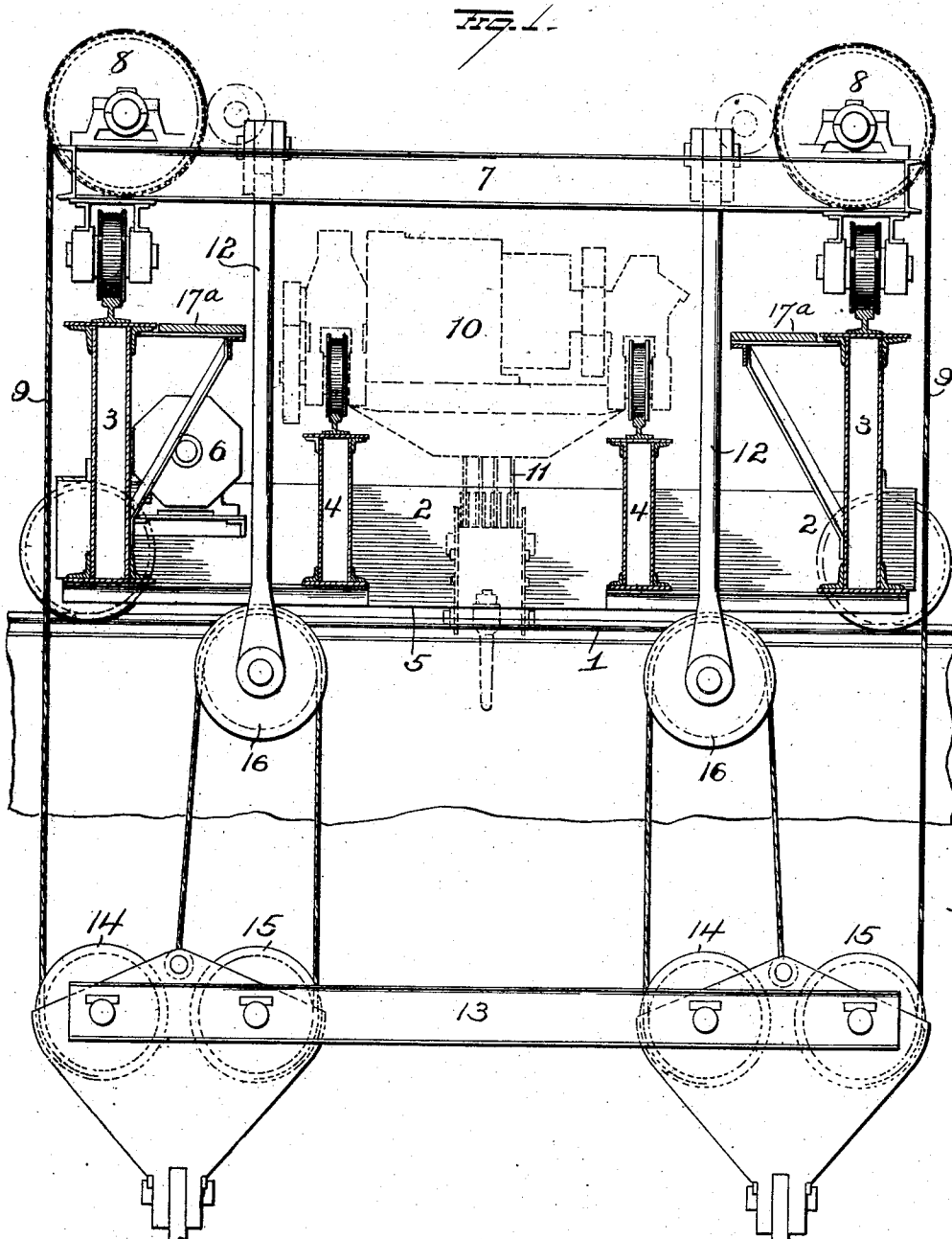


C. L. TAYLOR.  
LADLE CRANE.  
APPLICATION FILED APR. 18, 1910.

974,206.

Patented Nov. 1, 1910.

