

J. R. McGIFFERT.  
 TRACK LAYING MACHINE.  
 APPLICATION FILED MAY 20, 1909.

967,817.

Patented Aug. 16, 1910.

3 SHEETS—SHEET 1.

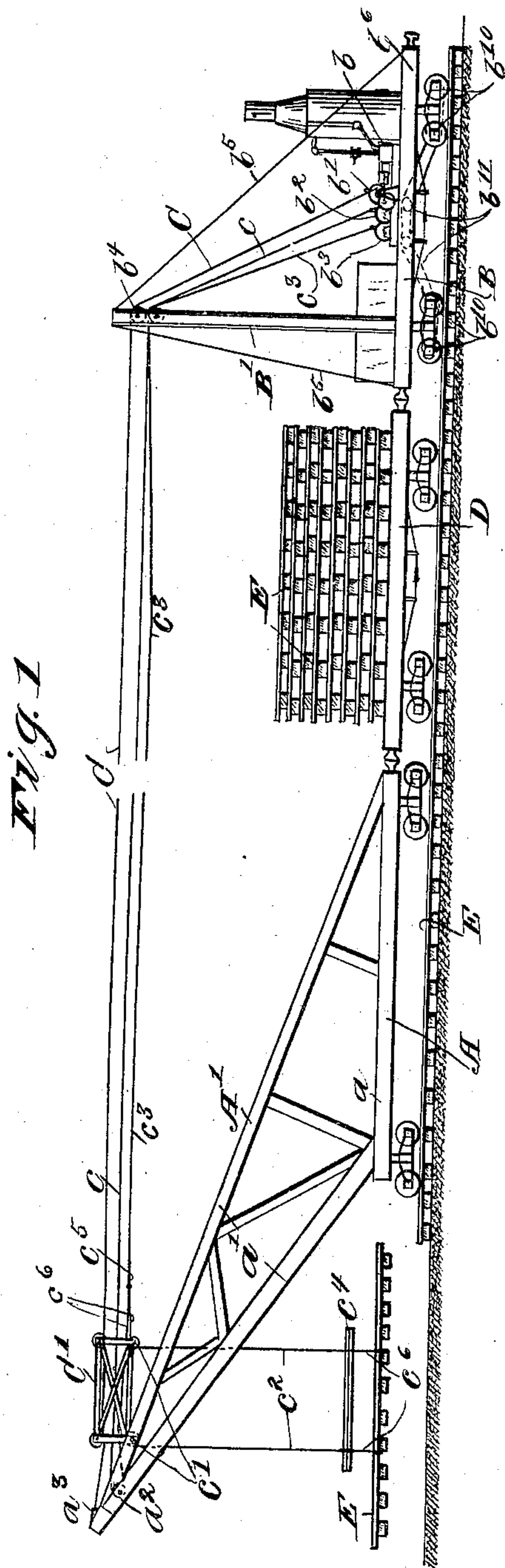


Fig. 1

