

No. 750,382.

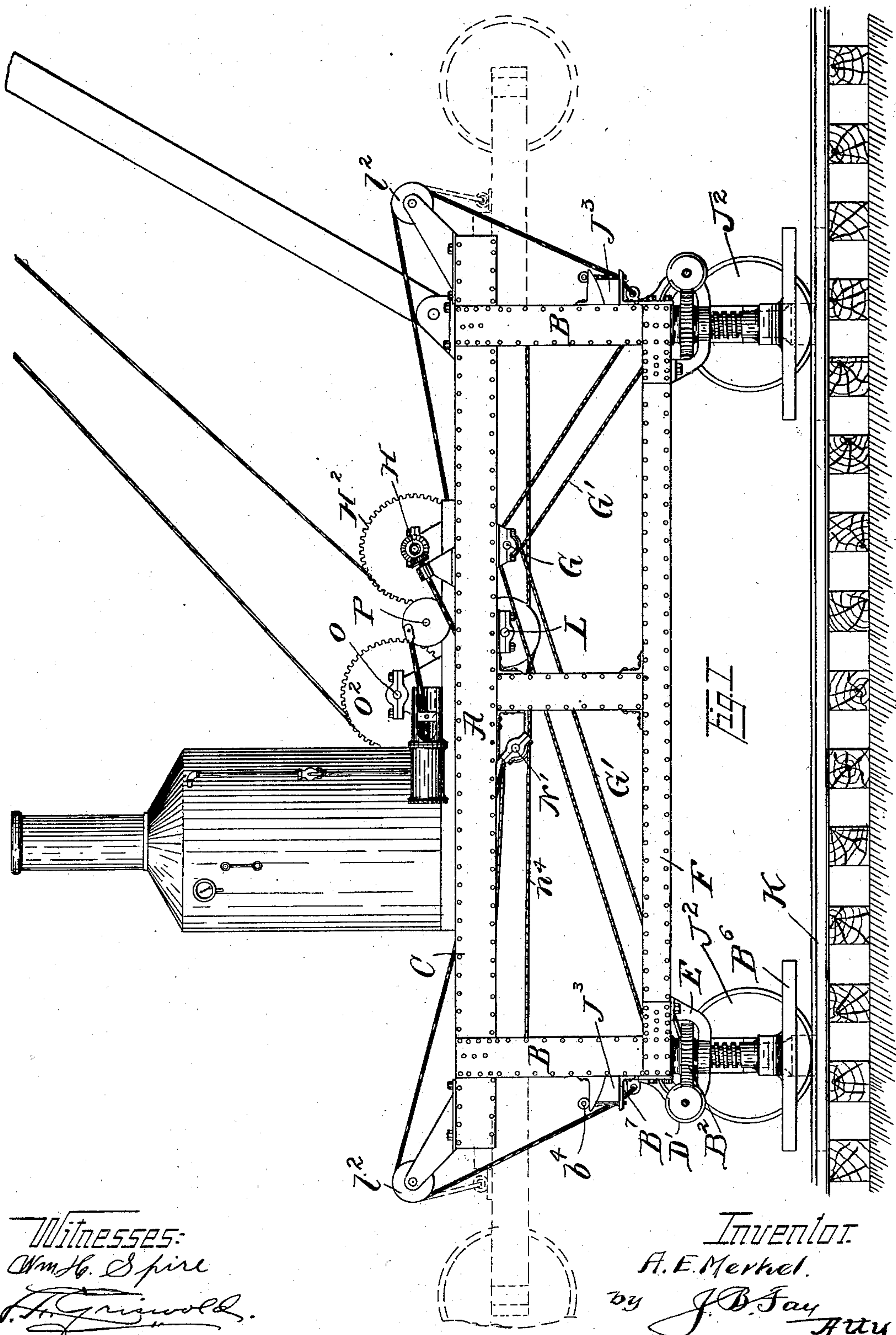
PATENTED JAN. 26, 1904.