2 SHEETS-SHEET 1.



WITNESSES  
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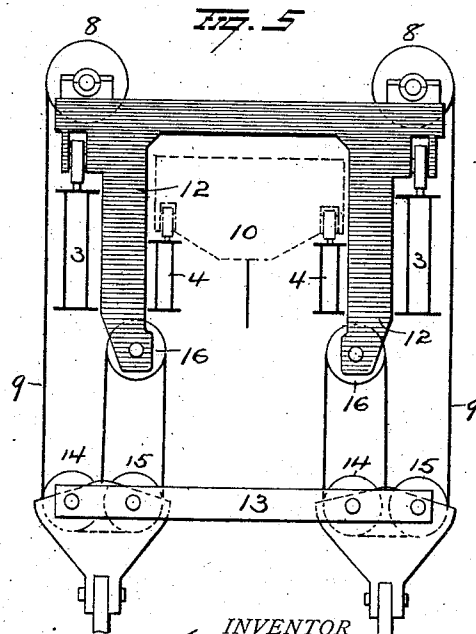
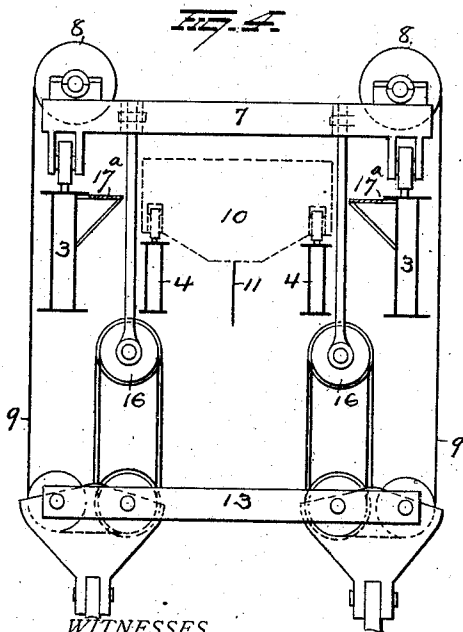
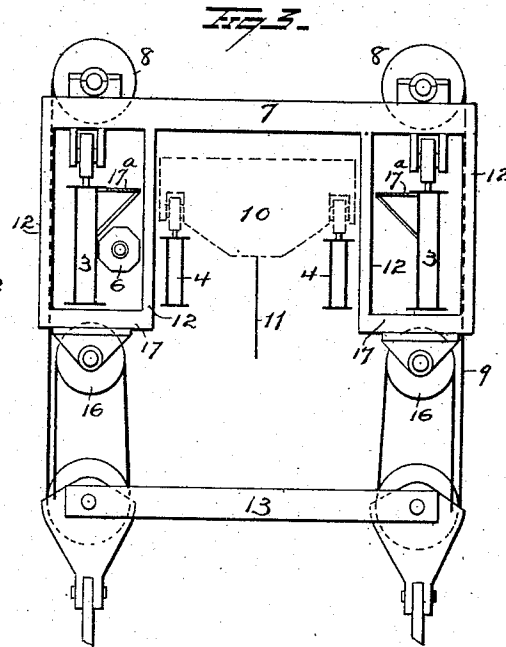
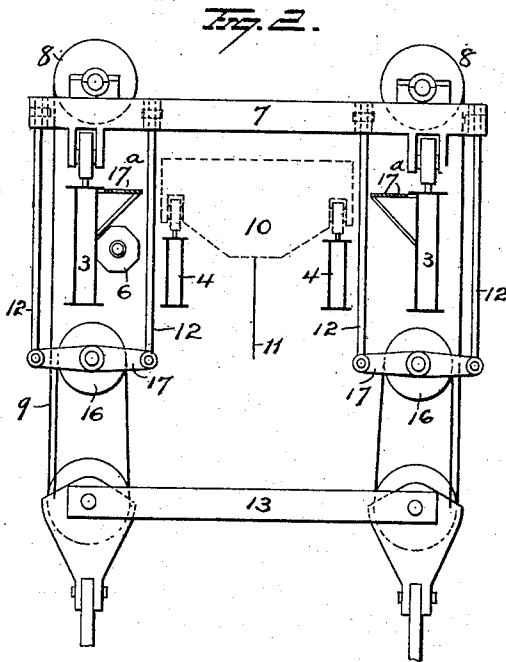
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# UNITED STATES PATENT OFFICE.

