No. 715,840. Patented Dec. 16, 1902.

J. R. McGIFFERT.

LOG LOADER.

(Application filed Feb. 1, 1902.)

(No Model.) 3 Sheets—Sheet I.

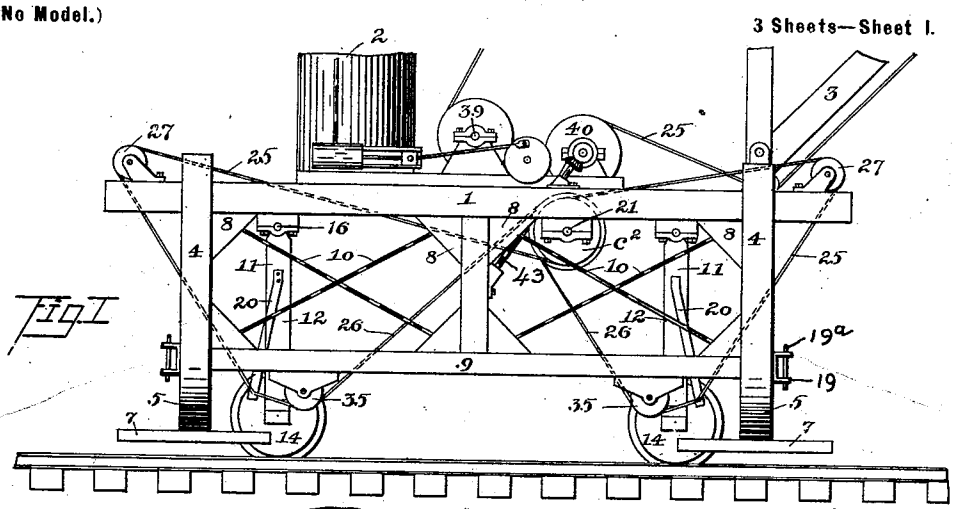

Fig. I

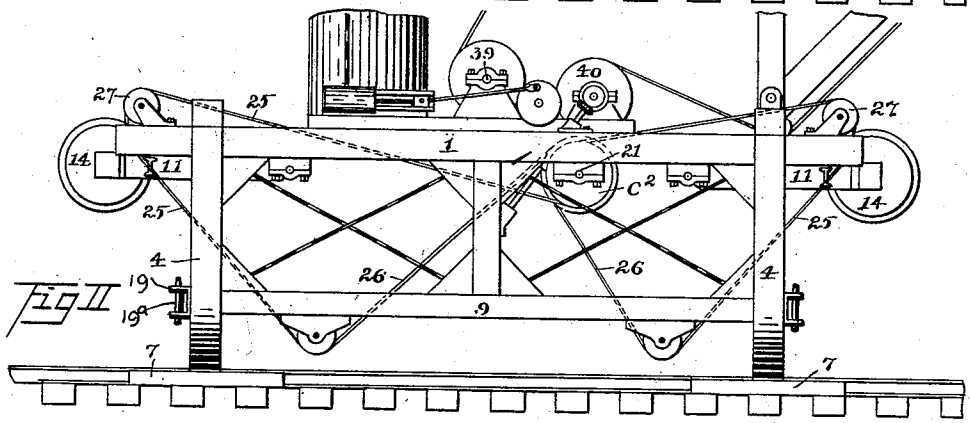

Fig. II

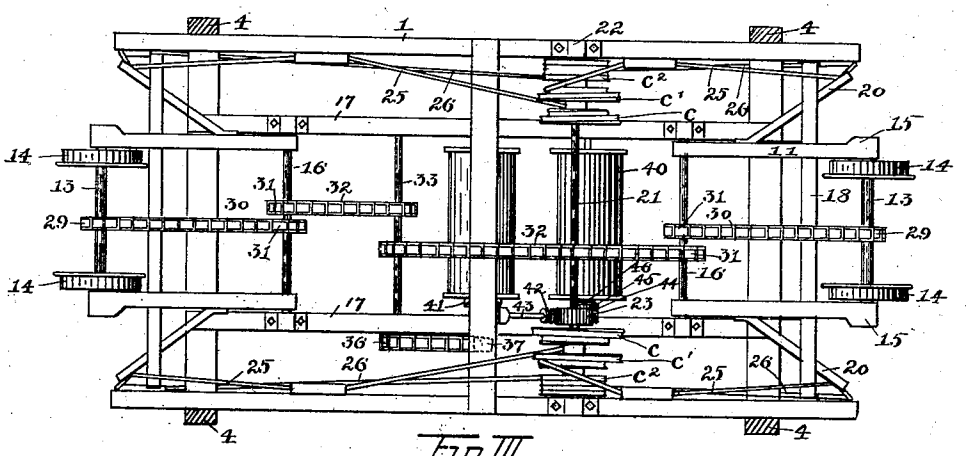

Fig. III

Witnesses=
D. S. Davies
A. E. Merkel.

Inventor.
J. R. McGiffert
By J. B. Gay Atty.

