

No. 611,877.

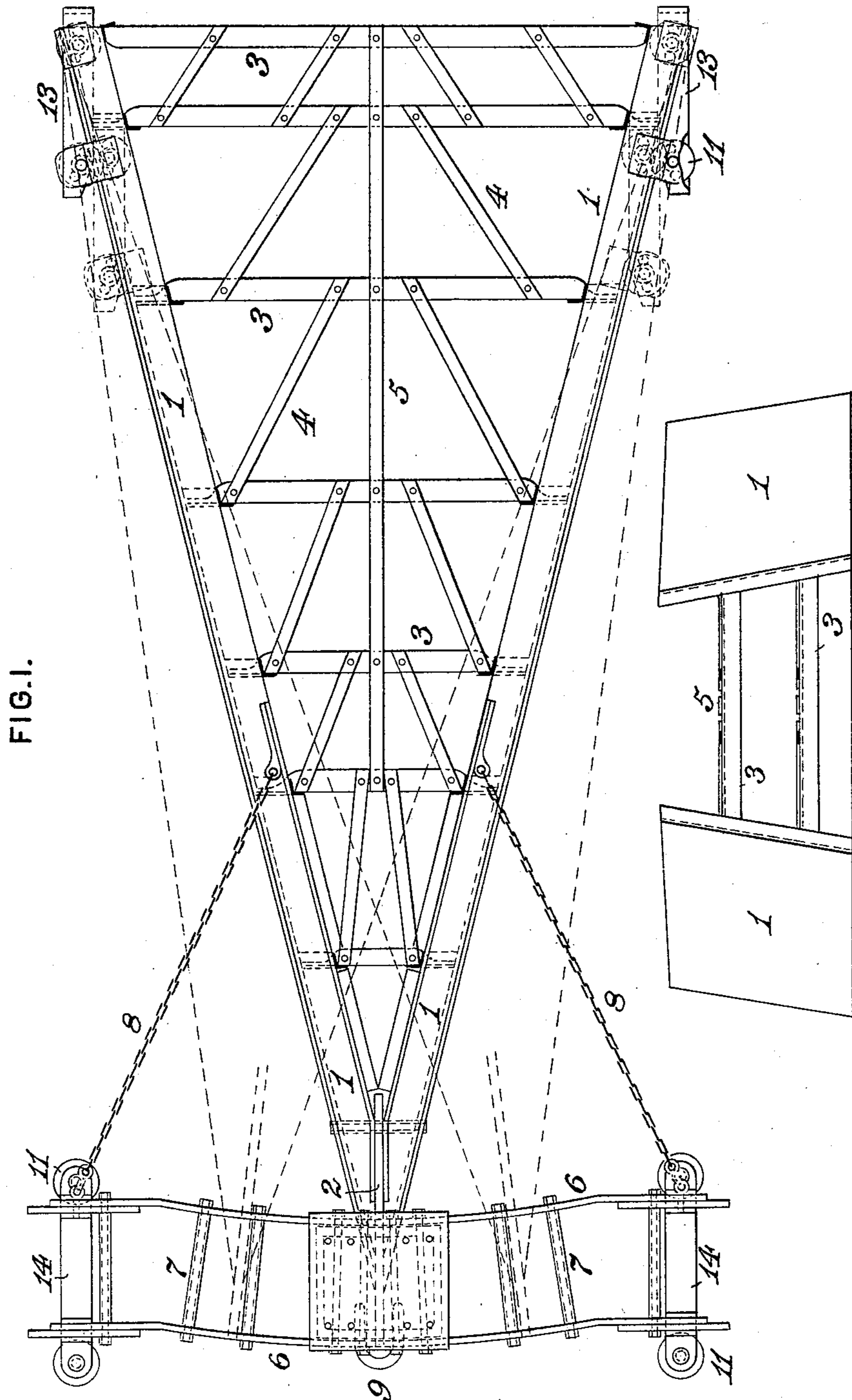
Patented Oct. 4, 1898.

H. H. WARNER.
BALLAST UNLOADER.

(Application filed Apr. 18, 1898.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES:

James C. Herron.
S. R. Bell.

