(No Model.) 2 Sheets—Sheet 1.

B. J. PLEASANCE.

TRACK LAYING APPARATUS.

No. 360,817. Patented Apr. 5, 1887.

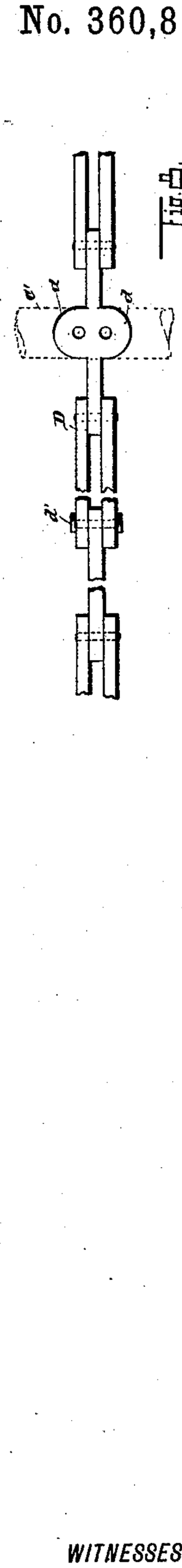

Fig. 1.

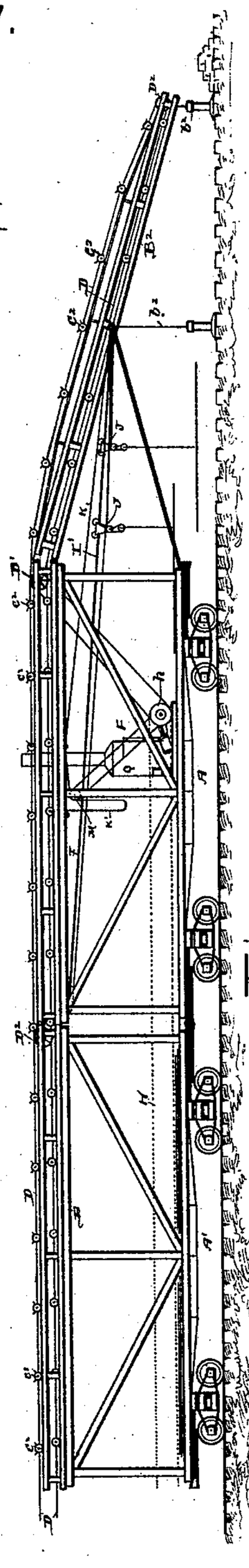

Fig. 2.

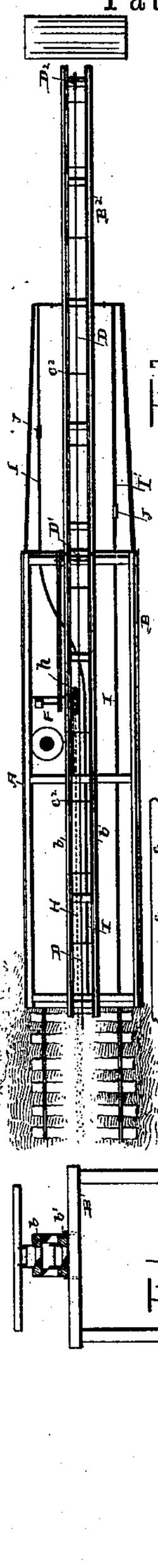

Fig. 3.

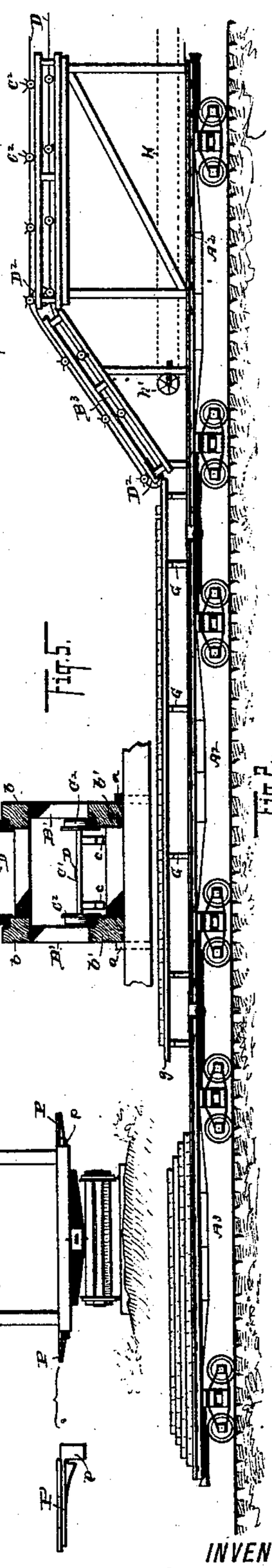

Fig. 4.