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(No Model.) 3 Sheets—Sheet 2.

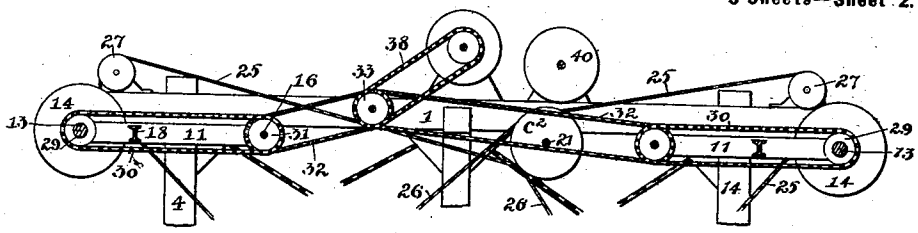

Fig. IV.

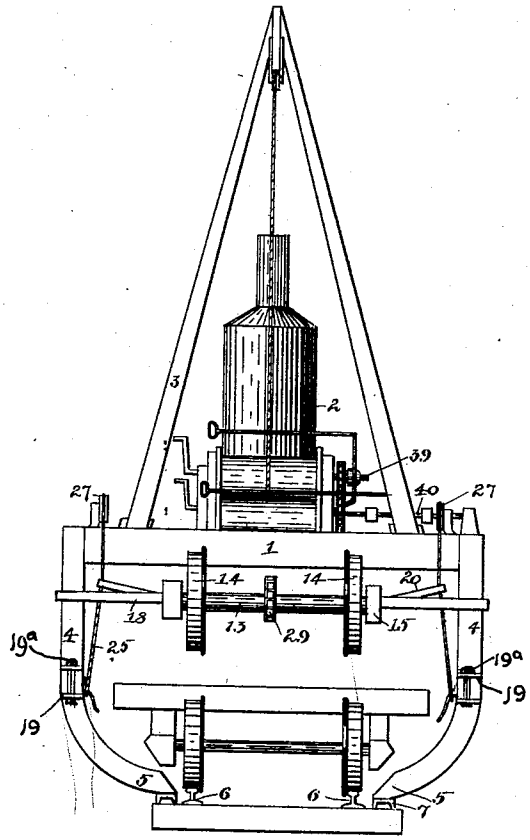

Fig. V.

Witnesses=
D. T. Davies
W. E. Merkel

Inventor.
J. R. McGiffert
By J. B. Fay
Atty.

No. 715,840. Patented Dec. 16, 1902.

J. R. McGIFFERT.

LOG LOADER.

(Application filed Feb. 1, 1902.)

(No Model.) 3 Sheets—Sheet 3.

