Sept. 25, 1928. 1,685,724

J. ROSENTHAL

OVERHEAD TRAVELING CRANE FOR LIFTING RAILROAD VEHICLES

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Fig. 1

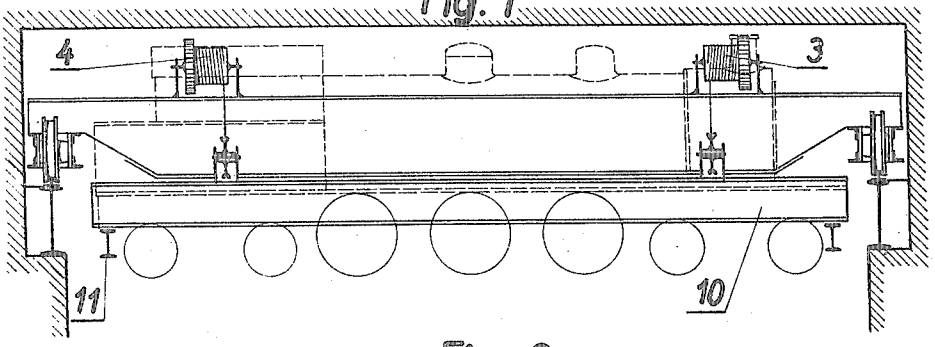


Fig. 2

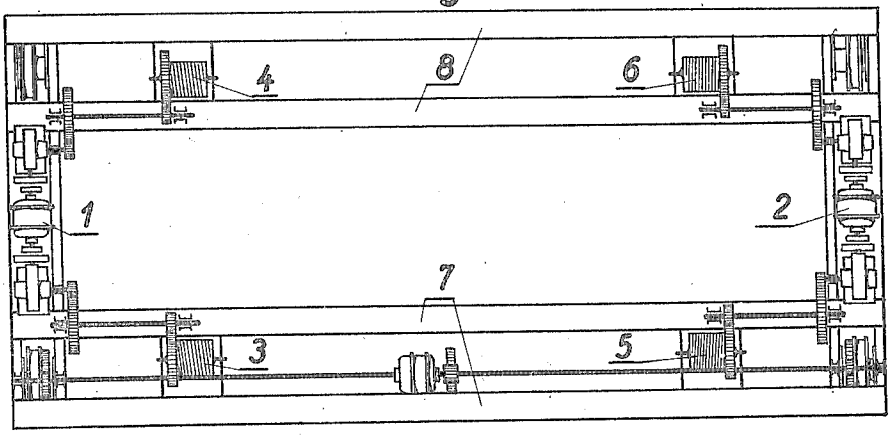
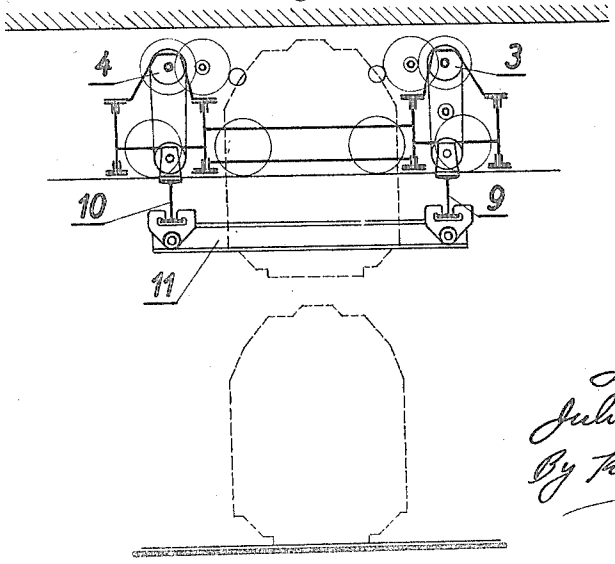


