

APPLICATION FILED DEC. 6, 1905.

Patented Sept. 22, 1908.

2 SHEETS—SHEET 1.

899,180.

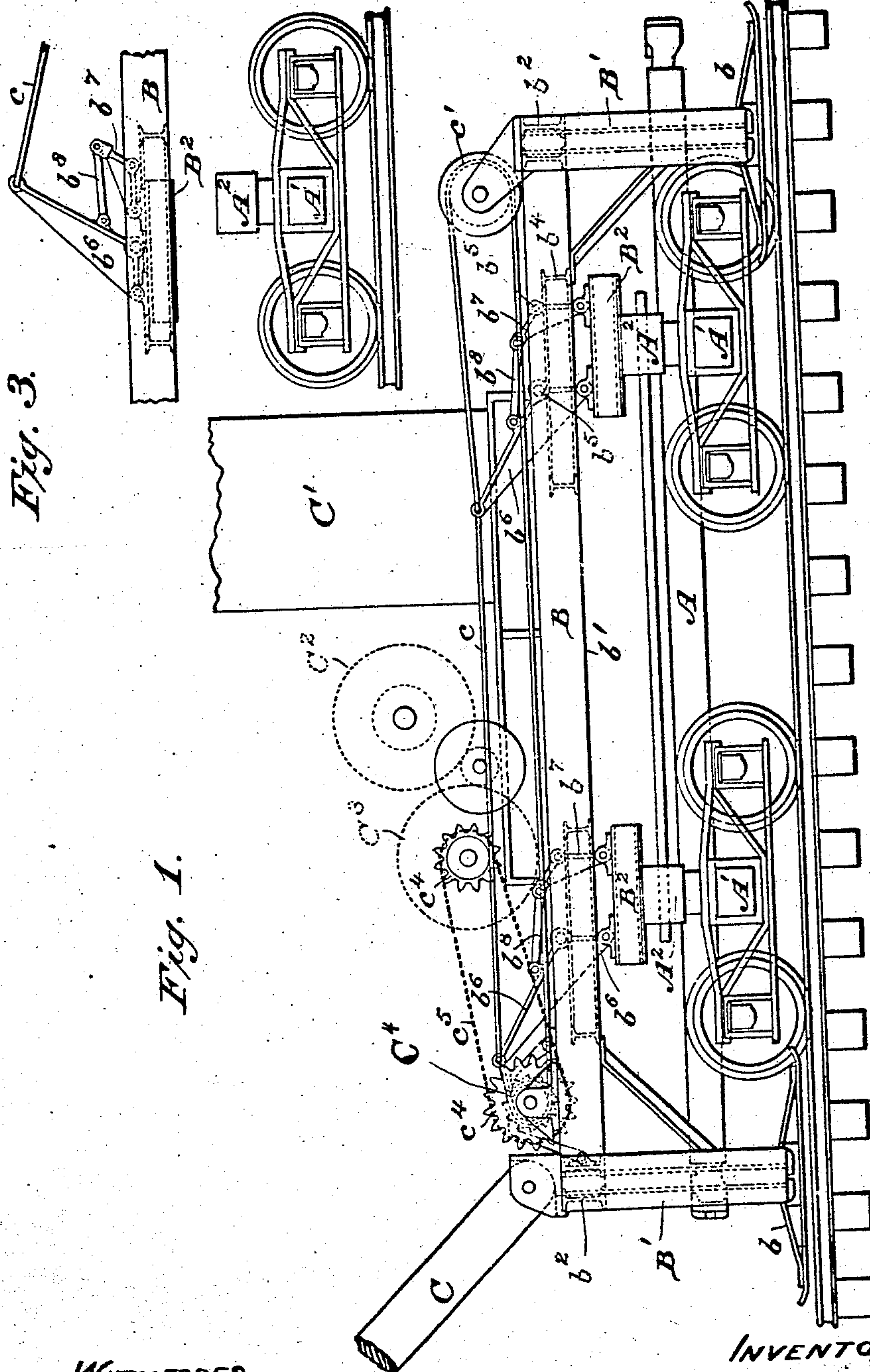


Fig. 3.

Fig. 1.

WITNESSES:

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2 SHEETS—SHEET 2.

Fig. 2.

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UNITED STATES PATENT OFFICE.

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LOG-LOADING MACHINE.

No. 899,180.

Specification of Letters Patent.

Patented Sept. 22, 1908.

Application filed December 6, 1905. Serial No. 290,532.

To all whom it may concern:

Be it known that I, JOHN R. McGIFFERT, a citizen of the United States, resident of Duluth, county of St. Louis, and State of Minnesota, have invented a new and useful Improvement in Log-Loading Machines, 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 devices for loading and unloading cars, and particularly to that type of such devices designed to handle logs.

The object is to provide a log loading machine that will be readily transportable from place to place, and yet will provide a stable structure when set up for actual operation.

Along with the above it embodies features of construction that, while not limiting it thereto, render it particularly desirable for use on narrow gage track, and in situations where self-propelling features are not particularly important. Said invention consists of means hereinafter fully described and particularly set forth 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 1 represents a side elevation of a log loading machine embodying my invention, such machine being shown in connection with a car upon which it is adapted to be transported. Fig. 2 is a front end elevation of the same; while Fig. 3 is a detail showing certain operative parts in a different position from that in which they appear in Fig. 1.

