

No. 791,951.

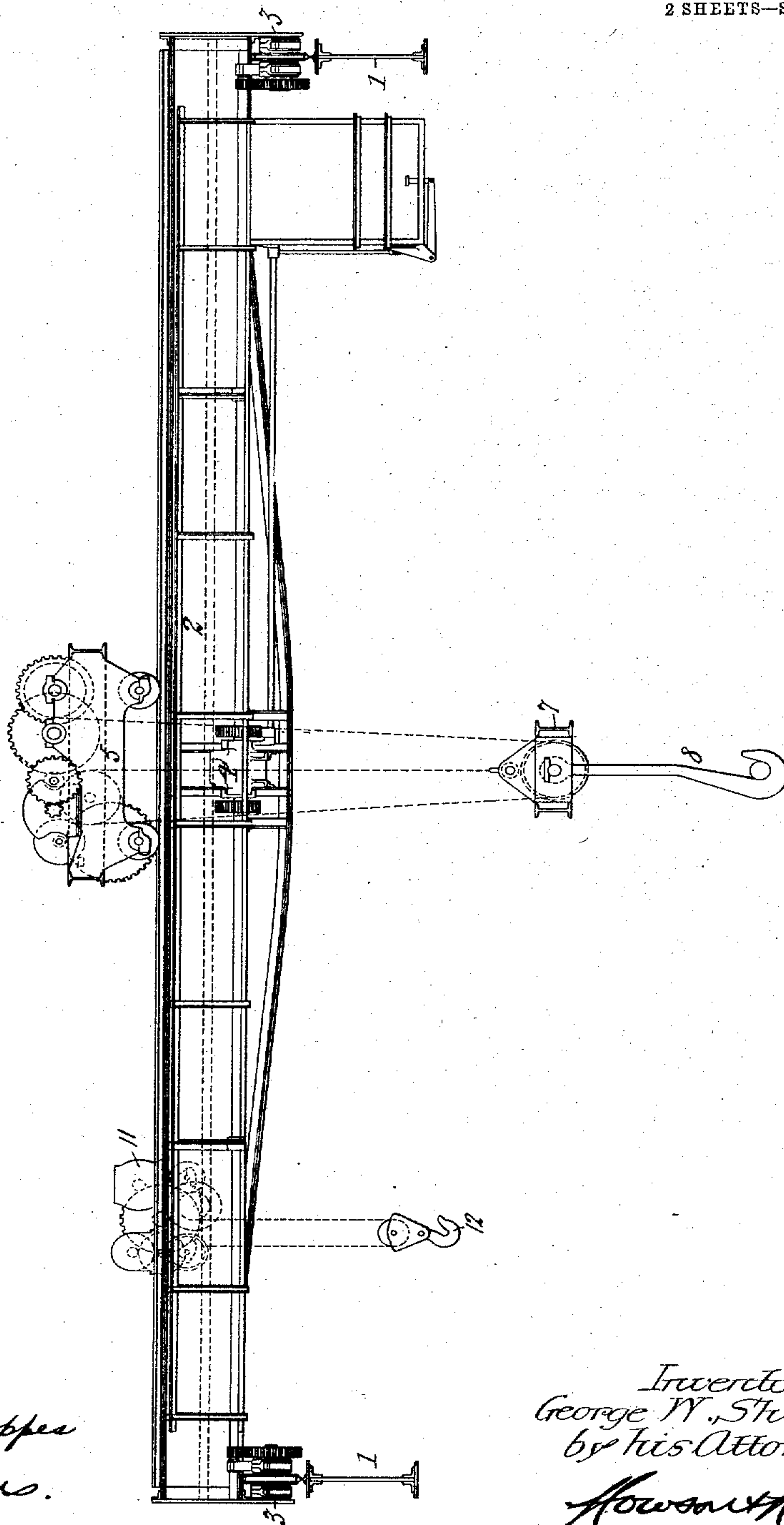
PATENTED JUNE 6, 1905.

G. W. SHEM.  
CRANE.

APPLICATION FILED MAR. 17, 1905.

