May 15, 1923. 1,454,937

P. MARTIN

OVERHEAD RUNWAY

Filed Dec. 4, 1922 2 Sheets-Sheet 1

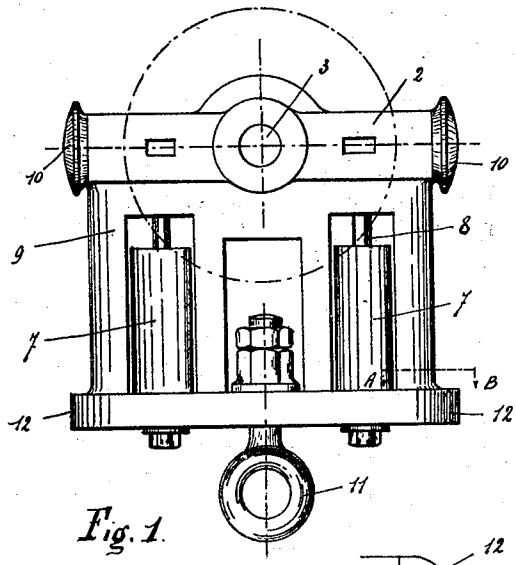


Fig. 1.

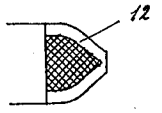


Fig. 3.

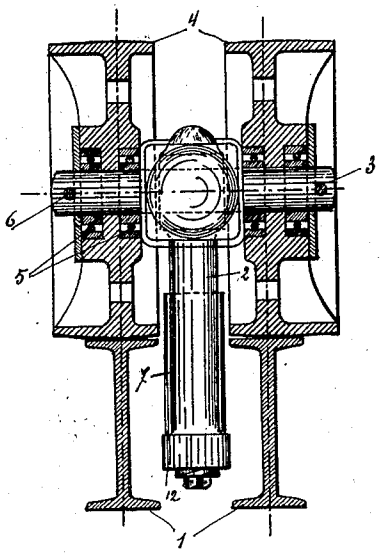


Fig. 2.

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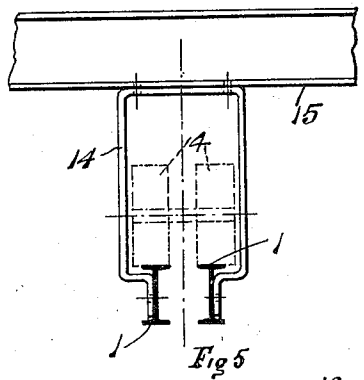


Fig 5

Fig. 4

Fig. 6.

Fig. 7.

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per: J. Severn Atty.

Patented May 15, 1923. 1,454,937

UNITED STATES PATENT OFFICE.

PIERRE MARTIN, OF BRUSSELS, BELGIUM.

OVERHEAD RUNWAY.

Application filed December 4, 1922. Serial No. 604,888.

To all whom it may concern:

Be it known that I, PIERRE MARTIN, a citizen of the French Republic, residing at Brussels, Belgium, 201 Boulevard Maurice Lemonnier, have invented certain new and useful Improvements in Overhead Runways, of which the following is a specification.

The present invention relates to an improved overhead runway, the said invention having for its object to facilitate the transport of material during manufacture from one workshop to another, the hoisting of heavy pieces onto slabs and machines, and the transport of the latter. The invention is of advantageous application every time that it is desired to impart horizontal or vertical movements to loads which are too heavy to be transported manually.

A further object of the invention is to provide improved means of transport of the type referred to which may be constructed at low cost, is easy of erection, and is capable of answering the requirements of the most varied industries.

With these main objects in view, the overhead runway according to the invention comprises a suitable aerial track composed of two rails, preferably ordinary joists, and a certain number of carriers of particular suitable construction, adapted to run on and along the said track.

In order that the invention may be more readily understood certain embodiments thereof are, by way of example only, illustrated by the accompanying drawings, wherein:

Figs. 1 and 2 are respectively a lateral elevation and a vertical transverse section of a carrier according to the invention, in position on the track formed of two joists.

Fig. 3 is a horizontal section on the line A—B of Fig. 1.

Fig. 4 is a view from above showing the arrangement of the aerial track, including a three-way junction.