CLARENCE L. TAYLOR, OF ALLIANCE, OHIO, ASSIGNOR TO THE MORGAN ENGINEERING COMPANY, OF ALLIANCE, OHIO.

## LADLE-CRANE.

974,206.

Specification of Letters Patent.

Patented Nov. 1, 1910.

Application filed April 18, 1910. Serial No. 556,262.

*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 consists in an improvement in ladle cranes having independently operated main and auxiliary trolleys, the object being to provide a main trolley in which the main hoisting chains depend wholly outside the main girders with means for supporting part of the load carried by the main trolley at points on the main trolley between its supporting rails, whereby any desired portion of the main load may be sustained from the main trolley in line or substantially in line with the links sustaining the ladle.

A further object is to provide means for sustaining any desired portion of the main load at any desired point on the main trolley between its supporting rails, and thus overcome all tendency of the main trolley to overturn in the event of the breakage of one of the main hoisting chains.

With these and other objects in view my invention consists in the several combinations of parts hereinafter described and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in transverse section of the crane bridge illustrating the main and auxiliary trolleys thereon. Fig. 2 is a side elevation of a portion of the bridge showing the trolley in side elevation while Figs. 3, 4, and 5 are modifications.

1 represents the track rails upon which the bridge travels and 2 is the bridge which consists of the main box girders 3, 3, and the auxiliary box girders 4, 4, which are supported at their opposite ends by the end carriages 5, only one of which is shown. These end carriages are mounted on wheel trucks which travel upon the tracks 1. The bridge is driven by a motor 6, which may be centrally mounted on the inner side of one of the main girders 3.

The main trolley 7 is mounted on the main girders 3 and is provided with hoisting drums 8 the axes of which are parallel with the main girders. The main hoisting drums

8 are or may be located at the extreme outer sides of the main trolley so as to overhang the main girders and thus cause the main hoisting chains 9 to depend outside the main girders. If desired the main hoisting drums may be located over the main girders and the main hoisting chains or cables carried outwardly over sheaves mounted to overhang the main girders.

The auxiliary trolley 10 which carries the auxiliary hoisting chain or cable 11 is mounted on the auxiliary girders 4, 4, which are preferably of less height than the main girders to permit the auxiliary trolley to readily pass under the main trolley. The auxiliary girders may be located at any desired distance from the main girders, but are preferably located at a sufficient distance to permit of the travel between the two girders of a link or rod 12 depending from the main trolley, or instead of a rod or link, the main trolley may have formed or cast integral therewith depending legs 12 extending down between the main and auxiliary girders.

The main hoisting chains or cables 9 depend from the main hoisting drums outside the main girders and pass under the sheaves 14 and 15 mounted on the ladle bar 13 and from thence pass upwardly around the sheaves 16, supported by the rods, links, or legs 12 and from thence downwardly to the ladle bar to which their ends are securely fastened.

Instead of using a single main hoisting chain or cable, two or more may be used, and instead of using single sheaves on the ladle bar and link or rod, double sheaves may be employed as shown in Fig. 5, or any number of sheaves may be used.

Fig. 2 represents a modification in which two links or rods 12 are employed, one on each side of the main girder, and the sheave 16 is mounted on a connecting bar 17.

Fig. 3 represents another modification similar in all respects to the construction illustrated in Fig. 2 excepting that instead of employing depending links or rods 12, the frame of the main trolley has cast integral therewith the depending frame 12, 12, all formed in a single casting, or it may be a built up forging.

In Fig. 5 I have represented another construction in which the main trolley frame depends between the main and auxiliary

girders and the sheave 16 is secured to such depending portion at a point below the plane of the girders.

By locating the main hoisting drums or sheaves so as to cause the main hoisting chains to depend wholly outside of and below the main girders, and then leading the main hoisting chains inwardly over sheaves located below the main girders and supported from the main trolley at points inside of its supporting rails, it permits the main and auxiliary girders to be located at any desired distance apart. They may be located very close to one another, it being only necessary to provide a narrow slot between them for the travel of the link or rod 12, which, cannot be injured by its contact with the girders whereas a hoisting chain or cable would be chafed and rendered unsafe if under such conditions. But ordinarily I prefer to locate the girder a sufficient distance apart to permit of the employment of foot walks 17<sup>a</sup> on the inner sides of the main girders, and also of the location of the bridge motor 6 on the inner side of the main girder and at any point desired between its ends.

