W. FERRIS.

LOCOMOTIVE CRANE.

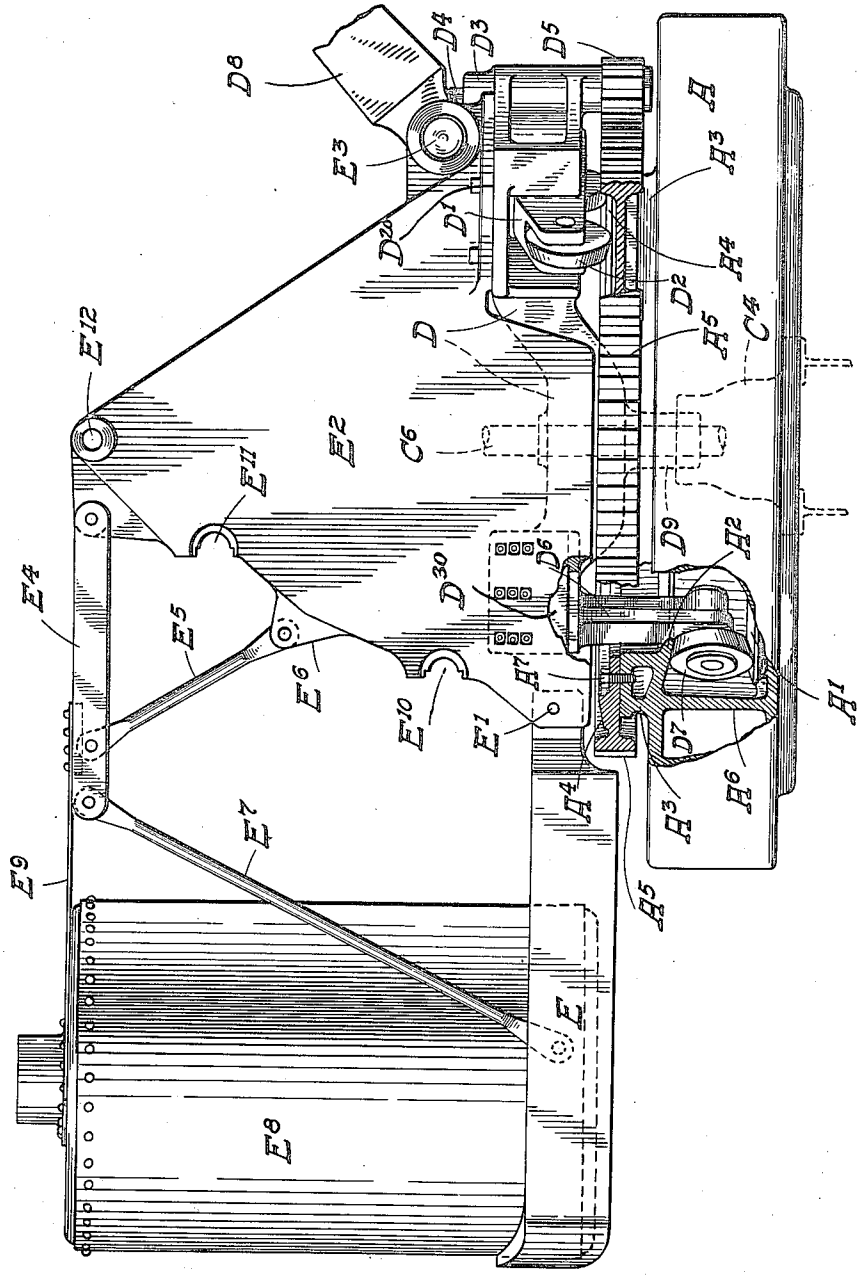
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1,289,427.

Patented Dec. 31, 1918.

2 SHEETS—SHEET 1.

FIG. 1.



