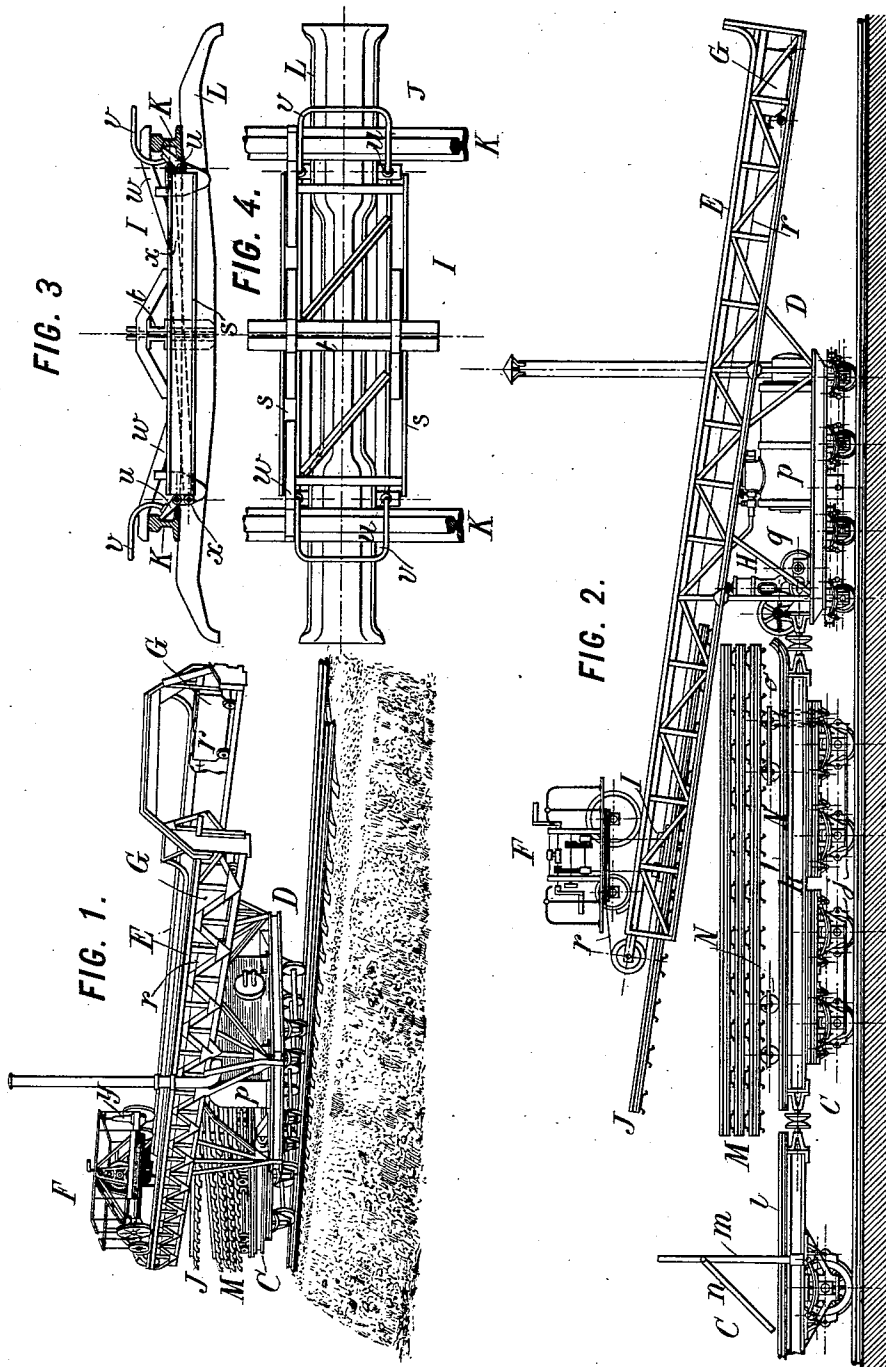


R. BEHREND'S.
RAILWAY TRACK LAYER.

No. 564,585.

Patented July 28, 1896.