Fig. 3



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Fig. 4

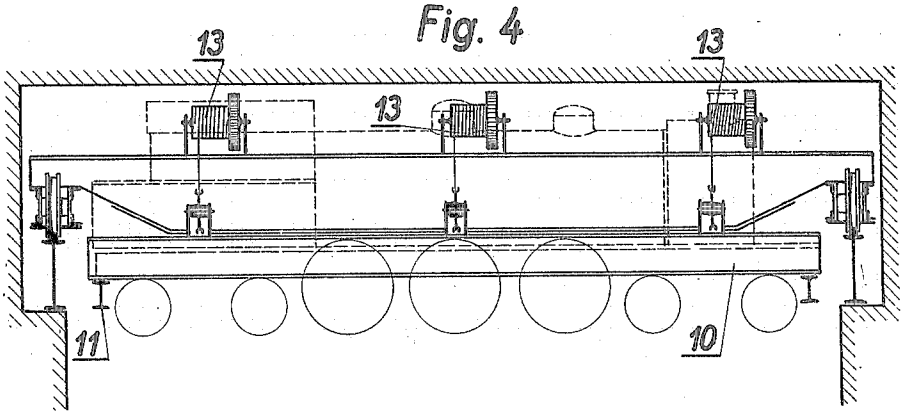
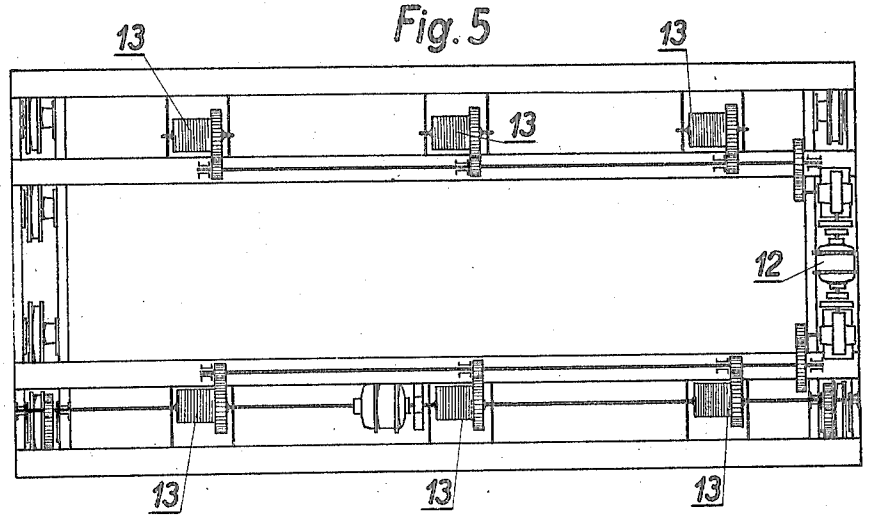


Fig. 5



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Fig. 6

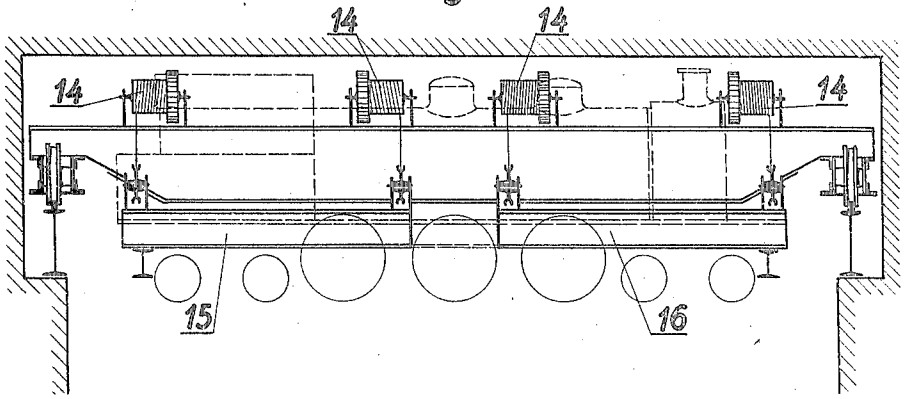
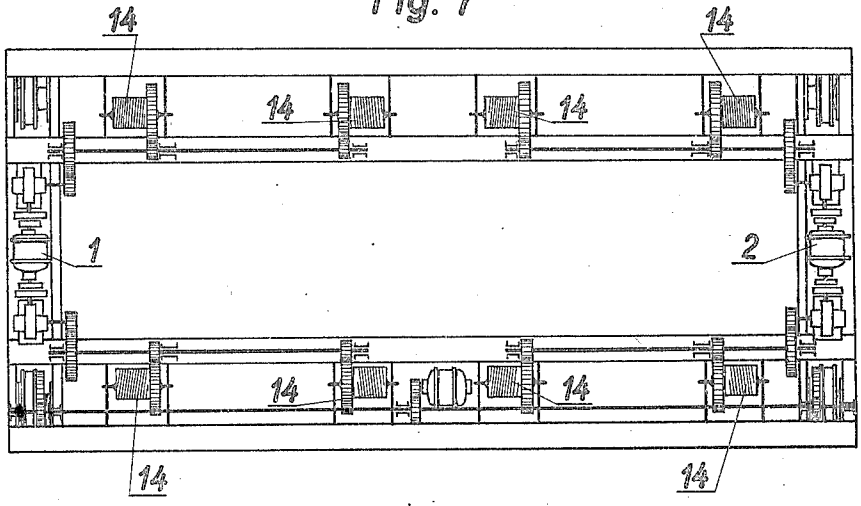