In view of the fact that the links or rods 12 may be operated without damage in a very narrow space they permit of the employment of wide foot walks, as they may extend from the main girder nearly to the auxiliary girder, it only being necessary to provide a slot, just wide enough to permit of the passage of the suspending link or rod.

Any desired portion of the main load may be suspended from the main trolley at any desired points thereon inside of its supporting rails, and in line with the links supporting the ladle, by varying the location of the suspending rods and sheaves attached thereto, and by the employment of sheaves for insuring any desired number of strands of hoisting cable between the supporting link or leg and the ladle bar. For instance if it is desired to sustain two thirds of the main load inside the supporting rails of the main trolley and only one third by that portion of the cable outside of the main girders this is accomplished by the arrangement shown in Fig. 1. Should it be desired to support a larger proportion of the main load inside the supporting rails, this can be accomplished in the manner illustrated in Fig. 4, wherein only one fifth of the main load is supported by the overhanging portion of the main chain, while four-fifths of the load is supported from the main trolley at points inside its supporting rails.

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 under-

stood 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. An overhead crane comprising a bridge having main and intermediate girders and main and auxiliary trolleys, the main trolley being mounted upon the main girders and having rods or links depending between the main and intermediate girders, and the auxiliary trolley upon the intermediate girders, the main hoisting cables depending outside of the main girders, and passing over sheaves carried by said depending rods or links.

2. In an overhead traveling crane, the combination of a bridge having main and intermediate girders of box type, a main trolley mounted upon the main girders and provided with rods or links depending between the main and intermediate girders, and hoist chains carried by the drums on the main trolley, depending outside the main girders and passing over sheaves carried at the lower ends of the depending rods or links.

3. In an overhead traveling crane, the combination of a bridge having main and intermediate girders disconnected from end to end, a main trolley mounted on the main girders, rods or links depending from the main trolley between the main and intermediate girders and carrying sheaves at the lower ends, hoist chains depending from the main trolley outside of the main girders and passing over the sheaves on said rods or links and a foot walk secured to the inner side of a main girder.

4. The combination of main and intermediate girders, foot walks secured to the inner faces of the main girders, a trolley mounted on the main girders, rods or links depending from said trolley between the main and intermediate girders, sheaves on the lower ends of said links or rods and hoist chains depending from said trolley outside of the main girders and passing over the sheaves on the rods or links.

5. The combination with main and intermediate girders, a bridge drive motor secured to the inner face of one of the main girders, a trolley mounted on the main girders, rods or links depending from the trolley between the main and intermediate girders, sheaves on the lower ends of said rods or links and hoist chains depending from the trolley outside of the main girders and passing over the sheaves on the lower ends of the links.

6. In an overhead traveling crane, the combination of main girders with a main trolley mounted thereon and intermediate girders with an auxiliary trolley mounted thereon, of the main hoisting chains de-

pending outside the main girders, means for supporting part of the main load at points on the main trolley between its supporting rails.

5 7. In an overhead traveling crane, the combination of main girders with a main trolley mounted thereon and intermediate girders with an auxiliary trolley mounted thereon, of the main hoisting chains depend-  
10 ing outside the main girders, means for supporting part of the main load at points on the main trolley between its supporting rails and footwalks located between the main and intermediate girders.

15 8. In an overhead traveling crane, the combination of main girders with a main

trolley mounted thereon and intermediate girders with an auxiliary trolley mounted thereon, of the main hoisting chains depending outside the main girders, means for sup- 20  
porting part of the main load at points on the main trolley between its supporting rails and a bridge motor mounted between the main and intermediate girders.

In testimony whereof, I have signed this 25  
specification in the presence of two subscribing witnesses.

CLARENCE L. TAYLOR.

Witnesses:

WILLIS H. RAMSEY,  
NORMAN C. FETTERS.