INVENTOR

Henry H. Warner
by J. M. Borden Bell.
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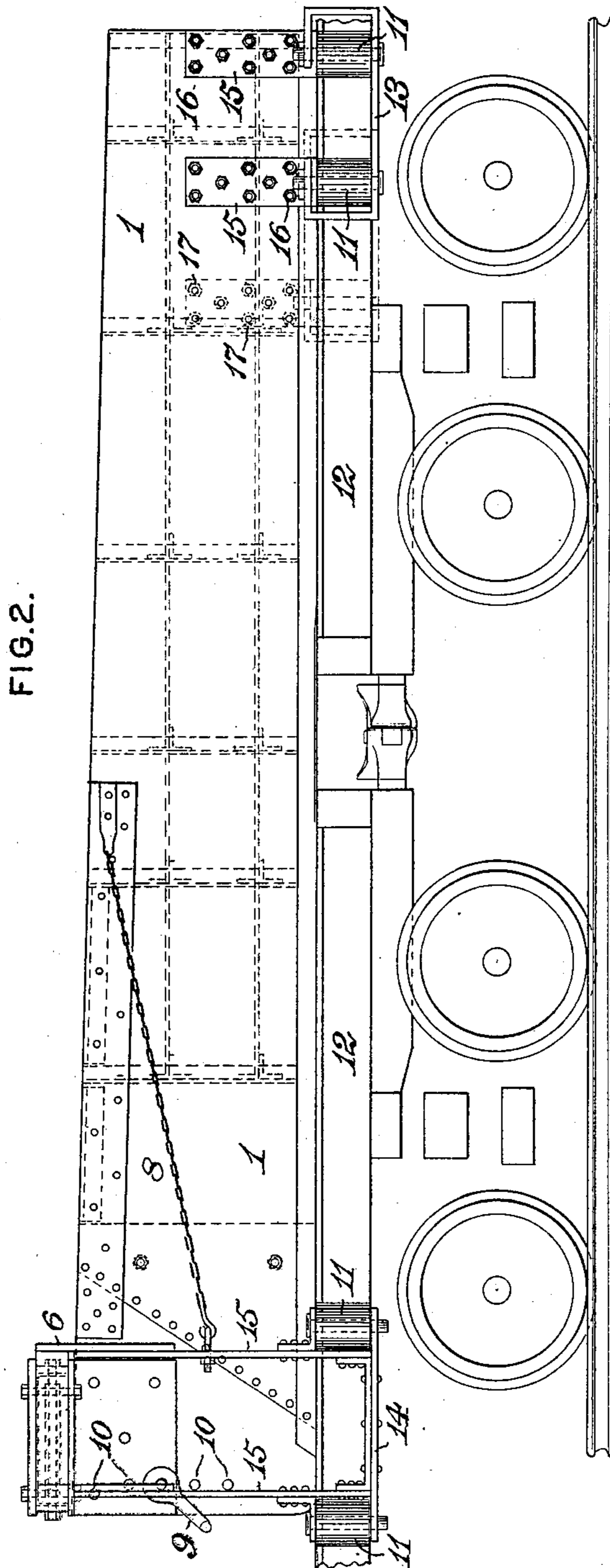
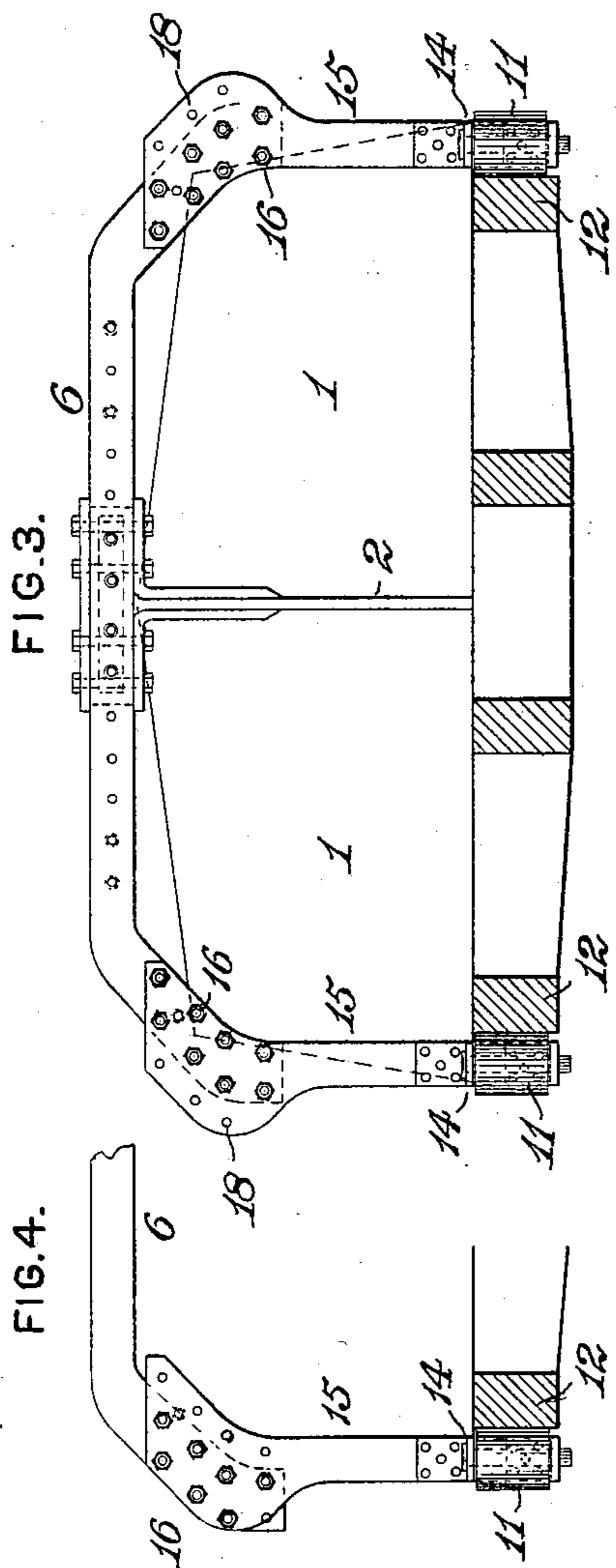
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INVENTOR,

