

(No Model.)

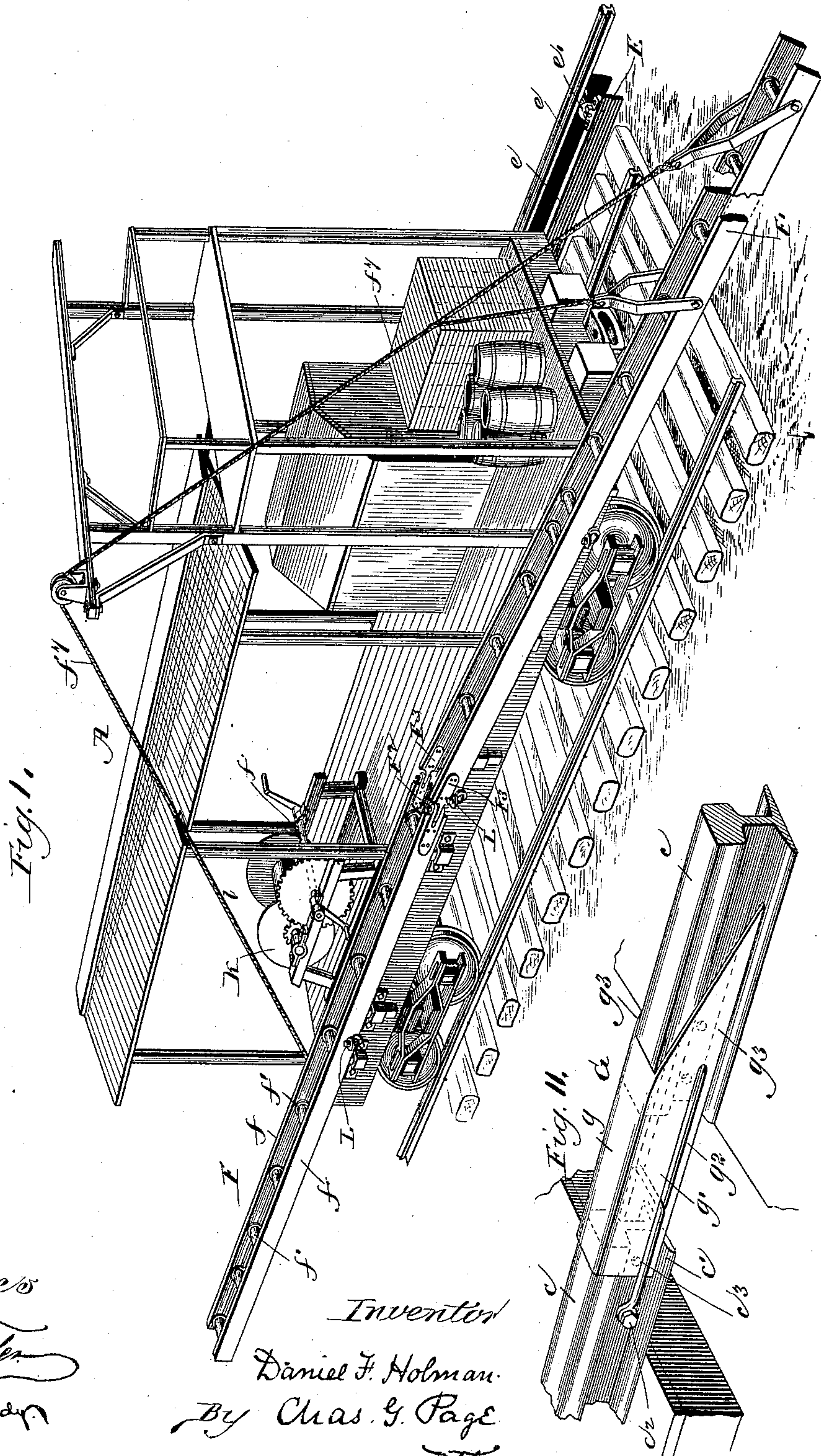
3 Sheets—Sheet 1.

D. F. HOLMAN.

APPARATUS FOR LAYING RAILWAY TRACKS.

No. 444,051.

Patented Jan. 6, 1891.