Figs. 5, 6 and 7 are transverse sections through the aerial track, showing various methods of suspension of the rails.

The carriers carry the loads to be transported in an indirect manner, that is to say, that the chains and hoisting apparatus or lifting tackle carrying the loads are suspended from the said carriers. As may be seen from Figures 1 and 2, the carriers running on the aerial track constituted by the two joists 1, comprise a carrier body 2 of cast steel or cast iron, and the upper central portion of the said body forms a bearing for a spindle or short shaft 3 on which are mounted two wheels 4, ball bearings being provided between the wheels 4 and the spindle 3, as shown at 5, and the said wheels being maintained in position on the spindle 3 by means of the cotter or split pins 6. The wheels 4 run directly on the flanges of the joists 1 forming the track. Each carrier further comprises two guiding rollers 7 rotating freely on two vertical spindles 8 secured in the carrier body 2. Suitable spaces 9 are provided into said body for locating the roller 7, and the diameter of the said rollers is slightly larger than the width of the body 2, so that the said rollers guide the carrier in the curves. Two projecting buffers 10 are provided respectively in front and at the rear of the upper portion of the carrier body 2, the said buffers serving to support the shocks or impacts in cases where two carriers come to bump against one another. Each carrier finally comprises a central ring or hook 11 secured in a suitable manner, so as to allow the suspension of the chains or of hoisting apparatus or lifting tackle.

The carriers are caused to move along the track by the workman himself, who goes in the desired direction while pushing in front of him either the piece of work suspended to the chains, or the latter themselves. As the wheels 4 are mounted on ball bearings, the effort required to push the carrier along the track with a load of say about one ton is very slight.

The front and the rear of the body of the carriers are shaped so as to form a sharp edge as shown at 12 (Fig. 3), so as to make easier the passage at junctions or bifurcations. The latter, as may be seen from Fig. 4, are indeed constituted by the mere meeting of the double rails forming the track 1, without any switch device. The inner rails of the track meet each other at a very sharp angle, and the said rails at their meeting point form a very sharp edge 13 similar to a switch point. Consequently, the slightest effort to the right or to the left exerted on the carrier causes the sharp edged end 12 (Figs. 1 to 3) of the carrier body to engage one or the other face of the sharp edge 13 constituted by the inner rails at their meeting point, and consequently the switching towards one direction or the other is effected without efforts and without any of

the risks resulting from negligence in the operation of an ordinary switch device.

The aerial track is, as illustrated by Figures 5, 6 and 7, suspended by means of suitable chairs or brackets secured to the ceiling of the workshop, to existing joints, to transverse steel members themselves secured to a rolling-bridge-track, or fixed in brick walls, supported on columns, or held in position in any other suitable way. Thus, as shown in Fig. 5, the rails 1 may be suspended by means of flat iron hangers 14 fixed to an existing joist such as 15, or, as shown in Figure 6, they may be cleated to chairs 16 made of steel-plate and angle-iron and secured to a joist such as 15'. Fig. 7 shows an example wherein the chairs 16' to which the rails 1 are fixed are suspended from a steel work bracket 17 secured to an existing wall 18. It is obvious that the arrangement and methods of suspension of the track vary according to the needs of each individual case. For instance, in the case of a three-way junction, the double rails 1 forming the three sides of the triangle may as shown in Fig. 4 be suspended by means of flat iron hangers 14', somewhat similar to those illustrated by Fig. 5 but riveted or bolted to a suitable plate 19 itself secured to an existing joist such as 15. The radius of the curves also varies according to the size of the carrier, and the said size itself varies according to the importance of the load which it is desired to transport. In most cases, a radius of about 2' 4" and in certain cases even 1' 8" may be adopted and in all cases the radius of the curves is much less than in known types of overhead runway and may be sufficiently small to allow the passage of the carriers with the loads in any corner, and to permit every machine being reached.

The type of the lifting tackle used in conjunction with the above described carrier evidently varies according to the load to be transported; for instance, for heavy loads, hoists will be used, while for medium loads pulley blocks will be employed, and for light loads levers and small winches may be adopted. Similarly, the devices provided to grip or take up the load vary according to local needs: they may consist of hooks, rings, nippers, claws for transporting trees and joists, suitable vessels for transporting powdery material, casks for transporting liquids, special devices for taking up cases, barrels and various other loads.

