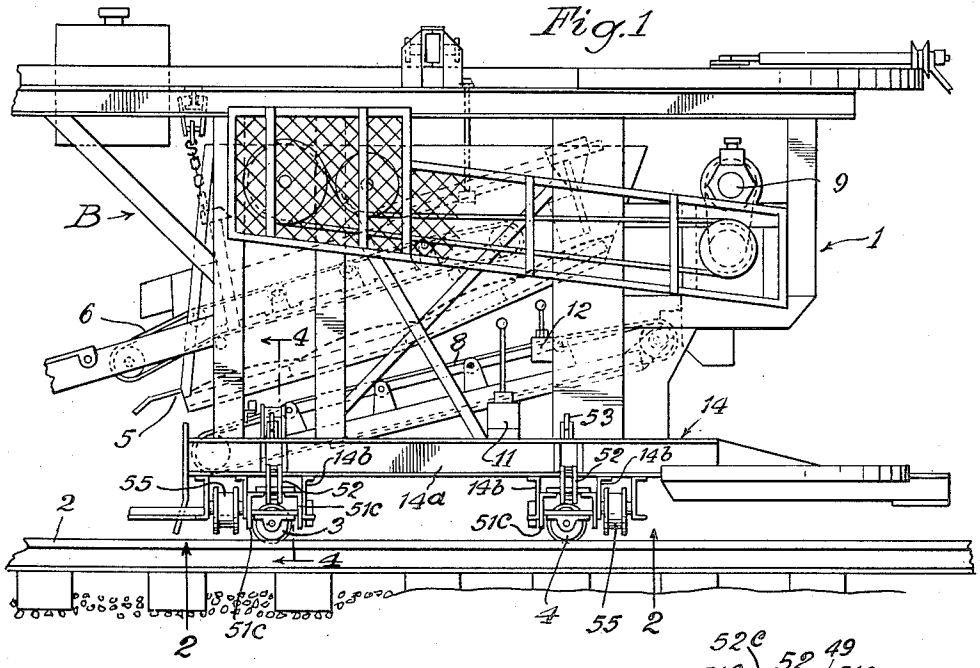
Oct. 7, 1958 H. H. TALBOYS 2,854,930

SCREENING ASSEMBLY FOR SCREENING AND RETURNING RAILWAY BALLAST AND RAIL SET OFF MEANS THEREFOR

Original Filed Aug. 11, 1950 4 Sheets-Sheet 1

Fig. 1



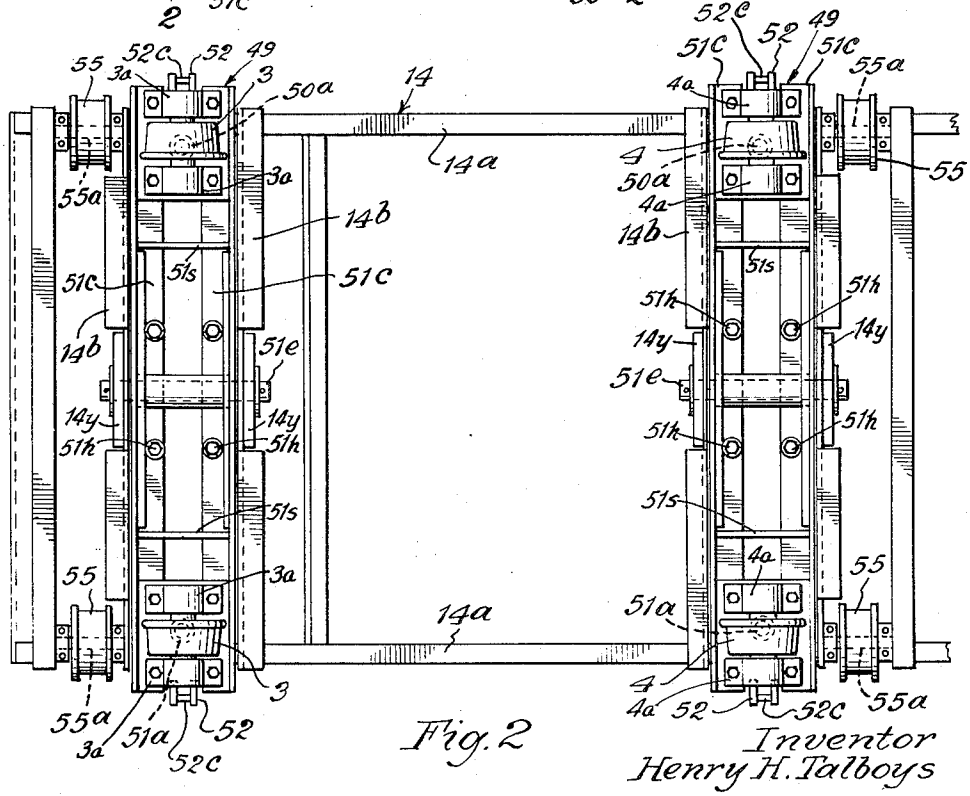


Fig. 2

Inventor
Henry H. Talboys

by Parker & Carter
Attorneys

Oct. 7, 1958 H. H. TALBOYS 2,854,930

