

No. 755,644.

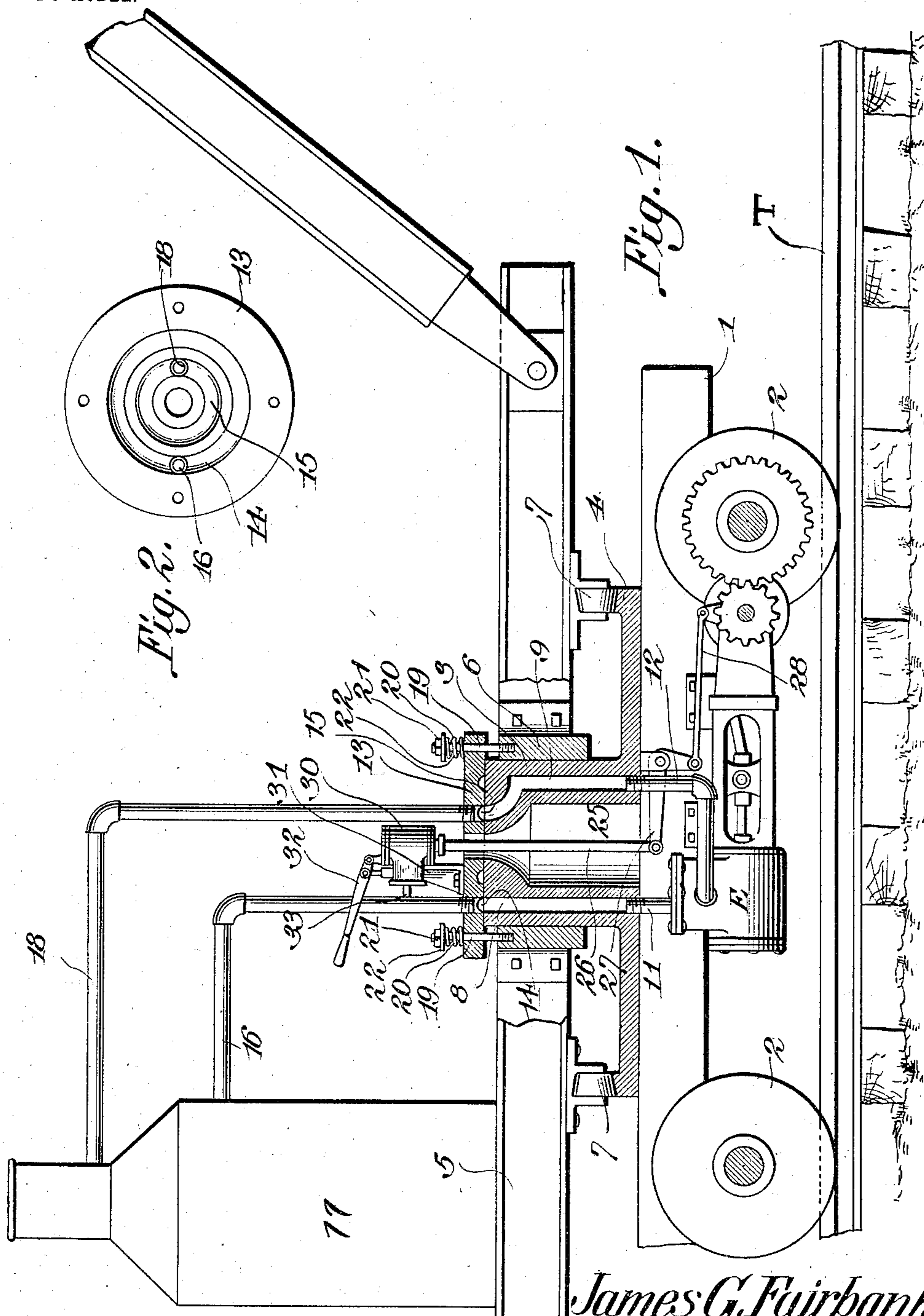
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LOCOMOTIVE CRANE.

APPLICATION FILED NOV. 20, 1903.

NO MODEL.



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UNITED STATES PATENT OFFICE.

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LOCOMOTIVE-CRANE.

SPECIFICATION forming part of Letters Patent No. 755,644, dated March 29, 1904.

Application filed November 20, 1903. Serial No. 181,978. (No model.)

To all whom it may concern:

Be it known that we, JAMES G. FAIRBANKS and GEORGE L. SAUER, citizens of the United States, residing at Marion, in the county of Marion and State of Ohio, have invented a new and useful Locomotive-Crane, of which the following is a specification.

This invention relates to locomotive-cranes, and refers more particularly to cranes comprising a truck having an engine mounted thereon to propel the truck along the tracks upon which it is mounted and a revolving platform mounted on the truck and affording support for the boiler and the hoisting mechanism.

The object of the invention is to improve the construction of locomotive-cranes of the type specified by providing novel devices for connecting the steam-supply pipe and exhaust-pipe of the engine with the steam-supply pipe of the boiler and the exhaust-pipe leading into the smoke-stack in order that the rotative movement of the platform upon which the boiler is mounted may not interfere with the supply of steam to the engine or with the exhaust from the engine to the smoke-stack of the boiler.