A. E. MERKEL.
LOADING DEVICE.

APPLICATION FILED APR. 18, 1902.

NO MODEL.

3 SHEETS—SHEET 1.



Witnesses:
Wm. H. Spire
H. Griswold.

Inventor:
A. E. Merkel.
by J. B. Fay
Att'y

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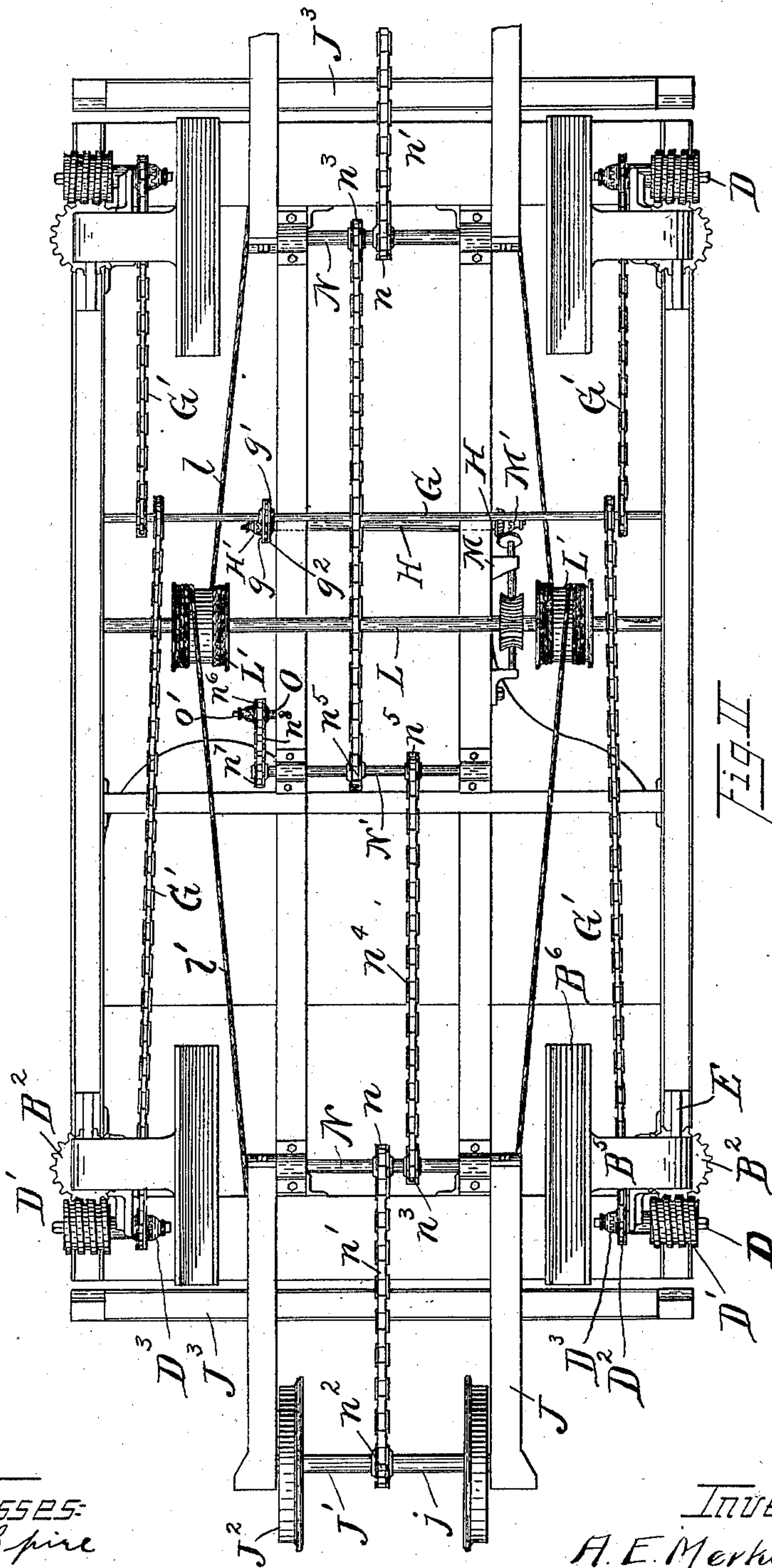
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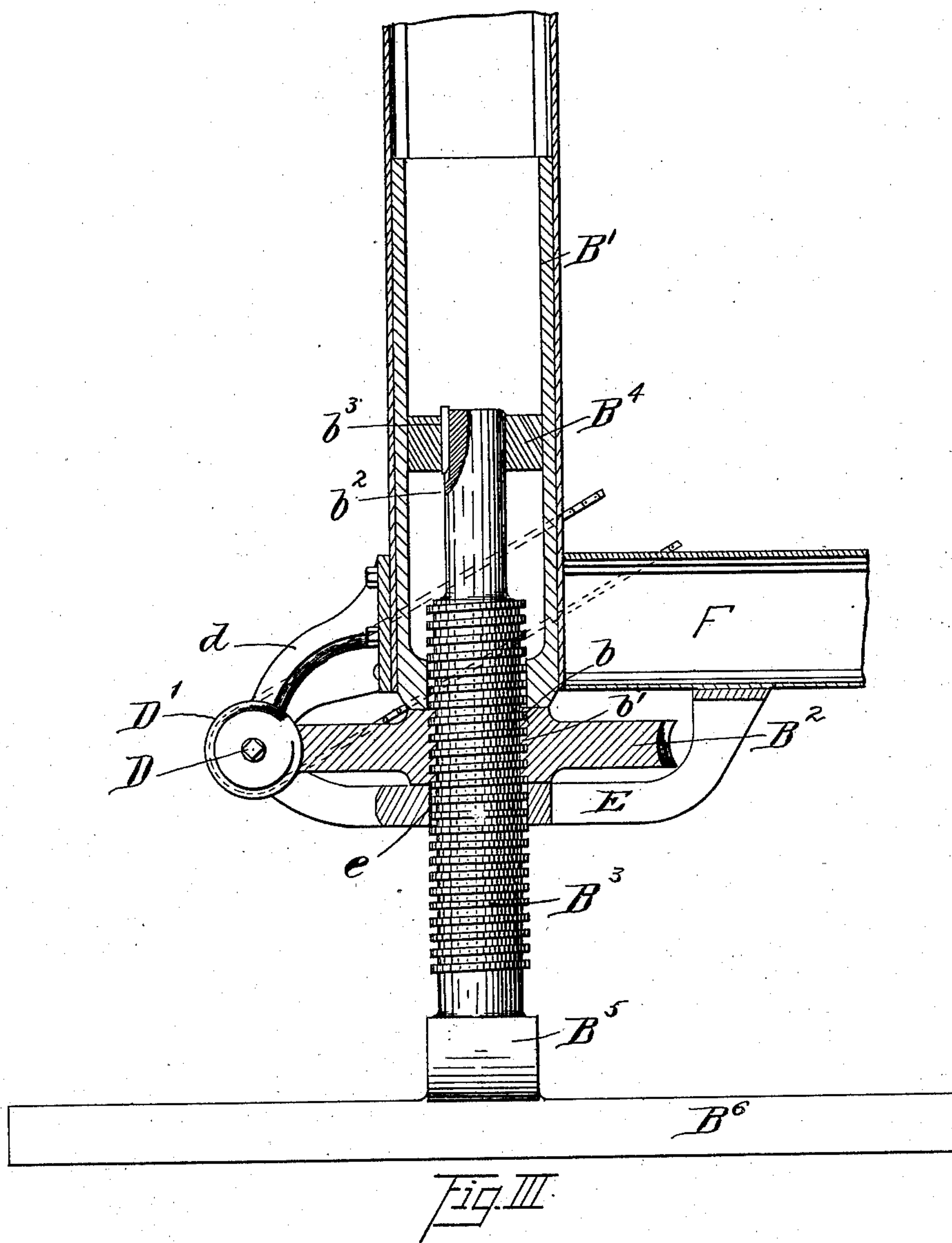
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UNITED STATES PATENT OFFICE.