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UNITED STATES PATENT OFFICE.

HENRY H. WARNER, OF TACOMA, WASHINGTON.

BALLAST-UNLOADER.

SPECIFICATION forming part of Letters Patent No. 611,877, dated October 4, 1898.

Application filed April 18, 1898. Serial No. 677,929. (No model.)

To all whom it may concern:

Be it known that I, HENRY H. WARNER, of Tacoma, in the county of Pierce and State of Washington, have invented a certain new and useful Improvement in Ballast-Unloaders, of which improvement the following is a specification.

My invention relates to railroad-car-unloading apparatus of the class in which a plow is employed to discharge ballast or other material from flat-cars by being drawn longitudinally over the floors thereof; and its object is to provide an appliance of such character which shall be simple, strong, and inexpensive in construction, durable, and of small cost of manufacture and which may be operated with comparatively slight expenditure of power and without injury to the car to clear a car or cars of all the material thereon and to deposit it on either or both sides of the car, as may be desired.

The improvement claimed is hereinafter fully set forth.

The structural principles of ballast-unloading plows of the types ordinarily employed prior to my invention, so far as my knowledge and information extend, are such as render them expensive to operate and maintain, as well as objectionable in other particulars. Those of the class in which the plow works on a longitudinal center timber-guide are not capable of dumping or unloading the material at one side of the car only, as is frequently necessary or very desirable in railroad-work, and the timber-guide, if of sufficient size to keep the plow in position and prevent it from jumping off the car, adds to the cost and dead-weight of the car and occupies a considerable space which would otherwise be available for ballast or other load.