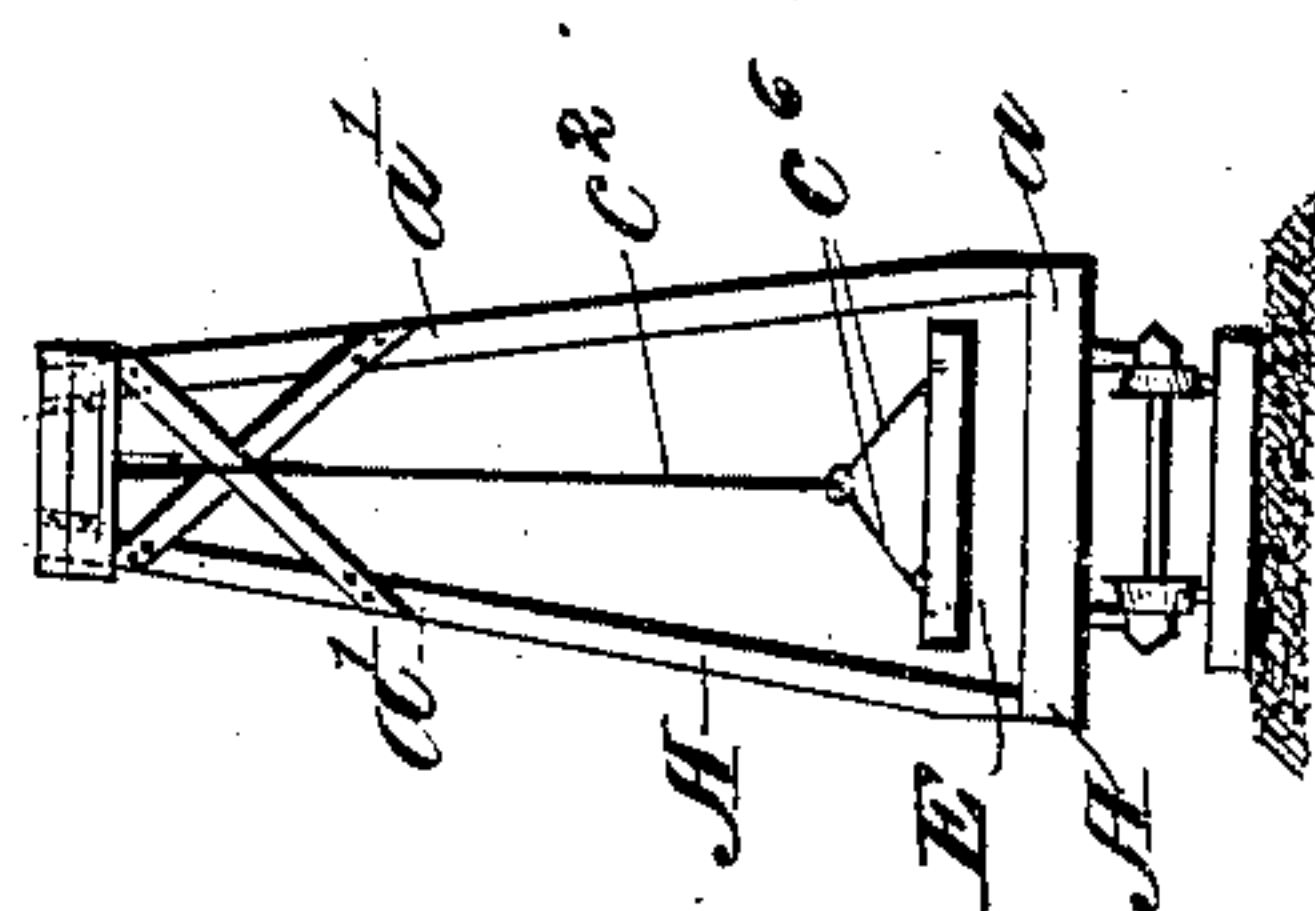


Fig. 2

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

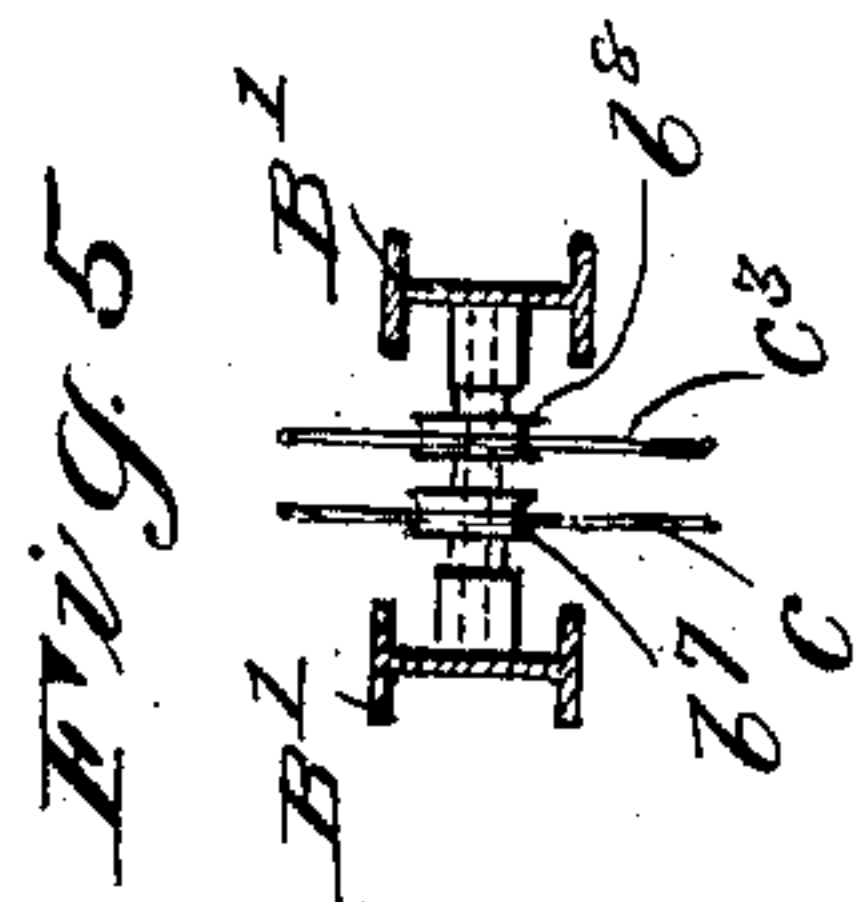
Inventor:  
 John R. McGiffert  
 by J. B. Fay  
 Attorney.