WITNESSES:

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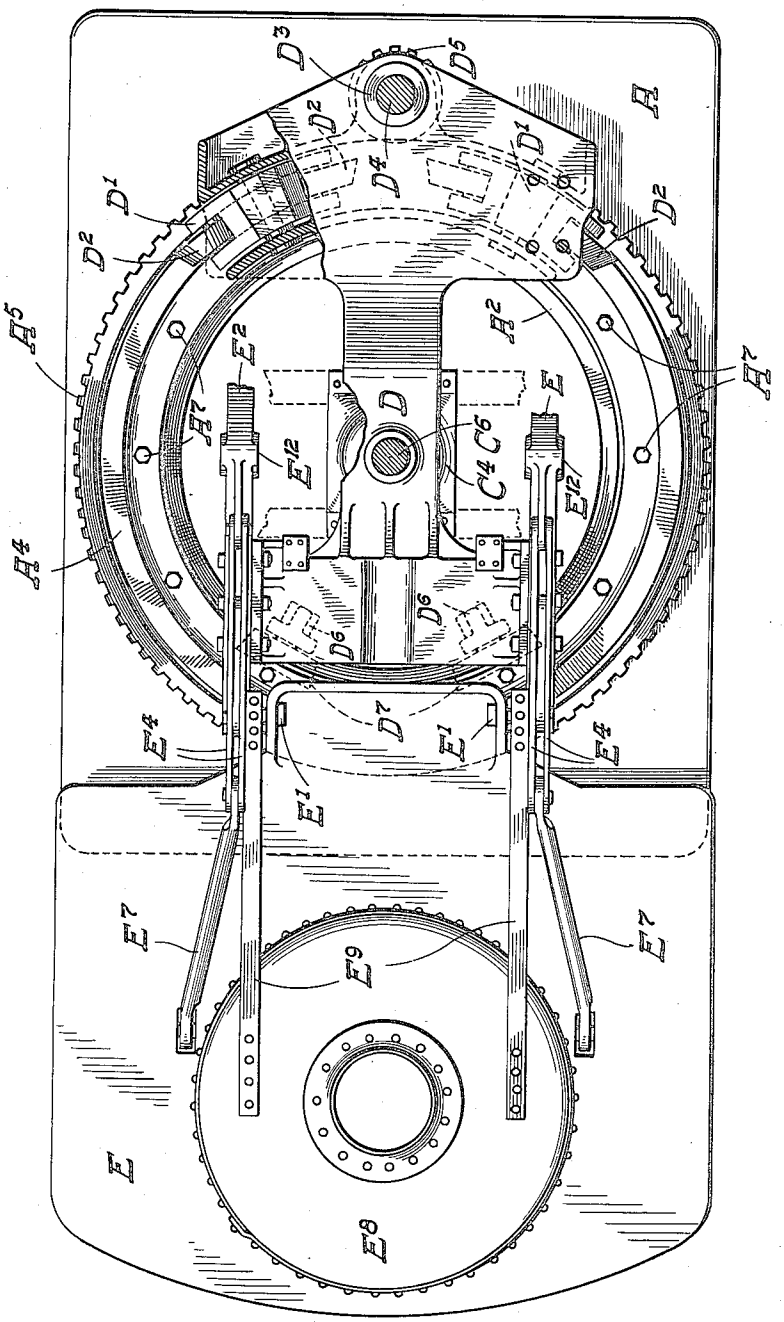


Fig. 2.

WITNESSES:

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UNITED STATES PATENT OFFICE.

WALTER FERRIS, OF MILWAUKEE, WISCONSIN, ASSIGNOR TO BUCYRUS COMPANY, OF SOUTH MILWAUKEE, WISCONSIN, A CORPORATION OF WISCONSIN.

LOCOMOTIVE-CRANE.

1,289,427. Specification of Letters Patent. Patented Dec. 31, 1918.

Original application filed March 1, 1917, Serial No. 151,858. Divided and this application filed November 12, 1917. Serial No. 201,625.

To all whom it may concern:

Be it known that I, WALTER FERRIS, a citizen of the United States, residing at Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented a certain new and useful Improvement in Locomotive-Cranes, of which the following is a specification, being a divisional application of applicant's copending application, Serial No. 151,858.

My invention relates to improvements in locomotive cranes and is based on the subject-matter divided out of my co-pending application No. 151,858, filed March 1st, 1917. The present application concerns itself particularly with the crane and subcombinations thereof including the particular combination of turntable platform support and turntable or working platform and frame and associated parts and the like. The invention is illustrated more or less diagrammatically in the accompanying drawings, wherein—

Figure 1 shows a side elevation in part section with the revolving crane or platform;

Fig. 2 shows a plan view of the revolving crane.

Like parts are indicated by like characters in the figures.

I have not shown the car upon which the rotating crane platform is mounted except for the diagrammatic showing of the central platform upon which the crane is itself rotatably mounted and which would be mounted or carried in the car of any ordinary type such as is illustrated in my co-pending application.