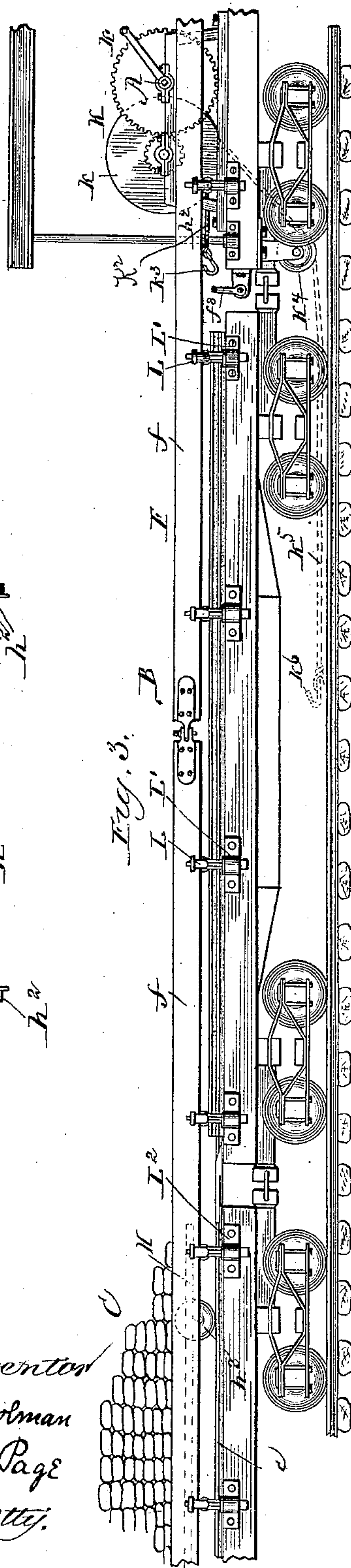
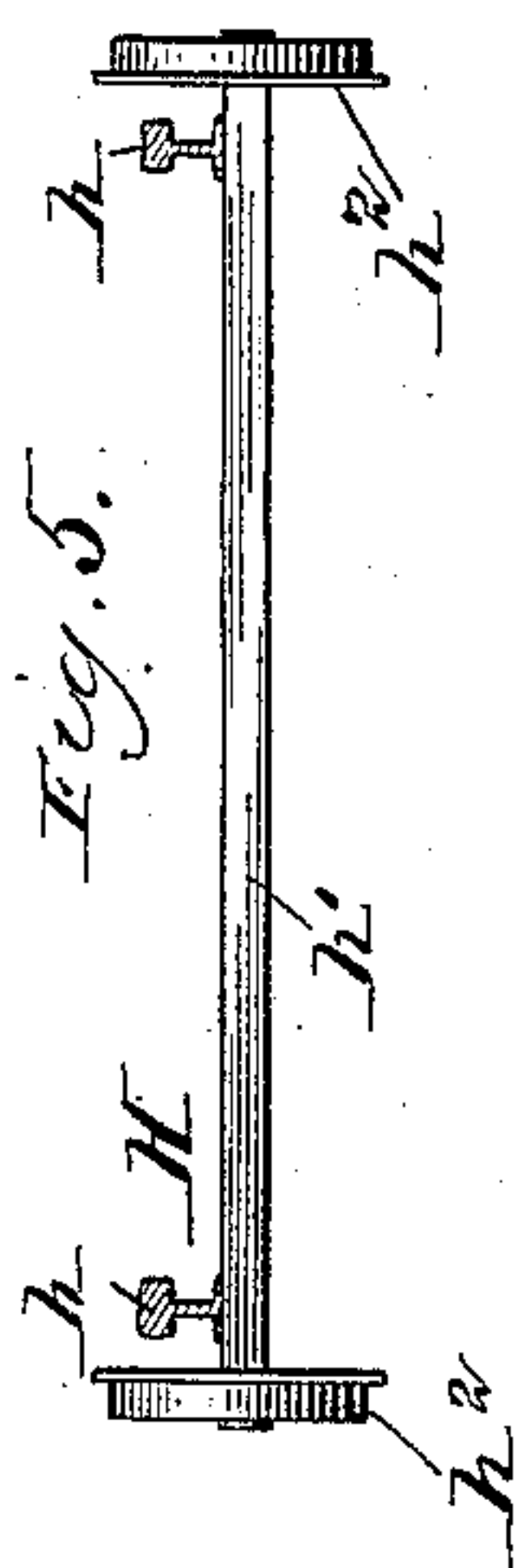
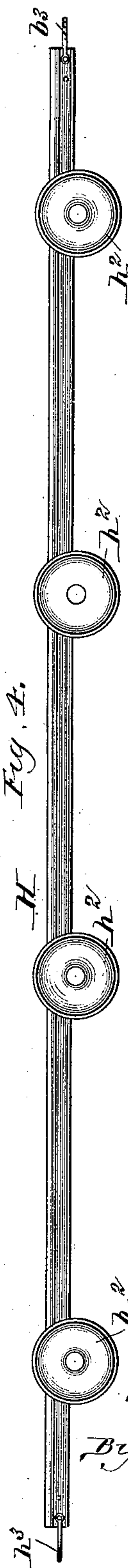
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3 Sheets—Sheet 2.

No. 444,051.

Patented Jan. 6, 1891.



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(No Model.)