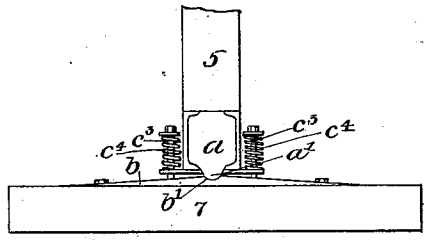

Fig. VI

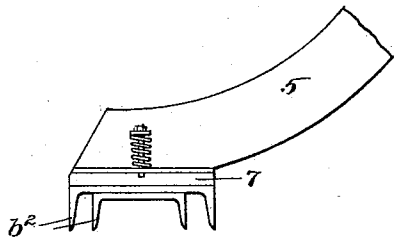

Fig. VII

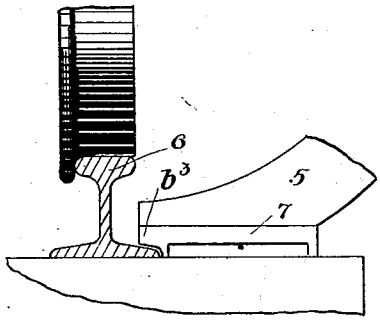

Fig. VIII

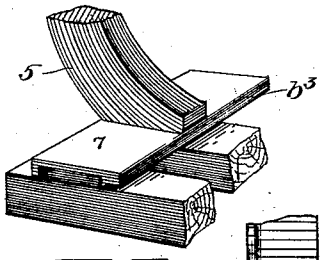

Fig. IX

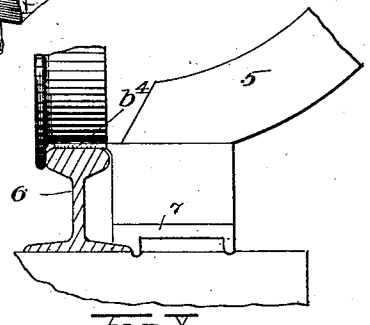

Fig. X

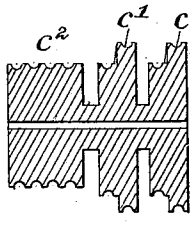

Fig. XI

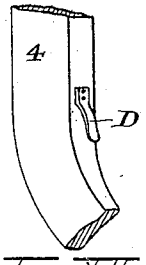

Fig. XII

Witnesses:
S. T. Davies
A. E. Merkel.

Inventor.
J. R. McGiffert.
By J. B. Fay. Atty

UNITED STATES PATENT OFFICE.

JOHN R. MCGIFFERT, OF DULUTH, MINNESOTA.

LOG-LOADER.

SPECIFICATION forming part of Letters Patent No. 715,840, dated December 16, 1902.

Application filed February 1, 1902. Serial No. 92,109. (No model.)

To all whom it may concern:

Be it known that I, JOHN R. MCGIFFERT, a citizen of the United States, and a resident of Duluth, county of St. Louis, and State of Minnesota, have invented a new and useful Improvement in Log-Loaders, 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 or unloading cars, its object being to provide means which are efficacious in performing the loading or unloading operation, which may be readily transported, whose transporting means are embodied in the construction itself, so as to form a unitary structure with the loading and unloading means, and which will not interfere with the movement of the cars upon their track.

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, the disclosed means, however, constituting but one of various forms in which the principle of the invention may be used.

In said annexed drawings, Figure 1 represents a side elevation of a loading device embodying my invention. Fig. 2 represents a similar view of a portion of the same, showing the transporting means in their inoperative position. Fig. 3 represents a plan view of the platform of the loading device viewed from beneath. Fig. 4 represents a longitudinal vertical section of the loading device, illustrating the mechanism suspended from the frame thereof. Fig. 5 represents an end elevation of the loading device, a flat or logging car being shown beneath same on the track embraced by the loading device. Fig. 6 represents an enlarged side elevation of the lower extremity of one of the standards supporting the frame when stationary. Fig. 7 represents an enlarged end view of the subject-matter illustrated in Fig. 6. Fig. 8 represents an enlarged end view of a modified form of such standard extremity. Fig. 9 represents an enlarged perspective view of such modification. Fig. 10 represents an enlarged end view of a second modification of said standard extremity. Fig. 11 represents an enlarged plan view of drum mechanism employed in my said invention. Fig. 12 represents an enlarged perspective view of a detail in the construction.

