No. 724,577. PATENTED APR. 7, 1903.

M. B. HOLMAN & W. L. COWLES.

TRACK LAYING MACHINE.

APPLICATION FILED JUNE 16, 1902.

NO MODEL. 3 SHEETS—SHEET 1.

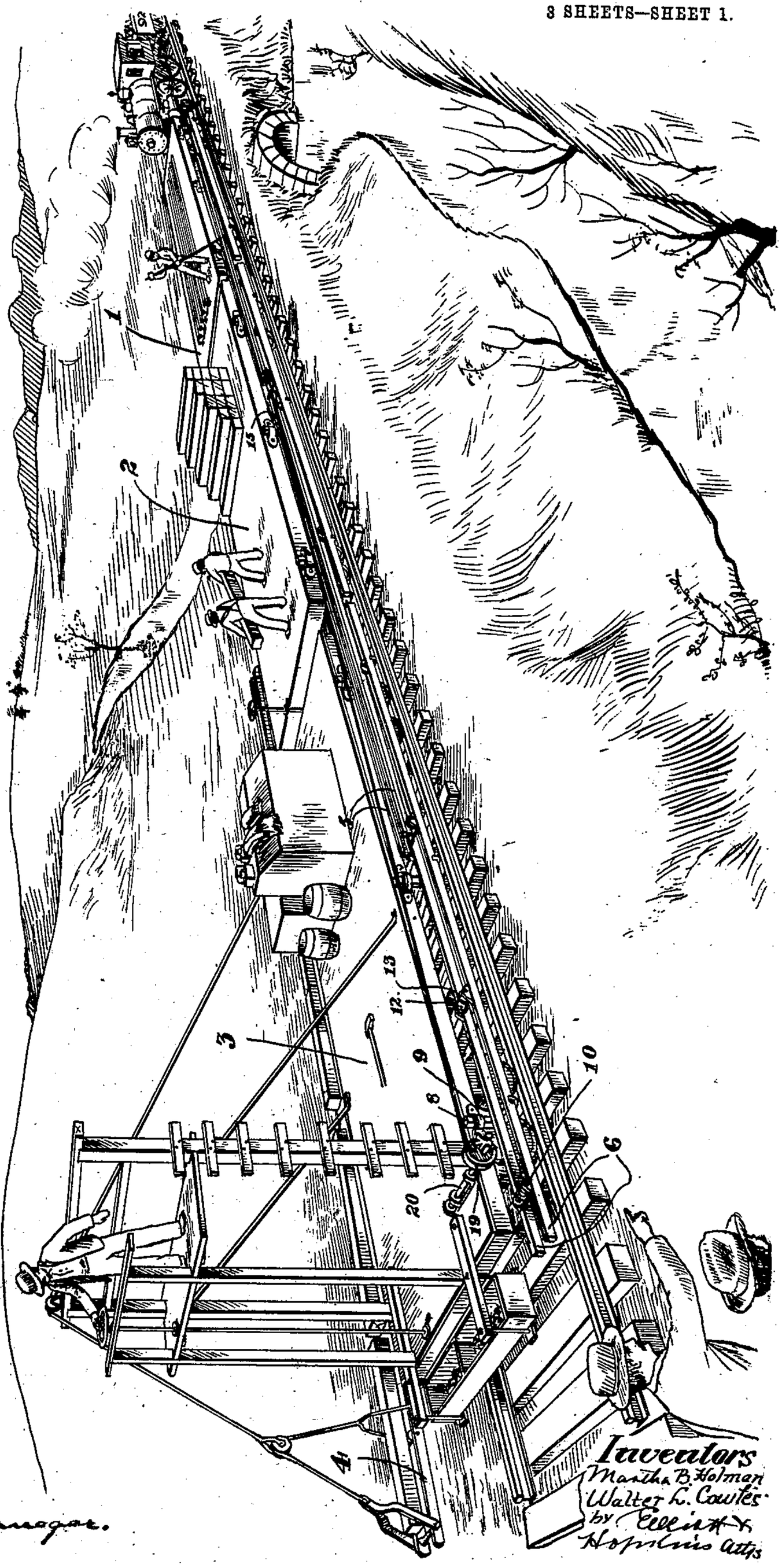

Fig. 1

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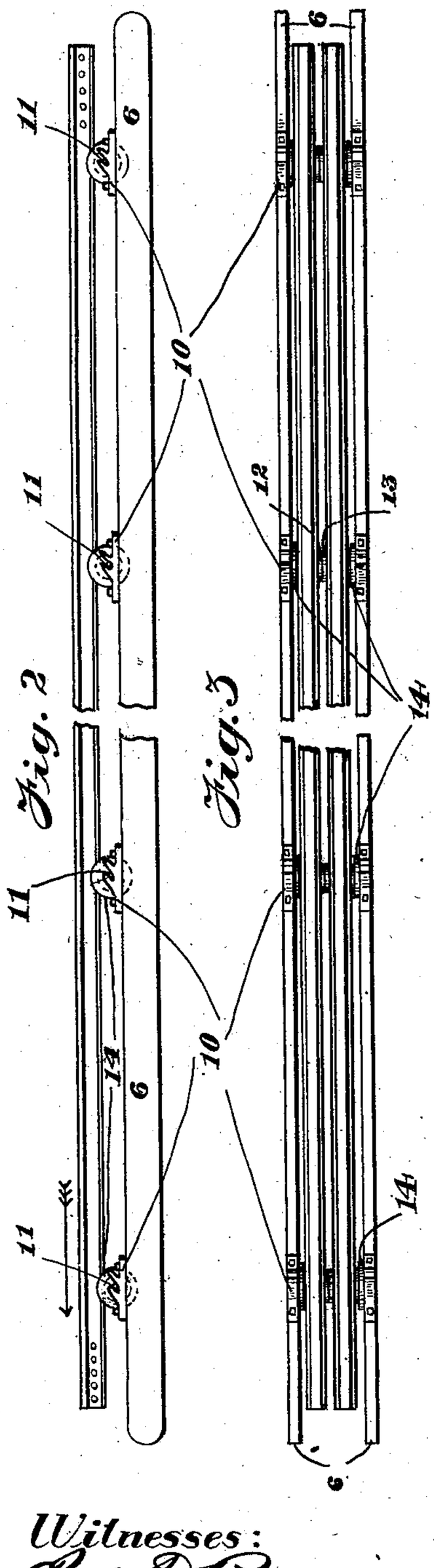

Fig. 2.

Fig. 3.

