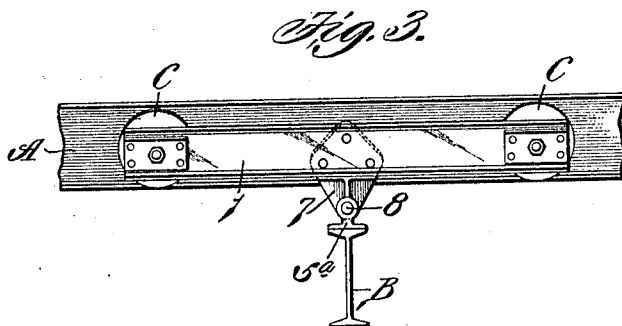
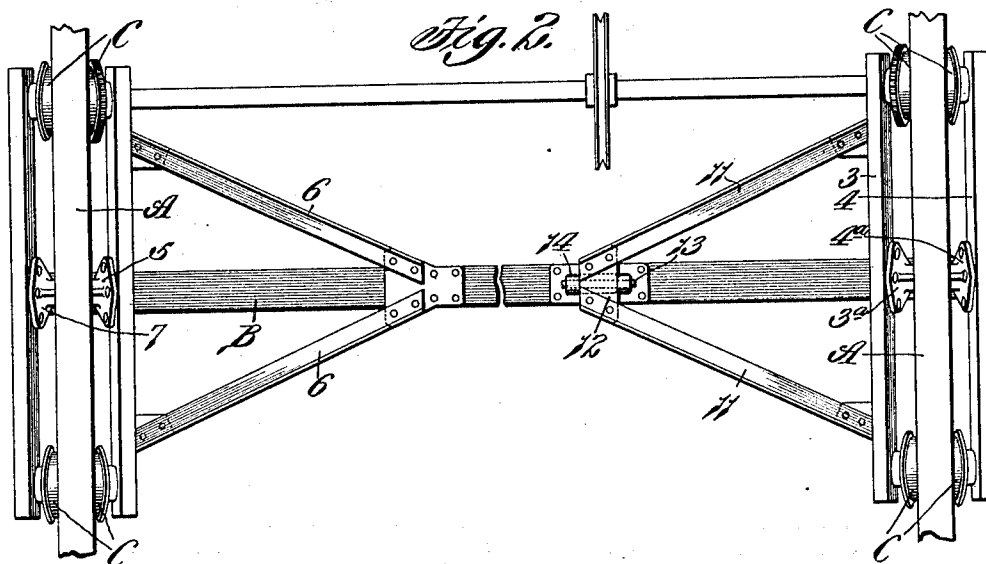
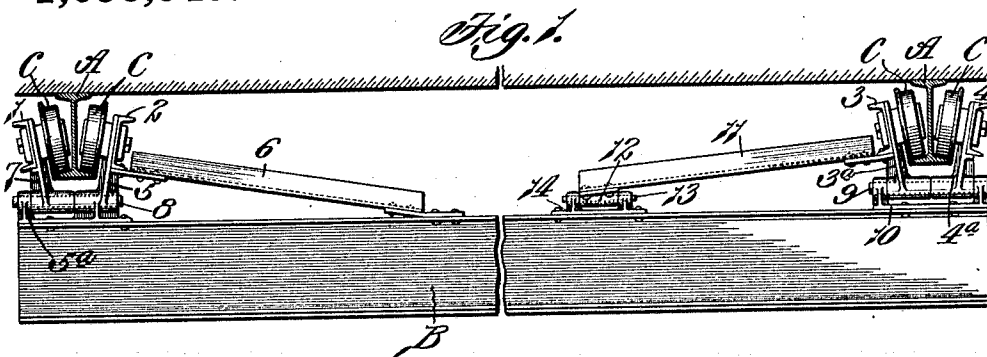


E. H. STEEDMAN.
BRIDGE CRANE.
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1,053,545.

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UNITED STATES PATENT OFFICE.

EDWIN H. STEEDMAN, OF ST. LOUIS, MISSOURI.

BRIDGE-CRANE.

1,053,545.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, EDWIN H. STEEDMAN, a citizen of the United States, residing at St. Louis, Missouri, have invented a certain new and useful Improvement in Bridge-Cranes, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to underslung bridge cranes of the type in which the wheels on the end pieces or end members of the crane are so arranged that they bear on both sides of the lower flanges of two I-beams at widely separated points, and in which the bridge member of the crane is suspended underneath the I-beam runways.

In practice, the I-beams or members that form the runway for the crane are usually not in perfect horizontal alinement and the result is that all of the eight wheels of the crane do not bear equally on the crane runway, thereby causing the load to be unequally distributed and imposed on only certain wheels of the crane and causing the crane to run with undue friction.