Fig. 5.

WITNESSES

N. S. Amstutz

Geo. W. King

INVENTOR

Benjamin J. Pleasance

By Leggett & Leggett

Attorneys

N. PETERS. Photo-Lithographer, Washington, D. C.

(No Model.)

2 Sheets—Sheet 2.

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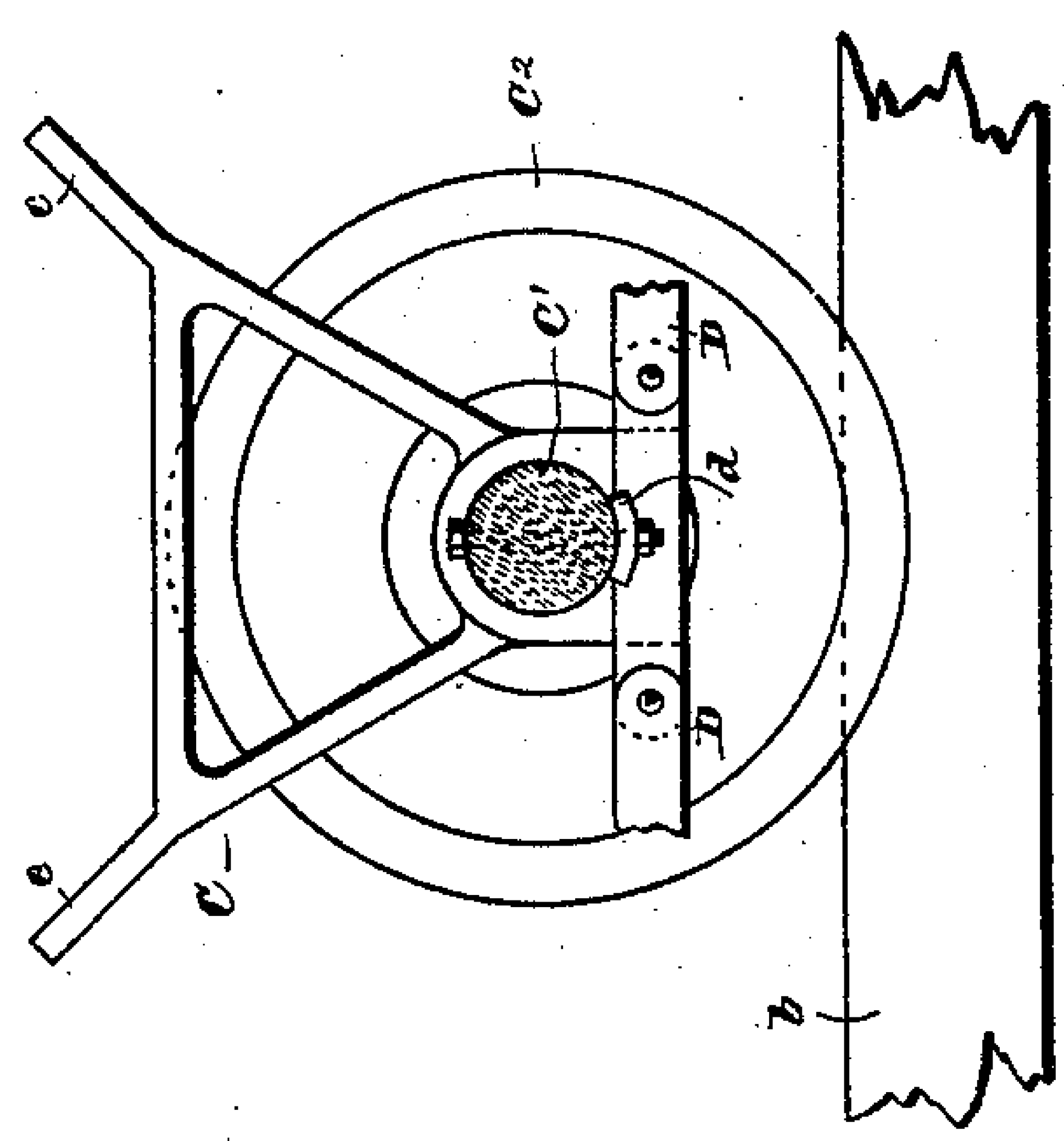
Fig. 5.