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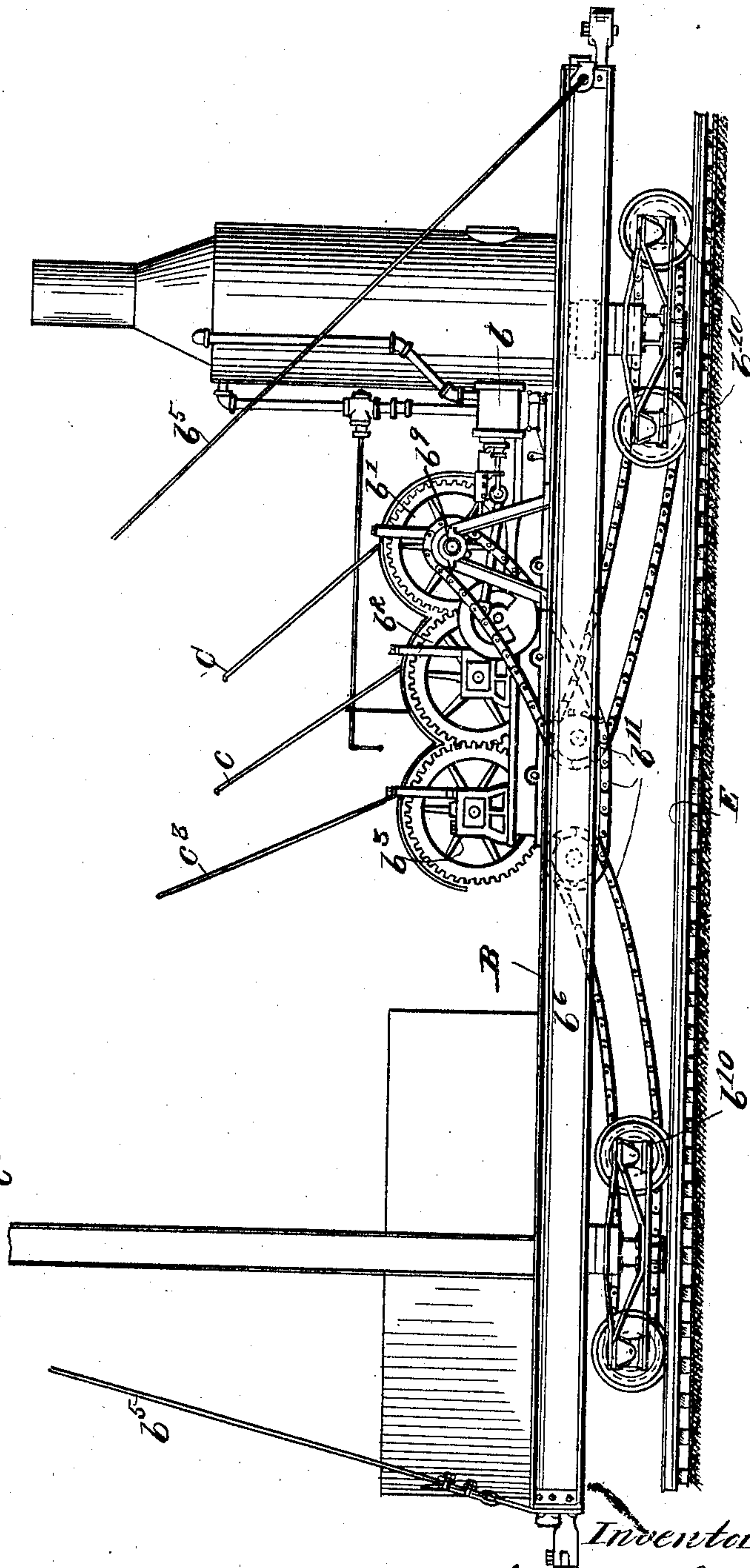
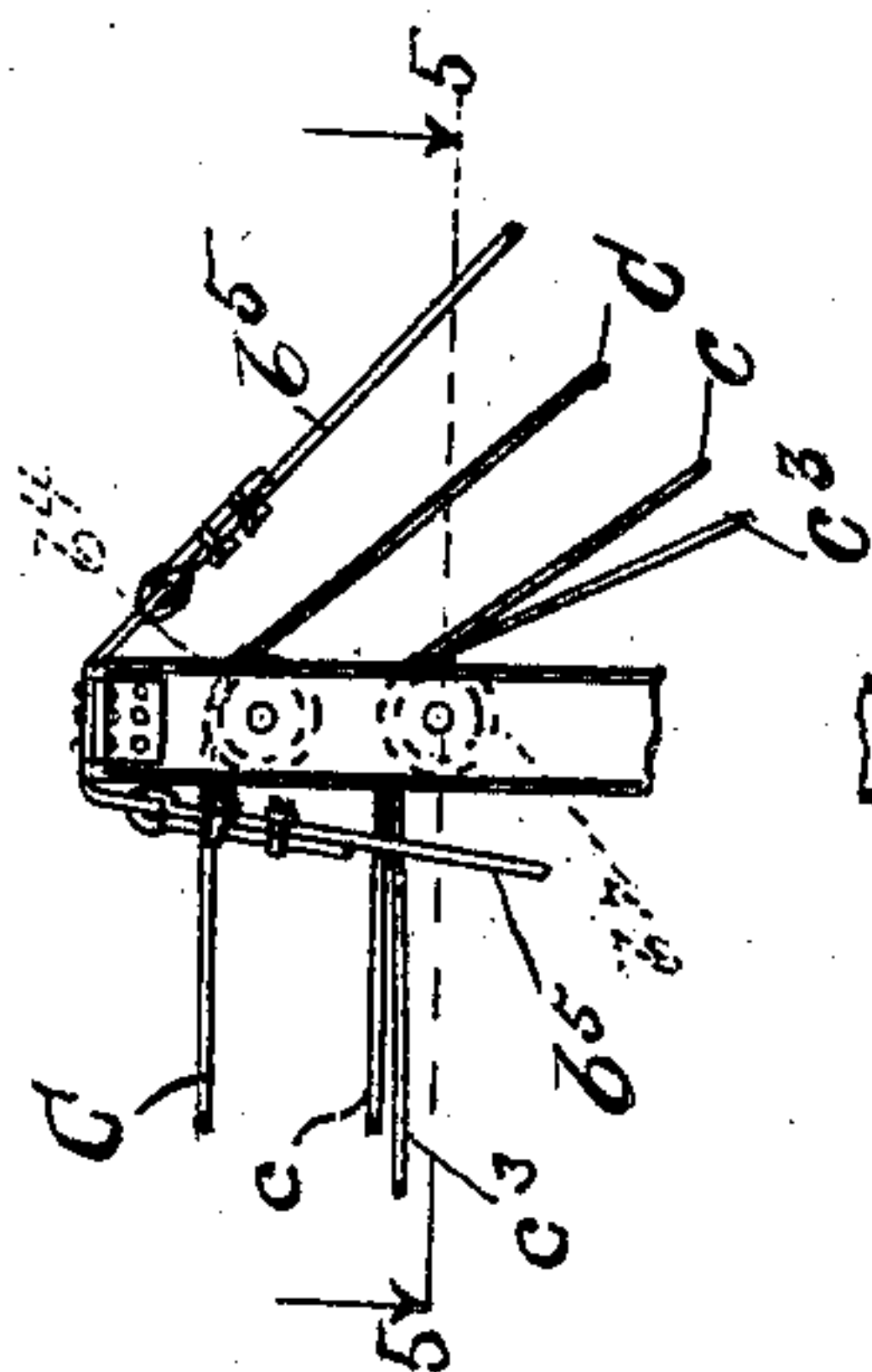
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3 SHEETS—SHEET 2.



