

J. R. McGiffert.
LOG LOADER.
APPLICATION FILED DEC. 20, 1907.

920,376.

Patented May 4, 1909.
2 SHEETS—SHEET 1.

Fig. 1

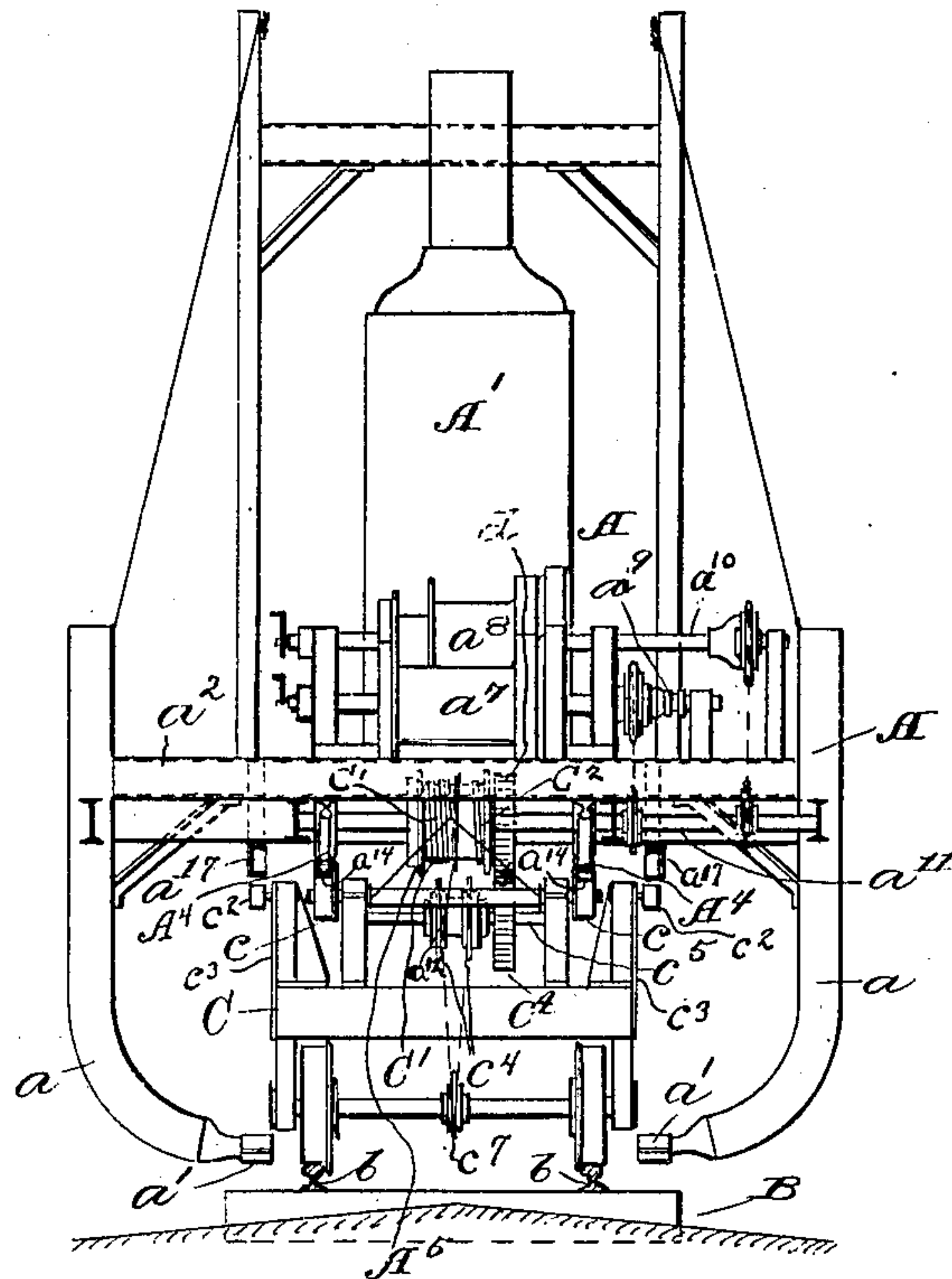


Fig. 3

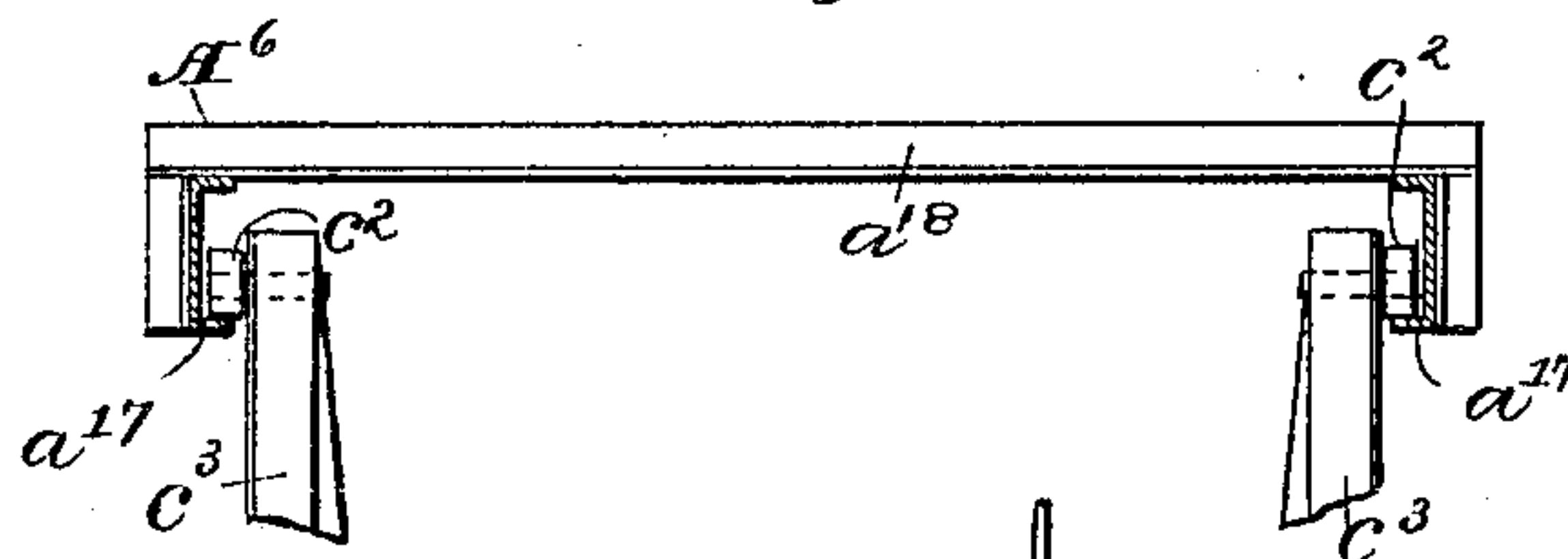
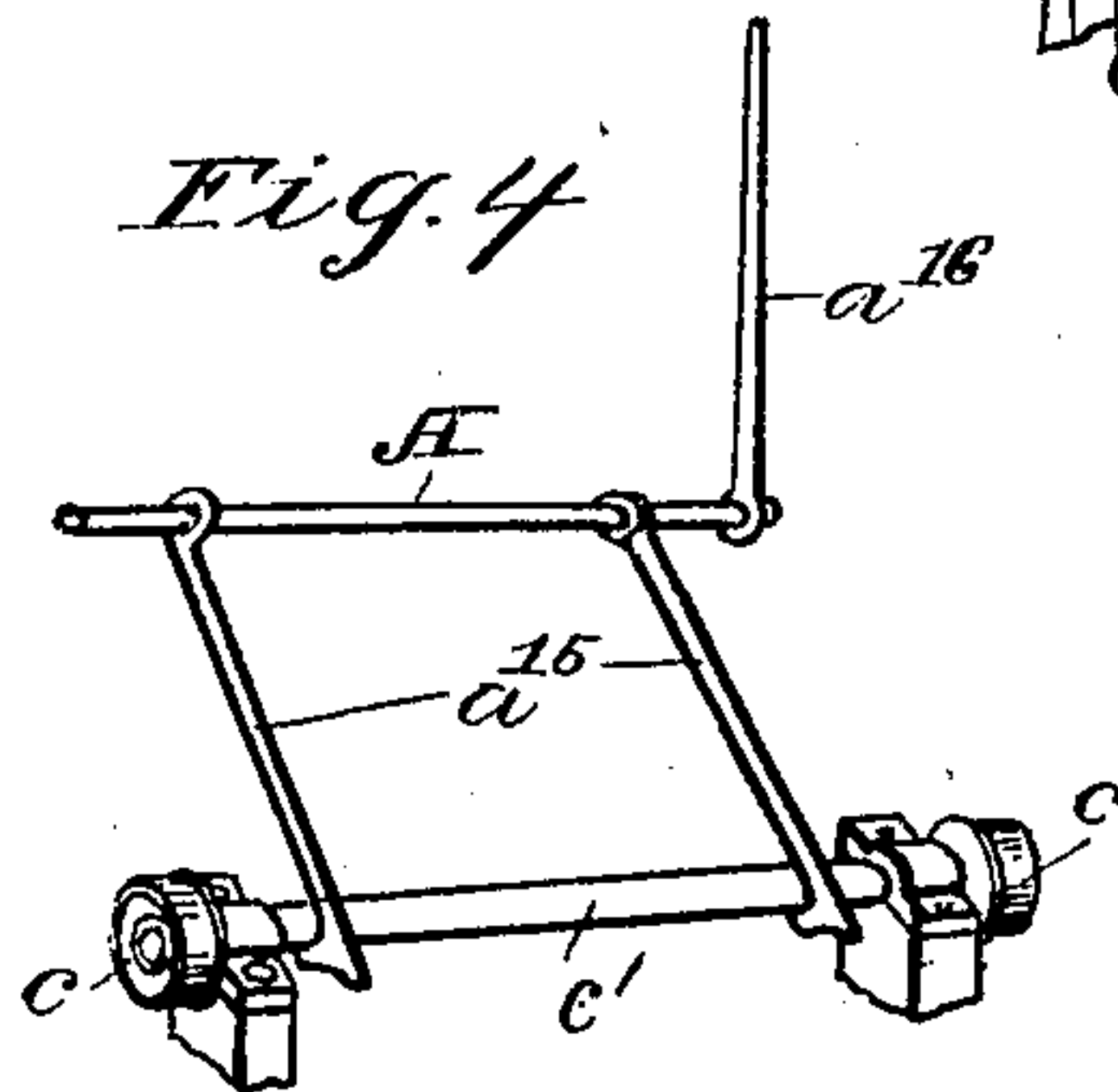