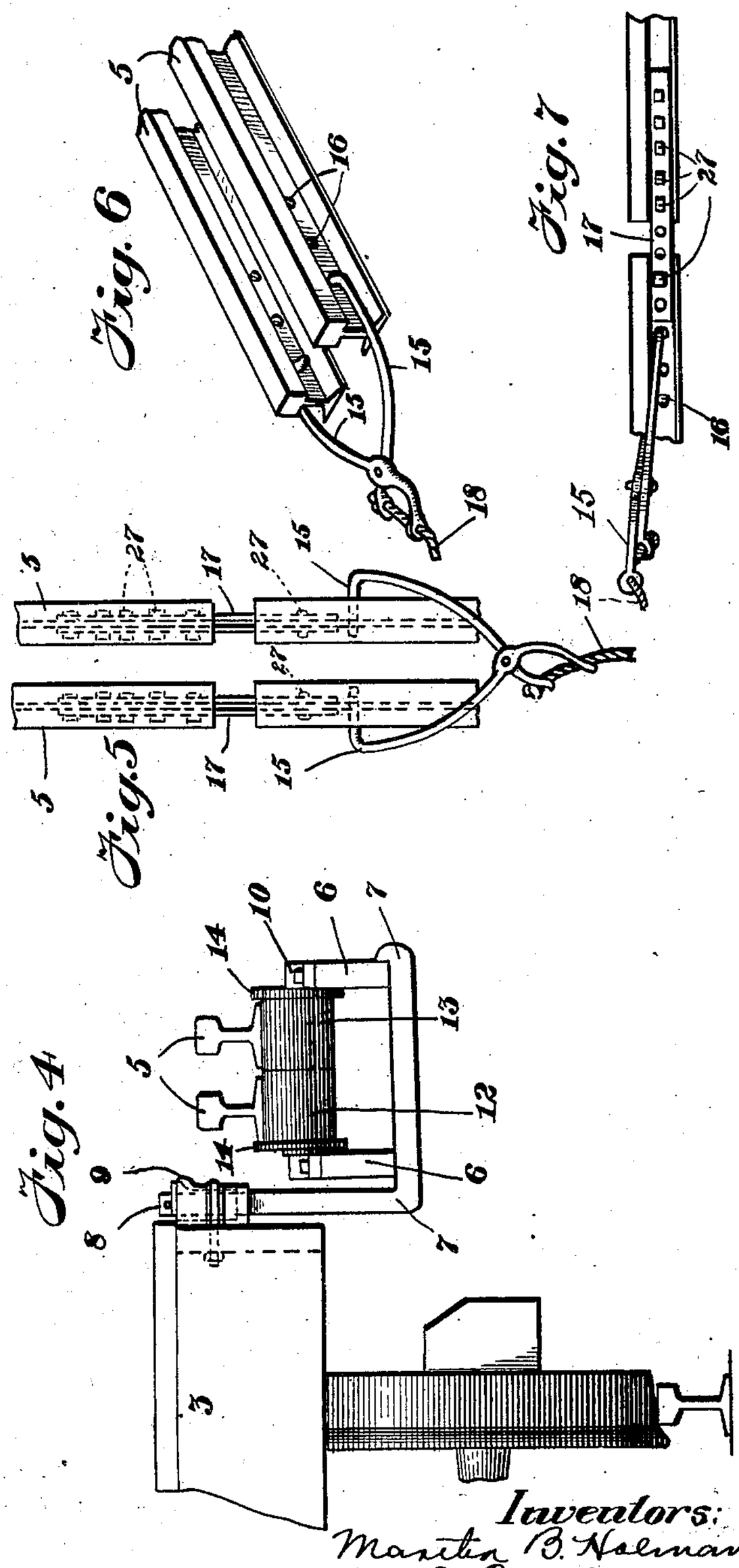

Fig. 6.

Fig. 5.

Fig. 7.

Fig. 4.

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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NO MODEL. 3 SHEETS—SHEET 3.