*Fig. 3*



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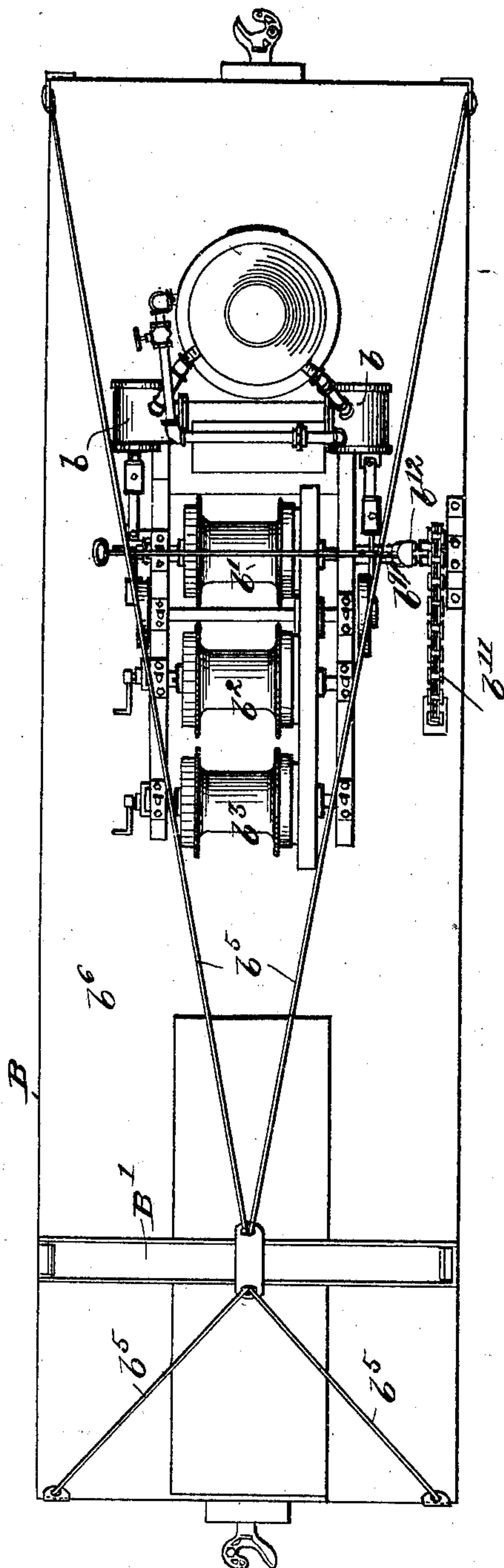
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3 SHEETS—SHEET 3.