A is a fixed supporting platform adapted to be mounted on a railroad car not here illustrated. It is hollow and contains adjacent its lower side the circular track A^1. Above the track A^1 and spaced from it is a circular track A^2 adapted to resist an upward movement of the rollers which travel along the track A^1 between it and the track A^2. Projecting upwardly from the frame A is a circular flange A^3 which carries a circular track A^4 surrounded by a fixed gear A^5. It will be noted that the tracks A^1, A^2 are inwardly spaced within the wall A^6 surrounding them whereby such wall will not interfere with the rollers above mentioned. The track ring which carries the track A^4 and gear A^5 is attached to the member A^3 removably by means of pins or bolts A^7 as the case may be.

D is a roller frame casting with a horizontal surface or pad D^{20} at its forward end and vertical surfaces or pads D^{30} at its rearward end. It is provided at its front end with two trucks D^1 in each of which are rotatably mounted rollers D^2 which rest upon and travel along the track A^4. These two pairs of rollers are located one on either side of the axial line of the roller frame casting. The forward end of this casting is provided with a sleeve D^3 which carries a shaft D^4 adapted to be driven by any suitable means not here shown and which carries at its lower extremity the driving pinion D^5 in mesh with the gear A^5 whereby the revolving frame may be rotated in the usual manner at the will of the operator. D^6, D^6 are a pair of brackets downwardly extending from the rear side of the roller frame casting and these brackets carry rollers D^7 which travel between the tracks A^1, A^2, the parts being so arranged that when there is no load on the jib D^8 the load is carried by the rollers D^2 and D^7 on the tracks A^4, A^1 respectively; but when the jib carries a load the roller frame is tilted up through, of course, a very short distance until the rollers D^7 engage the track A^2. A hub C^4 is formed upon the main frame A and is in rotatable engagement with sleeve D^9 formed upon the roller frame casting D. It has for its purpose to assist in centering the roller frame or beam on this circular track though, of course, the inclined track and roller contact lines do assist in this function.

E^2 E^2 are main side frames which support the crane machinery not shown provided with surfaces to rest against and be bolted to the pads D^{20} and D^{30}. E is a large casting forming the boiler platform and attached to the rear ends of the side frames E^2 by means of pins E^1. To these side frames the jib D^8 is also pivoted by means of a pivot pin E^3. These side frames extend upwardly a considerable distance above the frame D and platform E. E^4 are links pivoted at one end on the upper apex of the side frames E^2 and extend rearwardly therefrom. These links are tension links. E^5 are compression links pin connected to the lugs E^6 on the rear edges of the side frames E^2 and to the links E^4 adja-

cent their outer ends. E^7 are stirrup links pivoted at the outer ends of the links E^4 and pivoted on the platform E at a point far removed from the pins E^1 and so disposed with respect to the boiler E^8 that there is a free passage across the platform between the boiler on the one hand and the side frames E^2 and link E^5 on the other. E^9, E^9 are stay members riveted to the links E^4 at one end to the top of the boiler E^8 at the other to steady the boiler on the platform. It will be understood that the operating mechanism is located between the side frames E^2. The semi-cylindrical notches E^{10} E^{11} are provided for the purpose of supporting the bearings for some of the operating machinery. The eyes E^{12} serve as anchorage for the inner end of the usual jib hoist tackle not shown. The remainder of the mechanism will be supported inside between the frames by means not here illustrated. It will be understood of course, that I have only partially illustrated the actual locomotive crane structure but this is justified by the fact that the parts which I have shown form the essential features of my invention and their arrangement and operation would be obscured rather than clarified by the introduction of all operating, driving and controlling parts. I wish, therefore, that my drawings be regarded as in a sense diagrammatic.

I claim—

1. In a revolving crane the combination of a revolving structure comprising a unit revolving base plate, front rollers to withstand the downward reactions caused by the load, rear rollers to withstand the upward reactions caused by the load, and a center pintle to withstand horizontal reactions only, with a hollow car body base plate, on its top a track which receives said front wheels, and within it a track to receive said rear wheels.

2. In a revolving crane, the combination of a unit revolving base plate with a hollow car body base plate having upper and lower flanges within it, the revolving base plate having pins which engage front rollers and depending lugs at its rear end which support rear roller pins in proper position to engage both upper and lower flanges in the car body base plate, thereby transmitting to this base plate the reactions caused by the load.