Fig. 4



Witnesses:
J. C. Turner
Geo. F. Oberlin

Inventor:
John R. McGiffert,
By J. B. Fay
Attorney.

APPLICATION FILED DEC. 20, 1907.

Patented May 4, 1909.

2 SHEETS--SHEET 2.



Inventor:
John R. Mc Giffert,
By J. B. Fay
Attorney.

UNITED STATES PATENT OFFICE.

JOHN R. McGIFFERT, OF DULUTH, MINNESOTA, ASSIGNOR TO CLYDE IRON WORKS, OF DULUTH, MINNESOTA, A CORPORATION OF MINNESOTA.

LOG-LOADER.

No. 920,376.

Specification of Letters Patent.

Patented May 4, 1909.

Application filed December 20, 1907. Serial No. 407,278.

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, 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.

The present invention relates to loading devices and particularly to loading devices designed for the handling of logs or like articles.

The object of the invention is the provision of a log loading machine that will be readily transportable and it is with means for accomplishing this result in a simple and efficient manner, that attention will herein be chiefly directed. Such means are 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, however, but one of various mechanical forms in which the principle of the invention may be used.

Figure 1 is a view, partly in end elevation and partly in section, of one approved type of log loading machine embodying my present invention; Fig. 2 is a view, partly in side elevation and partly in section, of such log loading machine; Fig. 3 is a cross section of a detail on a slightly enlarged scale, the plane of the cross section being indicated by the line 3—3 Fig. 2; and Fig. 4 is a perspective view of another detail constituting a locking device, as will be presently more fully set forth.