In the side elevation of my log loading machine, Fig. 1, such machine is shown as raised upon a car A, and in condition to be transported. The car A is represented as being an ordinary logging car such as would be apt to be employed in conjunction with my machine, and consists of two suitably connected trucks A' A' provided with transverse bolsters or bunks A² which are designed to receive the logs. Even the particular type of loading machine shown, however, is not limited to use in connection with this kind of car but is readily adapted for use with

any ordinary flat car; while without departing from the principle of my invention such machine may be constructed to operate in connection with various types of movable trucks or vehicles as will be apparent.

The loading machine proper comprises a deck or platform B provided with suitable supporting means adapted to straddle or span a track. As shown such means comprise four rigid legs B', two on each side. These are secured to the deck near its ends and are preferably of the bow form shown, whereby their lower ends extend inwardly so as to rest upon the ends of the ties of the track. It is of course, understood that if found desirable, and the character of the road bed will permit, these feet may be disposed to rest directly on the ground. On the other hand they may rest not merely upon the end of the ties but upon the rails themselves. The modifications in their structure adapting them to these several methods of use are well known in the art and hence need not be dwelt upon here. I wish to point out however, that in employing the term, straddle, or span, herein, it is not intended to refer to any particular character of supporting foot so long as the free passage of cars through the frame is permitted when the latter is resting upon its own legs. Upon such ends are mounted suitable shoes b, Fig. 2, whereby a more secure foothold is assured the legs, and the deck B thus more solidly supported. The length of the legs B' is such that when the loader is in its lowered position deck B will be supported high enough above the track to allow ample clearance beneath it for a logging car passing along the track, the distance between the legs being likewise sufficiently great to permit the free passage of such car. Upon the deck B is mounted the usual hoisting mechanism, including a derrick boom C, a boiler C' and engine, not shown, together with the several drums C², C³, operated thereby.

The frame of my loader, consisting of the parts described above, I preferably make of structural iron. Thus the deck frame is built up of continuous longitudinal I-beams b' connected at their ends by similar transverse beams b²; while the legs B' also consist of two adjacent I-beams b³ suitably joined together and secured at their upper ends to the ends of cross-beams b², their

lower ends being bent inwardly to give the bow-shape already described. Such flooring as desired may be provided on deck B, as also braces to laterally strengthen legs B', and at other points in the structure where needed to strengthen the same.

Secured in the deck-frame are pairs of short parallel beams b^4 , one pair on each side of the frame at each end thereof, the distance between the same, longitudinally of the loader, being approximately that between the bunks on a logging car such as has been described, the distance between opposite pairs at either end being less than the length of one of said bunks. Pivoted upon short shafts b^5 journaled in boxes mounted upon each such pair of beams b^4 are two bell cranks b^6 b^7 , the lower arms of which are of equal length, while the upper arm of the forward crank b^6 is longer than that of the rear crank b^7 . Such upper arm of crank b^7 is joined by means of a short connecting rod b^8 to the upper arm of the corresponding crank b^6 . To the lower arms of each such set of bell cranks is pivotally attached a shoe B^2 , which, as illustrated, is made up of two short sections of channel iron joined together by a plate on their bottom edges and provided on top with boxes in which are journaled the pins that serve to attach cranks b^6 b^7 to the shoes.

It is evident from the foregoing construction that if the upper arm of bell crank b^6 be swung forward, the shoe B^2 just described will be depressed, being at the same time maintained parallel with deck B; on the contrary a rearward swing of bell crank b^6 will raise such shoe until it recedes between the beams b^4 , its position at the end of such movement being shown in Fig. 3.

To operate bell-cranks b^6 b^7 to effect the raising or depression of shoes B^2 , an endless cable c is provided, one on each side of the deck, Fig. 1. Each cable c passes around a fixed pulley or roller c' at the rear end of the deck and around a drum C^4 at the front end thereof, several turns being taken around such drum and the cable ends being secured thereto so that a rotation of the drum may effect movement of the cable. Intermediately of pulley c' and drum C^4 the cable is secured to the upper arms of bell-cranks b^6 as shown, Fig. 1. Drums C^4 are mounted upon a shaft c^2 operatively connected with the main drive shaft c^3 of the hoisting mechanism by means of suitable sprocket wheels c^4 and a chain c^5 . Operation of such drive mechanism is effected when desired by throwing clutch c^6 on main drive-shaft c^3 into gear with adjacent sprocket c^4 . Since drive-shaft c^3 is capable of either forward or reverse motion it is evident that drums C^4 can be rotated to draw the bell-cranks b^6 b^7 either forward or backward and thus raise or depress shoes B^2 . By properly choosing the

points of attachment of cables c to bell-cranks b^6 , all four shoes B^2 are adapted to be simultaneously and similarly actuated. After raising or depressing them as desired, they are secured in their final position by means of suitable ratchet-wheels on shaft c^2 and pawls adapted to engage such ratchet-wheels, whereby the shaft may be held from turning in either direction, as will be readily understood.