In the construction illustrated a frame 1 is formed with an elevated platform adapted to carry a hoisting-engine 2 and a derrick 3, the latter being of any suitable well-known type. The platform is supported on either side by depending legs or standards 4 4, which extend downwardly and are adapted to be lowered and to engage the rail-bed laterally of the rails, as shown in Fig. 5. These legs are placed sufficiently far apart to afford ample space beneath the platform for the passage of flat or logging cars beneath the same and over the track, which the machine spans or straddles. The lower ends or feet of said legs or standards are curved inwardly toward the rails on their respective sides of the machine and carry at their lower extremities shoes 7 7, which are adapted to rest upon the ties of the track outside and adjacent to the rails. These shoes are elongated in the direction of the track, so as to enable them to engage or rest upon two or more ties, as shown, and are secured to their respective feet so as to be loosely or flexibly connected therewith. Such connection is effected by means of the construction illustrated in Figs. 6 and 7. As shown in said figures, the lower extremity of each foot is provided with a casting a, secured thereto and provided with a lug a', located transversely relatively to the said foot. To the upper surface of the shoe is secured a casting b, whose upper surface is provided with a depression b', adapted to receive the lug a'. Secured to such shoe are bolts c^3, which pass upwardly through holes formed in the flanges of the channel-bars, compression-springs c^4 being placed intermediately of such flanges and the upper ends of the bolts, such ends being provided with suitable heads and washers for this purpose. It is thus seen from this construction that a limited amount of movement on the part of the shoes is permitted relatively to their respective standards, so that such shoes may accommodate themselves to unevennesses

which they may meet in engaging contiguous ties without straining the standards at their connecting-points with the platform. The engaging lugs a' and depressions b' prevent the standards from slipping or otherwise disengaging the shoes. By constructing the standards in the above-described inwardly-curved form it is seen that a firm and stable supporting-base may be formed upon the railway-ties, at the same time permitting sufficient space to exist between them to allow the cars to freely pass along the track. Said shoes may be constructed in various forms, such as are illustrated in Figs. 6, 8, and 10. In the form illustrated in Fig. 6 the shoe is formed with two or more lower longitudinal ribs b^2, which bite into the tie, and so prevent the standards from slipping. In the modified form illustrated in Fig. 8 the shoe is provided with an inwardly-extending portion b^3, which is caused to engage the outer portion of the rail-flange. This extension is so formed that it will not engage such flange until the foot has sunk into the ties or if the ties happen to be loose until they have been depressed some distance by the weight of the machine. A further addition may be made to the construction illustrated in Fig. 8 in the form of an additional inward projection b^4, adapted to engage the tread of the rail, as shown in Fig. 10. In this latter form the portion b^4 would be made to incline from both ends upwardly in order to permit the wheels of the cars to pass over it, as will be readily understood. The construction may be further modified by making the construction to rest solely upon the rail-tread, which form might be found useful when ties have rotted out; but the form shown in Fig. 6 is that which I have found in practice to be most preferable. The standards are braced thoroughly with respect to each other by means of bars or beams 9 9 and with respect to the platform by the bars or rods 10 10. All the angles of the frame are strengthened by means of angle plates or brackets 8 8. In addition to the means above described for forming a fixed support the loading-frame is also provided with means whereby the loader may be rendered movable on said track, which in the construction illustrated consists of means whereby the frame may be raised upon traction-wheels for supporting the said loader upon the track beneath it in such a manner that it may be moved from place to place thereon. I have illustrated in the drawings one simple means for accomplishing this result, which consists in hinging supporting-frames 11 11 near each end of the loader-frame. Such frames are constructed in a simple manner and may consist of depending standards 12 12, which are connected at their lower ends by the axle 13, which carries traction-wheels 14 14. These wheels are preferably of the ordinary flanged type, capable of running upon an ordinary railway-track. The ends of the axles 13 engage suitable journal-boxes 15, arranged upon the lower ends of the standards 12 12. The upper ends of the standards 12 12 are pivotally supported upon cross-shafts 16 16, which are supported from bearings attached to the longitudinal beams 17 17 of the frame 1. The standards 12 12 of the frames 11 are journaled upon the said cross-shafts, so that they may be swung from a vertical to a horizontal position or to intermediate positions, as may be required. The frames 11 are made of sufficient length with respect to the supporting-standards 4 to be capable of lifting the frame 1 off the ties of the track when they are forced into their lowered positions. When the frames 11, therefore, are lowered, the wheels 14 will be brought into engagement with the rails of the track 6 and the loader will have its weight transferred from the said standards 4 to the wheels 14 and the latter thus rendered operative as an element of the traction mechanism, the standards being simultaneously rendered inoperative. The loader may thus be made capable of movement from place to place upon the said track by means of its own traction mechanism. The frames 11 are braced and strengthened by means of cross-beams 18, which extend from one standard 12 to the other, the ends of the said beam projecting beyond the standards on each side of the machine sufficiently to engage sockets 19 19, secured to the longitudinal beams 9. Said frames 11 are further provided with braces 20 20, extending from the standards 12 12 downwardly and outwardly across said beams 18, to which they are firmly attached. The sockets 19 19 are formed with upper, lower, and back flanges, but are open toward the ends of the machine and toward the center of the machine. When the frames 11 are lowered, the ends of the beams 18 will enter the sockets 19 and may be secured therein by pins 19^a, Figs. 1, 2, and 5, hooks, or analogous means for firmly holding the said frames in their lowered positions. These sockets not only greatly add to the rigidity of the means for supporting the frame upon the track, but remove strain from the mechanism employed in bringing said frames into their lowered positions. When the frames 11 are raised, the loader will be permitted to rest upon the ties of the track on the shoes 7, and the frames 11 may then be raised sufficiently high to permit of the passage of the cars to be loaded through the loader-frame, the traction mechanism being thus rendered inoperative and the fixed base-supporting means operative.