The particular type of log loading machine herein employed for illustrative purposes is that familiarly known to the trade as the "McGiffert" loader, and as such comprises in the main simply a rigid frame adapted to straddle a railway track and permit the passage therethrough over such track of the ordinary flat cars employed in logging operations, such frame being provided with an upper deck whereon is supported the usual hoisting mechanism and the like for performing the operation of loading for which the device is primarily intended. The construction of such loading mechanism being

generally understood, only those parts will be hereinafter referred to, that have more or less pertinent relation to the parts constituting the present invention.

Having regard, then, to the several figures of the drawings previously described, A will be seen to designate the frame of a loader of the character described, which is provided with stiff legs *a* adapted to rest through the intervention of shoes *a'* upon the track structure B. These legs support a deck, or platform, *a*², at a suitable height above the track, such that cars of the type in hand may readily pass thereunder when the machine thus rests upon the track. An engine *A'* mounted on the deck is adapted to carry on the loading operation through the agency of a boom *A*² and hoisting mechanism *A*³, both of which are shown in part only.

On the under side of the platform *a*² of the derrick frame are secured two inverted rails *A*⁴ *A*⁴ inclining in a general downward direction from the rear to the front end of the machine. Specifically they are formed so as to present two inclined sections *a*³ *a*⁴ one lower than the other, and respectively terminating in short sections *a*⁵ *a*⁶ substantially parallel with the deck of the machine. As will be seen from Fig. 1, the lower inclined section is the one nearest the front end of the machine. Movably upon the rails *b* of track B is a car, or truck, C, that is adapted to be drawn beneath the deck *a*² of frame A and is provided with wheels *c*, four in number, adapted thereupon to engage the inclined ways formed by the inverted rails *A*⁴ *A*⁴ just described. The forward pair of such wheels are supported at a less height than the rear pair, and so are adapted to engage the forward lowermost inclined sections *a*⁴ of the rails at substantially the same time that the rear pair of wheels engage with the rear inclined sections *a*³ of such rails. The effect of the forward movement of the car will accordingly be to elevate the frame, as will be obvious, the relative movement of car and frame being had by means of suitable cable connections operated by means of the hoisting mechanism *A*³ mounted on the deck of the frame. Of such mechanism the drums *a*⁷ *a*⁸, whereby the log loading derrick is operated, are mounted on shafts *a*⁹ *a*¹⁰, of which the forward one *a*⁹ is connected by means of sprockets and sprocket

chains with a third shaft a^{11} extending across the forward portion of the loader frame, Fig. 1. The sprocket on the engine shaft a^9 is of course so constructed that it may be thrown into and out of gear with the shaft by means of a clutch as desired. Upon the cross shaft a^{11} is mounted a drum A^5 , divided by means of a central peripheral flange a^{12} into two parts. Around this frame is wound a cable C' forked at the end, the respective terminal portions of the fork or crotch being secured to the forward end of the car C, Fig. 1. Upon the other portion of the drum A^5 is wound in inverse direction a second cable C^2 that is run under and over guide sheaves a^{13} in frame A and in a rearwardly extending portion A^6 (to be later described), and is then forked and secured to the rear end of the car in the same manner as the other cable is to the forward end of such car. It will be evident that by rotating the drum in one direction the car C will be drawn forward relatively to the frame, while by rotating the drum in the opposite direction, such car will be drawn back. The effect of the forward movement of the car, by virtue of the engagement of the wheels c borne on its upper side with the inclined ways A^4 on the underside of the frame deck a^2 , will obviously be to raise the frame A and load the same onto the car. Conversely, upon the car being drawn rearwardly with reference to the frame, the latter will be gradually lowered until it again rests on the track structure B.

When the frame is fully elevated onto the car the wheels c of the latter are designed to engage the corresponding horizontal sections of the ways A^4 . Blocks a^{14} provided near the forward ends of the ways A^4 form a stop for the car to prevent it from being drawn forward of the position shown in Fig. 2. In order to secure the car when in this position against movement to the rear, hooks a^{15} are dropped so as to engage the axle or shaft c' upon which the rear wheels c are mounted. These hooks are mounted upon a cross shaft A^7 , rotation of which thus to engage the car or disengage the same is had by means of a hand-lever a^{16} which extends up through the floor of the platform into a position convenient to the operator.