2 SHEETS—SHEET 1

*Fig. 1.*



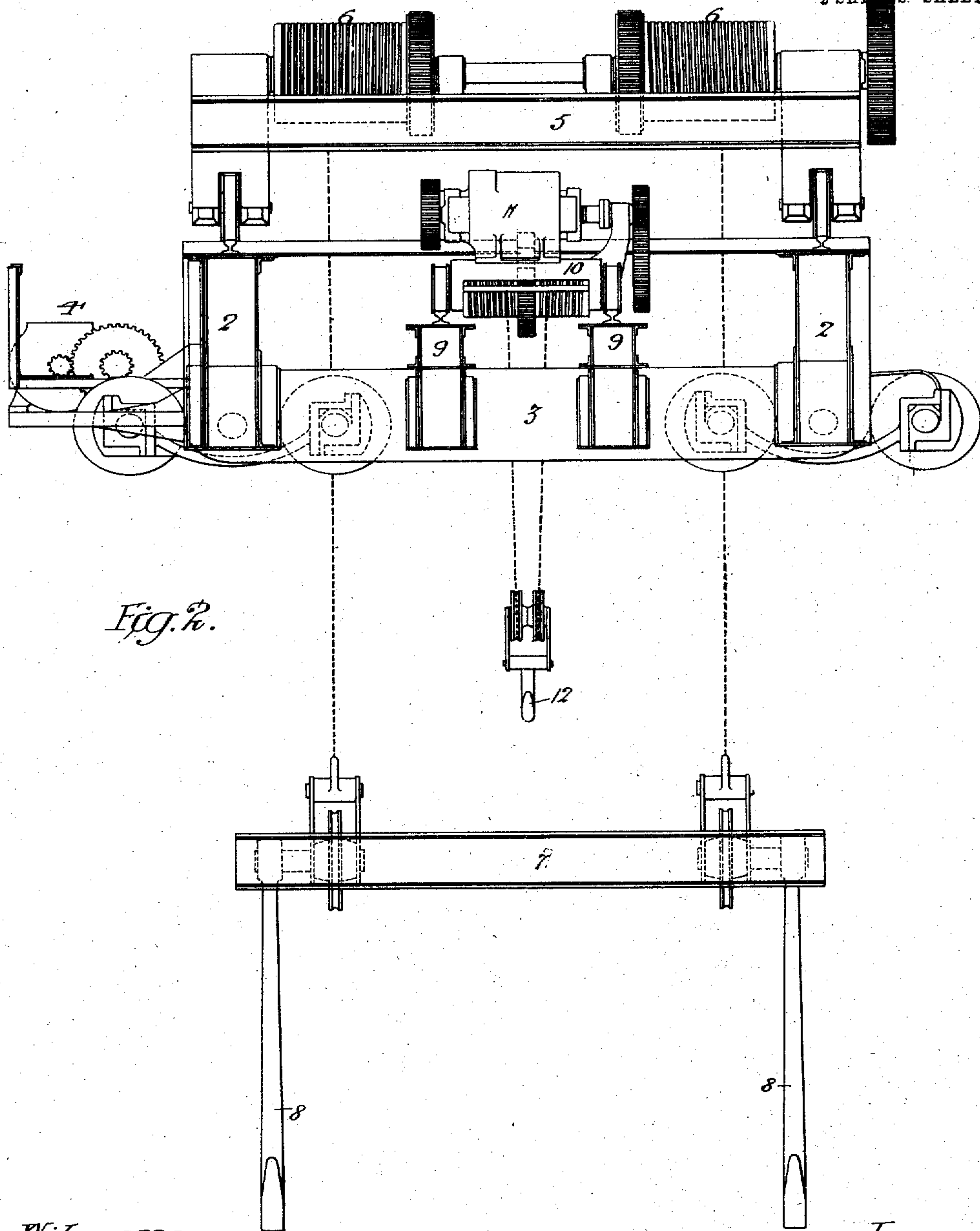
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2 SHEETS—SHEET 2.



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# UNITED STATES PATENT OFFICE.

GEORGE W. SHEM, OF ALLIANCE, OHIO.

## CRANE.

SPECIFICATION forming part of Letters Patent No. 791,951, dated June 6, 1905.

Application filed March 17, 1905. Serial No. 250,611.