The mechanism employed for raising and lowering the frames 11 consists, preferably, of a shaft 21, carrying suitable winding-drums, which are connected by means of cables with the said frames, the cables being attached to the ends of the braces 20. The shaft 21, just referred to, is arranged transversely of the machine, being supported in journal-bearings 22 in the upper part of the frame. This shaft 21 is arranged sufficiently near the platform

of the machine to permit a worm-gear 23, carried thereby, to be engaged by a worm 42 upon the shaft 43, said shaft 43 being connected by means of the bevel-gears 44 and 45 with the shaft of the hoisting-drum 40 and mounted in suitable bearings secured to the frame members adjacent thereto. The bevel-gear 45 is loose upon the shaft 40 and is thrown in and out of gear by means of a clutch 46. The shaft 21 may thus be rotated by power mechanism. The shaft 21 carries near its outer ends winding-drums 24 24, which are connected by means of cables 25 25 and 26 26 with the braces 20 of the pivoted frames 11. Each winding-drum consists of three sections c, c', and c^2, sections c and c' being of conico-helical grooved form and section c^2 of plain grooved cylindrical form. Cables 25 are wound upon sections c and c', respectively, and cables 26 both wound upon section c^2. Each cable 25 extends over a guide-pulley 27, one of which is secured to each side of each end of the frame, thence downwardly, and is secured to the end of the brace 20, secured to the corresponding side of the truck-frame. The one cable 26 passes around section c^2, thence downwardly around a guide-pulley 35, and is suitably attached to the same side of the same truck-frame to which said cable 25 is secured, the arrangement being such that as the two sections of the drum are rotated cables 25 25 or 26 26 may be caused to pull in opposite directions, the cable exerting the pull being determined by the direction of rotation of the drum, and the trucks thereby raised or lowered. The linear velocity of the cables varying during the movement of the trucks, the conico-helical drums are provided to compensate for the slack in the cables 25 25 which would otherwise result. The arrangement of the cables is further such that both trucks are simultaneously raised or lowered. Worm mechanism is preferably used for rotating shaft 21 and for raising and lowering the frames 11, whereby the latter are locked, being in a fixed position when the clutch 46 is thrown out.

While I have described the loader-frame as being capable of being raised on wheels by means of pivoted frames 11, I do not wish to be understood as limiting my invention to this construction, since it will be evident that I might make such frames capable of sliding vertically or otherwise with respect to the machine for accomplishing the same purpose. Other analogous structures may be employed for this purpose so long as the principal features required are maintained—namely, the arranging of such traction mechanism so that it can be embodied in a unitary structure with the loader, at the same time be raised entirely out of the way of the cars which pass through the machine, and yet so that it can be lowered at any time to engage the track and support the frame thereon.