The rearwardly projecting frame A^6 , to which allusion has above been made as means for supporting certain of the sheaves a^{13} around which cable C^2 is passed in order to withdraw the car from beneath the loader frame, subserves another and even more important function, as will now be pointed out. Such frame in its construction consists essentially of two channel bars a^{17} with the channels turned inwardly, such bars being bent in a vertical plane, in the manner being clearly

shown in Fig. 2, so as to incline upwardly and then extend substantially horizontally from the frame A, proper. A number of transverse bars a^{18} , preferably of angle iron as shown, give rigidity to the structure. The inwardly directed flanges of channels a^{17} form a trolley track of corresponding conformation, that is adapted to receive four small wheels or rollers c^2 borne by standards c^3 on car C. Accordingly, as the car is drawn backwardly from beneath the platform a^2 , these rollers engage with the trolley way provided by the frame A^6 aforesaid, the effect of the engagement being to bodily lift the car C until the latter assumes finally the position shown in dotted lines, Fig. 2. In this position the car has sufficient clearance above the ground to permit the free passage therebeneath of the logging or flat cars in conjunction with which the machine is being employed. In the position of the parts of the machine shown in full lines in Fig. 2, it will be observed that the lower ends of channels a^{17} are at a higher elevation than the rollers c^2 of the car, but it will be understood that as the car is drawn backwardly the frame of the machine is lowered so as to permit the shoes of the frame legs to engage the ties. The effect of such lowering is also to lower the channel ends in question sufficiently to permit engagement therewith by the wheels or rollers at the proper time.

Near the center of the deck of loader frame A is mounted yet another cross shaft D, Fig. 1, parallel with and similar to cross shaft a^{11} , except that it is adapted to be connected with the rearmost a^{10} of the two engine shafts, such connection being had by means of sprockets and sprocket chains, and the sprocket on the shaft a^{10} being connected with such shaft by means of a clutch which may be thrown into and out of gear, as before. On such shaft D is mounted a spur-gear d that is adapted to engage with a spur-gear c^4 , borne by a shaft c^5 mounted in suitable bearings on car C, when such car C is in its proper position beneath the loader deck for transporting the frame. On shaft c^5 is keyed a double sprocket c^6 from which chains run to sprockets c^7 secured to the forward and rear axle of the car respectively. By means of the construction just described it will be seen that when the loader frame is elevated upon the car for the purpose of transportation, a driving connection is had between the axles of such car and the hoisting engine such that the whole machine is rendered automobile if desired.

From the foregoing description of the construction of my improved log loading machine, and of the operation of its individual parts, the mode of operation of the machine as a whole should be readily understood. In conclusion it will hence suffice to point out certain advantages of the present device,

particularly in connection with heavy loading machines of the "McGiffert" type. Thus in the specific form of the loader in question, illustrated in United States Letters Patent No. 715,840, more or less of a limitation is placed on the size of the loader, particularly its length, on account of the necessity of increasing the wheel base as such frame's length is increased. On logging railroads it is obviously impracticable to use a wheel base as long as might be desirable owing to the character of such roads. By the present construction, employing, as has been seen, an independent car or truck the relation between the length of frame and wheel base may be disregarded, as will be obvious. At the same time it is possible to build the frame of the loader somewhat lower than with the other construction and yet accommodate cars of the same height. By evenly distributing the lift along the whole length of the incline, the car engaging both of the inclined sections constituting the ways A⁴ substantially simultaneously, the frame may be elevated with less strain on the machinery, the maximum strain required being considerably less. Moreover, an increased facility in the operation of raising and lowering the frame is had, since the several parts directly involved are always ready for use without any special arrangement or disposition of the remaining parts. Lastly, the rearwardly projecting frame A⁶ whereon the auxiliary truck or car C is supported when not in use, serves to hold down the rear end of the machine when lifting heavy loads on the boom, acting in other words as a counterbalance. The necessity occasionally present in the older type of machine of chaining down the rear legs of the frame to the track when lifting heavy loads, is hence obviated.

While in the foregoing description of my invention it has been presented as being particularly applicable to one type of loader, it will of course be understood that the principle of operation exemplified therein is susceptible of adaptation to other types of loaders with perhaps equal success. In other words, it is not intended to imply by such specific reference above that the invention is limited in its use to any particular log loading machine under consideration.