The main object of my invention therefore is to provide a bridge crane suspended below and carried by the lower flanges of a runway, which is so designed that all of the wheels will bear evenly on the crane runway whether or not the rails or members that constitute the runway are in exact horizontal alinement, thereby causing the load to be distributed equally on all of the wheels of the crane and causing the crane to move with minimum effort.

Figure 1 of the drawings is a front elevational view of a crane constructed in accordance with my invention; Fig. 2 is a top plan view of said crane; and Fig. 3 is an end elevational view of the crane.

Referring to the drawings which illustrate the preferred form of my invention, A designates two parallel members that form a crane runway, said members preferably consisting of I-beams arranged with their webs vertical so that their bottom flanges will serve as tracks for the wheels on the crane. The crane consists of a bridge-beam B or transversely extending member which is arranged in a lower horizontal plane than the crane runways, and end members connected to said bridge-beam and provided

with wheels that travel on the runway members A. The crane herein shown is provided with four end members, 1, 2, 3, and 4, each of which has a wheel C located adjacent each end of same, the members 1 and 2 being arranged on opposite sides of one of the runway members A and the end members 3 and 4 being arranged on opposite sides of the other runway member, as shown in Figs. 1 and 2. Three of said end members are pivotally connected to the bridge-beam B so that the wheels C will bear evenly on the runway members A even if the members A are not in exact horizontal alinement, and the other end member of the crane is rigidly connected to the bridge-beam B so as to prevent said bridge-beam from swinging.

In the crane herein shown the end member 2 is rigidly connected to the bridge-beam B by means of a casting 5 on the upper side of the bridge-beam to which the center portion of the end member 2 is riveted, and two braces 6 are also rigidly connected to the bridge-beam B and to the end portions of the member 2, as shown in Fig. 2, so as to reinforce and strengthen the member 2, and keep the member 2 at right angles compared to bridge-beam B. The end member 1 is provided at its center with a depending arm or bearing member 7 that is pivotally connected to the casting 5 on the bridge-beam B by means of a pin or pintle 8 that passes through the casting 5 and through a cooperating bearing member 5^a on the bridge-beam, the pintle pin 8 extending parallel to the bridge-beam so as to permit the end member 1 to rock transversely of the bridge-beam. The members 3 and 4 at the opposite end of the crane are provided with depending arms or bearing members 3^a and 4^a, respectively, which are pivotally connected to the bridge-beam B of the crane by means of a pintle pin 9 that extends longitudinally of the bridge-beam through bearing members 10 on the upper side of the bridge-beam, as shown in Fig. 1, thereby pivotally connecting the members 3 and 4 to the bridge-beam. I prefer to reinforce and strengthen the end member 3 by means of a pair of inclined braces 11 rigidly connected at their outer ends to the member 3 and having their inner converging ends connected to a bearing member 12 which is journaled

on a pintle pin 13 that extends longitudinally of the bridge-beam in bearings 14 on the upper side of the bridge-beam.

In a bridge crane of the construction above-described the weight is always distributed equally on all of the wheels of the crane even though the members A that constitute the crane runway are not in perfect horizontal alinement, owing to the fact that three of the end members of the crane in which the wheels are journaled are pivotally connected to the bridge-beam of the crane in such a manner that said end members can turn or oscillate transversely of the bridge-beam and thus cause the wheel-carrying members at one end of the crane to assume a different angular position from the wheel-carrying members at the opposite end of the crane. There is no liability of the bridge-beam of the crane swinging, however, because one of the wheel-carrying members of the crane is rigidly connected to the bridge-beam.

In the preferred form of my invention shown, I have illustrated the bridge-beam as made of a single member—the bridge can be made of any of the usual forms, and therefore I do not limit myself to the exact form shown.

The crane shown in Fig. 1, as previously described, theoretically and practically meets the requirements of a crane having weights equally distributed on its eight wheels and running with maximum lightness. It is possible, however, because of the fact that the bridge member is usually long and not strong in torsion, to make both ends of the crane as illustrated at the lefthand side of Figs. 1 and 2, that is, with the wheel-carrying member 2 rigidly connected and rigidly braced to the bridge member, and the cooperating wheel-carrying member 1 pivotally connected to the bridge member. This method permits of greater duplication of parts than is possible if the crane is built exactly as shown in the drawings, and is somewhat less expensive. Therefore, I wish it to be understood that my invention comprises a crane in which one of the wheel-carrying members at each end of the crane is rigidly fastened and braced to the bridge-beam and the companion wheel-carrying members which cooperate with said rigid wheel-carrying members are hinged or pivotally connected to the bridge-beam.

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

1. A bridge crane comprising end members provided with wheels that are adapted to travel on a pair of parallel runway members, a bridge beam extending transversely of the runway for tying said end members together, and a pivotal connection between one of said end members and said trans-

versely extending bridge beam which permits said end member to rock transversely of the bridge beam.