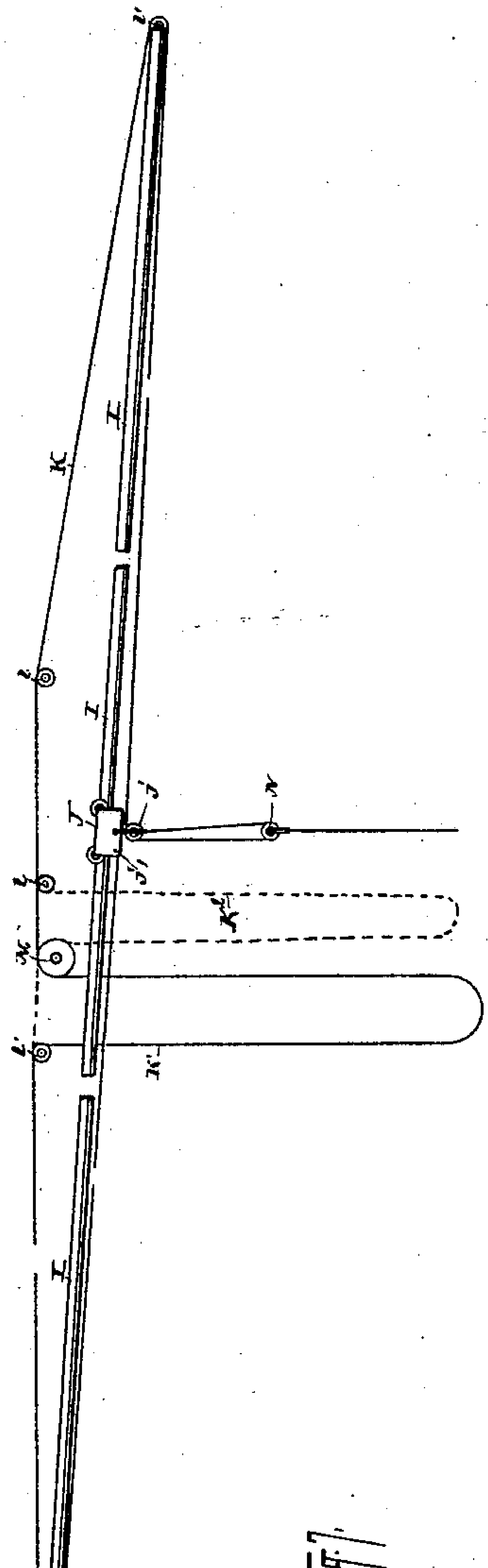


Fig. 7.

WITNESSES
N. S. Amstutz
Geo. W. King

Benjamin J. Pleasance INVENTOR
By
Leggett & Leggett Attorneys

N. PETERS. Photo-Lithographer. Washington, D. C.

UNITED STATES PATENT OFFICE.

BENJAMIN J. PLEASANCE, OF CLEVELAND, OHIO, ASSIGNOR OF ONE-HALF TO WILLIAM J. McKINNIE, OF SAME PLACE.

TRACK-LAYING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 360,817, dated April 5, 1887.

Application filed December 2, 1886. Serial No. 220,505. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN J. PLEASANCE, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Track-Laying Apparatus; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

My invention relates to improvements in track-laying apparatus in which a number of cars laden with rails are placed in advance of those carrying the ties, with a tramway, supported by suitable frame-work, for transporting the ties over the forward cars and dropping the same some distance in advance of the train, an endless chain operating a series of carriers being employed for transporting the ties. An endless chain is made to extend along the rail-laden cars for drawing the rails to the forward car, where hoisting mechanism and tramways are arranged for elevating and carrying the rails forward of the cars and depositing the rails respectively in the positions in which they are to be laid on the track. On the forward car is located the boiler, engine, water-tank, and machinery, generally, for operating the device, the object being to expedite track-laying and to save labor.