In other constructions of the class in which the plow is guided by stakes upon the cars the objections obtain that the plow does not unload the cars clean, but carries a large amount of material back and forth, and the friction upon the stakes and deck of the car is so great that considerable power is required to move the plow, which is also destructive to the deck and the stakes and stake-pockets. The injury to the car-sills, breakage of cables, &c., makes the apparatus costly in main-

tenance, and, moreover, three plows—a right, left, and center—are required to properly do the work. It is also found in practice that when the draft is always applied to the plow at the same point, as in the ordinary constructions, the result is seldom satisfactory, as the plow will almost invariably either tear on the decking of the cars, injuring the same and itself and involving a needless expenditure of power to move it, or will ride up on the material and not thoroughly clean the car.

My invention, which is designed to obviate the objections above stated, dispenses with the side stakes and center guides heretofore employed and provides a plow which is guided by rolls on the sides of the cars and which therefore does not injure the cars and can be moved with the exertion of comparatively small power by reason of the reduction of friction. It is also readily and quickly adjustable for the discharge of material in desired proportions to both sides of the car or to either side, as required. It is provided with means for regulating and adjusting the draft, so as to thoroughly clean the cars without injury thereto or undue friction, and is adjustable to different widths of cars.

In the accompanying drawings, Figure 1 is a plan or top view of a ballast-unloader embodying my invention; Fig. 2, a side view in elevation of the same, shown in position upon portions of two coupled flat-cars; Fig. 3, a front view in elevation; Fig. 4, a similar view of a portion of the front frame, showing one of the roller-frames as moved toward the center to suit a narrower car; and Fig. 5, a transverse section taken near the point of the plow.

In the practice of my invention I construct a plow having two side members 1 1, formed, preferably, of iron or steel plates, which are connected in the form of an acute V, the distance between the side members at their rear ends being about equal to the width of the flat-cars, for unloading which the plow is to be used, and the side members extending at an easy taper or in wedge form from their rear ends to the front or point of the plow, at which they are connected through an interposed share-plate 2. The plow is held and braced in this form by cross-bars 3, preferably of angle-iron, diagonal braces 4, and

longitudinal braces 5. The sides of the plow are outwardly inclined or curved from their upper to their lower edges, as shown in Fig. 5, in order to retain sufficient of the ballast or
 5 other material which is to be unloaded to keep the plow down to its work without holding so much as would press the plow too heavily upon the car-decking, and the outward inclination of the sides is not sufficient
 10 to allow the material to run over the top of the plow.

The plow is connected at points a short distance in advance of the middle of its length to a transverse front frame, which is
 15 preferably composed of two bars 6 6, curved concentrically upon a radius struck from a center at or near the rear end of the plow and connected and held at a determined distance apart by socket-bolts 7 or other suitable distance-pieces. The connections 8 by
 20 which the plow is attached to the front frame are preferably, as shown, chains, but rods or links may be employed, if desired. As shown in full lines in Fig. 1, the plow is in central
 25 position and when drawn along over the decking of the car or cars will discharge equal portions of the loading on each side thereof. When it is desired that the plow shall discharge a larger portion of the loading or all
 30 of it either to the right or to the left, the connections 8 are released and the point of the plow swung over a greater or less distance to the right or to the left, as the case may be, as indicated by the dotted lines. The connections 8 are then readjusted to the changed
 35 inclination of the plow and made fast, so as to retain it in such position relatively to the front frame.

The power by which the plow is moved longitudinally over the decking of a car or cars to discharge the loading therefrom is applied through a suitable cable, which is attached to a link or clevis 9, connected to the share-plate 2 of the plow. In all prior constructions with which I am familiar the draft is
 45 applied to the plow at the same point under all conditions of service, and with such application the plow will in nearly all cases either be pressed unduly hard against the
 50 car-deck, so as to dig into and injure it, or will be lifted more or less from the car-deck, so as to fail to fully discharge the loading therefrom, depending upon the character of the material which is dealt with. Under my invention I provide for adjusting the position
 55 of the link or cable connection 9 in accordance with the greater or less resistance of the material. To this end a series of openings 10, located at different heights, respectively, is
 60 formed in the forward portion of the share-plate 2 of the plow, and the link 9 is connected to the plow through a higher or a lower opening, accordingly as a comparatively heavy or a comparatively light material is to
 65 be unloaded from the cars. The link 9 is adjusted at the height deemed most desirable, and if this is found on trial to be too

high or too low it can be readily changed as required.

