. By this arrangement, the ladle carrying bar and its load are so suspended that the stresses on the cables will be more nearly in line with the links supporting the ladles and the weight is carried partly to the outside and partly to the inside of the outer section of the main girders thus eliminating all tendency of the main trolley to tip, in the event of the breakage of the hoist cable at one side. Again, by locating the cable wholly outside of the girders there can be no contact between the moving cables and the girder sections thus preventing all chafing and consequent weakening of the cables, due to contact with the girders.

Located between the girder sections 2 and 3 and mounted at their ends on the end carriages are the intermediate girders 19. One girder 19 is located adjacent to main girder section 2 and is firmly braced thereto, and the other girder 19 is located adjacent to girder section 3 and is similarly secured and braced to the latter. By this arrangement one section of one main girder and its adjacent intermediate girder 19, form in effect a single wide skeleton girder which assists in carrying the two trolleys. The intermediate girders 19 are of considerably less depth than their companion or attached sections of the main girders, so as to bring the upper surfaces of the girders 19 in a lower plane than the tops of girder sections 2 and 3, and mounted on said girder 19 is the auxiliary trolley 20. This trolley is provided with a travel motor and gearing by which it is propelled lengthwise the bridge and with a hoisting motor and drum 21, the latter being located with its axis at right angles to the length of the bridge. This trolley 20 travels back and forth on girders 19 under the main trolley 7 and is provided with a hoist chain 22 which extends downwardly between the girders 19. By carrying the hoist ropes outwardly over the foot walks on the bridge, ample room is provided on the outer side of the outer section of the main girder for the bridge travel motor 23 and shaft 24, or as the load suspending and hoisting elements from the main trolley are located to the outer side of the inner sections of the main girders these parts 23 and 24 may if desired be located between the main and auxiliary girders, as shown in Fig. 1.

It is evident that many slight changes might be resorted to in the relative arrangement of parts shown and described without

departing from the spirit and scope of my invention; hence I would have it understood that I do not wish to confine myself to the exact construction and arrangement of parts shown and described, but

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

1. In an overhead traveling crane, the combination with a bridge comprising main and intermediate girders, of a main trolley mounted on the main girders, links depending from the trolley and located in planes intermediate the outer girders of the bridge, a sheave on each link, a ladle carrying bar, sheaves mounted on the latter adjacent the two ends thereof, hoist cables depending from the main trolley outside the bridge girders and passing around sheaves on the ladle carrying bar, and around the sheaves on the links, and an auxiliary trolley mounted on the intermediate girder of the bridge.

2. In an overhead crane, the combination with a bridge comprising main and intermediate girders, the main girders each being composed of two parallel separated sections disconnected from end to end, of a main trolley mounted on said main girders, links depending from the trolley between the sections of each main girder sheaves on said links, a ladle carrying bar, sheaves on the latter adjacent the ends of the bar, hoist cables carried by the drums of the main trolley and passing down outside the main girders under sheaves on the ladle carrying bar, up and around the sheaves on the links, and an auxiliary trolley mounted on the auxiliary girders.

3. In an overhead crane, the combination with a bridge composed of main and auxiliary girders, of a trolley mounted on the main girders, links depending from said trolley in planes intermediate the outer girders of the bridge, sheaves on said links and hoist chains passing down outside the outer girders of the bridge and around the sheaves on the links, and a ladle carrying bar supported by said cables.

In testimony whereof, I have signed this specification in the presence of two subscribing witnesses.

CLARENCE L. TAYLOR.

Witnesses:

N. C. FETTERS,
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