My invention also relates to the details of construction, hereinafter described and claimed.

In the accompanying drawings, Figures 1 and 2 are side elevations showing, respectively, the forward and rear portions of the construction-train with my improved apparatus arranged thereon. Fig. 3 is a plan. Fig. 4 is an end elevation. Fig. 5 is an enlarged elevation, in transverse section, of a tramway for transporting ties. Fig. 6 is a detail of the tie-carrier, the same being an end elevation. Fig. 7 is an enlarged diagrammatic view illustrating the mechanism for handling the rails. Fig. 8 is an enlarged plan showing a portion of the endless chain and the manner of connecting the same with the axles of the tie-carriers.

A represents the forward car, on which the boiler, engine, water-tank, and machinery in general is placed.

A′ are the cars laden with track-rails, any number of these cars being employed, as may be found necessary to hold rails sufficient for a day's work.

A^2 are cars for handling the ties, and A^3 are the cars loaded with ties.

The cars A, A′, and A^2 are provided with suitable frame-work, consisting of posts, braces, and cross-beams, arranged in any suitable manner for supporting the tramway B above. This tramway is made in sections to correspond with the length of the car, and consists, essentially, of side frames, B′, to which are attached tracks *b* and *b′*, these latter being preferably angle-irons that are bolted to the side frames, B′. The side frames are rigidly connected by suitable cross-pieces, tie-rods, or other devices, to render the sections of the tramway portable, as these sections are to be moved off the cars when the latter are unloaded and placed on other loaded cars, pins *a* or other suitable devices being employed to temporarily hold the sections in place on the car while the device is being operated. An inclined truss, B^2, is attached to the car A, and extends some distance in advance of this car, for supporting the tracks *b* and *b′*, and the rear ends of these tracks are supported by an inclined frame-work, B^3, located on the rear portion of the car A^2. Props b^2 may be employed for supporting the truss B^2, if necessary, while the device is being operated; but the truss is braced from the car and made self-supporting while the car is being moved along the track.

Carriers C are made to travel on the tracks *b* and *b′* by means of an endless chain, D, for the purpose of transporting the ties from the car A^2 and discharging them at the forward end of the truss B^2. A driving sprocket-wheel, D′, is operated from the engine F, and idle sprocket-wheels D^2 are arranged at suitable intervals to guide the chain in operating on curves, each section of the tramway usually having one such idle sprocket-wheel attached; also, a sprocket-wheel is located at the extreme forward end of the truss B^2 and at the rear end of the incline B^3, the latter usually being provided with movable boxes and screws for operating the boxes to tighten or loosen the

chains. Such devices being common to almost every endless chain, it is not considered necessary to describe the same in detail.

The chain D is of the variety shown in Fig. 8, certain of the inside links having laterally-projecting ears *d*, pierced for bolts for securing an axle, C′, to the carrier. The axles have wheels C^2 journaled on the respective ends thereof, the wheels traveling on the tracks *b* and *b′* as the carriers are moved by the chain. The axles are usually about three feet (more or less) in length, and next inside the wheel have attached holders *c* for supporting and carrying the ties *c′*. The holders are of the forked variety shown, with the bottom of the seat that supports the ties elevated above the top of the wheel. The draft of the chain is sufficient to hold the carriers in proper position. At various points the joints of the chain are secured by bolts *d′*, instead of rivets, by means of which the chain may be easily uncoupled at suitable places when the tramway is to be moved, leaving on each section of the tramway the carriers and such portions of the chain as at the time may be found on such section.

Removable benches G may be provided for supporting skids *g*, on which latter the ties are placed and slid along to the workman who delivers the ties to the carriers.

An endless chain, H, runs on sprocket-wheels *h* and *h′*, the former being the driver. The sprocket-wheels are located, as shown, near the floor of the car and, respectively, on cars A and A^2, by means of which the chain passes along the cars laden with track-rails. An ordinary hook, with one end adapted to enter the links of the chain and the other end adapted to enter one of the bolt-holes near the forward end of the rail, or other suitable grappling device, is employed for drawing the rails from the different cars to the car A.