*Fig 4*



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# UNITED STATES PATENT OFFICE.

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

## TRACK-LAYING MACHINE.

967,817.

Specification of Letters Patent.

Patented Aug. 16, 1910.

Application filed May 20, 1909. Serial No. 497,270.

*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 Track-Laying Machines, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

As is well known, machines have been used more or less in railway construction work in order to facilitate or render possible the more rapid laying of the track by providing means for depositing the ties and rails, whereof said track is constructed, approximately in the place where they are to lie. The present invention belongs to this general class of machines, being particularly designed, however, for use in connection with the laying down and taking up of sectional track, that is, track where the rails and ties are already assembled, the former being spiked onto the latter so as to form sections approximately equal in length to that of the rails. Track thus constructed is largely used, for example, in connection with logging operations, it being customary in such operations to run a main line, more or less permanent, through the timber, and from this main line to extend temporary spurs or lateral branches. Such branches are run out on both sides of the main line at intervals of from six hundred feet to one-half mile, depending on the density of the timber and other circumstances. As these spurs or branches are used only for the transportation of the logs which are adjacent to them, they are very temporary in their character, they are frequently taken up and relayed every thirty or forty days. It will, accordingly, be seen that three or four spurs are all that are ordinarily required to be in use at one time, so that a comparatively small quantity of rail and ties suffices for the branch lines, each spur being taken up as soon as it is no longer needed and placed in a new location. This, however, necessitates the very frequent taking up and relaying of the tracks, and it is for this operation that the invention in hand is particularly designed, as has been indicated.

Said invention then consists of the means

hereinafter fully described and particularly pointed out 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.

In said annexed drawings:—Figure 1 is a side view of a track laying machine embodying my several improvements along with various accessory parts; Fig. 2 is an end view of one of the cars forming a part of said machine; Fig. 3, is a side elevation on a larger scale of the other of said cars whereon is carried the winding mechanism of the machine; Fig. 4 is a plan view of such last-named car; and Fig. 5 is a sectional view of a detail taken on the line 5—5, Fig. 3.

Referring first to Fig. 1, my improved machine will be seen to comprise in general, two special cars A and B, respectively provided with masts A' and B', between which latter is supported an extensible trolley line C forming a cableway, whereby a variable number of ordinary freight or logging cars D may be coupled between said masted cars. These intermediate cars are designed to carry the sections E of track that are either being laid in place on the road bed, or removed therefrom for transportation to another site, a carriage C' movable along cableway C being utilized in the handling of such track sections.

Of the two special cars A and B, the foremost one comprises an ordinary flat bed  $a$  that forms a base upon which is mounted the mast A', said mast comprising two forwardly inclining side frames  $a'$  that are connected at their outer ends, only so as to leave ample space between the sides for the passage therethrough of a section of the track, as is necessary in the operation of the machine. A single sheave  $a^2$  is mounted in the forward upper end of said inclined mast, around which passes a cable  $c$  for drawing the carriage C' forwardly on the cableway from which the carriage is suspended, the forward end of said line being fixedly attached to the peak of said mast at  $a^3$ .

The rearmost car B is a self-propelling car upon which, as has been previously stated, I mount the operating mechanism of



the machine, consisting particularly of three winding drums,  $b'$ ,  $b^2$  and  $b^3$ , and a suitable engine  $b$  for operating the same. The inner end of the trolley line C is connected with the rearmost  $b'$  of said three drums, said line passing thence over a sheave  $b^4$  in the upper end of the mast B of the rear car to its point of attachment  $a^3$  on the foremost mast A'. Mast B' is preferably in the form of an A-frame and is held in a vertical position by means of guy lines  $b^5$  extending from its top to the corners of the bed or frame  $b^6$  of the car. By winding in more or less of trolley line C, the latter may be maintained in proper taut condition, irrespective of the distance between the two cars A B, or in other words, irrespective of the number of intermediate cars D that may be employed, as will be obvious. Of the two remaining drums, the one  $b^2$  received the inner end of the carriage-operating cable  $c$  presently referred to, such cable passing over a sheave  $b^7$  in the mast B' of the rearmost car, (see Fig. 5), and around the sheave  $a^2$  in the forward mast to the front end of the carriage C' where it is attached. The latter is somewhat elongated, and is provided near its respective ends with two sheaves  $c'$   $c^2$ , over which pass the respective portions  $c^2$  of the bifurcated end of a second operating cable  $c^3$ , the inner or rear end of which is attached to the remaining drum on the rearmost car passing thence over a sheave  $b^8$  located by the side of sheave  $b^7$  in mast B'.