The machine is preferably constructed so that it may be automobile. A simple manner of accomplishing this end is the provision of sprocket-wheels, as 29 29, on the shafts 13 13 of the pivoted frames or trucks 11, the same being connected by means of chains 30 30 with double sprocket-wheels 31 31 on the shafts 16. These sprocket-wheels 31 31 may be rotated through the agency of sprocket-chains 32 32, connected with sprocket-wheels on the cross-shaft 33, which said shaft is actuated by means of the sprocket-wheels 36 and 37 and the sprocket-chain 32 from the drum-shaft 39 of the hoisting-engine. The sprocket-wheel 37 is loose on the shaft 39, but may be fixed thereon by means of the clutch 41. Motion may thus be imparted from the hoisting-engine 2 to the axles 13 of the wheels 14, so that they will be capable of propelling the machine back and forth upon the track. When pivoted trucks or frames 11 are employed, this means of transmitting power is advantageous, since the arrangement of the chains is such that the raising or lowering of the said truck-frames will not interfere with the tautness of the said chains. When other forms of trucks are employed, the transmitting mechanism should be similarly arranged, so as not to interfere with the adjustment of the said trucks.

Any suitable hoisting-engine may be mounted on the platform of the machine, but preferably one having two winding-drums and reversing mechanism.

In using my improved car-loader it is moved from place to place so as to be brought opposite logs or other articles which have been accumulated at various points along the track and are ready to be lifted upon transporting-cars. The trucks are lowered so as to bring the wheels 14 14 into engagement with the track for the purpose of moving the loader from place to place. When the loader is to be located at a certain point along the track, the trucks are raised out of engagement with the track, permitting the frame to rest upon the standards at the sides, the shoes finding a firm support upon the ends of the track-ties, which project beyond the rails. The trucks should be raised sufficiently high in the machine to afford a clear passage for the logging or flat cars beneath the frame mechanism. When in this position, a train of logging or flat cars may be backed through the loader and each car may be loaded by means of the hoisting mechanism, beginning with the front car and drawing an empty car out in front of the machine after loading the previous one. When articles to be loaded opposite this portion of the track have been exhausted, the supporting-trucks of the machine may then be lowered and the machine raised upon the wheels thereof for moving the loader to a new position on the track. Thus it will be noted that the car-loader can be moved from one position to another upon the same track which is used for the cars without interfering in the least with the said

cars or requiring a car or trucks permanently resting upon the rails.

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 for carrying hoisting mechanism, means for forming a fixed support for said frame, and means forming a unitary part of the device for rendering such frame movable upon a track, said latter means adapted to be removed from the track so as to permit cars to pass upon same beneath said frame.

2. In a loading device, the combination of a frame for carrying hoisting mechanism, means for forming a fixed support for said frame, means forming a unitary part of the device for rendering such frame movable upon a track, said latter means adapted to be removed from the track so as to permit cars to pass upon same beneath said frame, and means for rendering the latter means operative and inoperative.

3. In a loading device, the combination of a frame for carrying hoisting mechanism, means for forming a fixed support for said frame, and wheels for rendering the frame movable upon a track mounted so as to be capable of being swung clear of said track whereby they may be removed therefrom and permit cars to pass beneath said frame.

4. In a loading device, the combination of a frame or body portion adapted to span a track and provided with supporting-standards, wheels mounted upon pivotal supports and adapted to engage said track, means for effecting such engagement, and means for swinging said wheel-supports from over said track so as not to interfere with the passage of vehicles beneath said frame.

5. In a loading device, a frame or body portion adapted to span a track and provided with standards having their lower ends curved inwardly and adapted to rest upon the rail-bed laterally of and adjacent to said rails.

6. In a loading device, a frame or body portion adapted to rest over a track and provided with standards adapted to engage the rails of such track, such structure being such as to permit of the passage of a car on said track beneath the frame and between said standards.

7. In a loading device, the combination with a frame or body portion adapted to span a track provided with standards adapted to engage the rails and rail-bed adjacent to the rails of such track, such structure being such as to permit of the passage of a car on said track beneath the frame and between said standards.

8. In a loading device, the combination with a frame or body portion adapted to span a track, provided with standards having inwardly-extending feet adapted to engage the rails and rail-bed adjacent to the rails, such structure being such as to permit of the passage of a car on said track beneath the frame and between said standards.