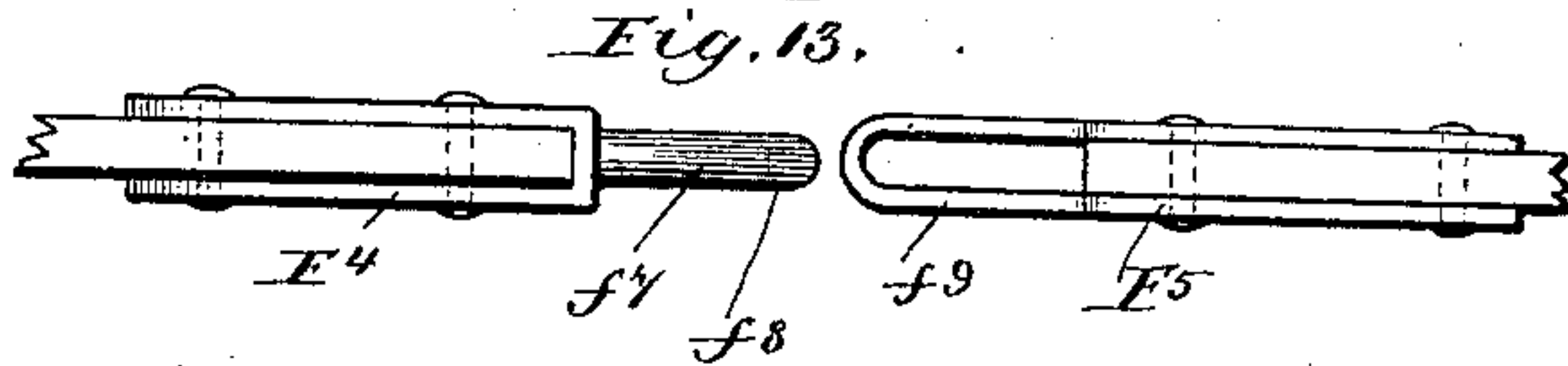
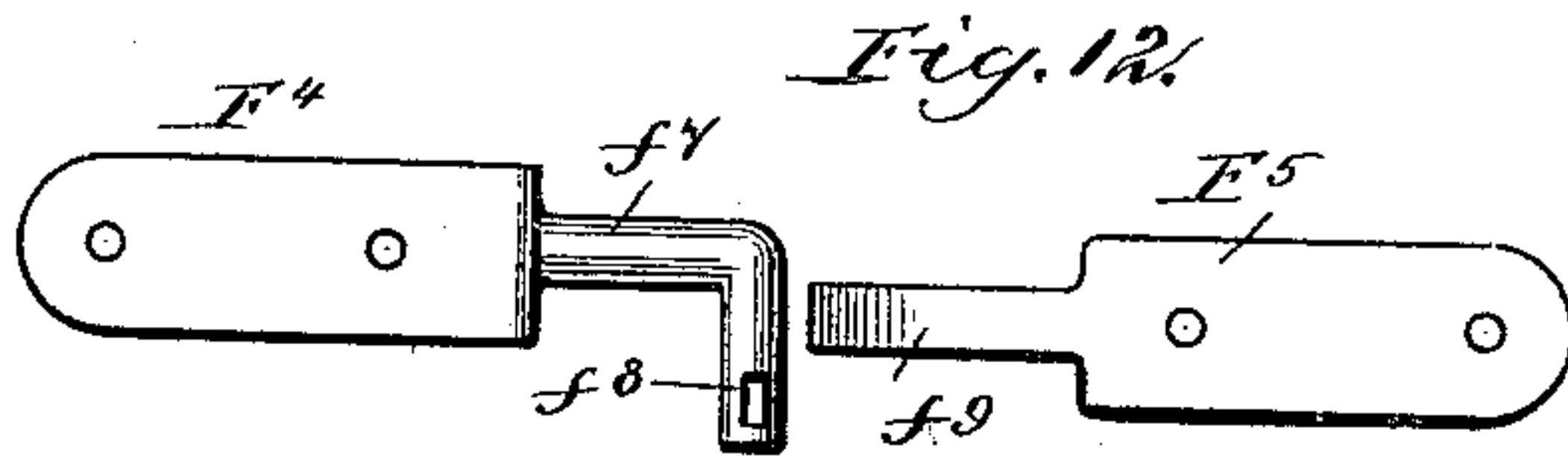
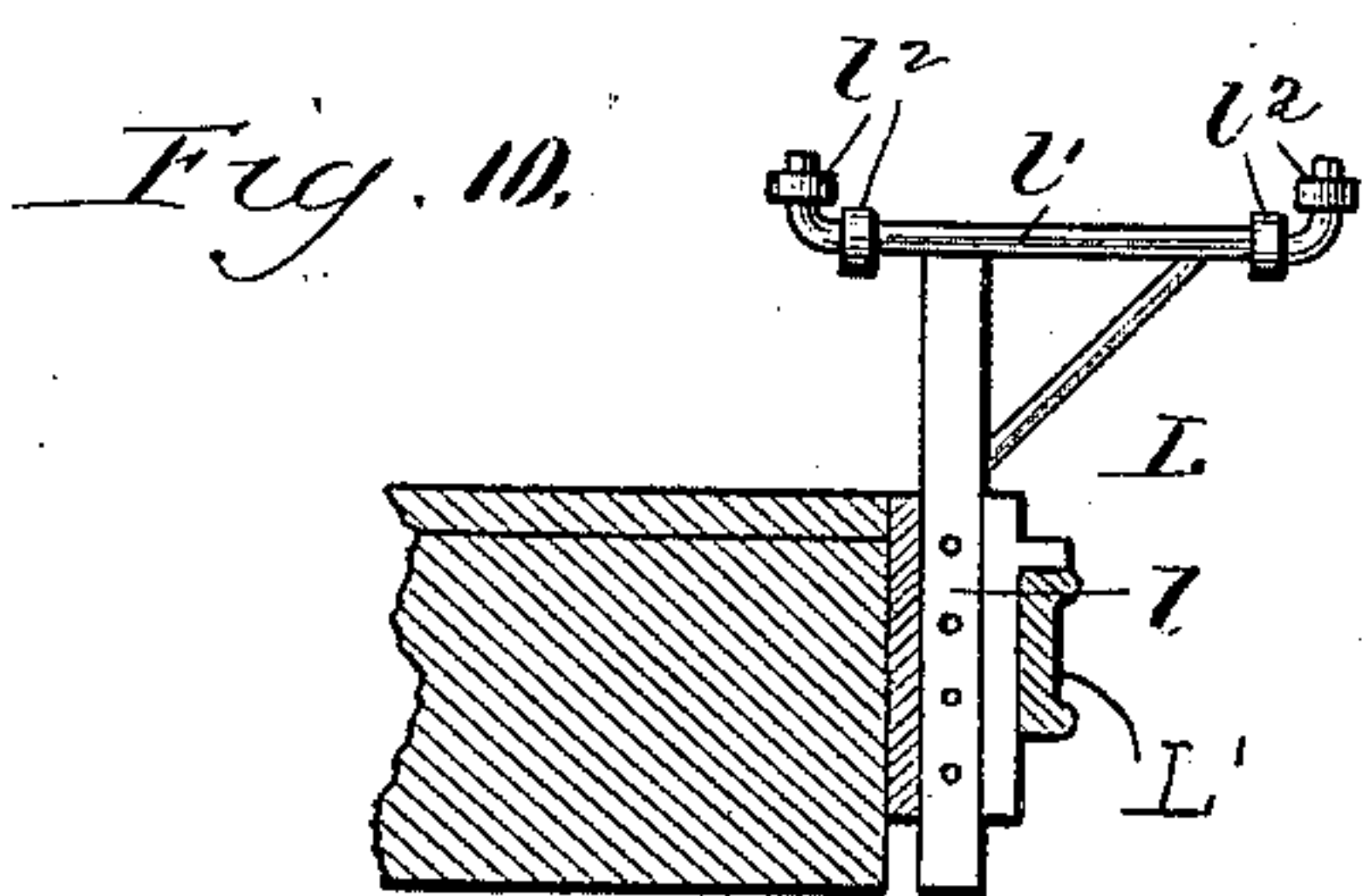