WITNESSES:

Fred White
Thomas F. Wallace

INVENTOR:

Robert Behrends,
By his Attorneys
Arthur C. Thayer

(No Model.)

2 Sheets—Sheet 2.

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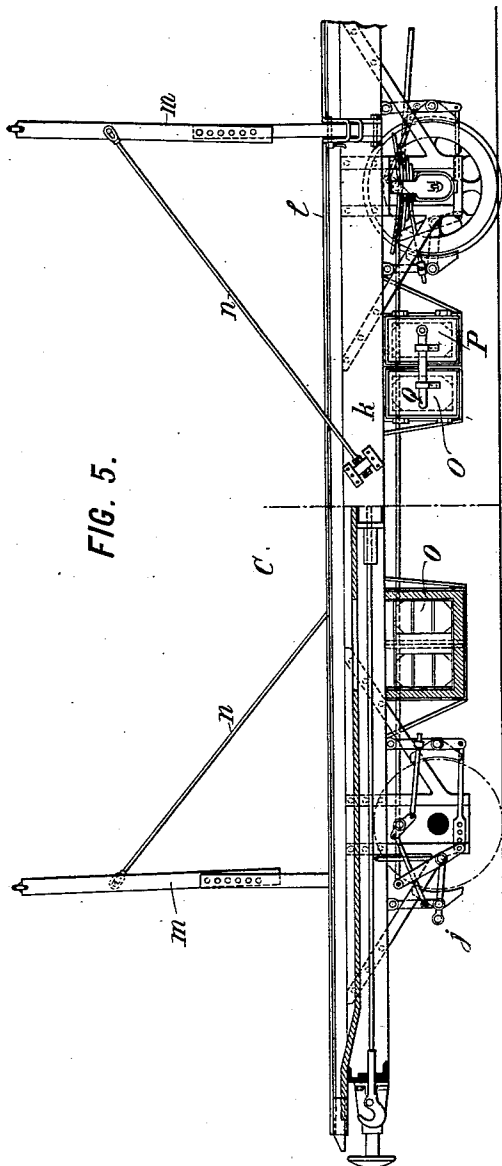


FIG. 5.

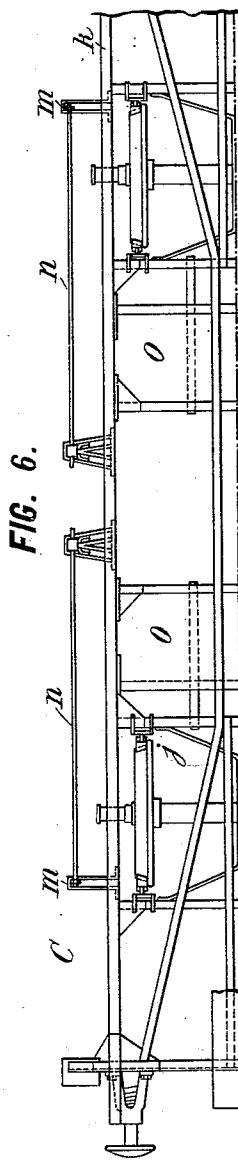


FIG. 6.

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UNITED STATES PATENT OFFICE.

ROBERT BEHREND, OF FRANKFORT-ON-THE-MAIN, GERMANY, ASSIGNOR
TO THE MASCHINENBAU - ACTIEN - GESELLSCHAFT NÜRNBERG, OF
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RAILWAY-TRACK LAYER.

SPECIFICATION forming part of Letters Patent No. 564,585, dated July 28, 1896.

Application filed June 25, 1895. Serial No. 553,970. (No model.)

To all whom it may concern:

Be it known that I, ROBERT BEHREND, a citizen of Switzerland, and a resident of Frankfort-on-the-Main, Prussia, Germany, have invented certain new and useful Improvements in Means for Putting and Removing Fitted and Adjusted Rail-Pieces for Railways, of which the following is a specification.

This invention relates to means for transporting and laying sections or rail-pieces for railroads, and aims to provide improved means for accomplishing such work.