*To all whom it may concern:*

Be it known that I, GEORGE W. SHEM, a citizen of the United States, and a resident of Alliance, Ohio, have invented certain Improvements in Cranes, of which the following is a specification.

My invention relates to that class of traveling cranes which carry both a main hoisting-trolley and an auxiliary hoisting-trolley.

The object of my invention is to so construct such a crane as to permit ready accessibility to the supplementary trolley, to reduce the strain upon the girders which constitute the side members of the crane-bridge, to permit of the mounting at any desired point on the bridge, preferably at the longitudinal center of the same, of the motor which drives the bridge-traversing mechanism, to increase the range of movement of both of the trolleys, and to permit of a more compact arrangement of the hoisting mechanism on the main trolley than is possible with the ordinary construction of crane. These objects I attain in the manner hereinafter set forth, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of a crane constructed in accordance with my invention, and Fig. 2 is an end view of the same on a larger scale.

Referring in the first instance to Fig. 1 of the drawings, 1 1 represent the main girders upon which the bridge of the crane is mounted and upon which it can travel, said bridge consisting of a pair of longitudinal side girders 2 with suitable transverse connections at the ends, which connections constitute end carriages 3, each of the latter having a wheeled truck running upon rails on the main girder 1, and some of the wheels of these trucks being rotated by power derived from a motor 4, which is mounted on the bridge of the crane, so as to effect the movement of the latter back and forth upon the supporting-girders 1.

Mounted upon suitable rails upon the traversing bridge of the crane is a trolley 5, provided with hoisting mechanism of any appropriate character and with a motor and gear-

ing for operating said hoisting mechanism. In the present instance I have shown my invention as applied to a ladle-crane, the hoisting mechanism having two drums 6, whose depending chains support a bar 7, provided with depending ladle-supporting hooks 8.

In cranes of this character a supplementary hoisting-trolley is usually employed for operating a ladle-tipping hook, such supplementary trolley being ordinarily mounted upon rails supported upon the inner sides of the main bridge-girders 2. This construction is, however, open to many objections. In the first place the weight of the supplementary trolley and the load carried thereby exerts an excessive side strain upon the girders 2, which must therefore be made heavy enough to resist such strain. Furthermore, this method of mounting the supplementary trolley necessitates the location of the hoisting-chains of the main trolley outside of the girders 2, thus requiring a wide separation of the hoisting-drums 6 and preventing the location of the bridge-driving motor 4 upon any part of the bridge except at the extreme end of the same, so that a shaft almost as long as the crane-bridge itself must be employed for transmitting power from said motor to one of the bridge-trucks. This also serves to limit the range of movement of the trolleys on the crane-bridge.

In carrying out my invention I provide the crane-bridge with supplementary girders 9, secured at their ends to the carriages 3 and located so far inside of the main girders 2 as to provide ample room between the two sets of girders for the operation of the hoisting-chains from the main trolley. Upon these supplementary girders 9 is mounted so as to traverse longitudinally a supplementary trolley 10, which is provided with appropriate hoisting mechanism and with a motor 11 for operating the same, the chains depending from the hoisting mechanism of the supplementary trolley between the girders 9, as shown in Fig. 2, in which these chains are illustrated as employed in connection with the ladle-tipping hook 12. It should be understood, however, that my invention is not



limited to ladle-cranes, but is embodied in any crane in which a similarly-mounted supplementary hoisting-trolley is employed.

It will be evident that the construction which I have adopted overcomes the objections to the usual construction which I have hereinbefore noted and enables me to produce a crane in which the parts are compactly disposed, the strains are divided and distributed, a central location of the bridge-driving motor upon the bridge is permitted with its accompanying advantage of relatively short lengths of transmitting-shaft between the motor and the bridge-supporting trucks, and in which, furthermore, the range of travel of either trolley is not restricted by the presence of said motor or other appurtenances of the crane, a full travel of the trolley from one end of the bridge to the other being permitted.

Having thus described my invention, I claim and desire to secure by Letters Patent—

1. A crane having a bridge with main hoisting-trolley mounted upon the main girders of said bridge, and a supplementary trolley mounted upon supplementary girders independent of said main girders, substantially as specified.