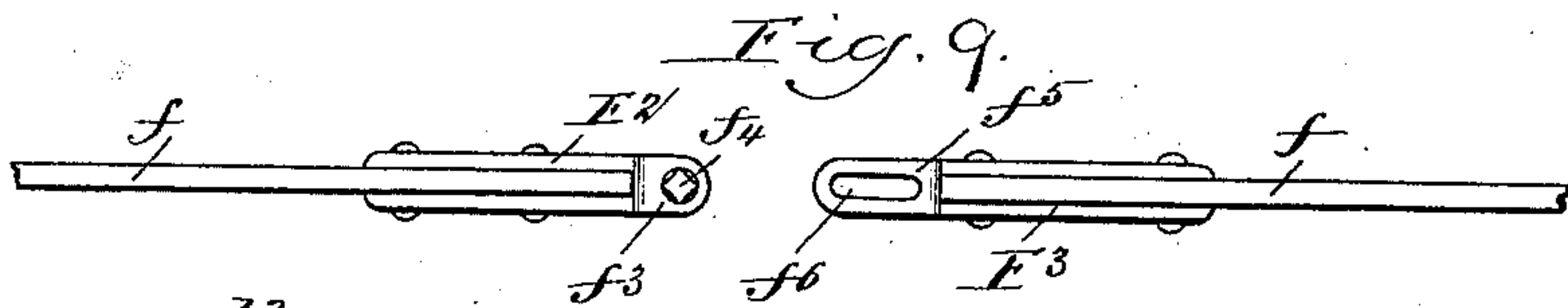
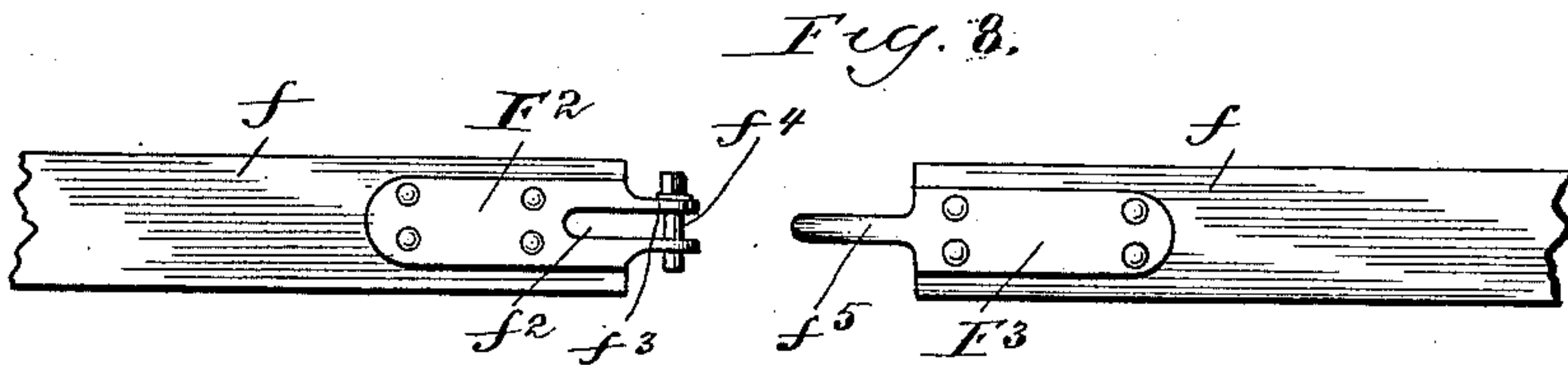
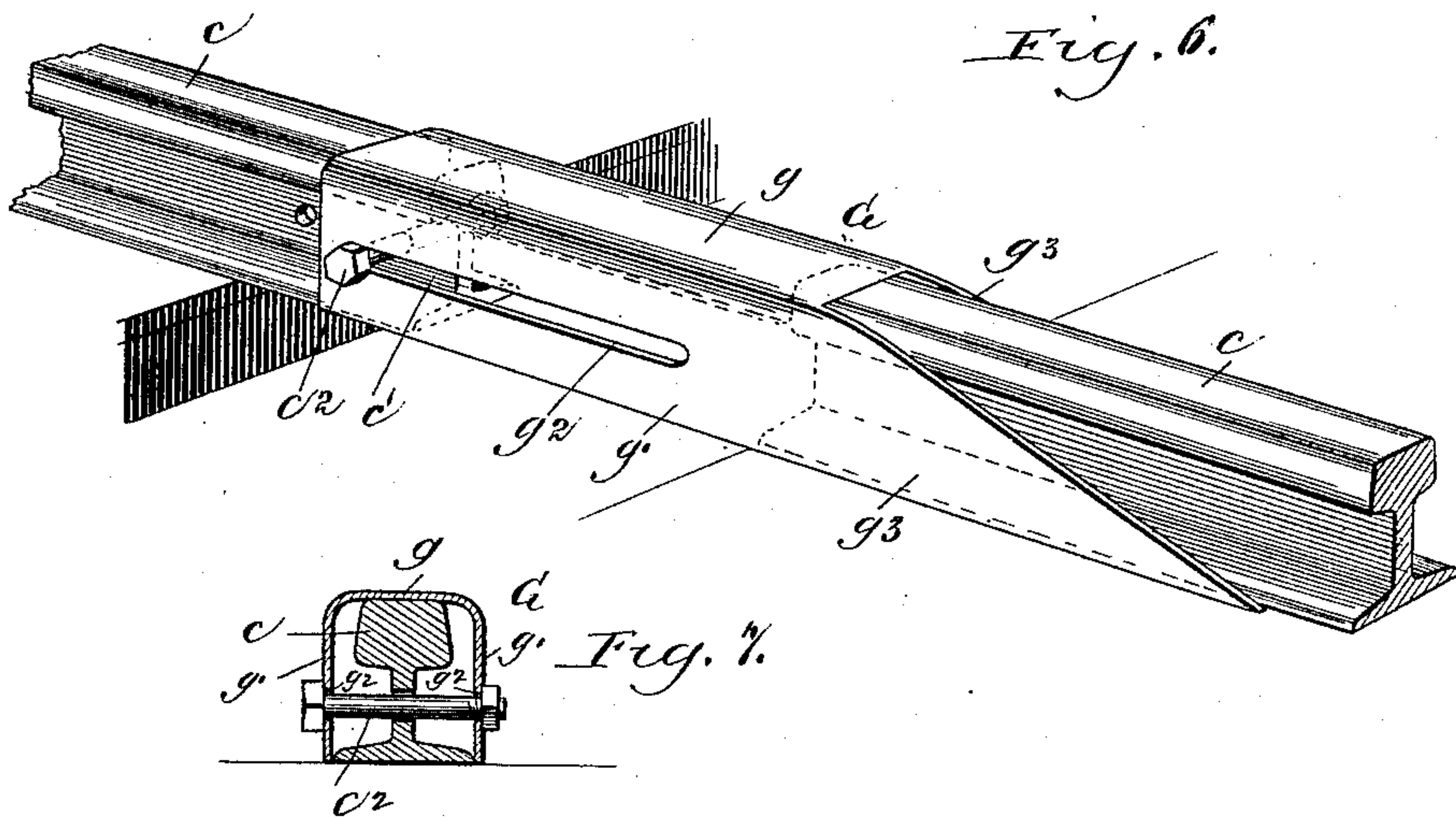
3 Sheets—Sheet 3.