Fig. 7



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Fig. 8

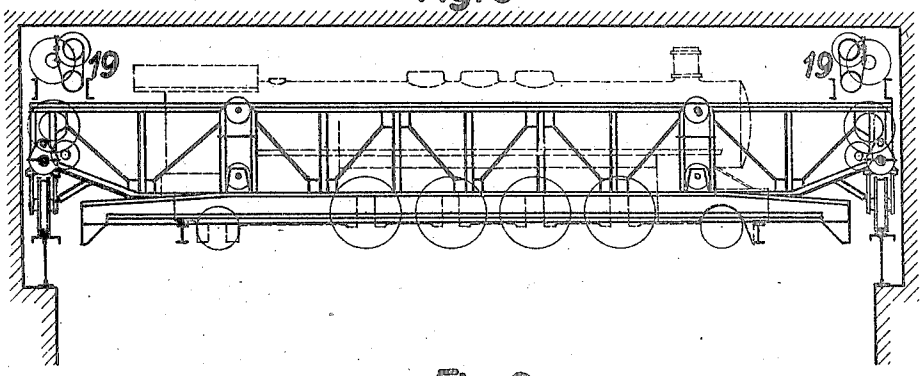


Fig. 9

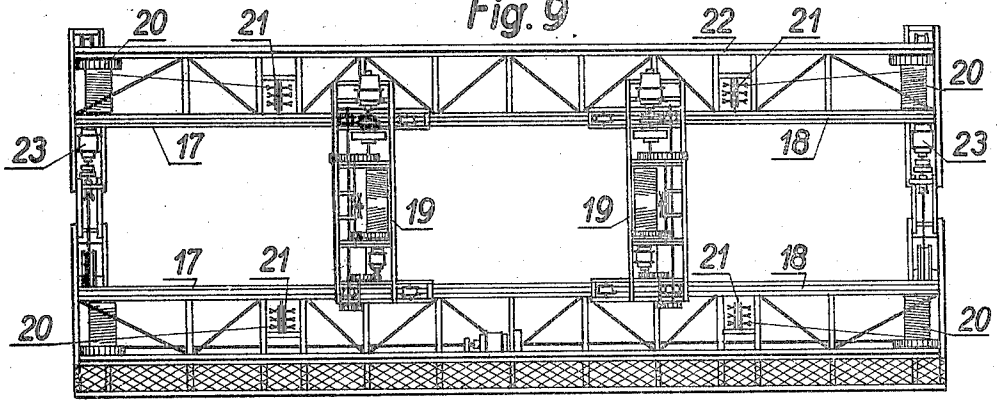
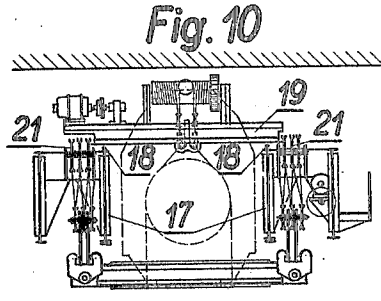


Fig. 10



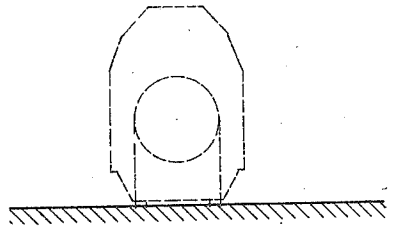
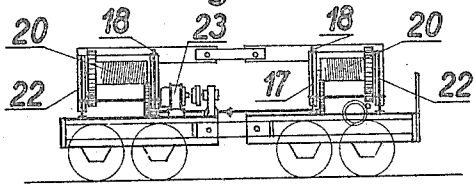


Fig. 11



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UNITED STATES PATENT OFFICE.

JULIUS ROSENTHAL, OF CANNSTATT-STUTTGART, GERMANY.

OVERHEAD TRAVELING CRANE FOR LIFTING RAILROAD VEHICLES.

Application filed November 12, 1924, Serial No. 749,481, and in Germany November 16, 1923.

This invention relates to an equipment for lifting railroad vehicles by means of an overhead traveling crane in order to fully utilize the headway of the building as well as the clear width between the roadways of the traveling crane for the lifting of the vehicle. An essential feature of this invention consists therein, that the drums of the winches serving for the lifting of the vehicle are directly arranged upon the longitudinal girders of the crane. The lifting of the vehicle is accomplished by means of a carrying frame, which is composed in the known manner from longitudinal girders and transverse brackets displaceable thereon.