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 mechanism of the class described, the combination with a frame, of a vehicle, one of the same being provided with means adapted upon relative movement between

said frame and vehicle to elevate the former upon the latter, such means comprising a sloping member made up of two longitudinally spaced similarly inclined sections.

2. In mechanism of the class described, the combination with a frame, of a vehicle, said frame being provided with a sloping member comprising two longitudinally spaced similarly inclined sections adapted upon movement of said vehicle relatively to said frame to engage said vehicle, whereby said frame is elevated upon said vehicle.

3. In mechanism of the class described, the combination with a frame, of a vehicle, said frame being provided with ways and said vehicle with means adapted to be engaged by said ways upon movement of said vehicle relatively to said frame, whereby the latter is elevated upon the former said ways respectively comprising two longitudinally spaced similarly inclined sections.

4. In mechanism of the class described, the combination of a frame, a vehicle, said frame being provided with a sloping member comprising two longitudinally spaced similarly inclined sections adapted upon said vehicle being drawn therebeneath to engage said vehicle, whereby said frame is elevated upon said vehicle, and means borne by said frame adapted to thus draw said vehicle.

5. In mechanism of the class described, the combination of a frame, a vehicle, said frame being provided with ways comprising two longitudinally spaced similarly inclined sections and said vehicle with means adapted to be engaged by said ways upon said vehicle being drawn therebeneath, whereby said frame is elevated upon said vehicle, and means borne by said frame adapted to thus draw said vehicle.

6. The combination with a frame comprising a deck and legs adapted to support the same, of hoisting mechanism borne by said deck, ways mounted beneath the same and comprising two longitudinally spaced similarly inclined sections, and a vehicle adapted to pass through between such legs and underneath said deck, said vehicle being provided with means adapted to engage said ways and thereby elevate said frame.

7. The combination with a frame comprising a deck and legs adapted to support the same, of hoisting mechanism borne by said deck, inclined ways mounted beneath the same, and a vehicle adapted to pass through between such legs and underneath said deck, said vehicle being provided with rotatable members disposed to substantially simultaneously engage said ways and thereby elevate said frame.

8. The combination with a frame comprising a deck and legs adapted to support the same over a track, of hoisting mechanism borne by said deck, ways mounted beneath the same, said ways each comprising two

similarly inclined sections, one lower than the other, and two substantially horizontal sections respectively contiguous to such inclined sections, and a truck adapted to pass through between such legs and underneath said deck, said truck being provided with longitudinally spaced wheels adapted to substantially simultaneously engage the respective inclined sections of said ways and thereby elevate said frame.

9. In mechanism of the class described, the combination with a frame, of a vehicle, one of the same being provided with a sloping member and the other with means adapted upon relative movement of frame and vehicle to engage said sloping member and thereby elevate said frame upon said vehicle, and means adapted to secure the latter in such elevated position.

10. The combination with a frame comprising a deck and legs adapted to support the same over a track, of hoisting mechanism borne by said deck, inclined ways mounted beneath the same, a truck adapted to pass through between such legs and underneath said deck, said truck being provided with rotatable members adapted to engage said ways and thereby elevate said frame, and means adapted to secure the latter in such elevated position.

11. The combination with a frame comprising a deck and legs adapted to support the same over a track, of hoisting mechanism borne by said deck, inclined ways mounted beneath the same, a truck adapted to pass through between such legs and underneath said deck, said truck being provided with wheels adapted to engage said ways and thereby elevate said frame, stops at the lowermost portions of said ways to limit forward movement of said truck relatively to said frame, and a hook adapted to engage the rear end of the truck to prevent rearward movement thereof.

12. The combination with a frame comprising a deck and legs adapted to support the same, of hoisting mechanism borne by said deck, ways mounted beneath the same, a vehicle adapted to pass through between such legs and underneath said deck, said truck being provided with means adapted to engage said ways and thereby elevate said frame, and means connected with said hoisting mechanism for drawing said vehicle beneath said deck to thus elevate said frame.