A spanner  $c^4$  separates the respective portions of such bifurcated cable end  $c^2$ , and, consisting preferably of a steel rail, has sufficient weight to cause such end to descend when the tension is taken off of the cable by unwinding drum  $b^3$ , the point of union  $c^5$  of the two portions being far enough to the rear of the carriage to prevent interference with the passage of the cable over the sheaves  $c'$  in the carriage. To spanner  $c^4$  in turn are attached crotch lines  $c^6$  that are provided at their lower extremities with tongs or grapples for attachment to the balls of the rails, as will be readily understood.

The engine is connected with drums  $b^2$   $b^3$ , so as to permit of their rotation in opposite directions when desired. Such operation is, moreover, had at approximately the same speed, so that the cable will be drawn off the one at approximately the same speed as it is wound onto the other. The effect of such operation of the drums, hence, will be to cause the carriage to move backwardly or forwardly, along cableway C, depending upon the direction of rotation in which the drums are operated, without either raising or lowering the load suspended from the outer bifurcated end of cable  $c^3$  and without requiring any inhaul cable and the additional winding mechanism that would be required therefor. When it is desired, on the

contrary, to raise or lower the carriage, out-haul cable  $c$  is drawn sufficiently taut, and its drum  $b^2$  held by brake or other suitable means, whereupon rotation of drum  $b^3$  will obviously be effective to raise or lower the outer weighted end of cable  $c^3$  depending upon the direction of rotation of said drum. Assuming, accordingly, that a track is being laid, such weighted cable end and carriage will be moved over one of the cars D upon which are located the track sections E employed in building the track. A section being grappled to the cable end, is thereupon raised a sufficient distance to clear the load, and by proper manipulation of the drums, the carriage is caused to travel to the forward end of the cableway, in which position the track section hangs clear both of the mast and the end car that supports the same, as shown in Fig. 1, and may thereupon be lowered into place. After such section has been suitably secured to the portion of the track already laid, the whole machine is advanced a corresponding distance, and another section brought up and dropped in place. In taking up track, the operation is the same, except that the order is reversed, the machine retreating a distance equal to the length of a track section, after each successive section has been taken up and stowed away on one of the intermediate cars.

In order to facilitate the frequent shifting of the machine thus seen to be necessary, rearmost car B is rendered self-propelling, by connecting shaft  $b^9$  with the trucks  $b^{10}$  of the car through suitable sprocket chains and sprockets  $b^{11}$ . By simply throwing a clutch  $b^{12}$  on the end of said shaft, the machine may be advanced or retracted in the manner just described, or along with intermediate cars such machine may be propelled for greater distances, as in the transportation of a stock of the track sections from one location to another.

By the foregoing construction, not only is the laying down and taking up of track rendered possible in an expeditious and efficient manner, but no complicated hoisting or conveying mechanism is required. At the same time, a machine perfectly flexible and of easy manipulation is provided, and one furthermore that is capable of self-propulsion from one point to another, rendering it independent of locomotives or other power for which there is generally plenty of use elsewhere in connection with operations such as those under discussion. I should also call attention to the advantage of the particular construction of trolley carriage and of the manner in which the hoisting operating cable is connected therewith. Said carriage being made of considerable length and the lower sheaves, over which the parted ends of said cable pass, being correspondingly separated, a track section



suspended from the carriage is kept in alignment with the track and the cars, and is prevented from swinging around so as to become entangled with the mast of the forward car or with other obstructions, as it is passed backward or forward along the train.

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 of an elevated way, a carriage movable along said way, a cable connected to move said carriage in one direction, and another cable passing through said carriage and thence depending for attachment to the article to be handled, the end of said second cable being normally weighted whereby said cable is adapted to move said carriage in the opposite direction, whether an article be attached thereto or not, upon paying out said first cable.

2. In mechanism of the class described, the combination of an elevated way, a carriage movable along said way, an out-haul cable for said carriage, and another cable passing through said carriage and thence depending for attachment to the article to be handled, the end of said second cable being normally weighted whereby said cable is adapted to haul said carriage in, whether an article be attached thereto or not, upon paying out said first cable.