Another object of the invention is to provide an improved form of mechanism for reversing the engine, by means of which the operator of the crane may control the movements of the engine without changing his position upon the revolving platform regardless of the rotative movement of said platform.

In the attainment of the objects above mentioned we make use of the novel construction and combination of parts of a locomotive-crane hereinafter described, illustrated in the accompanying drawings, forming a part of this specification, and having the novel features thereof specifically pointed out in the appended claims, it being understood that various changes in the form, proportions, and exact mode of assemblage of the elements exhibited may be resorted to without departing from the spirit of the invention or sacrificing the advantages thereof.

In the drawings, Figure 1 is a view, partly in vertical section, of a locomotive-crane embodying the present invention, those parts of the crane which do not constitute an integral

part of the present invention being diagrammatically illustrated or omitted from the drawing. Fig. 2 is a reverse plan view of the channeled plate which fits over the center-post of the crane.

Referring to the drawings, in which corresponding parts are designated by similar characters of reference throughout, T designates the track upon which the crane travels, and 1 designates a truck provided with wheels 2 of ordinary type, which rest upon the rails of the track. The truck has supported beneath it an engine E, which may be connected with the wheels by any preferred form of direct gearing. On the upper surface of the truck there is mounted a center post 3 and a circular track 4, upon which the platform 5 of the crane is arranged to rotate. The platform 5 has a central collar 6, which fits over the center post 3 and is provided on its under surface with rollers 7, which rest upon the track 4. The center post 3 is bored to form passages or ports 8 and 9, with which are connected at the bottom the steam-pipe 11 and the exhaust-pipe 12 of the engine, as shown. The passage 8 extends directly upward to the top of the center post; but the passage 9 is curved toward the top, so that the upper end thereof lies somewhat nearer the axis of the center post than the passage 8. Over the top of the center post is secured a channeled plate 13, provided on its under surface with concentric grooves or channels 14 and 15, the former lying above the end of the passage or port 8 and the latter lying over the end of the passage or port 9. A steam-pipe 16 leads from the boiler 17 to the plate and communicates with the annular channel 14, while the exhaust-pipe 18 leads from the annular channel 15 to the base of the smoke-stack of the boiler, as shown. The plate 13 is secured in position by bolts 19, rising from the collar 6 and provided with encircling springs 20, held in position above the plate 13 by nuts 21 and washers 22, provided on the bolts 19. The springs are of sufficient strength to keep the plate in close contact with the upper end of the center post 3 notwithstanding the vibrations of the platform 5 incident to the use of the crane, and it is of course to be understood

that the under surface of the plate and the upper surface of the center post are accurately ground, so that a perfect steam-tight joint may be made between the upper end of the post and the under surface of the plate.

The center post is cast hollow, as shown in the drawings, and the central opening 25 affords a passage for the piston-rod 26, pivotally connected with one arm of the bell-crank lever 27, the other arm of which is connected with a rod 28, which controls the reversing-gear of the engine. The piston-rod 26 extends into the cylinder of a steam-ram 30, mounted on a bracket 31 upon the upper surface of the plate 13 in such position that the axis of the cylinder in which the piston-rod moves coincides with the axis produced of the center post 3. A valve-lever 32 controls the entry of steam into the steam-ram through a small branch steam-pipe 33, which leads from the main steam-pipe 16 to the steam-ram. As the lever 32 is mounted upon the steam-ram, which is carried by the plate 13, and the plate 13 is connected with the collar 6, the lever 32 will always occupy the same relative position to the platform 5, to which the collar 6 is secured, and the engineer need not change his position upon the platform in order to control the operation of the reversing-gear of the engine.

As the operation of the mechanism is extremely simple and may be readily understood from a mere inspection of the drawings, detailed description thereof appears to be unnecessary. The steam from the boiler passes through the steam-pipe 16 into the channel 14 upon the under surface of the plate 13, and whatever the position of the plate 13 the steam can always pass from the channel 14 into the steam-passage 8 of the center post, which is directly connected with the steam-pipe of the engine. Similarly, the exhaust-steam passing through the exhaust-pipe 12 of the engine rises through the passage 9 in the center post into the channel 15 on the under surface of the plate 13 and escapes through the exhaust-pipe 18 into the smoke-stack of the boiler.

The operation of the reversing mechanism through the lever 32 is also easily understood. By the movement of the lever 32 steam may be caused to depress or elevate the piston in the steam-ram, and so impart movement downward or upward to the piston-rod 26, which movement will be imparted through the bell-crank lever 27 and rod 28 to the reversing mechanism. As the interior of the cylinder of the steam-ram is circular in cross-section and the piston-rod lies in the axis of the center post, the rotative movement of the plate 13 and the steam-ram mounted thereon has no effect upon the piston, which does not interfere in any way with the rotative movement of the ram.