3. In a revolving crane, a unit base plate having the revolving frame and two side frames mounted upon said base plate, attachment of side frames to the base plate being by horizontal pads at the front to take downward reactions directly to the roller equalizer pins and by vertical pads at the rear with shear connections to transmit the upward reaction directly down into the rear roller pin lugs.

4. In a revolving crane, a revolving frame comprising a structure for supporting the machinery and jib, a rearward extension pivoted thereon for supporting other parts, a rigidly braced substantially horizontal cantaliver member projecting from the side frame, and a tension member extending downwardly from the outer end of said cantaliver to support such rearward extension and to permit free passageway for the operator.

5. In a revolving crane, a revolving frame comprising a structure for supporting the machinery and jib, rearward extension therefrom for supporting other parts, said rearward extension being upheld by a cantaliver member from the upper apex of the side frame, said cantaliver comprising a substantially horizontal upper member, and a brace member supporting said upper member at a point somewhat forward of operator's passage-way, together with a tension member supporting said rearward extension and attached to upper member of cantaliver at a point rearward from said brace attachment.

6. In a revolving crane a bed plate, three separate concentric tracks thereon, one above another, two of them in opposition, a plurality of rollers adapted some of them to travel between said opposed tracks and others to travel on the third track, a platform supported upon said rollers and means for rotating it.

7. In a revolving crane a bed plate, three separate concentric tracks thereon, one above another, two of them in opposition, a plurality of rollers adapted some of them to travel between said opposed tracks and others to travel on the third track, a platform supported upon said rollers and means for rotating it, means located at the center of revolution of said tracks for guiding the platform as it rotates.

8. In a revolving crane a bed plate, three separate concentric tracks thereon, one above another, two of them in opposition, a plurality of rollers adapted some of them to travel between said opposed tracks and others to travel on the third track, a platform supported upon said rollers and means for rotating it, a counterbalance projecting outwardly from the platform adjacent the rollers traveling between the opposed tracks and a load carrying member projecting outwardly from the platform adjacent the rollers traveling on the other track.

9. In a revolving crane a bed plate, three separate concentric tracks thereon, one above another, two of them in opposition, a plurality of rollers adapted some of them to travel between said opposed tracks and others to travel on the third track, a platform supported upon said rollers and means for rotating it, a counterbalance projecting outwardly from the platform adjacent the

rollers traveling between the opposed tracks and a load carrying member projecting outwardly from the platform adjacent the rollers traveling on the other track the rollers adjacent the load carrying member being arranged in two separate pairs one pair on either side of the central line of such member.

10. In a revolving crane a bed plate, three separate concentric tracks thereon, one above another, two of them in opposition, a plurality of rollers adapted some of them to travel between said opposed tracks and others to travel on the third track, a platform supported upon said rollers and means for rotating it, said means comprising a gear integral with the third track, a pinion on the platform in mesh with the gear.

11. In a revolving crane a hollow bed plate, an annular channel therein, opposed tracks on the upper and lower walls of said channel, a separate track mounted on the bed plate above such channel, rollers traveling within the channel and upon the third track, and a working platform carried by such rollers.

12. In a revolving crane a hollow bed plate, an annular channel therein, opposed tracks on the upper and lower walls of said channel, a separate track mounted on the bed plate above such channel, rollers traveling within the channel and upon the third track, and a working platform carried by such rollers the channel being deeper than the width of the tracks to provide clearance for the ends of the rollers traveling upon said opposed tracks.

13. In a revolving crane a hollow bed plate, an annular channel therein, opposed tracks on the upper and lower walls of said channel, a separate track mounted on the bed plate above such channel, rollers traveling within the channel and upon the third track, and a working platform carried by such rollers, brackets projecting downwardly from the platform carrying said rollers said brackets being located within said tracks.

14. In a revolving crane a hollow bed plate, an annular channel therein, opposed tracks on the upper and lower walls of said channel, a separate track mounted on the bed plate above such channel, rollers traveling within the channel and upon the third track, and a working platform carried by such rollers the channel being deeper than the width of the tracks to provide clearance for the ends of the rollers traveling upon said opposed tracks, brackets projecting downwardly from the platform carrying said rollers said brackets being located within said tracks.

In testimony whereof, I affix my signature in the presence of two witnesses this 31st day of October 1917.

WALTER FERRIS.

Witnesses:
ROBERT M. RAMAGE,
WALTER PLEHN.