D. F. HOLMAN.

APPARATUS FOR LAYING RAILWAY TRACKS.

No. 444,051.

Patented Jan. 6, 1891.



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UNITED STATES PATENT OFFICE.

DANIEL F. HOLMAN, OF CHICAGO, ILLINOIS.

APPARATUS FOR LAYING RAILWAY-TRACKS.

SPECIFICATION forming part of Letters Patent No. 444,051, dated January 6, 1891.

Application filed April 21, 1890. Serial No. 348,924. (No model.)

To all whom it may concern:

Be it known that I, DANIEL F. HOLMAN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Methods and Apparatus for Laying Railway-Tracks, of which the following is a specification.

This invention relates to a method of and apparatus for laying railway-tracks, and while designed more particularly as an improvement upon the track-layer shown and described in Letters Patent of the United States, granted to me April 7, 1885, No. 315,034, yet embodies many improvements applicable to various forms of track-layers. In said patent a track-layer is shown in which a train of cars for carrying the tools and material is provided along each side thereof with tramways which extend the entire length of the train. One set of said tramways is for ties and the other for rails. The cars of the construction-train are usually the ordinary flat cars, and upon them are loaded the rails and ties, which as they are needed at the front of the train for the construction of the track are moved from the car to the tramways and upon them to the front of the train, the bed of said tramways being provided with suitable anti-friction devices which allow the ties or rails to readily move over them. It is obvious that when the forward cars are being unloaded the work necessary to carry the rails and ties to the front will not be burdensome; but, on the other hand, when the material from the rear cars of the train is being used, (and in practice a train usually consists of ten or twelve cars,) it is manifest that the amount of labor required to move the material along the tramway to the front will be considerable. The ties or rails are usually shoved along by workmen stationed along the tramways, who shove the piece forward to the next workman. This manner of operating is found expensive, owing to the number of workmen employed in this duty, and also from the fact that when the rear part of the train is reached the workmen do not work with the same agility, and hence the material is not supplied with the usual and desired rapidity to the workmen placing it in position.

The object of this invention is to obviate the objectionable features above set forth, which is accomplished by moving the material on each car forward as the forward car is unloaded, so that the rails and ties are always placed upon the tramways adjacent to the forward end of the train. The advantages of this construction will be plainly obvious, as the workmen can be dispensed with who were employed to move the material along the tramways from the rear cars of the train. It will be further seen that the set of tramways can be made much shorter, as the tie-tramways extend only to the rear end of the car upon which the ties are located, thereby greatly reducing the cost, as it is unnecessary to attach the tramways to the other cars in the train. The means provided for moving the material on the trains comprise ways or track-ways upon the beds of the cars of the train upon which are located trucks, upon which trucks the material is loaded.