3. In mechanism of the class described, the combination of an elevated way, a carriage movable along said way, an out-haul cable for said carriage, and another cable having a bifurcated end passing through said carriage at longitudinally separated points and thence depending for attachment to the article to be handled, said second cable being adapted to haul said carriage in the opposite direction to that of said first cable.

4. In mechanism of the class described, the combination of an elevated way, a carriage movable along said way, a cable connected to move said carriage in one direction, another cable passing through said carriage and thence depending for attachment to the article to be handled, and means adapted to wind in either of said cables and simultaneously pay out the other, the end of said second cable being weighted whereby said carriage may be moved in either direction as desired whether an article be attached thereto or not, said second cable being also independently operable to raise or lower an article attached to its depending end.

5. In mechanism of the class described, the combination of an elevated way, a carriage movable along said way, an out-haul cable for said carriage, another cable passing through said carriage and thence depending for attachment to the article to be handled, and means adapted to wind in either of said cables and simultaneously pay out the other, the end of said second cable being weighted whereby said carriage may be moved in either direction as desired whether an article be attached thereto or not, said second cable being also independently operable to raise or lower an article attached to its depending end.

6. In mechanism of the class described, the combination of an elevated way, a carriage movable along said way, an out-haul cable for said carriage, another cable having a bifurcated end passing through said carriage at longitudinally separated points and thence depending for attachment to the article to be handled, and means adapted to wind in either of said cables and simultaneously pay out the other, whereby said carriage may be moved in either direction as desired, said second cable being also independently operable to raise or lower an article attached to its depending end.

7. In mechanism of the class described, the combination of an elevated way, a carriage movable along said way, and a cable having a bifurcated end passing through said carriage at longitudinally separated points and thence depending for attachment to the article to be handled.

8. In mechanism of the class described, the combination of an elevated way, a carriage movable along said way, a cable passing through said carriage at longitudinally separated points and thence depending for attachment to the article to be handled, and a spanner separating the respective portions of such bifurcated cable end and serving as a weight for the latter.

9. In mechanism of the class described, the combination of an elevated way, a carriage movable along said way, a cable passing through said carriage at longitudinally separated points and thence depending for attachment to the article to be handled, a spanner separating the respective portions of such bifurcated cable end and serving as a weight for the latter, and crotch lines attached to said spanner.

10. In mechanism of the class described, the combination of two cars suitable supports borne thereby, respectively, a cableway extending from one support to the other, a carriage movable along said cableway, a cable connected to move said carriage in one direction, and another cable passing through said carriage and thence depending for attachment to the article to be handled, said second cable being adapted to move said



carriage in the opposite direction to that of said first cable.

11. In mechanism of the class described, the combination of two cars suitable supports borne thereby, respectively, a cableway extending from one support to the other, a carriage movable along said cableway, a cable connected to move said carriage in one direction, another cable passing through said carriage and thence depending for attachment to the article to be handled, said second cable being adapted to move said carriage in the opposite direction to that of said first cable, and a weight attached to the free end of said second cable.

12. In mechanism of the class described, the combination of two cars suitable supports borne thereby, respectively, a cableway extending from one support to the other, a carriage movable along said cableway, a cable connected to move said carriage in one direction, and another cable having a bifurcated end passing through said carriage at longitudinally separated points and thence depending for attachment to the article to be handled, said second cable being adapted to move said carriage in the opposite direction to that of said first cable.

13. In mechanism of the class described, the combination of suitable supports, a cableway extending from one to the other, an elongated carriage movable along said cableway and disposed parallel therewith, a cable connected to move said carriage in one direction, another cable having a bifurcated end passing through said carriage at longitudinally separated points and thence depending for attachment to the article to be handled, said second cable being adapted to move said carriage in the opposite direction to that of said first cable, and a spanner separating the respective portions of such bifurcated cable end and serving as a weight for the latter.

14. In mechanism of the class described, the combination of suitable supports, a cableway extending from one to the other, an elongated carriage movable along said cableway and disposed parallel therewith, a cable connected to move said carriage in one direction, another cable having a bifurcated end passing through said carriage at longitudinally separated points and thence depending for attachment to the article to be handled, said second cable being adapted to move said carriage in the opposite direction to that of said first cable, a spanner separating the respective portions of such bifurcated cable end and serving as a weight for the latter, and crotch lines attached to said spanner.

15. In a machine for laying track and the like, the combination of two cars respectively provided with masts; sheaves mounted in said masts; winding mechanism on one

of said cars; a line connected at its inner end with said mechanism, thence passing over a sheave in the corresponding mast, and attached at its outer end to the mast on the other car so as to form a cableway; a carriage movable along said cableway; a cable connected at its inner end with said mechanism, thence passing over sheaves in the two masts, and attached at its outer end to said carriage, whereby the latter may be drawn forwardly; and another cable connected at its inner end with said winding mechanism and thence passing over sheaves in the corresponding mast and in said carriage, the outer end of said cable depending from said carriage for attachment to the article to be handled.