Having thus described my improved logging machine, it only remains to indicate its mode of operation. When the machine is set up for operation in loading logs, the shoes B^2 are in their upper position shown in Fig. 3, their bottoms being flush with the bottom of deck or platform B. This permits the logging cars to pass underneath the frame while supported upon the legs B' . The object in having the legs bowed is to secure sufficient width between opposite legs to allow a car to pass freely between them while still utilizing the secure footing furnished by the ties of the track. When it is desired to remove the machine to a new location, a logging car A is run under the platform and there positioned so that the bunks or bolsters A^2 are approximately directly beneath shoes B^2 . The clutch c^6 is then thrown into gear with sprocket wheel c^4 , and drums C^4 rotated in the proper direction to depress the shoes B^2 until they contact with the bunks of the car. Further depression, it is obvious, will raise the loader bodily upon such bunks and thus support the same upon the car. The lower arms of the bell-cranks are of such a length as to elevate, when positioned vertically, the shoes of the loader legs high enough to clear the rails of the track. When the cranks are thus positioned the strain placed upon the cable is not great, being merely that due to the longitudinal swaying of the car. To successfully withstand the side-racking, which would result when the machine is carried rapidly over an uneven track, the bell-cranks are given a wide cross section as clearly shown in Fig. 2.

When it is desired to reset the machine for loading, upon the new location being reached, the operation just described is reversed, the shoes B^2 being raised and withdrawn between frame members b^4 and the legs being allowed to rest again upon the ties of the track.

Aside from the simplicity of construction and ease of operation achieved by the above-described means, I would call attention to the fact that the deck upon which the heavy hoisting mechanism is mounted can be supported much lower than in the types of loaders heretofore devised, and still not interfere with the passage of cars therebeneath. By thus lowering the center of gravity, a much more stable and therefore durable structure results.

Having thus described my invention in detail, that which I particularly point out and distinctly claim is:

1. In a loading device, the combination of
5 a frame formed with a longitudinal opening to permit the passage of trucks therethrough, hoisting mechanism fixedly mounted in said frame, and depressible members mounted in said frame and adapted to be positively ac-
10 tuated to raise the latter upon a truck positioned therebeneath, such members being operatively connected with said hoisting mechanism.

2. In a log-loading machine, the combina-
15 tion of a car movable upon a track, a deck for carrying hoisting mechanism, supporting means rigidly attached to said deck and adapted to rest upon such track and permit cars to pass beneath said deck, and means
20 attached to said deck and adapted to raise the same upon said car, such means comprising a depressible member, and means adapted to depress the same.

3. In a log-loading machine, the combina-
25 tion of a car movable upon a track, a frame adapted to straddle such track and permit said car to pass therealong, hoisting mechanism fixedly mounted in said frame, and means adapted to raise said frame upon said
30 car, such means comprising depressible members adapted to be actuated by said hoisting mechanism.

4. In a log-loading machine, the combina-
35 tion of a deck for carrying hoisting mechanism, supporting means rigidly attached to said deck, said means being adapted to straddle a track and permit cars to pass beneath said deck, and means, borne by said deck, adapted to raise the same upon a car
40 positioned beneath it.

5. In a log-loading machine, the combina-
tion of a truck movable upon a track, a frame for carrying hoisting mechanism, such frame being adapted to straddle such track and
45 permit said truck to pass beneath it, and means adapted to raise said frame upon said truck, such means comprising a plurality of

depressible members mounted on said frame, and adapted in one position to recede within said frame and in another position to con- 50
tact with such truck, and means adapted to actuate said members.

6. In a log-loading machine, the combina-
tion of a truck movable upon a track, a frame for carrying hoisting mechanism, such frame 55
being adapted to straddle such track and permit said truck to pass beneath it, and means adapted to raise said frame upon said truck, such means comprising a plurality of bell-cranks, shoes borne thereby, and means 60
adapted to swing said bell-cranks whereby said shoes are depressed to contact with such truck.

7. In a log-loading machine, the combina-
tion of a deck for carrying hoisting mechan- 65
ism, supporting means rigidly attached to said deck and adapted to straddle a track to permit cars to pass beneath said deck, and means adapted to raise said deck upon a car positioned beneath it, such means compris- 70
ing a plurality of bell-cranks, shoes borne thereby, and means adapted to swing said bell-cranks whereby said shoes are de-
pressed to contact with such car.

8. In a log-loading machine, the combina- 75
tion of a deck for carrying hoisting mechanism, supporting means rigidly attached to said deck and adapted to straddle a track to permit cars to pass beneath said deck, and means adapted to raise said deck upon a car 80
positioned beneath it, such means comprising a plurality of bell-cranks, shoes borne thereby, and means adapted to swing said bell-cranks in one direction, whereby said shoes are drawn within said deck, and to swing 85
said bell-cranks in the other direction whereby said shoes are depressed to contact with such car.

Signed by me, this 2nd day of December 1905.

JOHN R. McGIFFERT.

Attested by—

N. M. NELSON,
C. A. LUSTER.