The carriers may if desired be provided with certain auxiliary devices, such as for instance a device for securing the wheels so as to lock the carriers in position, in cases where they have to remain at a standstill in fixed places, and the loads have to be pushed obliquely. For instance, when pieces of work have to be hoisted into position in a lathe, the track passes at a certain distance on the axis of the lathe, and the pieces of work are first lifted by means of lifting tackle and then pushed into position in relation to the centre of the chuck: in such a case it may of course be desirable to lock the carrier in position, while the piece of work is pushed into position.

Among the auxiliary devices, there may also be mentioned a device for lifting the small loads with greater rapidity: for instance, the carriers intended for transporting frequently small charges (say about 2 cwts.) may advantageously be provided with a rack by means of which the loads may be lifted of a given distance (say about 20") with much greater rapidity than by means of ordinary lifting tackle.

Finally, auxiliary chains may be provided to pull the carriers along in cases where the load has to be lifted too high to be within reach of the workmen, as frequently happens when the track has to be arranged above the axis of a row of machine tools.

One of the main advantages of the invention consists therein that the workmen need no more tire themselves out to bring his work to the machine and that the materials do not remain uselessly in the workshops and become cumbersome. On the other hand the device does not hinder the normal life of the workshop either in service or when not in service. Another advantage of the invention consists therein, that no switch device has to be operated at the junctions or bifurcations, and that no mechanical power is required.

The advantages of the invention still increase in importance in certain applications or combinations, amongst which may be cited the application of the principles of the invention in universally adjustable rolling bridges wherein two carriers of the type described on two parallel tracks are interconnected by means of a suitable compound girder extending transversely in relation to the said parallel tracks and forming itself a track for a third carrier. This girder being at the ends pivoted about a vertical axis in relation to the two carriers carrying same, and being therefore able to take any angular position in relation to the tracks on which the said two carriers run, it will be readily understood that the rolling bridge thus formed is extremely adaptable and that the said application of the invention considerably increases the area within which loads can be taken up and deposited. Indeed, owing to the pivotal end connections of the transverse girder-track to the two carriers carrying the said girder, the bridge is able to run not only on parallel tracks the perpendicular distance between which is equal to length of said bridge, but also on tracks the perpendicular distance between

which is smaller and in relation to which the transverse track of the third carrier is capable of taking an oblique or diagonal position, and on two tracks crossing each other at an angle, the girder-track of the bridge then forming the third side of a triangle of which the said two tracks form the two other sides.

It must be expressly understood that the invention is in no way restricted to the details illustrated, and more particularly that the shape and the size of the carrier parts, as well as the arrangement of the overhead track, may vary according to the needs of each individual case, without departing from the spirit and scope of the invention, as defined in the appended claims.

I claim:

1. In an improved overhead runway, the combination with a suspended track formed of two parallel rails of a plurality of carriers each comprising: a carrier body fitted with a shaft having two carrier wheels mounted thereon by means of ball bearings, two buffers respectively on the front and on the rear end of said carrier body, two vertical guiding rollers located in suitable spaces of said body and of a diameter somewhat larger than the thickness of the body, and means, secured to the carrier body, for the suspension of chains, lifting tackle and like intermediate devices for the suspension of the load, substantially as described.

2. In an improved overhead runway, the combination with a suspended track formed of two parallel rails of a plurality of carriers each comprising: a carrier body fitted with a shaft having two carrier wheels mounted thereon by means of ball bearings, two buffers respectively on the front and on the rear end of said carrier body, two vertical guiding rollers located in suitable spaces of said body and of a diameter somewhat larger than the thickness of the body, means on the carrier body for facilitating the passage of the carriers at junctions or bifurcations by engagement with point-like sharp edges formed by the inner rails of the track at their meeting point, and means, secured to said carrier body, for the suspension of chains, lifting tackle and like intermediate devices for the suspension of the load, substantially as described.

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

PIERRE MARTIN.

Witnesses:
G. G. Zoleau,
Anno Grand Ree.