2. A bridge crane provided with wheel-carrying members that are pivotally connected to the bridge-beam or transversely extending member of the crane by pivots that extend longitudinally of the bridge beam.

3. A bridge crane provided with wheel-carrying members that are pivotally connected to the bridge-beam or transversely extending member of the crane by pivots that extend longitudinally of the bridge beam, and an independent wheel-carrying member rigidly connected to said bridge-beam.

4. A bridge crane comprising a bridge-beam, end members arranged transversely of said bridge-beam and provided with wheels, and means for connecting said end members and bridge-beam together in such a manner that the end member at one end of the crane can assume a different angular position from the end member at the opposite end of the crane.

5. A bridge crane comprising a bridge-beam, wheel-carrying members arranged transversely of the bridge-beam above same, depending arms on some of said wheel-carrying members that are pivotally connected to said bridge-beam, and a rigid connection between one of said wheel-carrying members and the bridge-beam.

6. A bridge crane comprising wheel-carrying members arranged longitudinally of the runway on which the crane travels, a transversely extending bridge-beam suspended from some of said wheel-carrying members by pivotal connections, and means for rigidly connecting one of said wheel-carrying members to said bridge-beam.

7. A bridge crane comprising a bridge-beam, a pair of wheel-carrying members at each end of the crane arranged transversely of the bridge-beam and above same, depending arms on some of said wheel-carrying members, pintle pins or pivots extending longitudinally of the bridge-beam for pivotally connecting said arms thereto, and a rigid connection between one of said wheel-carrying members and said bridge-beam.

8. A bridge crane comprising wheel-carrying members arranged longitudinally of the runway on which the crane travels on opposite sides of each runway member, a bridge-beam arranged transversely under said wheel-carrying members, arms depending from the center portions of some of said wheel-carrying members and pivotally connected to said bridge-beam by pintle pins or pivots that extend longitudinally of the bridge-beam, a rigid connection between the bridge-beam and one of said wheel-carrying members, and inclined braces connected to

the outer end portions of one of the wheel-carrying members and having their inner ends secured to a part that is pivotally connected to the bridge-beam.

5 9. A bridge crane comprising a bridge-beam, a pair of wheel-carrying members arranged transversely of the bridge-beam adjacent each end of same, three of said wheel-carrying members being pivotally connected
10 to the bridge-beam and the other wheel-carrying member being rigidly connected to the bridge-beam, inclined braces on one of said movable wheel-carrying members secured to a part that is pivotally connected to the
15 bridge-beam, and inclined braces on the rigid wheel-carrying member securely fastened at their inner end to the bridge-beam.

20 10. In an underslung bridge crane, the combination of a bridge member extending under the runway members, one wheel-carrying member being rigidly fastened to the bridge member and the other three wheel-carrying members being pivotally connected
25 to said bridge member.

30 11. In an underslung bridge crane, the combination of a bridge member extending under the runway members, one wheel-carrying member being rigidly fastened to the bridge and rigidly connected by diagonal
35 braces thereto and one wheel-carrying member being pivotally fastened to the bridge and braced with diagonal members that are pivotally connected to the bridge member, and two other wheel-carrying members pivotally connected to said bridge members.

40 12. In an underslung bridge crane, the combination of a bridge member extending under the runway members, a wheel-carrying member on one side of a runway member rigidly connected to the bridge member, and
a wheel-carrying member on the other side of said runway member connected to the

bridge member in such a manner that it can move with relation to said bridge member for the purpose described. 45

13. In an underslung bridge crane, the combination of a bridge member extending under the runway members, a wheel-carrying member on one side of a runway member rigidly connected to the bridge member and
50 a wheel-carrying member on the other side of said runway member hinged or pivotally connected to the bridge member, and a pair of diagonal braces from the bridge-carrying member to the rigidly connected wheel-carrying member. 55

14. In an underslung bridge crane, the combination of a bridge member extending under the runway member, a wheel-carrying member rigidly connected to the bridge
60 member and running on one side of the runway member, and a wheel-carrying member running on the opposite side of the runway member and arranged in such a way that it is free to rotate about a pin whose axis is
65 parallel to the bridge member.

15. In an underslung bridge crane, the combination of a bridge member extending transversely under the runway, a wheel-carrying member rigidly connected to the
70 bridge member and arranged on one side of one of the runway members, and a load-equalizing wheel-carrying member arranged on the other side of said runway member and connected to said bridge member in such
75 a manner that it can rock transversely of said bridge member.

In testimony whereof I hereunto affix my signature in the presence of two witnesses, this 16th day of November 1912.

EDWIN H. STEEDMAN.

Witnesses:

R. E. WINKLER,
LEON S. BUCKLES.