A further object of my invention is to provide novel devices for coupling the ends of the rails of one car with the adjacent ends of the rails on the next car, so that the trucks can readily pass from one car to another.

The invention consists in the improved method hereinafter described and in the features of construction and combinations of parts hereinafter fully described, and pointed out in the appended claims.

In the accompanying drawings, illustrating my invention, Figure 1 is a perspective view of the forward or tool car of a construction-train constructed in accordance with my invention. Fig. 2 is a view in side elevation of a construction-train constructed in accordance with my invention. For convenience of illustration the train shown in this figure is not provided with the number of cars that will usually be employed in a construction-train. Fig. 3 is a view in side elevation, on an enlarged scale, of the forward part of the train shown in Fig. 2, including the rear part of the tool-car and the forward part of the front tie-car. Figs. 4 and 5 are views in side and end elevation, respectively, of a preferred construction of truck upon which the ties are loaded. Fig. 6 is a perspective of the coupling between the rails of each car. Fig. 7 is

a transverse section of the same. Figs. 8 and 9 are views in side elevation and top plan, respectively, of the coupling device for joining the sections of the tramways. Fig. 10 is a view in end elevation of the stake for supporting the tramways, the support therefor and a part of the car being shown in section. Fig. 11 is a modified form of construction embodying my invention of the coupling shown in Fig. 6. Figs. 12 and 13 are views in side elevation and top plan, respectively, of a modified form of construction embodying my invention in the tramway-section-coupling device shown in Figs. 8 and 9.

In Fig. 2 of said drawings a complete construction-train is shown, comprising a tool car A at the forward end thereof, a rail-car B just in the rear of said tool-car, tie-cars C C' C² behind said rail-car, and a locomotive D in the rear of said tie-car C². For the purpose of description and convenience of illustration I have shown one rail-car and three tie-cars, although in practice I usually employ three rail-cars and six or eight tie-cars, it being found convenient to load a rail-car with rails enough to correspond with two tie-cars. I do not wish, however, to confine myself to any number of cars in a train, nor to any proportion of tie-cars and rail-cars, as this is not essential, but is set forth by way of illustration to show the amount of work necessary to bring the ties to the front of the train when they are brought from the rear cars thereof.

E indicates a set of rail-tramways conveniently located at the left-hand side of the train and extending from the rear of the rail-car B forwardly and a little beyond the front of the tool-car.

F indicates, as a whole, the tie-tramways, which embrace sections, and is preferably located at the right-hand side of the train, extending from the rear of the first tie-car forwardly and beyond the front end of the tool-car. The said tie-tramway F extends beyond the front end of the rail-tramway about the length of one panel of track, as indicated by F', so that the ties are delivered far enough in advance of the delivery of the rails to permit the workmen who handle the rails and ties to remove them from the tramways and lay them in position without interfering with each other.

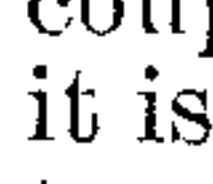
The rail and tie tramways have the same general features of construction—namely, side pieces or timbers *e* and *f* and rollers or anti-friction devices *e'* and *f'*, suitably supported between said side pieces *f*, the rollers of the tie-tramways being located nearer each other than those of the rail-tramways for obvious reasons. The sections comprising said tie-tramways are suitably coupled together, and in Figs. 8 and 9 I have shown a convenient form of coupling. In said figures, *ff* indicate in detail the meeting end portions of two timbers of one of the tramways, lettered as the "tie-tramway" for convenience.

F² is one member of a coupling, preferably

cast, and having side plates which are secured to the end portions of the side piece *f*. The member F² has an inwardly-extending recess *f*² and two lugs or lips *f*³ *f*³ above and below said recess *f*², said lips being provided near their outer ends with registering bolt-holes or openings for the reception of a bolt or pin *f*⁴. The other member F³ is also provided with side plates for attachment to the side pieces *f* and with a projection or plate *f*⁵, having a vertical slot or opening *f*⁶. The said plate *f*⁵ is adapted to pass in between the lips *f*³ of the other member, and the slot *f*⁶ receives the bolt or pin *f*⁴. The joint thus made readily permits the swinging of the pieces *f* with relation to each other due to curvature of the track, and further allows a relative endwise movement of the pieces to compensate for the starting, stopping, and backing of the cars. It will of course be understood that each of the side timbers is coupled to the corresponding timber in the next section of tramway by one of these couplings, as shown in Fig. 1. The tramways are supported from the sides of the cars, preferably by means of the bracket or stake L. (Shown in Fig. 10.) Said stake is provided with an upright *l* and a cross-piece *l'*, on which are mounted anti-friction devices or rollers *l*² *l*². Said stake is suitably held in a socket *L'*, secured to the car.

The forwardly-projecting part of the tie tramway or chute F' is supported near its outer end by means of yokes *ff*, connected with a rope or cable *f*⁷, which passes over an elevated part of the tool-car and is suitably secured thereto.

Upon the beds of the cars, as shown in Figs. 2 and 3, rails *c c* are laid to form a trackway longitudinally thereof, the tracks on each car being in alignment with those on the others, so that a continuous track is formed the entire length of the train upon the beds of the cars. The rails of each car are connected with those of the adjacent car by means of couplings, one of which is shown in detail in Fig. 6. In placing the rails upon the cars they are allowed to project a slight distance over one end of the car, as shown at *c'*, while at the other end of the car the ends of the rails are even with the end of the car. In making up a train the cars are so placed that the end of a car having the overlapping rails will be next to the end on which the rails are even of the adjacent car. The cars have the overlapping rails preferably at their front ends.