16. In a machine for laying track and the like, the combination of two cars respectively provided with masts; sheaves mounted in said masts; winding mechanism on one of said cars; a line connected at its inner end with said mechanism, thence passing over a sheave in the corresponding mast, and attached at its outer end to the mast on the other car so as to form a cableway; a carriage movable along said cableway; a cable connected at its inner end with said mechanism, thence passing over sheaves in the two masts, and attached at its outer end to said carriage, whereby the latter may be drawn forwardly; another cable connected at its inner end with said winding mechanism and thence passing over sheaves in the corresponding mast and in said carriage, the outer end of said cable depending from said carriage for attachment to the article to be handled; and a weight attached to such outer cable end.

17. In a machine for laying track and the like, the combination of two cars respectively provided with masts; sheaves mounted in said masts; winding mechanism on one of said cars; a line connected at its inner end with said mechanism, thence passing over a sheave in the corresponding mast, and attached at its outer end to the mast on the other car so as to form a cableway; an elongated carriage movable along said cableway and disposed parallel therewith; a cable connected at its inner end with said mechanism, thence passing over sheaves in the two masts and attached at its outer end to said carriage, whereby the latter may be drawn forwardly; and another cable connected at its inner end with said winding mechanism and thence passing over sheaves in the corresponding mast and in said carriage, the outer end of said cable being bifurcated and the sheaves in said carriage over which such end passes being longitudinally separated; and a spanner separating the respective portions of such bifurcated cable end and serving as a weight for the latter.

18. In a machine for laying track and the



like, the combination of two cars respectively provided with masts; sheaves mounted in said masts; winding mechanism on one of said cars; a line connected at its inner end with said mechanism, thence passing over a sheave in the corresponding mast, and attached at its outer end to the mast on the other car so as to form a cableway; an elongated carriage movable along said cableway and disposed parallel therewith; a cable connected at its inner end with said mechanism, thence passing over sheaves in the two masts and attached at its outer end to said carriage, whereby the latter may be drawn forwardly; and another cable connected at its inner end with said winding mechanism and thence passing over sheaves in the corresponding mast and in said carriage, the outer end of said cable being bifurcated and the sheaves in said carriage over which such end passes being longitudinally separated; a spanner separating the respective portions of such bifurcated cable end and serving as a weight for the latter; and crotch lines attached to said spanner.

19. In a machine for laying track and the like, the combination of two cars respectively provided with masts; sheaves mounted in said masts; winding drums and an engine therefor on one of said cars; a line connected at its inner end with one of said drums, thence passing over a sheave in the corresponding mast, and attached at its outer end to the mast on the other car so as to form a cableway; a carriage movable along said cableway; a cable connected at its inner end with another of said drums, thence passing over sheaves in the two masts, and attached at its outer end to said carriage, whereby the latter may be drawn forwardly; and another cable connected at its inner end with yet another of said drums and thence passing over sheaves in the corresponding mast and in said carriage, the outer end of said cable depending from said carriage for attachment to the article to be handled, said engine being connected to simultaneously rotate the drums for said cables in opposite directions when desired.

20. In a machine for laying track and the like, the combination of two cars respectively provided with masts; sheaves mount-

ed in said masts; winding drums and an engine therefor on one of said cars; a line connected at its inner end with one of said drums, thence passing over a sheave in the corresponding mast, and attached at its outer end to the mast on the other car so as to form a cableway; a carriage movable along said cableway; a cable connected at its inner end with another of said drums, thence passing over sheaves in the two masts, and attached at its outer end to said carriage, whereby the latter may be drawn forwardly; and another cable connected at its inner end with yet another of said drums and thence passing over sheaves in the corresponding mast and in said carriage, the outer end of said cable depending from said carriage for attachment to the article to be handled, said engine being connected to propel the car upon which it is mounted, when desired.

21. In a machine for laying track and the like, the combination of two cars respectively provided with masts; an extensible cableway supported from said masts, whereby a variable number of cars may be coupled between said masted cars; and a carriage movable along said cableway.

22. In a machine for laying track and the like, the combination of two cars respectively provided with masts; an extensible cableway supported from said masts, whereby a variable number of cars may be coupled between said masted cars; a carriage movable along said cableway; and winding mechanism on one of said masted cars for operating said carriage.

23. In a machine for laying track and the like, the combination of two cars respectively provided with masts; an extensible cableway supported from the masts, whereby a variable number of cars may be coupled between said masted cars a carriage movable along said cableway; and winding mechanism on one of said cars for operating said carriage, said mechanism being also adapted to propel said car when desired.

Signed by me this 3rd day of May, 1909.

JOHN R. McGIFFERT.

Attested by—

M. W. LEPP,  
J. J. LUMM.