2. A crane having a bridge with main hoisting-trolley mounted upon the main girders of said bridge, and a supplementary trolley mounted upon supplementary girders independent of said main girders, said supplementary girders being located between the main girders, substantially as specified.

3. A crane having a bridge with main and supplementary hoisting-trolleys, the main

hoisting-trolley being mounted upon the main outer girders of the bridge, and the supplementary trolley being mounted upon supplementary interior girders, the hoisting-chains from the main trolley depending between the said main and supplementary girders, substantially as specified.

4. A crane having a bridge with main and supplementary hoisting-trolleys, the main hoisting-trolley being mounted upon the main outer girders of the bridge, and the supplementary trolley being mounted upon supplementary interior girders, the hoisting-chains from the main trolley depending between the said main and supplementary girders, and the hoisting-chains from the supplementary trolley depending between the supplementary girders which carry said trolley, substantially as specified.

5. A crane having a traveling bridge with outer main girders, supplementary inner girders, main hoisting-trolley mounted upon the main girders, and having its hoisting-chains depending between the main and supplementary girders, a supplementary hoisting-trolley mounted upon said supplementary girders, and a bridge-driving motor centrally mounted upon one of the outer girders, substantially as specified.

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

GEORGE W. SHEM.

Witnesses:

CHARLES C. NORRIS, Jr.,  
WILLIAM E. BRADLEY.

### DISCLAIMER.

791,951.—George W. Shem, Alliance, Ohio. CRANE. Patent dated June 6, 1905.

Disclaimer filed March 28, 1910, by the assignee, *The Alliance Machine Company*.

Enters this disclaimer to claims 1 and 2 of said Patent, which read as follows:

"1. A crane having a bridge with main hoisting-trolley mounted upon the main girders of said bridge, and a supplementary trolley mounted upon supplementary girders independent of said main girders, substantially as described.

"2. A crane having a bridge with main hoisting-trolley mounted upon the main girders of said bridge, and a supplementary trolley mounted upon supplementary girders independent of said main girders, said supplementary girders being located between the main girders, substantially as described."—[*Official Gazette*, April 5, 1910.]



limited to ladle-cranes, but is embodied in any crane in which a similarly-mounted supplementary hoisting-trolley is employed.

It will be evident that the construction which I have adopted overcomes the objections to the usual construction which I have hereinbefore noted and enables me to produce a crane in which the parts are compactly disposed, the strains are divided and distributed, a central location of the bridge-driving motor upon the bridge is permitted with its accompanying advantage of relatively short lengths of transmitting-shaft between the motor and the bridge-supporting trucks, and in which, furthermore, the range of travel of either trolley is not restricted by the presence of said motor or other appurtenances of the crane, a full travel of the trolley from one end of the bridge to the other being permitted.

Having thus described my invention, I claim and desire to secure by Letters Patent—

1. A crane having a bridge with main hoisting-trolley mounted upon the main girders of said bridge, and a supplementary trolley mounted upon supplementary girders independent of said main girders, substantially as specified.

2. A crane having a bridge with main hoisting-trolley mounted upon the main girders of said bridge, and a supplementary trolley mounted upon supplementary girders independent of said main girders, said supplementary girders being located between the main girders, substantially as specified.

3. A crane having a bridge with main and supplementary hoisting-trolleys, the main

hoisting-trolley being mounted upon the main outer girders of the bridge, and the supplementary trolley being mounted upon supplementary interior girders, the hoisting-chains from the main trolley depending between the said main and supplementary girders, substantially as specified.

4. A crane having a bridge with main and supplementary hoisting-trolleys, the main hoisting-trolley being mounted upon the main outer girders of the bridge, and the supplementary trolley being mounted upon supplementary interior girders, the hoisting-chains from the main trolley depending between the said main and supplementary girders, and the hoisting-chains from the supplementary trolley depending between the supplementary girders which carry said trolley, substantially as specified.

5. A crane having a traveling bridge with outer main girders, supplementary inner girders, main hoisting-trolley mounted upon the main girders, and having its hoisting-chains depending between the main and supplementary girders, a supplementary hoisting-trolley mounted upon said supplementary girders, and a bridge-driving motor centrally mounted upon one of the outer girders, substantially as specified.

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