Fig. 8

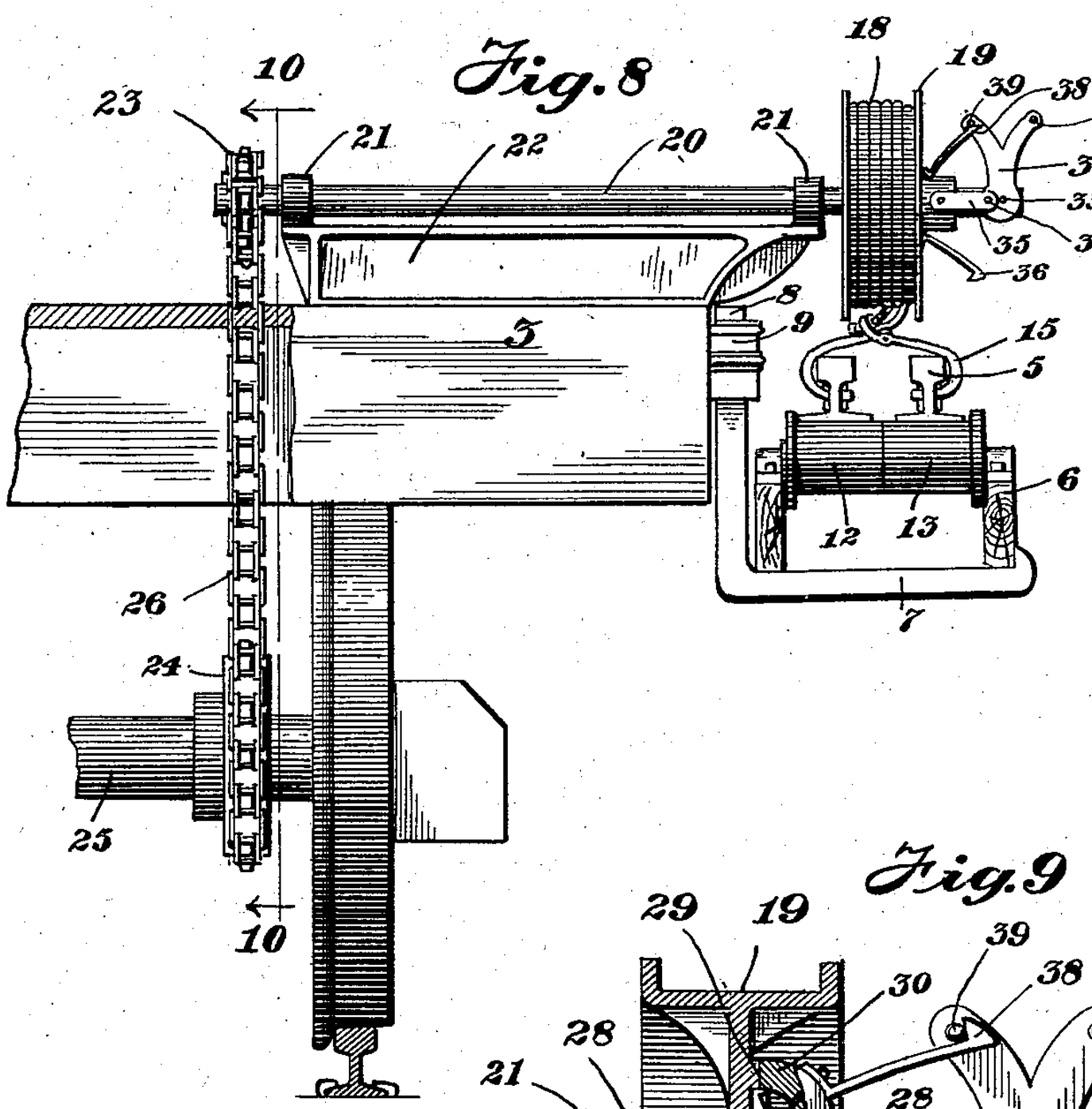


Fig. 9

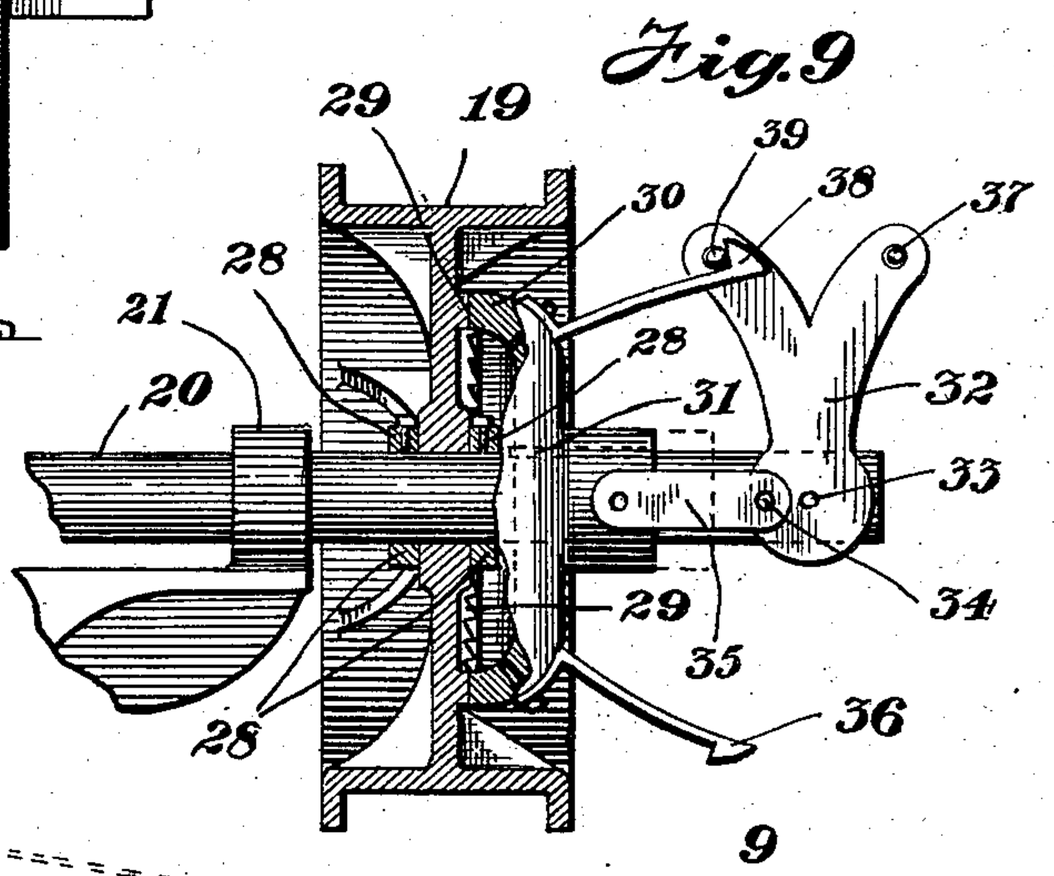


Fig. 10

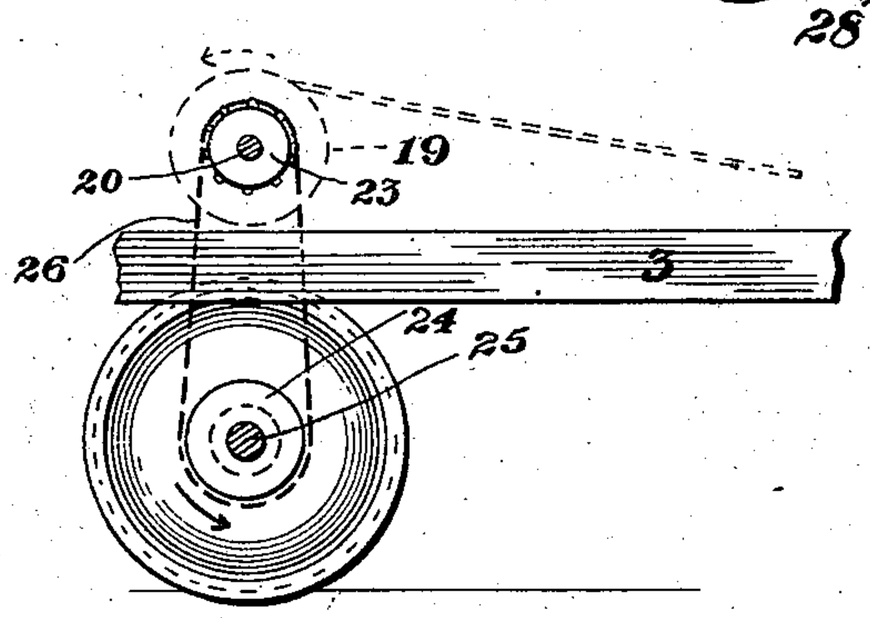
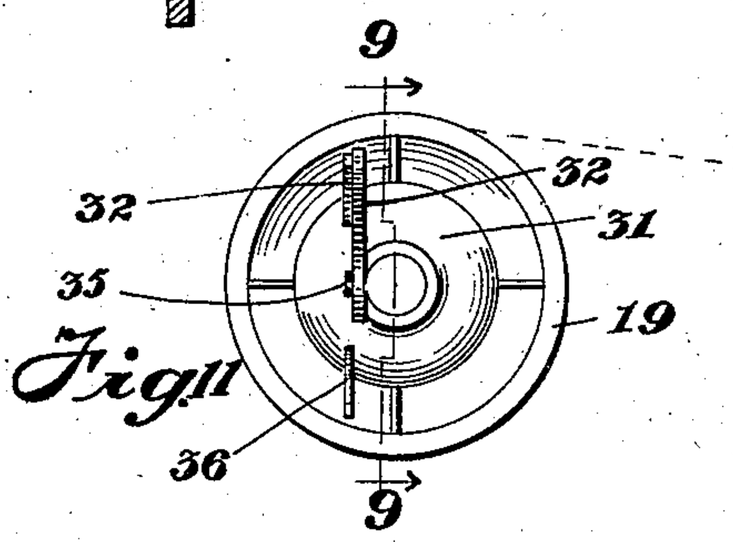


Fig. 11



Witnesses:
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Inventors:
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UNITED STATES PATENT OFFICE.

MARTHA B. HOLMAN AND WALTER L. COWLES, OF CHICAGO, ILLINOIS; SAID COWLES ASSIGNOR TO D. F. HOLMAN RAILWAY TRACK-LAYER COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

TRACK-LAYING MACHINE.

SPECIFICATION forming part of Letters Patent No. 724,577, dated April 7, 1903.

Application filed June 16, 1902. Serial No. 111,871. (No model.)

