

H. A. GREENE.
LOCOMOTIVE CRANE.
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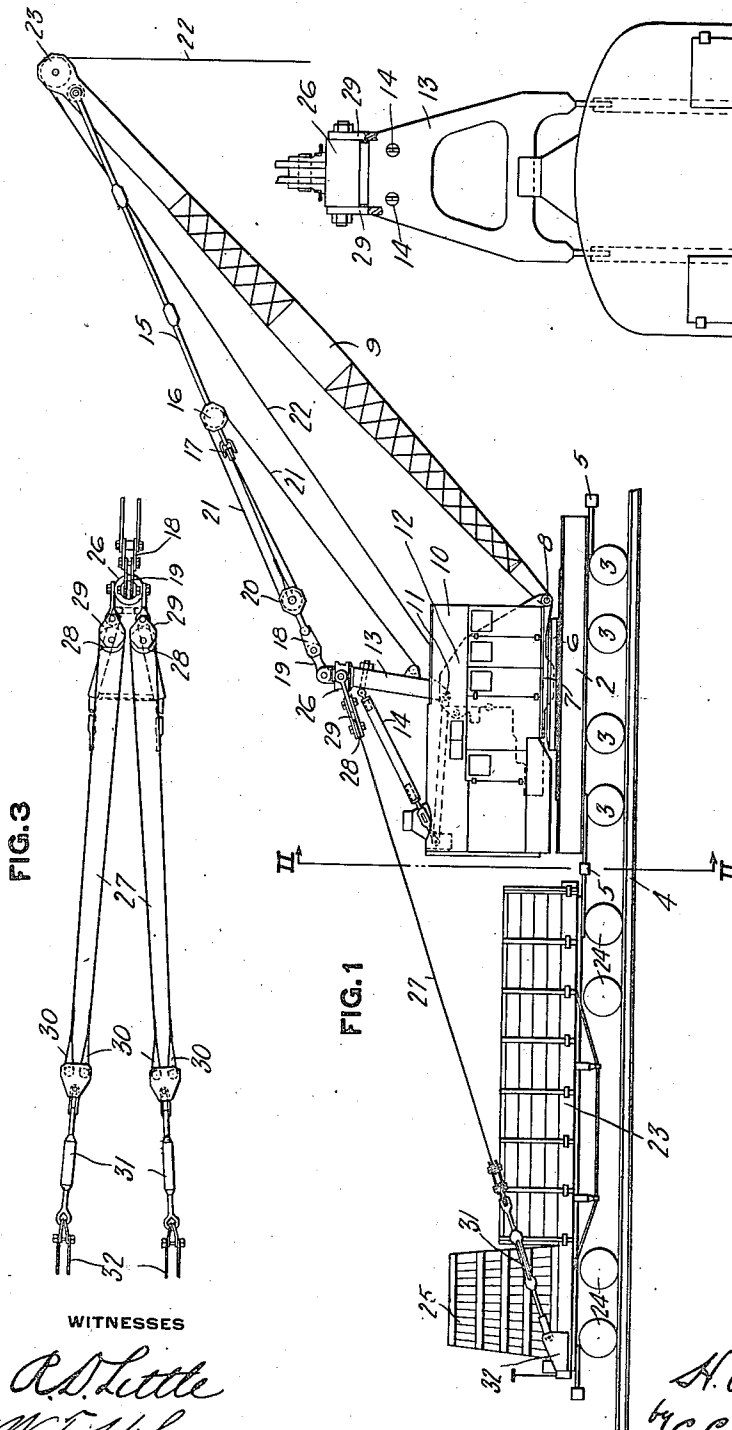


FIG. 2

FIG. 1

FIG. 3

WITNESSES

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HOWARD A. GREENE, OF PITTSBURGH, PENNSYLVANIA.

LOCOMOTIVE-CRANE.

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To all whom it may concern:

Be it known that I, HOWARD A. GREENE, a citizen of the United States, and resident of Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Locomotive-Cranes, of which the following is a specification.

My invention relates to locomotive cranes and similar wheeled apparatus arranged for travel on railway tracks and adapted for use in loading and unloading railway cars and in handling heavy materials at the sides of a railway track within reach of the crane hook on the hauling line or hoisting rope of the crane.