The new apparatus comprises in its preferred form traveling fitting-carriages having track-wheels, longitudinal frames, and cross-pieces or guides, which pieces serve as detents for holding the sleepers in their proper relative positions on the beams during the fastening of the rails to the sleepers, so that a section can be made up on this fitting-carriage, and all sections so made will be identical or reciprocal in construction, and consequently will properly fit together when successively laid. The apparatus also comprises a plurality of transporting wagons or cars having longitudinal rails projecting beyond their ends, small trucks running on these rails and carrying nests of sections, whereby when the sections of one car are used up the sections of a following car can be rolled from its tracks onto the tracks of the preceding car, improved means for grasping the sections and improvements in the section-lifting, transporting, and delivering mechanism, all as will be more fully hereinafter set forth with reference to the accompanying drawings, which illustrate the preferred adaptation of my improvements, and in which—

Figure 1 is a perspective view of the track-layer and a transporting-car. Fig. 2 is a side elevation thereof. Fig. 3 is an enlarged transverse section of one of the rail-sections, showing my improved gripper in front elevation. Fig. 4 is a fragmentary plan view thereof. Fig. 5 is a side view, partly in longitudinal section, of a transporting-car; and Fig. 6 is a partial plan thereof.

Referring to the drawings, C is the transporting-car; D, the machine-carriage of the track-layer; E, inclined bearings; F, a winch

running thereon; G, counterweights therefor; H, a motor on the carriage D; I, grippers supported from the winch by which the rail-sections can be gripped to lift them; J, the rail-sections; K, the rails, and L, the sleepers thereof; M, a nest of rails; and N, the nest-trucks.

The transporting-cars C have suitable running-gear, as double trucks *j*, by which they can be run on the track already built and around curves, a body *k* above these trucks, and tracks *l* on their upper sides, the ends of which tracks project beyond the ends of the body and constitute a substantially continuous track from one car to another of a train of transporting-cars. On these tracks *l* run the nest-trucks N, which are simple carrying-trucks beneath a nest of track-sections, by which the sections can be rolled from one car C to another until they are brought to the end car, from which they are lifted by the gripper I of the winch F, running over inclined tracks E, supported on the machine-carriage D. The cars C are provided with uprights or other provisions *m* for preventing spilling of the nest of rail-sections, and with chains or links *n* between these uprights for holding the sections in place. Any means, such as the chains *o*, can be used for preventing rolling of the trucks N on the cars C. The end car may be coupled to the carriage D and the following cars may be pushed up against it by a locomotive or in any suitable way.

When the trucks N are emptied, they may be removed by a small turning-crane which is movable on the tracks of the cars C, and which sinks the trucks down into a casing O provided in the frame of the end car, or puts them aside, so that the following laden trucks may have a free passage onto the car from which the unloading is done. The transporting-cars serving to carry the fitted rail-pieces to the front end of the line being laid are, as illustrated in Figs. 5 and 6 of the drawings, built according to the type of the ordinary flat freight-cars and provided with the usual brake devices. Between the two axles of the cars, in the framework thereof, suitable casings O are disposed at such level that the trucks N can be lifted from the tracks and sunk into said casings, so that they then will

be below the tracks *l* and will not hinder a free passage of the following trucks running along the rails to the track-laying apparatus.

The casings within the framework of the cars may be provided with lateral gates *P*, locked by means of cross-bars *Q*, which may be opened in order to remove the trucks. The transporting-cars are provided with adjustable uprights *m* for preventing the displacement of the rail-nests upon the trucks while the transporting-cars are in motion. When the transporting-cars have arrived to the front end of the line being laid, and the trucks are to be advanced successively, the uprights are laterally laid down and the fastening devices released in order to freely permit advancing movement of the trucks toward the track-laying apparatus.

The machine-carriage *D* may be of any suitable construction, and have any suitable motor for driving the apparatus. The car shown has a boiler *p* and a steam-engine *q* from which power is derived. The carriage *D* runs on multiple trucks, which permit of its turning curves in the track.

The carriage *D* supports and fixedly carries the inclined tracks *E* so that they project at both ends beyond the carriage about half the length of a rail-section. Their rear ends are inclined above the nest of sections, and their front ends downwardly toward the front end of the line being laid.