The coupling shown in Fig. 6 comprises a coupling-plate G, bent longitudinally, so that it is of  shape in cross-section, and has the top piece or tread *g* and side plates *g'* *g'*. The width of the top piece or tread *g* is equal to the width of the flange or base of the rail, and the height of the side plates is equal to the height of the rails, so that the said coupling-plate can be placed over the rail. The coupling G is secured to the overlapping end

of the rail by means of a headed bolt c^2 , which passes through one of the bolt-holes near the end of the rail and engages with two longitudinal slots $g^2 g^2$, suitably located in the side plates of the coupling. The engagement of the bolt with the said slot permits the swinging of the plate about the bolt as a pivot, and to allow the plate to hang down from the rail when not coupled with the rail of the adjacent car. The tread of the coupling is of such length as to reach a sufficient distance over and upon the opposite rail to provide a firm bearing between the rails. The side plates g' each extend some distance beyond the end of the tread g , as shown at $g^3 g^3$, and said parts g^3 have their upper edges inclined downwardly toward their ends. The lower edges of the extensions g^3 are located to rest upon the bed of the car, and thereby add rigidity to said coupling. The inclination of the upper edges of said extensions is made so that if the car on which they rest is higher than the other car said extensions will not be thrown above the rail, as they obviously would be if their edges were extended in a horizontal direction. It will thus be seen that a continuous trackway is formed upon the bed of the cars of the train throughout its entire length, and upon said trackway trucks H H (shown in detail in Fig. 4) are adapted to run. The trucks H are about the same length as the cars, and are made up by placing two rails $h h$ upon the axles $h' h'$ of a plurality of wheels $h^2 h^2$. The axles h' and wheels h^2 are permanently secured together; but the rails h are movably fastened upon the axles, so as to be readily taken apart when desired, as described hereinafter. The rails h used in the construction of these trucks H are the ordinary railroad-rails, so that the cost of the trucks is reduced to a minimum by reason of the fact that special forms of rails are not required. Links or loops b^3 are fastened to the ends of the rails h , by means of which the trucks may be moved. The advantages of a truck of this description will hereinafter be pointed out, and I term the same a "knockdown truck."

It is obvious that considerable power will be required to move the trucks when they are loaded with ties, and I have provided means for moving them when it is found inconvenient to do it by hand. Such means comprise a winding mechanism, (indicated as a whole by K,) and is located upon the tool-car. Said winding mechanism has a winding-drum K and a winding-shaft K' suitably geared thereto. A cable or rope K^2 , fastened to the winding-drum, is provided at one end with a hook K^3 , by means of which it can be attached to the links b^3 of the trucks. Other means are shown for moving the trucks forward by power derived from the locomotive, and in this event the rope or cable K^2 is passed around the winding-drums, and is trained over a pulley K^4 , located beneath the tool-car, and is then led away beneath the

cars, as shown at K^5 , to the rear of the train and connected with the locomotive by means of a hook K^6 .

When it is desired to move a truck forward, the locomotive is disconnected from the train and run backward a sufficient distance; or a steam-operated winding mechanism may be located upon the locomotive.

The parts of my invention being constructed and assembled as described, the operation is as follows: Referring to Fig. 2 of the drawings, the construction-train shown therein comprises the tool-car, one rail-car, three tie-cars, and a locomotive. The construction-train is run forward to the end of the unfinished track which is being laid and where it is intended to lay more track. The ties are unloaded from the truck upon the first tie-car, placed upon the tie-tramways, and run down to the front and out upon the chute F', where workmen receive and place them in position. The rails are similarly handled and placed upon the ties. When the ties upon the truck of the first tie-car are used, the rails h of said truck are removed from the axles and thrown upon the bed of the car, and the wheels are removed from the rails c and placed upon the car-bottom, which leaves the rails upon car C unoccupied. The loaded truck upon the next tie-car C' in the rear is now moved forward, by any means desired, onto the first tie-car C and the ties unloaded from the truck, as before described. When the trucks are taken apart, the wheels and axles are placed upon the car-bottom outside of the trackway, it being obvious that considerable space is left between the rails and the sides of the car. Said wheels will thus be out of the way of the loaded trucks that are mounted upon the rails. Upon being unloaded the second truck is disposed of as was the first and the third brought forward, and so on, as will be manifest.

The above description relates to a train having one rail-car; but, for instance, if there are three rail-cars and six tie-cars, the tie-tramways will run back to the first tie-car and the rail-tramways to the last rail-car. It will be noted that, owing to the manner in which the rails are loaded upon the cars and the size of the wheels of said trucks, the latter can be run down upon the rail-cars before the latter are unloaded, and I contemplate making use of this construction when there are a plurality of rail-cars in the train. Consequently when the ties are to be unloaded the truck upon the first tie-car is moved down upon the second rail-car, and then for the time being the second rail-car becomes the first tie-car. The trucks are moved down upon the present first tie-car until the first rail-car is unloaded, after which said trucks are moved onto the unloaded first rail-car, which then becomes the first tie-car. It is obvious that other methods can be followed in unloading the tie-cars without departing from the spirit of my invention. For exam-

ple, it might be found inconvenient to run the tie-truck upon the loaded rail-cars, in which case they will be unloaded from the first tie-car C and the rails taken from the rail-car, so that when the said last rail-car is unloaded the trucks can be moved thereon, and thus be brought nearer the front of the train, and likewise when the second rail-car is unloaded.