ARTHUR E. MERKEL, OF CLEVELAND, OHIO, ASSIGNOR TO THE CLYDE IRON WORKS, OF DULUTH, MINNESOTA, A CORPORATION OF MINNESOTA.

LOADING DEVICE.

SPECIFICATION forming part of Letters Patent No. 750,382, dated January 26, 1904.

Application filed April 18, 1902. Serial No. 103,546. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR E. MERKEL, a citizen of the United States, and a resident of Cleveland, county of Cuyahoga, and State of Ohio, have invented a new and useful Improvement in Loading Devices, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

My invention relates to apparatus for loading and unloading cars upon a track and capable of being transported upon such track, and particularly to log-loaders, its object being to provide apparatus of such character embodying economic principles in a manner heretofore unemployed, and so increase the simplicity of construction and operation of this class of devices.

Said invention consists of means hereinafter fully described, and specifically pointed out in the claims.

The annexed drawings and the following description set forth in detail certain mechanism embodying the invention, such disclosed means constituting but one of various mechanical forms in which the principle of the invention may be used.

In said annexed drawings, Figure I represents a side elevation of a log-loading apparatus embodying my invention. Fig. II represents a bottom plan view of same; and Fig. III represents a vertical cross-sectional view of one of the lower ends of one of the supporting-standards, such view being made upon an enlarged scale and showing portions in elevation.

Said device consists generally of means for hoisting the material or logs, means for rendering the whole machine stationary or movable, and means for moving or transporting it along the track.

The main frame A carries and supports the hoisting apparatus, consisting of a suitable reversing-engine, drums, cables, and derrick-mast, such as are ordinarily used in this class of machines and which *per se* form no part of my invention. The drums and connections in so far as they appertain to my invention

are provided with suitable clutches, as will be hereinafter fully described, whereby the engine may be disconnected so as to form no part of the hoisting apparatus, so that it may be made to operate the mechanism for rendering the device movable or stationary and to operate the means for transporting or moving it upon the track after having been rendered movable.

The frame is provided with four standards B, secured to the platform C, suitably braced, which form the support for the apparatus when stationary. The lower end of each standard is provided with a hollow casting B', Fig. III, suitably secured thereto, the lower end of which forms a bearing *b* for a worm-wheel B² for receiving upward thrusts. Said wheel is provided with a threaded bore *b'*, in which operates a screw B³, the upper end of which is cylindrical in shape and extends through a transverse guide B⁴, formed in or secured to the casting B'. Said cylindrical portion is formed with a longitudinal groove *b*², which engages a feather *b*³, whereby the screw may be moved up or down without moving about its axis. The lower end of each screw is formed or provided with an inwardly-extending foot B⁵, provided with a flat shoe B⁶ for engaging and resting upon the ties adjacent to and outside of the rails of the track. A transverse shaft D is journaled in a hanger *d*, secured to each standard, upon which is secured a worm D', engaging the wheel B². A frame E, with a hanger *d*, supports a shaft D, said frame and hanger being secured to the brace F and standard B, respectively. This frame is provided with a smooth bore *e*, through which the screw B³ freely passes, and forms a bearing for receiving the downward thrusts from the wheel B². Upon the inner end of each shaft D is journaled a sprocket-wheel D², Fig. II, which may be operatively connected with or disconnected from the shaft by means of a clutch D³. The outer end of each such shaft is squared for receiving a hand-crank. These sprockets are connected with a transverse shaft G, Fig. II, journaled in suitable bearings secured to the frame by means of chains G', this shaft being provided with