By this it will be possible—in contra-distinction to the known constructions—to fully utilize not only the headway of the building for lifting the vehicle, but also the clear width of the roadways of the traveling crane.

The winches which are arranged between the longitudinal girders of the traveling crane, are connected with the latter rigidly. The winches are driven by one or more electric motors. The carrying frame for receiving the railroad vehicle is suspended from winch ropes or the like, said frame consisting of two longitudinal girders and two or more transverse brackets, which may be shifted thereon. The transverse brackets carry the vehicles. The longitudinal girders are of a length equal to that of the longest vehicle placed upon the frame, that is to say of the locomotives, tenders or railroad cars to be lifted thereby.

By this arrangement it will be possible to utilize the entire clear space to such an extent that the upper edge of the vehicle reaches as far as to the lower edge of the roof of the building; by this one will be enabled to employ a small height of the building together with the largest possible lifting stroke and a small height of the braces of the roadway of the crane, while at the same time the entire length of the carrying frame may be utilized.

Figs. 1, 2, 3, show an elevation, plan and end view respectively of one embodiment of the invention.

Figs. 4 and 5 show an elevation and plan respectively of a modification.

Figs. 6 and 7 show an elevation and plan of another modification.

Figs. 8, 9 and 10 show an elevation plan and end view of still another modification.

Fig. 11 shows an end truck of modification shown in Figs. 8 to 10.

In the drawing there is represented an example of carrying out this invention. Figs. 1, 2 and 3 show in an elevation, plan view and side-view, respectively, an arrangement with two lifting motors 1 and 2, which drive two heavy winches 3 and 4, and 5 and 6, the carrying frame being suspended on ropes from said winches. The winches are placed directly upon the longitudinal girders 7 and 8 of the crane, which are constructed in the form of double girders.

The carrying frame consists of two longitudinal girders 9 and 10 and the transverse brackets mounted shiftably thereon, which serve for receiving the vehicle.

In the arrangement according to Figs. 4 and 5 there is used only one lifting motor 12 instead of two motors, said one motor in this case driving six winch-drums, from which the carrying frame is suspended by six ropes.

In Figs. 6 and 7 there is indicated a further possibility of carrying out this invention, whereby each of the two motors 1 and 2 drives four winch drums 14. The carrying frame in this case is subdivided in such a manner, that each part 15 and 16 of the frame is suspended at four points.

The construction as described show, that by this invention, in contra-distinction to the usual arrangement of the winches upon traveling crabs, only a very small number of motors will be required for each crane and more particularly one motor for either direction of the travel of the crane and only one or two motors for the lifting of the load. In distinction to this, the constructions heretofore known require at least five, and in case of four traveling crabs nine electric motors.

A further improvement according to this invention consists therein that upon the longitudinal girders of the crane there are provided one or more auxiliary traveling crabs of smaller carrying capacity, which serve for the lifting of smaller loads. If the main lifting device of the crane is employed, these traveling crabs, which may be constructed with a correspondingly smaller width, are shifted towards the lateral ends of the crane, so that the clear width of the crane can be fully utilized for the lifting of vehicles etc. In order to enable the roadways of the crabs to be mounted immediately upon the longi-

tudinal girders, the entire lifting and traveling apparatus of the crane is arranged in sunk condition between the crane girders, so that the plane of the upper edges of the crane carrier will remain as far as required free from projecting parts.

An example of this further improvement is shown diagrammatically in Fig. 8 in an elevation, in Fig. 9 in a plan view and in Fig. 10 in a side-view. Fig. 11 shows an end view of the main crane showing the arrangement of the lifting apparatus. Upon the interior main girders of the crane there are rails 18, which serve as a roadway for two auxiliary crabs 19 of smaller carrying capacity. The lifting drums 20 and the pulleys for guiding the rope of the crane are arranged between the main girders 17 and 22 in such a manner, that they cannot hamper the free motion of the auxiliary crabs 19. Also, the lifting motors of the main crane 23 together with the driving means appertaining thereto are placed correspondingly low, so that the crabs 19 may be moved as far as to the outermost ends in inoperative condition.

I claim:

1. In an overhead traveling crane, a pair of widely spaced tracks, a substantially rectangular frame comprising trucks riding on said tracks and girders extending between the ends of said trucks and secured thereto winches mounted in fixed positions on said girders, driving means for said winches lifting cables secured to said winches and adapted to be wound thereon, and means for connecting said cables to an object to be raised, the space above, below, and within the inner limits of said rectangular frame being substantially unobstructed by any part of the crane.

2. A crane in accordance with claim 1 in which said winches are mounted in sunken relation to said girders in combination with an auxiliary crab provided with wheels for riding on said girders.

JULIUS ROSENTHAL.