9. In a loading device, the combination with a frame or body portion adapted to span a track provided with standards having inwardly-extending feet provided with loosely-mounted shoes adapted to engage the rail-bed adjacent to the rails of such track, such structure being such as to permit of the passage of a car on said track beneath the frame and between said standards.

10. In a loading device, a frame or body portion adapted to span a track, provided with standards having inwardly-extending feet provided with loosely-mounted shoes adapted to engage the rails and the rail-bed adjacent to the rails of such track, such structure being such as to permit of the passage of a car on said track beneath the frame and between said standards.

11. In a loading device, a frame or body portion adapted to span a track, provided with standards having inwardly-extending feet provided with loosely-mounted elongated shoes each adapted to engage the adjacent rail of such track and two or more ties of the rail-bed thereof, such structure being such as to permit of the passage of a car on said track beneath the frame and between said standards.

12. In a loading device, the combination of a frame or body portion adapted to span a track and to rest laterally of the rails in a position such as not to interfere with the passage of vehicles beneath said frame and upon said track, wheels adapted to travel upon said track and means for raising said frame whereby it may be placed upon said wheels and transported upon said track.

13. In a loading device, the combination of a frame or body portion adapted to span a track and rest laterally of the rails in a position such as not to interfere with the passage of vehicles beneath said frame and upon said track, wheel-trucks secured to said frame and adapted to engage said rails and means for raising said frame whereby said wheels may be caused to ride upon said rails and said frame transported upon said track.

14. In a loading device, the combination with a frame adapted to straddle a track and permit cars to pass beneath it, of means for raising or jacking up said frame upon wheels on the rails of said track for transporting said loader.

15. In a loading device, the combination of a frame formed with an elevated platform for carrying a suitable hoisting mechanism, depending supporting-standards arranged on each side of the loader so as to straddle a track, pivoted trucks secured to the ends of the said frame and means for raising and low-

ering the said trucks whereby the loader may be raised and transported on the track or may be held stationary above the same for performing the loading operation.

16. In a loading device, the combination of a frame provided with traction-wheels and formed with a platform for carrying a suitable hoisting mechanism, depending standards extending downwardly therefrom so as to straddle a track, the lower ends of the said standards being drawn inwardly to obtain a stable footing on the ties of the track, the said standards being wide enough apart to permit of the free passage of cars through the machine on the said track, and means of hoisting the said frame onto its own wheels for moving it from place to place.

17. In a loading device, the combination of a frame having supporting-standards provided with feet extending inwardly to points near the rails of the track so as to obtain a firm footing upon the ties of the track, trucks pivotally secured to the said frame and carrying wheels for engaging the said track, and means for lowering the trucks to jack up the machine on the said wheels when it is necessary to move the loader, and means for elevating the trucks high enough to permit a clear passage for the cars to be loaded beneath the said frame and onto said track when the loader is stationary.

18. In a loading device, the combination of a frame formed with an upper platform and downwardly-extending standards depending therefrom, the said standards being wider than the track which the loader straddles, feet secured to the lower ends of the said standards comprising angular-shaped plates extending inwardly and downwardly from the ends of the standards toward the rails of the track, and shoes secured to the lower ends of the said feet so as to have a slight movement with respect to the same, the said shoes being elongated parallel with the rails of the track and adapted to engage two or more of the track-ties, the structure being such that the machine may be mounted upon a more secure footing on the ties than could be obtained on the road-bed.

19. In a loading device, the combination of a frame adapted to straddle a railway-track, means for holding the same in a fixed position above said track, trucks adjustably secured to the said frame and means for moving the same downwardly so as to engage the rails of the track and lift the frame, and means for raising the trucks from the said track for making the machine stationary again.

20. In a loading device, the combination of a suitable frame having a platform and supporting-standards, pivoted trucks mounted on said frame and carrying transporting-wheels for engaging the track, cross-beams secured to each truck and projecting beyond the same on each side of the machine, socket-plates secured on the standards of the frame and adapted to receive the ends of the said cross-beams, and means for securing the cross-beams in said socket-plates whereby the trucks will be rigidly held in their lowered positions and all strain be taken off of the mechanism used for lowering the said trucks.