The winch *F* runs longitudinally of the tracks *E*, and may be any suitable construction of power carriage. It is counterbalanced by two weights *G* connected to it by a belt *r*, as shown in Figs. 1 and 2.

One gripper *I* travels with the winch *F*, descending on the uppermost rail-section, grasping and lifting it, and then carrying it downwardly and forwardly and depositing it in place in front of the section previously laid and in position to be fastened thereto. The gripper automatically grasps the section as it falls thereon, and consists of side-beams *s s*, a cross-beam *t* by which it is supported, pivoted claws *u* catching the rails, handles *v* for the claws, and stops *w* resting on the rail-section to limit the fall of the gripper within the latter. In grasping a section the gripper falls between the rails until its claws pass beneath the heads of the latter, whereupon when lifted it will lift the section with it. To free the section, the handles *v* are raised, thus disengaging the claws from the rails. This is facilitated when the rail-section strikes the ground by the continued falling of the gripper through it, which loosens the claws and permits their lifting. The gripper has inclined bars *x* between its claws *u*, connecting them and causing them to rise and fall together when either is opened by its handle.

When the top rail-section is lifted from the trucks *N* of the four-axled car, coupled to the machine-carriage *D*, by the winch *F*, a brake *y*, stopping the wheels of the winch *F*, is disengaged so as to permit the automatic run-

ning down of the winch *F* on the track which results from the combined weight of the winch and rail-section overcoming the counterweight *G*. The latter is drawn up by the descending winch, owing to the belts *r* between and connecting the winch and weight. When the section reaches the road-bed it will be detached, and then the carriage will be automatically run up by the weight *G*, through the connection *r*, as the weight *G* descends.

In carrying out the process of building roads with the apparatus described, the rail-sections will be made and nested on the cars *C* at the fitting place in any manner. The sections will be moved forward on the cars *C* to the end car, lifted as required from this car by the gripper, carried down the track *E* and deposited in front of the previously-laid section, fastened to the latter, and so on until the nest is exhausted. Then the nest of the succeeding car will be run onto the end one, and the operations will continue, the machine-carriage *D* being fed forward as required. Brakes *y* for stopping the wheels of the winch to hold it in any position are provided. The rail-sections are always laid in front of the machine-carriage *D*. When one nest *M* of sections is exhausted, another nest is drawn forwardly by connecting a windlass near the motor *H* thereto, after the trucks *N* have been put aside or sunk into the casings of the cars by means of a small turning crane, as before explained.

It will be seen that my invention provides an improved apparatus for the sectional construction of railroads, and it will be understood that the invention is not limited to the exact details of application and construction herein described, but that it may be availed of according to such modifications as circumstances or the judgment of those skilled in the art may dictate; also that any suitable means of power may be employed, and any suitable mechanical equivalent for the weight *G* or the winch *F* be substituted.

What I claim is—

1. The improved apparatus for building railroads and the like, which consists in a transporting-wagon, a machine-carriage, an inclined track supported therefrom, and a traveling gripper moving along said track, lifting the rail-sections from said wagon, and carrying them to and depositing them at the place of use.

2. The improved apparatus for building railroads, consisting of a motor, a carriage carrying the latter, cars adapted to carry the rail-sections, an inclined track, a carrier running on said track and lifting and carrying the rail-sections, a winch operating said carrier, elevating the rail-sections and moving therewith down said track to the depositing position, and a weight connected to said winch and returning it to the position for elevating a rail-section.

3. In apparatus for building railroads, a

carriage D on the road-bed and movable longitudinally thereof, an inclined track E supported by said carriage, a gripper carried from said track and movable therealong, and
5 means for lifting and moving said gripper, substantially as and for the purpose set forth.

4. The improved gripper I for building
10 railroads, lifting rail-sections and like purposes, which consists in a frame, having pivoted claws *u* catching under the rails, and

stops *w* resting on the rails, substantially as and for the purpose set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

ROBERT BEHREND.

Witnesses:

JEAN GRUND,

FRANK H. MASON.