Having thus described the construction and operation of our invention, what we claim as

new, and desire to secure by Letters Patent, is—

1. The combination in a locomotive-crane, of a truck, an engine supported directly on the truck, a platform rotatably mounted on the truck, a boiler carried by the platform, a steam-supply pipe and an exhaust-pipe connected with the engine, a steam-supply pipe and exhaust-pipe connected with the boiler, a member having passages therethrough fixed upon the truck and having the passages connected with the steam supply and exhaust pipes of the engine, and a member having channels therein connected with the steam supply and exhaust pipes of the boiler mounted for rotation with said platform and having its channels constantly in communication with the passages in the member fixed upon the truck.

2. The combination in a locomotive-crane, of a truck, an engine mounted upon the truck and having steam supply and exhaust pipes, a platform rotatably supported on the truck, a boiler mounted on the platform and having steam supply and exhaust pipes, a fixed member mounted on the truck and having passages therein connected with the steam supply and exhaust pipes of the engine, and a rotatable member having channels therein connected with the steam supply and exhaust pipes of the boiler disposed above said fixed member with the channels therein in communication with the passages in said fixed member.

3. The combination in a locomotive-crane, of a truck, an engine directly mounted on said truck, a center post carried by said truck and provided with passages therein, a steam-supply pipe and an exhaust-pipe connected with said engine and with the passages in said center post, a platform carried by said truck and arranged for rotation about said center post, a boiler mounted on said platform, a steam-supply pipe and an exhaust-pipe connected with said boiler, and a plate having grooves on the under surface thereof supported on the top of said center post with said grooves in communication with the passages in the center post and in communication with the steam supply and exhaust pipes of the boiler.

4. The combination in a locomotive-crane, of a truck, a center post rigidly mounted on the truck, a platform arranged for rotation about said center post, said center post being provided with passages disposed at different distances from the axis thereof, a member rotatably mounted on the top of said center post and provided on its under surface with concentric channels adapted to communicate with said passages, an engine mounted on the truck, a boiler mounted on the platform, steam and exhaust pipes leading from the boiler to the channels in said rotatable member and steam and exhaust pipes leading from the engine to the passages in said center post.

5. The combination in a locomotive-crane, of a truck, a center post mounted on said truck and having passages therein disposed at different distances from the center, a platform carried by said truck and arranged for rotation about said center post, a plate having channels on the under surface thereof rotatably mounted on top of said center post with the channels in communication with said passages, yielding means for holding said plate in contact with the top of said center post, an engine mounted on said truck and having steam and exhaust pipes communicating with the passages in the center post, and a boiler mounted on the platform and having steam and exhaust pipes communicating with the channels of the plate mounted on said center post.

6. The combination in a locomotive-crane, of a truck, an engine directly mounted on said truck, a center post carried by said truck and provided with passages extending upward therethrough and terminating at different distances from the axis of said post, steam and exhaust pipes leading from said engine to said passages, a platform supported by said truck and arranged to rotate about said center post, a plate having concentric channels on its under surface mounted on top of said center post and arranged for rotation with said platform, bolts extending upward from said platform through said plate, springs encircling said bolts to hold the plate constantly in contact with the top of said post, a boiler mounted on said platform, and steam and exhaust pipes leading from said boiler to the channels of said plate.

7. The combination in a locomotive-crane, of a truck, an engine directly mounted on said truck, a platform arranged for rotation on said truck, and mechanism for controlling the direction of movement of said engine comprising a steam-ram rigidly mounted on said platform and an operating-lever carried by said steam-ram.

8. The combination in a locomotive-crane, of a truck, an engine directly mounted on said truck, a platform rotatably supported on said truck, mechanism for controlling the direction of movement of said engine comprising a steam-ram rigidly mounted on said platform with its axis in alinement with the axis of rotation of the platform, a piston disposed in

said axis of rotation and operatively connected with the engine, and mechanism for controlling the admission of steam into the ram, said mechanism being carried by the ram. 55

9. The combination in a structure of the class described, of a truck, an engine mounted on the truck, a platform rotatably mounted on the truck, a hollow center post upon the truck about which the platform turns, said center post having an eccentrically-placed channel extending longitudinally thereof, a source of pressure-supply mounted on the platform and continuously connected with said channel, and engine-controlling mechanism disposed in the hollow of the center post. 60 65

10. In a structure of the class described, a supporting member, a center post fixed upon said supporting member and having an eccentrically-disposed channel extending longitudinally thereof, a rotatable member carried by said supporting member and arranged to turn about said post, and a member connected with said rotatable member and held in contact with the end of said center post, said member being provided with a channel which is continuously in communication with the channel in said center post. 70 75

11. The combination of a supporting structure, a superstructure rotatably mounted upon the supporting structure, an engine carried by one of said structures, a source of pressure-supply carried by the other structure, pressure supply and exhaust pipes leading to and from said engine, pressure supply and exhaust pipes leading from and to said source of pressure-supply, and a connection between the pressure supply and exhaust pipes of the engine and the pressure supply and exhaust pipes of the source of pressure-supply, said connection comprising a fixed member having passages therethrough and a rotatable member having channels therein which are constantly in communication with the passages in the fixed member. 80 85 90 95

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in the presence of two witnesses.

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GEO. L. SAUER.

Witnesses:

W. LINDER,

CHAS. MELVIN.