The lifting capacity and the range of lifting movement of locomotive cranes as constructed heretofore, are materially limited, owing to the restrictions imposed by the clearances necessary on standard railroads, the distance between tracks the head clearance or height of the machine and curves in the tracks all being limiting factors.

One object of my invention is to provide novel means whereby the lifting capacity of locomotive cranes is materially increased without increase in the head room or clearance necessary in transporting the cranes from place to place on existing railways.

Another object of this invention is to provide novel means whereby a locomotive crane is adapted for the uses of a derrick car, while retaining the characteristics of the locomotive crane as to head room or clearances required in transferring the apparatus from place to place on railways, and as to lifting capacity off to one side.

A further object of the invention is to provide a locomotive crane of improved construction having novel means whereby the lifting range and capacity of the crane are quickly increased in the field, or in any particular location wherein it is desired to employ the crane in handling materials.

A still further object of my invention is the provision upon existing as well as new locomotive cranes of the novel combination and arrangement of parts shown in the drawings, to be more fully described hereinafter, and to be specifically pointed out in the appended claims.

Referring now to the drawings, forming part of this specification, Figure 1 is a side elevation showing a locomotive crane constructed and arranged in accordance with

my invention. Fig. 2 is a sectional elevation of the crane of Fig. 1, the section being taken on the line II—II of Fig. 1. Fig. 3 is a plan showing the arrangement of the back stays forming part of my improved crane.

In the accompanying drawings, the numeral 2 designates the body of a locomotive crane having track wheels 3 by which the crane is mounted on the track rails 4 of a railway and on the ends of the body 2 are standard car couplers 5 by which the locomotive crane may be detachably connected in a train of railway cars, when being hauled from place to place.

Secured on top of the body 2 is a base 6 forming a circular track on which the main frame 7 of the crane is rotatably mounted. Pivottally connected at its lower end, by a pivot pin 8, to the main frame 7, and arranged to swing vertically relative thereto, is a boom or arm 9. Also mounted on the frame 7 to rotate therewith on the body 2 is the usual crane operating mechanism comprising winding drums, a drum driving motor or motors and, when steam is employed as the motive force, as with the apparatus illustrated, a steam boiler. The cabin also mounted on the main frame forms a housing or shelter for the crane driving mechanism and crane operator. Connected at its lower end by pins 11, to the sides 12 of the main frame 7 is an articulated A frame 13 and the upper end of this A frame is pivotally connected to lengthwise adjustable stiff legs or struts 14 which extend angularly to the rear end of the main frame 7.

The upper end of the boom 9 is connected by a suitable system of rods and wire rope through sheeves to a pivotal connection 18—19 to the top of the A frame 13, one end or part of the wire rope 21 extending downward to a connection with a winding drum forming part of the crane operating mechanism. The hauling line 22 of the crane load fall which also is connected at one end to a winding drum of the crane mechanism passes over the sheave 23 on the upper end of the boom 9 and extends downwardly to the hook or pendant block of the load fall.

Attached to the rear end of the body 2 of the crane by automatic couplers 5 is a tender car 23 having wheels 24 by which it is mounted on the track rails 4 and positioned on the rear end of this tender car 23 is a counterweight which may conveniently be a

water tank 25. The water tank obviously, may be replaced by any desired form of counterweight. The upper end of the A frame 13 has a swivel connection 26 to which one end of the back stays 27 are secured. As shown a double strand of rope or cable forms each of the two back stays 27, the loop in the back stays passing around the sheaves 28 of the blocks 29 which are pivotally connected to the swivel connection 26 on the end of the A frame. The ends of the cables or ropes forming the back stays 27 are provided with eyes 30 by which the back stays are connected to the turnbuckles 31 at the lower ends thereof. The turnbuckles 31 are pivoted to brackets 32 which are secured to the sides of the tender car 23 at the rear end thereof.

In using the crane the parts are assembled as shown and on account of the counterweighted tender car 23 and the back stays 27 connecting the A frame 13 to the rear end of the tender car 23 for lifting a load directly, or nearly directly ahead or in front of itself a longer boom 9 can be used for the same load thus increasing the reach or radius of action or a heavier load can be lifted with the same length of boom, while the lifting capacity of the crane to one side is not materially altered.