Tracks I and I′ are suspended overhead and supported from the frame-work of the car A and from the truss B^2, the outer ends of these tracks being in position over the line of the railroad-tracks. Wheel-carriers J travel, respectively, on the tracks I and I′ with the following described mechanism for elevating the rail and operating the carrier and carrying the rail forward of the car and lowering the rail in its place on the railroad-track and returning the carrier: A rope, K, has one end attached to the carrier at *j′*, and from thence leads rearward over pulleys L and L′, (see Fig. 7,) and from thence leads around a driving-drum, M, and from thence over any desired number of carrying-pulleys *l* and over the pulley *l′*. From thence it passes back to the sheaves *j* of the carrier, thence under a sheave, N, of the hoisting-block, and thence back to the carrier, where it is secured. The driving-drum M has suitable mechanism connected therewith for stopping, starting, and reversing the movements of the drum, all of which may be of any ordinary construction, such as generally employed for such purposes.

The rope K, when the hoisting-block is in the elevated position shown, has sufficient slack at K′ to admit of the rail being lowered by "easing off" the coil of the rope on the drum. After the hoisting-block is connected with the rail—usually by a chain or grappling-iron of some kind—the operator sets the drum in motion in the direction to wind up the rope leading over the pulley *l′* and sheave *j′*, by means of which the hoisting-block and rail are elevated until the hoisting-block comes in contact with the carrier J, after which the carrier is moved forward on its track by the draft of the rope and carries the rail forward of the car, the operator keeping, by hand, the rope taut on the drum. The length of the chain or grappling-iron is such, usually, that the rail is only elevated a few inches, just enough to clear it from the car. When the rail is in position over the railroad-track, the drum is stopped and the operator slacks off the rope to lower the rail, in doing which, if the rope has been made of suitable length, the slack at K′ will have been approximately taken up. The drum is then reversed, by means of which the slack is transferred to the opposite side of drum M, as shown by dotted lines at K^2 in Fig. 7, and the carrier is drawn back over the car to its place of beginning.

The ties are usually loaded crosswise of the car, leaving little or no room for workmen to pass or stand along the side of the car. I therefore provide detachable platforms P, the same being arranged alongside the car, with lugs *p* connected with the platform at different points, said lugs being adapted to fit in the stake-sockets of the car. The platform may be lifted off and changed from one car to another, as required, to make standing-room for the workmen in handling the ties.

The train laden with ties and rails is run to the end of the track and the machinery set in motion—first, to convey the ties forward to be placed in position on the road-bed, after which two rails are laid in place and the train is moved forward to near the end of the last-laid rail, and so on.

What I claim is—

1. In track-laying apparatus, a portable tramway, made in sections, to rest on the frame-work of the respective cars, said tramway having a series of carriers to operate thereon, an endless chain for operating the carriers in transporting ties over the tops of the cars, substantially as set forth.

2. In track-laying apparatus, the combination, with a portable tramway, carriers, and endless chain, arranged substantially as indicated, of a truss connected with the forward end of the train, made to extend over the road-bed, said truss having tracks made to correspond and connect with the tracks of the aforesaid tramway, substantially as set forth.

3. In a track-laying apparatus, the combination, with a portable tramway, truss, carriers, and endless chain, arranged substantially as indicated, of an incline arranged at the rear end of the portable tramway and form-

ing a continuation of the latter, substantially as set forth.

4. In track-laying apparatus, the combination, with a portable tramway, truss, incline, and endless chain, arranged substantially as indicated, of carriers connected with the endless chain and made to travel on the said tramway, each carrier consisting, essentially, of axle, wheels, and holders for the ties, substantially as set forth.

5. In a track-laying apparatus, the combination, with suspended tracks extending over the road-bed, carriers mounted on said tracks, substantially as indicated, of rope and drum for operating the carriers, said rope being coiled around the drum and leading forward and rearward over idle-pulleys, and returning from such idle-pulleys to the carriers, with the ends of the rope secured to the latter, the rope end leading forward being made to pass around the sheaves of the carrier and hoisting-block, substantially as set forth.

6. In track-laying apparatus, the combination, with cars for transporting ties, of removable platforms for attaching to the sides of such cars, said platforms having attached supporting-lugs adapted to fit in the stake-sockets of the car, substantially as set forth.

In testimony whereof I sign this specification, in the presence of two witnesses, this 21st day of October, 1886.

BENJAMIN J. PLEASANCE.

Witnesses:
CHAS. H. DORER,
ALBERT E. LYNCH.