a sprocket-wheel g , secured thereto and connected, by means of a chain g' and sprocket-wheel g^2 , with the drum-shaft H, Fig. I. Such sprocket g^2 is loosely journaled upon its shaft and is capable of being operatively connected therewith or disconnected therefrom by means of a clutch H'. A gear-wheel H² is secured to said shaft H and is driven by a suitable gear secured to the engine-shaft. It is thus seen from the above construction that the engine may be caused to rotate the shafts D, the worms D', the wheels B², and so effect the raising or lowering of the screws B³, thereby shortening or lengthening the standards B.

By throwing the clutches D³ in or out it is seen that the screws may be raised or lowered by the engine, and the standards hence shortened or lengthened simultaneously or independently of each other, or any two or three standards may be lengthened or shortened simultaneously and independently of the remaining standard or standards. Any one screw may be operated independently of the others and engine by throwing its clutch out—that is, disengaging it from the sprocket-wheel—and rotating the shaft by means of a hand-crank. This feature is especially useful where great inequalities in the road-bed exists and such as are frequently present in logging road-beds over which this class of devices is operated and transported, for by its means the platform may be leveled up and the stability of the whole structure increased under such described conditions when resting upon the standards.

At each end of the frame is journaled a swinging frame J, supporting at its lower end a wheel-truck J' and wheels J², the latter being adapted to engage and run upon the rails K of the track. Each such swinging frame is provided with a transverse cross-piece J³, Fig. II, which is adapted to engage sockets B⁷, Fig. I, secured to the standards when such frames are in their lowered position—that is, in operative relation with the main frame. Such operative relation is secured by means of pins b^4 , which pass down through the sockets and prevent the removal of the cross-piece therefrom.

A cross-shaft L is journaled upon the main frame, Fig. II, and has secured thereto two drums L'. Wound in opposite directions upon each drum are two cables l and l' , respectively, passing over sheaves l^2 , secured at opposite ends of the frame and secured to the swinging frames, as shown. Such shaft is driven by means of a worm-wheel L², secured thereto, driven by a worm-wheel secured to an inclined shaft M, journaled upon the main frame. Such shaft M is driven by shaft H by means of beveled gears and may be connected or disconnected therewith by means of a clutch M', Fig. II. It is thus seen that by turning the shaft L the truck-frames may be raised or low-

ered, as indicated in full and dotted lines in Fig. I.

The main frame is so designed and proportioned as to afford proper space for the passage of the logging-cars beneath and through same between the standards when the truck-frames are raised.

The wheel-truck or swinging frames are respectively journaled upon transverse shafts N, Fig. II, which are suitably journaled so as to be rotatable. Upon each such shaft is secured a sprocket-wheel n , connected by means of a chain n' with a sprocket-wheel n^2 , secured to the wheel-axle j . A second sprocket-wheel n^3 is secured to said shaft and is connected by means of a chain n^4 with a sprocket-wheel n^5 , both such latter sprocket-wheels being secured upon a common shaft N'. This latter shaft is driven by the drum-shaft O by means of sprockets n^6 and n^7 , respectively, secured to said shaft O and shaft N' and a chain n^8 . A suitable clutch O' is provided for disconnecting said shaft O and sprocket-wheel n^6 . Shaft O is driven by means of gear O², operated from the engine-shaft P.

Both drums on shafts O and H are provided with suitable clutches for connecting and disconnecting them from their respective shafts.

Suitable clutches (not shown) are provided whereby the gears on the engine-shaft, which engage and drive gears O² and H², may be concentric with or disconnected from said shaft.