When extended as shown in drawings the boom 9 will have an operative swinging movement from alongside one side of the back stays 27 around the front of the crane body 2 to a similar position on the opposite side of the tender car.

The apparatus is operated in the same manner as with the ordinary locomotive crane, and, when found necessary or desirable, side guys will be provided on the A frame to extend to dead men or other suitable anchorage erected on opposite sides of the railway tracks, adjacent to the position in which the locomotive crane is placed for use, in loading and unloading cars and in lifting materials from one side of the track to the other at a distance materially greater from the crane than without the side guys.

When transporting the crane from place to place the A frame 13 can be uncoupled from the main frame 7 and the stiff legs 14 and with the back stays 27 packed within the tender car. The stiff legs 14 allowed to drop on to the top of the cabin 10 or on to proper saddles on the main frame 7. The main frame 7 preferably will be turned until the boom 9 extends above the tank or counterweight 25 on the rear end of the tender car or the boom 9 can be disconnected from the frame 7 and with topping lift 15—18 packed in the tender car, thus enabling the crane and tender car to be transported on railroads having the usual clearances.

The advantages of my invention will be

apparent to those skilled in the art. By the provision of the articulated A frame and the back stays connecting the A frame to the rear end of the counterweighted tender car the lifting capacity of existing as well as new locomotive cranes is materially increased for loads immediately in front or ahead of the crane; or the boom may be lengthened considerably so as to increase the reach or distance ahead or in front of the crane at which a load may be lifted. The apparatus is simple and will not require frequent repairs.

Modifications in the construction and arrangement of the parts may be made within the scope of my invention as defined in the appended claims.

I claim:—

1. In a locomotive crane, the combination of a wheeled crane body having a horizontally rotating main frame, a vertically swinging boom pivoted at one end to the main frame, an A frame having its lower end pivotally connected to said main frame, stiff legs connecting the upper end of said A frame and the main frame, a load fall on the boom, a topping lift hoist connecting the upper end of the boom to the A frame, a tender car coupled to the crane body, a counterweight at one end of said tender car, and adjustable back stays pivotally connecting the upper end of said A frame with the counterweighted end of the tender car.

2. In a locomotive crane, the combination of a wheeled crane body, having a horizontally rotating main frame, a vertically swinging boom pivoted at one end to the main frame, an A frame pivotally connected to said main frame, a load fall on the boom, a topping lift hoist connecting the upper end of the boom to the A frame, a tender car coupled to the crane body, a counterweight at one end of said tender car, and adjustable back stays connecting the upper end of said A frame with the counterweighted end of the tender car.

3. In a locomotive crane, the combination of a wheeled crane body having a horizontally rotating main frame, a vertically swinging boom pivoted at one end to the main frame, an A frame pivotally connected to said main frame, stiff legs connecting the upper end of the A frame and main frame, a load fall on the boom, a topping lift hoist connecting the upper end of the boom to the A frame, a tender car coupled to the wheeled frame, a water tank forming a counterweight at one end of said tender car, and adjustable back stays pivotally connecting the upper end of said A frame with the counterweighted end of the tender car.

4. In a locomotive crane, the combination of a wheeled crane body having a horizontally rotating main frame, a vertically swinging boom pivoted at one end to the main frame, an A frame pivotally connected

to said main frame, a load fall on the boom, a topping lift hoist connecting the upper end of the boom to the A frame, a tender car coupled to the crane body, a counterweight at one end of said tender car, and means adjustably connecting the upper end of said A frame with the counterweighted end of the tender car.

5. In a locomotive crane, the combination of a wheeled car body having a horizontally rotating main frame, a vertically swinging boom pivoted at one end to the main frame, an A frame pivotally connected to said main frame, means forming a strut pivotally connecting the upper end of said A frame and

the main frame, a load fall on the boom, a topping lift hoist connecting the upper end of the boom to the A frame, a tender car coupled to the crane body, means forming a counterweight on one end of said tender car, and adjustable back stays pivotally connecting the upper end of said A frame with the counterweighted end of said tender car.

In testimony whereof I have hereunto set my hand.

HOWARD A. GREENE.

Witnesses:

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R. D. LITTLE.