13. The combination with a frame comprising a deck and legs adapted to support the same over a track, of hoisting mechanism borne by said deck, inclined ways mounted beneath the same, a truck adapted to pass through between such legs and underneath said deck, said truck being provided with wheels adapted to engage said ways and thereby elevate said frame, means connected with said hoisting mechanism for drawing

said vehicle beneath said deck to thus elevate said frame, and means adapted to secure the latter in such elevated position.

14. In mechanism of the class described, the combination with a frame, of a vehicle movable relatively to said frame adapted to transport the same, said frame including a portion adapted to engage and elevate said vehicle upon movement of the latter.

15. In mechanism of the class described, the combination with a frame, of a vehicle movable relatively to said frame adapted to transport the same, said frame including a trolley track adapted to engage and elevate said vehicle upon movement of the latter.

16. In mechanism of the class described, the combination of a frame, a vehicle movable relatively to said frame, and means for elevating said frame upon said vehicle, said frame including a portion adapted to engage and elevate said vehicle upon movement of the latter.

17. In mechanism of the class described, the combination of a frame, a vehicle movable relatively to said frame, and means for elevating said frame upon said vehicle when positioned thereover, said frame including a trolley track adapted to engage and elevate said vehicle upon movement of the latter.

18. In mechanism of the class described, the combination with a frame, of a vehicle, one of the same being provided with means adapted upon relative movement between said frame and vehicle in one direction to elevate the former upon the latter, and said frame including a portion adapted to engage and elevate said vehicle upon movement thereof in another direction.

19. In mechanism of the class described, the combination with a frame, of a vehicle, one of the same being provided with a sloping member adapted upon movement in one direction with respect to the other to engage the latter, whereby said frame is elevated upon said vehicle, said frame including a portion adapted to engage and elevate said vehicle upon movement thereof in another direction.

20. In mechanism of the class described, the combination with a frame, of a vehicle, one of the same being provided with inclined ways and the other with means adapted to be engaged by said ways upon relative movement between said frame and vehicle in one direction, whereby the former is elevated upon the latter, said frame including a trolley track adapted to engage and elevate said vehicle upon movement in the opposite direction.

21. In mechanism of the class described, the combination of a frame, a vehicle, one of the same being provided with inclined ways and the other with rotatable means adapted to be engaged by said ways upon relative movement of said vehicle in one direction

relatively to said frame, whereby the latter is elevated upon the former, said frame including a trolley track adapted to engage and elevate said vehicle upon movement of the latter in the opposite direction, and means borne by said frame adapted to thus move said vehicle in either direction.

22. In mechanism of the class described, the combination of a frame comprising a deck and legs adapted to support the same; hoisting mechanism borne by said deck; inclined ways mounted beneath the same; a vehicle adapted to pass through between such legs and underneath said deck, said vehicle being provided with means adapted to engage said ways and thereby elevate said frame upon movement of the vehicle in one direction, and said frame including a trolley track adapted to engage and elevate said vehicle upon movement thereof in the other direction; and means connected with said hoisting mechanism and adapted to thus move said vehicle in either direction.

23. In mechanism of the class described, the combination of a frame comprising a deck and legs adapted to support the same over a track; hoisting mechanism borne by said deck; inclined ways mounted beneath the same; a truck adapted to pass through between such legs and underneath said deck, said truck being provided with wheels adapted to engage said ways and thereby elevate said frame upon forward movement of the truck; a trolley track projecting rearwardly from said frame and comprising upwardly inclined and substantially horizontal portions adapted to engage said truck and elevate the same above such track; and cables connected with said hoisting mechanism and adapted to thus move said truck in either direction.

24. In mechanism of the class described, the combination of a frame comprising a deck and legs adapted to support the same over a track; hoisting mechanism borne by said deck; ways mounted beneath the same, said ways each comprising two similarly inclined sections, one lower than the other, and two sections respectively contiguous to such inclined sections but substantially parallel with the frame deck; a truck adapted to pass through between such legs and underneath said deck, said truck being provided with wheels adapted to engage said ways and thereby elevate said frame upon forward movement of the truck; a trolley track projecting rearwardly from said frame and comprising upwardly inclined and substantially horizontal portions adapted to engage said truck and elevate the same above such track; and cables connected with said hoisting mechanism and adapted to thus move said truck in either direction.