To all whom it may concern:

Be it known that we, MARTHA B. HOLMAN and WALTER L. COWLES, citizens of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Track-Laying Machines, of which the following is a full, clear, and exact specification.

Our invention refers to devices for laying the track members, such as rails and cross-ties of railway-tracks of that class in which the ties and rails are carried on cars and advanced to the front of the train as fast as needed along trams ranged along the sides of such cars; and one of the important objects of our invention is to advance the track members to be used along said trams by power derived from the motion of the car or train.

With these ends in view our invention consists in certain features of novelty in the construction, combination, and arrangement of parts by which the said objects and certain other objects hereinafter appearing are attained, all as fully described with reference to the accompanying drawings, and more particularly pointed out in the claims.

In the said drawings, Figure 1 is a perspective view of a train of cars equipped with our improved track-laying device. Fig. 2 is a detail side elevation of one of the rail-trams with a rail thereon. Fig. 3 is a plan view thereof. Fig. 4 is an enlarged end view thereof, showing the means for supporting the same on the side of the car. Fig. 5 is a detail view of the contiguous ends of four rails, showing the means for attaching the rails to the advancing rope or cable. Fig. 6 is a perspective view thereof, showing the rail-tongs attached to the forward instead of the rear ends of the rails. Fig. 7 is a side elevation of the device as shown in Fig. 5. Fig. 8 is an enlarged end view of one of the cars which carries the windlass, partly in vertical section, showing the means of attaching the windlass to the axle of the car. Fig. 9 is a vertical sectional view of the windlass and clutch mechanism, taken on the line 9 9, Fig. 11, showing the parts on an enlarged scale. Fig. 10 is a diagrammatic view in section on the line 10 10, Fig. 8, illustrating the relation between the car-axle and the windlass on a smaller scale; and Fig. 11 is a side or face view of the clutch mechanism and windlass-drum looking from the right in Fig. 8.

By advancing the rails with power instead of by hand we are enabled to carry the ties on the forward cars and the rails on the rear cars of the train, thus making it more convenient and less laborious for the men advancing the ties, which is best accomplished by hand, as heretofore, while the labor of advancing the rails involves merely the task of placing them properly upon the rail-trams at the rear of the train, whence they are carried forward automatically by the motion of the train itself. This arrangement of the cars is illustrated in Fig. 1, in which 1 is the rail-car, and 2 the tie-car, one of each only being illustrated, and in front of these cars is arranged a car 3, which carries the tools, windlass, and other implements, and which car is preferably utilized for operating as well as carrying the windlass.

On one side of the train is arranged a series of connected trams 4, which may be of the usual or of any suitable construction, for conducting the ties to the forward end of the train, while on the opposite side we support in any suitable manner a number of rail-trams for conducting the rails 5 to the forward end of the train, where they are taken off by hand and laid in place across the ties in the usual way. This rail-tram preferably consists of two side members 6, which are supported on brackets 7, having shanks 8, secured in sockets 9 on the sides of the cars, the side members 6 being provided with journal-bearings 10, in which are mounted axles or journals 11, each carrying two antifriction-rollers 12 13, constituting the parts of the rail-trams and serving to support and guide the rails while they are being advanced, the rollers 12 13 being preferably independent of each other and having end flanges 14 for holding the rails against lateral movement, so that two rails may be advanced simultaneously, if desired, and either of them taken from the final section of the tram independently of the other one.

The rails are placed side by side on the

rail-tram or section of rail-tram supported on the rail car or cars 1 by hand, after which a suitable hook or pair of tongs 15 is attached either to the rear ends, as shown in Fig. 5, or to the forward ends, as shown in Fig. 6, by passing the ends of the hooks through the bolt-holes 16, intended for the bolts which secure the fish-plates 17. The tongs, with the rails attached, are then drawn forward by a suitable rope or cable 18, which is wound upon the drum 19 of any suitable windlass, whose shaft 20 is journaled in bearings 21 on a bracket 22, supported on the tool-car 3. The inner end of the shaft 20 is provided with any suitable operative connection with one of the axles of the car which carries the windlass, such connection, whatever it be, being of such a character that the rail will be advanced the proper distance by that motion of the car which takes place between the time that one rail is laid and secured in place and the train is moved forward the proper distance for laying another, this distance usually being approximately the length of the rail. The operative connection employed for this purpose preferably consists of a sprocket-wheel 23 on the shaft 20 and another sprocket 24 on axle 25, connecting the sprocket 23 by a chain 26, the two sprockets being so proportioned with relation to the size of the drum 19 as to give the rail the aforesaid desired extent of movement when the train is advanced.