21. In a loading device, the combination with a suitable frame of movable trucks adjustably secured thereto, means for raising and lowering the said trucks comprising a cross power-shaft on the frame, drums carried thereby, means for rotating the said shaft, and cables connecting the said drums with each of the truck-frames, the structure being such that by rotating the shaft in one direction the trucks will be lowered and by rotating it in the other direction the trucks will be raised.

22. In a loading device, the combination with a suitable frame of cross-shafts journaled therein, truck-frames journaled on the said cross-shafts, a cross power-shaft also mounted upon the said frame, gearing and belting connecting each of the truck cross-shafts with running-gear of the trucks, the trucks being such that the machine will be rendered automobile.

23. In a loading device, the combination with a suitable frame of a cross power-shaft mounted thereon, a suitable driving-engine connected with the said shaft for rotating the same, cross truck-shafts journaled in bearings on said frame, truck-frames journaled on the said shafts and carrying wheels and axles, sprocket-wheels on all of the said shafts and upon the axles of the wheels, chains connecting the said sprocket-wheels, the structure being such that power may be communicated from the power-shaft to the axles of the wheels for driving the said wheels, the arrangement of the parts being such that the pivotal movement of the trucks upon the cross truck-shafts will not interfere with the actuation of the said axle by the sprocket-chains.

24. In a loading device, the combination with a suitable frame of pivoted truck-frames secured thereto having wheels for transporting the machine from place to place, a cross-shaft carried on the said frame, a driving-engine mounted on the platform of the frame, gearing connecting the engine with the power-shaft, the engine being also adapted to operate a hoisting mechanism, drums carried by the said shaft and connected with the pivoted trucks by means of cables, so that the drums may be used for raising and lowering the said trucks, and connecting-gearing for communicating motion from the said power-shaft to the wheels of the trucks for driving the machine along a traction-surface when it is desired to move the same.

25. In a loading device, the combination with a suitable frame, of supporting-standards extending down to either side of a track a sufficient distance apart to accommodate cars

to be loaded, permitting them to pass through the said frame feet secured to the lower ends of said standards and projecting inwardly and downwardly to the track beneath the machine, and elongated bearing portions formed on the said feet and adapted to fit upon the rails of the track, whereby the machine may be made stationary on a firm footing at any point along the said track, and yet not interfere with the passage of cars over the same.

26. In a loading device, the combination with a suitable frame, of supporting-trucks movably secured thereto, a power-shaft mounted in the frame and provided with winding-drums, cables secured to each drum some of which extend outwardly to the ends of the machine, blocks or pulleys at the machine ends for guiding the said cables, these cables being then secured to the frames of the said trucks, and other cables extending directly from the drums to the truck-frames, the construction and arrangement being such that the truck-frames may be raised or lowered by rotating the drum-shaft in one direction or the other.

27. In a loading device, the combination with a suitable frame of movable trucks adjustably secured thereto, means for raising and lowering said trucks comprising a cross power-shaft on the frame, drums carried thereby, worm-gearing for rotating the said shaft, and cables connecting the said drums with each of the truck-frames, the arrangement and construction being such that the truck-frames will be held firmly in any position when the power is disconnected from the said gearing.

28. In a loading device, the combination of a frame, standards for forming a fixed base-support therefor, wheels for rendering said frame portable upon a track, means for moving said wheels for effecting engagement between same and said track, and means for securing the wheel-supports to said frame so as to secure such supports independently of the means operating same to effect engagement of the wheels and track.

29. In a loading device, the combination of a frame, wheel-trucks and wheels mounted and movable relatively to said frame, means for operating same to effect engagement of said wheels and a track, and means for securing said trucks to said tracks so as to render the former independent of its operating means when such engagement of said wheels and track is effected.

30. In a loading device, the combination of a frame, wheel-trucks pivoted upon such frame, means for swinging said trucks so as effect engagement of said wheels on such truck with a track, and means for securing such trucks to said frame during such engagement so as to relieve the swinging means of strain.

Signed by me this 30th day of January, 1902.

JOHN R. McGIFFERT.

Attest:
A. E. MERKEL,
GEO. WM. SAYWELL.