25. In mechanism of the class described the combination of a frame comprising a

deck and legs adapted to support the same over a track; hoisting mechanism borne by said deck; inclined ways mounted beneath the same; a truck adapted to pass through between such legs and underneath said deck, said truck being provided with wheels adapted to engage said ways and thereby elevate said frame upon forward movement of the truck; a trolley track projecting rearwardly from said frame and comprising two channels with the channels turned inwardly, said channels being inclined upwardly from said frame and thence extending substantially horizontally; rollers borne by said truck and adapted to be engaged by the channels forming said trolley track upon rearward movement of said truck; and cables connected with said hoisting mechanism and adapted to thus move said truck in either direction.

26. In mechanism of the class described, the combination of a frame comprising a deck and legs adapted to support the same over a track; hoisting mechanism borne by said deck; ways mounted beneath the same, said ways each comprising two similarly inclined sections, one lower than the other, and two substantially horizontal sections respectively contiguous to such inclined sections; a truck adapted to pass through between such legs and underneath said deck, said truck being provided with wheels adapted to engage said ways and thereby elevate said frame upon forward movement of the truck; a trolley track projecting rearwardly from said frame and comprising two channels with the channels turned inwardly, said channels being inclined upwardly from said frame and thence extending substantially horizontally; rollers borne by said truck and adapted to be engaged by the channels forming said trolley track upon rearward movement of said truck; and cables connected with said hoisting mechanism and adapted to thus move said truck in either direction.

27. In mechanism of the class described, the combination of a frame comprising a deck and legs adapted to support the same over a track; hoisting mechanism borne by said deck; inclined ways mounted beneath said deck; a truck adapted to pass through between such legs and underneath said deck, said truck being provided with means adapted to engage said ways and thereby elevate said frame; and propelling mechanism on said truck adapted to operatively engage with said hoisting mechanism when said frame is thus elevated on said truck.

28. In mechanism of the class described, the combination of a frame comprising a deck and legs adapted to support the same over a track; hoisting mechanism borne by said deck, said mechanism including a spur-gear projecting below said deck; inclined ways mounted beneath said deck; a truck adapted to pass through between such legs

and underneath said deck, said truck being provided with means adapted to engage said ways and thereby elevate said frame; and propelling mechanism including a spur-gear adapted to engage with aforesaid gear when said frame is thus elevated on said truck.

29. In mechanism of the class described, the combination of a frame comprising a deck and legs adapted to support the same over a track; hoisting mechanism borne by said deck, said mechanism including a spur-gear projecting below said deck; inclined ways mounted beneath said deck; a truck adapted to pass through between such legs and underneath said deck, said truck being provided with means adapted to engage said ways and thereby elevate said frame upon forward movement of the truck; propelling mechanism on said truck, said mechanism including a spur-gear adapted to engage with aforesaid gear when said frame is thus elevated on said truck; a trolley track projecting rearwardly from said frame and adapted to engage and elevate said truck upon rearward movement thereof; and cables connected with said hoisting mechanism and adapted to thus move said truck in either direction.

30. In mechanism of the class described, the combination with a frame, of a vehicle, one of the same being provided with a sloping member and the other with a plurality of

longitudinally spaced means so disposed as to substantially simultaneously engage said sloping member, upon relative movement of frame and vehicle and thereby elevate said frame upon said vehicle.

31. In mechanism of the class described, the combination with a frame, of a vehicle, one of the same being provided with inclined ways and the other with longitudinally spaced means so disposed as to substantially simultaneously engage said ways upon relative movement of frame and vehicle and thereby elevate said frame upon said vehicle.

32. In mechanism of the class described, the combination with a frame, of a vehicle, one of the same being provided with ways comprising two similarly inclined sections, one lower than the other, and two sections respectively contiguous to such inclined sections but substantially horizontal; the other thereof being provided with longitudinally spaced rotatable members adapted upon relative movement of frame and vehicle to simultaneously engage such inclined portions of said ways and thereby elevate said frame upon said vehicle.

Signed by me, this 9th day of December, 1907.

JOHN R. MCGIFFERT.

Attested by—

E. M. JEFFERY,
N. M. NELSON.