It will be manifest that I greatly reduce the amount of labor necessary to bring the ties to the front, which has heretofore been a great obstacle. I contemplate changing the manner of unloading the rails and ties as found most convenient in operation in accordance with the essential feature of my invention—namely, bringing an entire car-load of ties forward near the front of the train when the preceding car-load is exhausted. It will be noted that the term “first tie-car” is applied to the car from which the ties are being unloaded, and is sometimes the first tie-car C, or any one of the rail-cars, as will be obvious. The amount of labor saved in this way is considerable, as it requires at least one man, and sometimes two men, within the length of one car on each of the tramways to attend to the sending forward of the ties and rails. The vast amount of time, labor, and expense saved by this construction of track-layer is derived usually from the fact that the trucks containing the ties are moved forward when used, so that the point at which they are placed upon the tramways is not removed farther from the front of the train as the work progresses, but, on the other hand, as the rail-cars are unloaded it is brought nearer. This saving will be apparent from the statement that the services of ten to fifteen workmen are dispensed with who would otherwise be employed if the track-layer shown in my said former patent were employed.

In Fig. 11 a modified form of construction is shown relating to the coupling between the rails, the only difference from that before described being in the manner of fastening the coupling-piece to the overhanging rail. In this construction a bail or link c^3 is employed, which is secured at its rear end to the rear bolt-holes of the rail. The side pieces of the bail extend forward and its cross-piece passes through the slots g^2 of the side plates of the coupling-piece.

In Figs. 12 and 13 a modification is shown relating to the construction of the coupling for the tramway-sections. This construction comprises a member F^4 , having side plates for attachment to the piece f of the tramway-sections, and a hooked or offset end or finger f^7 thereon, which finger is provided with a transverse opening f^8 . The other member F^5 is provided with side plates and a forward loop f^9 , which forms a slot or opening for the finger f^7 . After the finger is engaged with said loop a pin is passed through the opening f^8 and holds the parts together.

It is obvious that many changes can be made in the construction of certain parts without departing from the spirit of my invention. I have shown and described the trucks as being about the same length as the cars; but it will be understood that the trucks could be half or only a quarter of that length. It will also be noted that my invention can be put into practice without the employment of a trackway upon the beds of the cars made by laying rails thereon, in which case the wheels of the trucks are made flat instead of flanged, as shown, and therefore I do not wish, except in the claims to the specific construction, to limit myself to the cars having rails upon them. This will be further apparent from the method herein described and claimed, which embraces the moving forward bodily of the loads upon the rear cars to a convenient position for unloading near the front end of the train.

I claim as my invention—

1. A railway-track layer comprising a train of cars having a plurality of tie-cars, movable trucks upon said cars for receiving the ties, said trucks being adapted for movement from one car to another of the train, and tie-tramways located along the side of the train and extending from the front end thereof along the sides of a part only of the cars of the train, whereby the trucks containing the ties can be moved forward from the rear cars to the end of said tie-tramway, unloaded upon said tie-tramway, and then carried to the front end of the construction-train.

2. In a railway-track layer, a train of cars comprising a tool-car and a plurality of rail and tie cars, tramways extending from the front end of said tool-car along the sides thereof to said rail and tie cars, and movable trucks for receiving the ties, arranged to pass only over said rail and tie cars.

3. In a railway-track layer, a train of cars comprising a tool-car and a plurality of rail and tie cars, tramways extending from the front end of said tool-car along the sides of the train to said tool-car, and movable trucks for receiving the ties, arranged to pass only over said rail and tie cars, the meeting ends of said rail and tie cars being jointed to provide a continuous surface for the passage of said trucks.

4. A railway-track layer comprising a train of cars having a plurality of tie-cars, movable trucks upon said cars for receiving the ties, said movable trucks being adapted for movement from one car to another of the train, and tie-tramways located along the side of the train and extending from the front end thereof to the first tie-car, substantially as described.

5. A railway-track layer comprising a train of cars having rail and tie cars, movable trucks upon said tie-cars for receiving the ties, said movable trucks being adapted for movement from one car to another of the train, rail-tramways located along one side of the train, and tie-tramways located along the

opposite side of said train, said tie-tramways extending from the front end of the train to the first tie-car, said movable trucks being adapted to be moved upon said rail-car, substantially as described.

6. A railway-track layer comprising a train of cars, a trackway upon said cars, movable trucks upon said trackway, the ends of said trackway at the meeting ends of the cars being coupled together, and tramways located along the side of said train and extending from the front end thereof along the side of a part only of the train, substantially as set forth.

7. The combination, in a railway-track layer, with a train of cars having rails upon them for providing a trackway, of a coupling member for joining the rails at the meeting ends of the cars and which is secured to the end of a rail, said member comprising a tread and side plates, substantially as set forth.

8. The combination, in a railway-track layer, with a train of cars having rails upon them for providing a trackway, of a coupling member for joining the rails at the meeting ends of the cars and which is secured to the

end of a rail, said coupling member comprising a tread and side plates and having said side plates extended with their top edges inclined downwardly toward their ends, substantially as set forth.

9. The combination, in a railway-track layer, with a train of cars having rails upon them for providing a trackway, of a coupling member for joining the rails at the meeting ends of the cars, said member resting on one of said rails and being secured to the other by a yielding connection, substantially as set forth.

10. The combination, in a railway-track layer, with a train of cars having rails upon them for providing a trackway, of a coupling member for joining the rails at the meeting ends of the cars, said member comprising a tread and side plates, said side plates having slots or openings for engagement with a bolt or pin in one of the rails, substantially as set forth.

DANIEL F. HOLMAN.

Witnesses:

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