In describing the operation of the above-described device I shall assume that the wheel-trucks are raised and the main frame resting upon its standards, the latter resting upon the ties, as previously described. Being in such position, let it be desired to move the machine to a new position upon the track. The hoisting-drums are first disconnected from shafts O and H by disconnecting the driving-gear on the shaft P, which drives gear O². The drum on shaft H is disconnected and clutch H' is thrown in, so as to operatively connect such shaft H and shaft G. The engine being now operated in the required direction the worms D' are caused to turn and rotate wheels B² to raise the structure a sufficient height to permit the wheel-frames J to be lowered into a perpendicular position and clear the tracks. When such raised position of the structure is reached, the engine is stopped. Shaft G is disconnected by throwing out clutch H'. Clutch M' is now thrown in and the engine operated to rotate the shaft L and drums L' to lower frame J. When such frames are in their lowered positions, they are fastened to the frame by securing the cross-pieces J³ in the sockets B⁷ by means of the pins b^4 . The shaft L is now disconnected by throwing out clutch M'; and shaft G is then again connected with the engine as before. The engine is now operated to lower the structure by turning the worm-wheels B² in the direction opposite to

that in which it rotated before. Such lowering is continued until the wheels engage the tracks and the feet and shoes are drawn up sufficiently to permit them to properly clear the ties when the machine is moved along the track. Shaft G is now disconnected as before and gear H² is disconnected by throwing out the clutch which connects the corresponding driving-gear on shaft P. The clutch connecting the gear on such shaft P, which rotates gear O², is now thrown in and the drum on shaft O disconnected from said shaft. The engine now being operated rotates shaft O independently of its drum and through the medium of the chains n⁸ n⁴ n' and the driving-shafts N' and N rotates the traction-wheel J² and moves the machine along the track as desired. On reaching the desired new location the machine may be rendered stationary by reversing the above-described operation, as will be readily understood.

Other modes of applying the principle of my invention may be employed instead of the one explained, change being made as regards the mechanism herein disclosed provided the means stated by any one of the following claims or the equivalent of such stated means be employed.

I therefore particularly point out and distinctly claim as my invention—

1. In a loading device, the combination of a frame, means embodied in the structure of the loading device for rendering it movable upon a track adapted to be removed therefrom so as to permit the passage of cars beneath said frame and upon said track, and means for raising and lowering the frame whereby the first-named means may be placed in operative relation with the frame and track and be caused to engage the latter.

2. In a loading device, the combination of a frame, means embodied in the structure of the loading device for rendering it movable upon a track and adapted to be removed therefrom so as to permit of the passage of cars upon said track and beneath said frame, extensible standards, and means for operating the latter to raise or lower the said frame.

3. In a frame for a loading device, the com-

bination with swinging trucks provided with traction-wheels adapted to engage a track, of means for raising and lowering said frame whereby said trucks may be placed in operative relation with the frame and track and said wheels be caused to engage the latter.

4. In a frame for a loading device, the combination of swinging trucks provided with traction-wheels adapted to engage a track, extensible standards, means for operating the latter to raise the frame whereby said trucks may be placed in operative relation relatively thereto, and means for operating said standards to lower said frame whereby such wheels may be caused to engage said track.

5. In a frame for a loading device, the combination of trucks oscillatorily supported upon the frame and provided with traction-wheels adapted to engage a track, downwardly-extending standards provided with extensible foot portions and adapted to support such frame at points adjacent to such track, means for raising and lowering such trucks and means for moving said extensible portions of said standards.

6. In a frame for a loading device, the combination of movable trucks secured thereto and provided with traction-wheels adapted to engage a track, extensible standards and means for operating same so as to raise or lower such frame, and means for operating said trucks whereby they may be placed in position above said track or removed therefrom.

7. In a loading device, the combination of a rigid frame structure, extensible supporting-standards, swinging trucks secured at the frame structure's ends, and provided with traction-wheels adapted to engage a track, means for moving said trucks toward and from said track and means for operating said standards to extend or contract whereby said wheels may be caused to disengage or engage said track.

Signed by me this 16th day of April, 1902.

A. E. MERKEL.

Attest:

D. T. DAVIES,
ADA M. HOOKER.