When the forward rail or forward pair of rails has advanced sufficiently to make room for another rail or pair of rails on the first section of the rail-tram—*i. e.*, the one carried by the rail-car nearest the locomotive—another rail or pair of rails is placed upon said tram and secured to the forward rail or pair of rails, preferably by the fish-plates 17, which may be permanently attached to one of the rails or to one pair of the rails, preferably the rear pair or rail, by the bolts 27, which are to be employed for securing the rails in place when on the ties, and the forward ends of the fish-plates may be temporarily attached to the two forward rails by bolts 27. When the rails are thus temporarily attached together, considerable space is left between their contiguous ends, as shown in Fig. 5, so as to afford the degree of flexibility necessary for rounding curves and leaving one or more of the bolt-holes free for the insertion of the hooked ends of the tongs 15. When the forward rails are taken from the tram by the workmen, the hooks or tongs 15 are detached and carried back and secured to a pair of rails in the rear, preferably to the rear ends of the next pair, in the manner shown in Fig. 5, so that they may be advanced until they project past the windlass.

In order that the drum 19 of the windlass may be rotated backwardly for thus permitting the rope or cable to be carried to the rear, it is provided with clutch connection or any other detachable connection with its shaft 20. As an example of such a device we show the drum 19 mounted loosely upon shaft 20 between two collars 28 and provided on one side with a series of teeth 29, which constitute the driven member of the clutch, and arranged to engage with this driven member is a driving clutch member 30, having corresponding teeth and secured to the shaft 20 by a spline 31, (shown in dotted lines in Fig. 9,) so as to be compelled to revolve with shaft 20 while capable of sliding longitudinally thereon in the usual manner. This driving clutch member 30 is given this longitudinal movement at the will of the workmen by means of a lever 32, pivoted at 33 to the end of shaft 20 and connected by wrist-pin 34 and link 35 to the driving member 30, so that when the lever 32 is thrown in one direction the driving member 30 of the clutch will be released from the driven member, permitting the drum 19 to run free. The driving member may be held in this released or disengaged position by a hook or catch 36, secured thereto and adapted to engage with a pin 37 on lever 32, and in order that the lever may not accidentally drop down and disengage the clutch members a second catch 38 is provided on the opposite side for engagement with a pin 39 on the lever.

The twin rollers 12 13 have plain surfaces without flanges at their inner ends, and said inner ends are arranged contiguous to each other with the space between the rollers in the line of their peripheries unobstructed, as better shown in Fig. 4, so that when the hooks 15 are attached to a pair of the rails the tendency of the hooks to draw the rails together will not cause undue friction and wear, as would be the case if flanges were employed between the rollers or if the inner ends of the rollers were supported in a separate support projecting above the line of their peripheries.

It is quite obvious that while it is desirable the rollers of the last or forward tram be double, the others, if desired, may be single, because on them the rails move in unison.

Having thus described our invention, what we claim as new therein and desire to secure by Letters Patent, is—

1. In a track-laying machine, the combination with a car and a tram supported thereon, of a windlass carried by said car and comprising a drum, means detachably connecting said drum with the car-axle, whereby the drum may revolve independently of said axle, and means in connection with said drum for advancing objects along said tram, substantially as set forth.

2. In a track-laying machine, the combination with a car of a tram supported thereon, and comprising twin rollers arranged in axial alinement with each other, and revoluble independently, for supporting a plurality of rails simultaneously, the inner ends of said rollers being plain without flanges, and arranged contiguous to each other, and the

space between them in the line of their peripheries being unobstructed, substantially as set forth.

3. In a track-laying machine, the combination with a car and a tram carried thereby, of a windlass mounted on said car, means operatively connecting said windlass with one of the car-wheels, said windlass comprising a drum and a clutch mechanism for detachably connecting said drum with the said means, substantially as set forth.

Signed at Chicago, Illinois, this 9th day of June, A. D. 1902.

MARTHA B. HOLMAN.
WALTER L. COWLES.

In presence of—
F. A. HOPKINS,
M. B. ALLSTADT.