The plow is guided and its true rectilinear
 70 movement over the decks of the cars insured by rolls 11, journaled with their axes vertical in bearings adjacent to the rear end of the plow, on each side thereof, and to the ends of the transverse frame, respectively, and running on the outer surfaces of the outside sills
 75 12 of the car-frame. In order to bridge over the spaces between the ends of one car and of the next one to which it is coupled, the rolls 11 are disposed in pairs at each end of
 80 and on each side of the plow, the axes of the rolls of each pair being set at such distance apart that one of the rolls shall be in contact with the sill of one car throughout the traverse of the other roll over the space between
 85 the cars, thus maintaining a constant bearing of the entire plow structure upon the sills at each of its ends. By the employment of front and rear pairs of rolls traversing on the sills as guides, as above described, friction is
 90 materially diminished, the transverse front frame and the rear end of the plow proper are independently guided, and the power required for the draft of the plow is correspondingly reduced.

The rolls 11 are journaled in suitable frames 13 14, which are connected to the side members 1 1 of the plow and to the front frame-bars 6 6 thereof, respectively, and in order to adapt the plow to use upon cars of
 100 different widths the bearing-frames 13 14 are made adjustable toward and from the longitudinal central plane of the plow. To this end vertical plates or arms 15 are secured to the bearing-frames, said plates being connected by removable bolts 16 to the side members of the plow, near the rear end thereof, and to the front frame-bars 6, respectively.

Supplemental series of bolt-holes 17 are formed in the side members of the plow in
 110 advance of those used when the plow is adapted to cars of maximum width, and supplemental series of bolt-holes 18 are formed in the vertical arms 15 of the bearing-frames 14 of the rolls at the forward end of the plow, said supplemental bolt-holes being on the
 115 outer sides of those used when the plow is adapted to cars of minimum width. The specific means of lateral adjustment of the bearing-frames of the rolls, as above described, are not essential and may be varied structurally within the ordinary skill of a competent mechanic without departure from the governing principles or leading features
 120 of my invention.

I claim as my invention and desire to secure by Letters Patent—

1. In a car-unloader, the combination, substantially as set forth, of a plow having two side members inclined in the form of an acute
 130 V, a transverse front frame, detachable connections coupling the ends of the front frame with the side members, at points adjacent to the middle of their length, and means for in-

dependently guiding the front frame and the rear end of the plow upon the outside sills of a car.

2. In a car-unloader, the combination, substantially as set forth, of a plow, a transverse front frame, connections coupling the plow and front frame, rolls journaled in pairs in bearings at the sides of the plow, adjacent to its rear end, and rolls journaled in bearings adjacent to each end of the front frame, the members of each pair of rolls being set at a distance apart greater than the maximum space between the ends of the sills of the cars on which the plow is to be used, when the same are coupled together.

3. In a car-unloader, the combination, substantially as set forth, of a plow, and rolls journaled in bearings at opposite sides of the plow, adjacent to its rear end and to a transverse plane passing through its point, respectively, said bearings being adjustable toward and from the longitudinal central plane of the plow.

4. In a car-unloader, the combination, sub-

stantially as set forth, of a plow, a transverse front frame, connections coupling the plow and front frame, rolls journaled in bearings adjustably connected to each side of the plow adjacent to its rear end, and rolls journaled in bearings adjustably connected to each end of the front frame.

5. In a car-unloader, the combination, substantially as set forth, of a plow, a transverse front frame connected thereto, rolls journaled in bearing-frames at the sides of the plow, adjacent to its rear end, and at the ends of the front frame, respectively, main and supplemental series of bolt-holes for connecting-bolts uniting the bearing-frames to the plow and to the front frame, and connecting-bolts adapted to pass through either series of bolt-holes in different adjustments of the bearing-frames.

HENRY H. WARNER.

Witnesses:

O. W. WAHLGREN,
W. B. KEIMEES.