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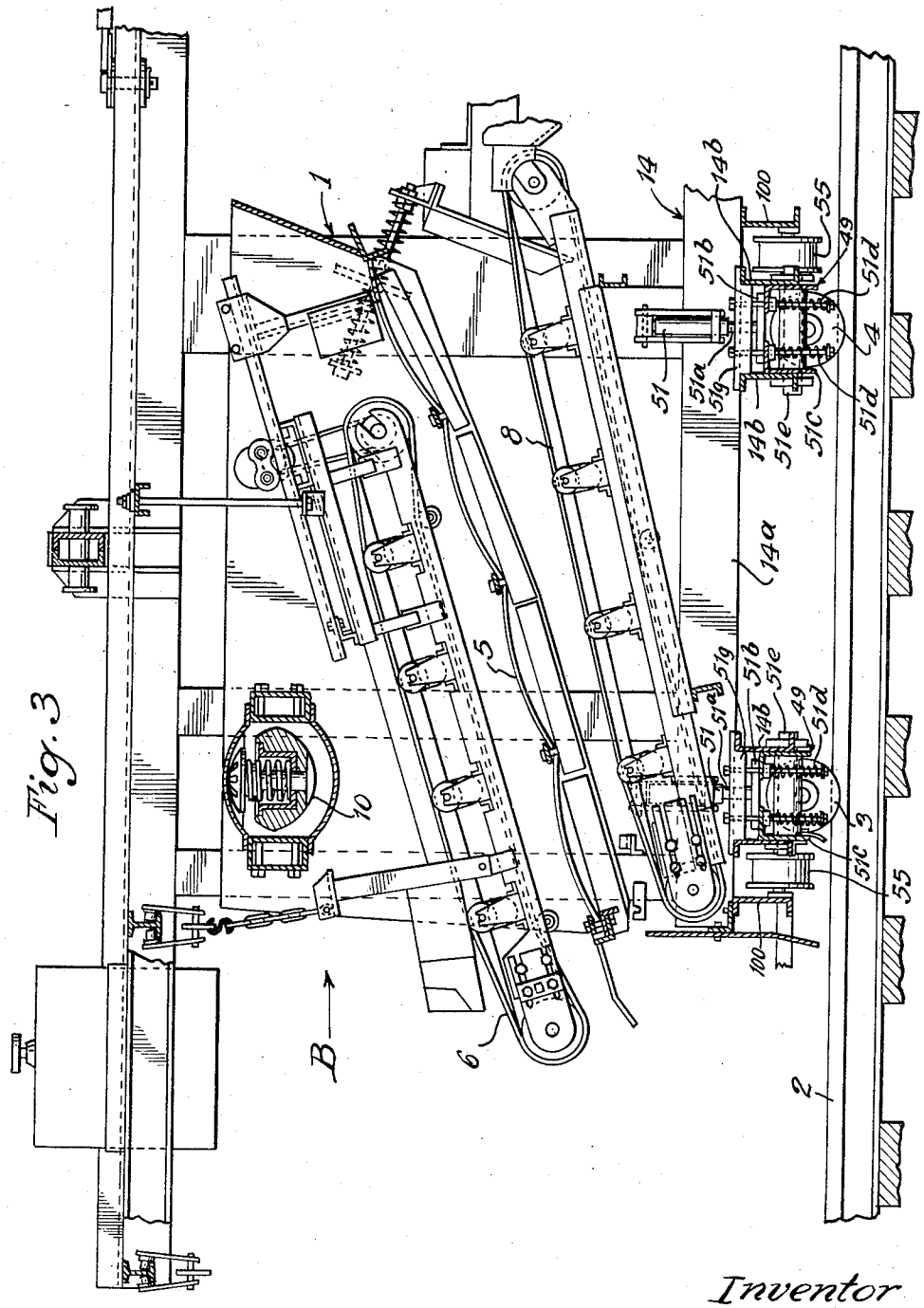


Fig. 3

Inventor
Henry H. Talboys
by Parker & Carter
Attorneys

Oct. 7, 1958 H. H. TALBOYS 2,854,930

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Original Filed Aug. 11, 1950 4 Sheets-Sheet 3

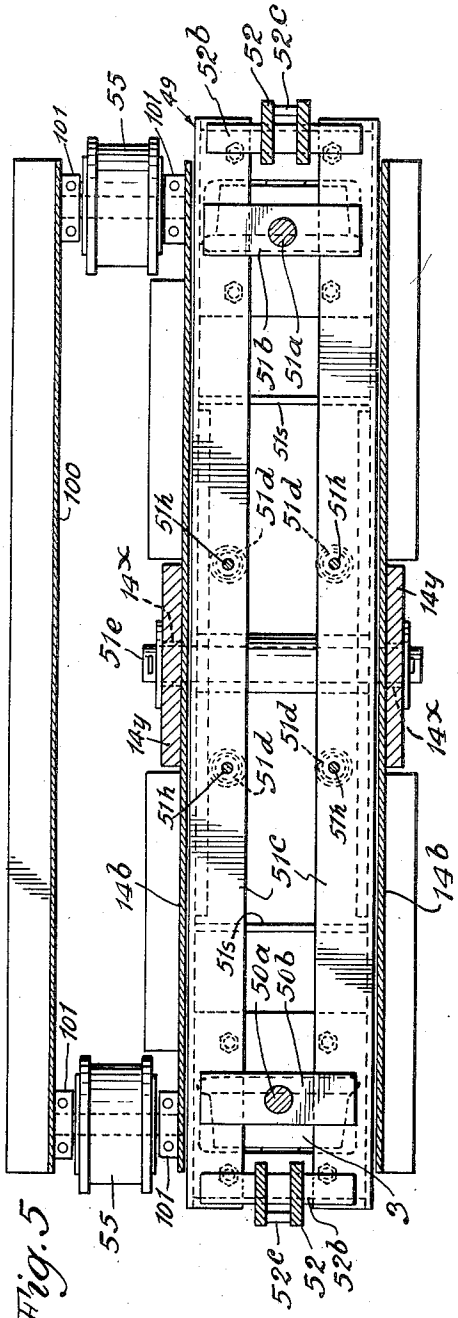


Fig. 5

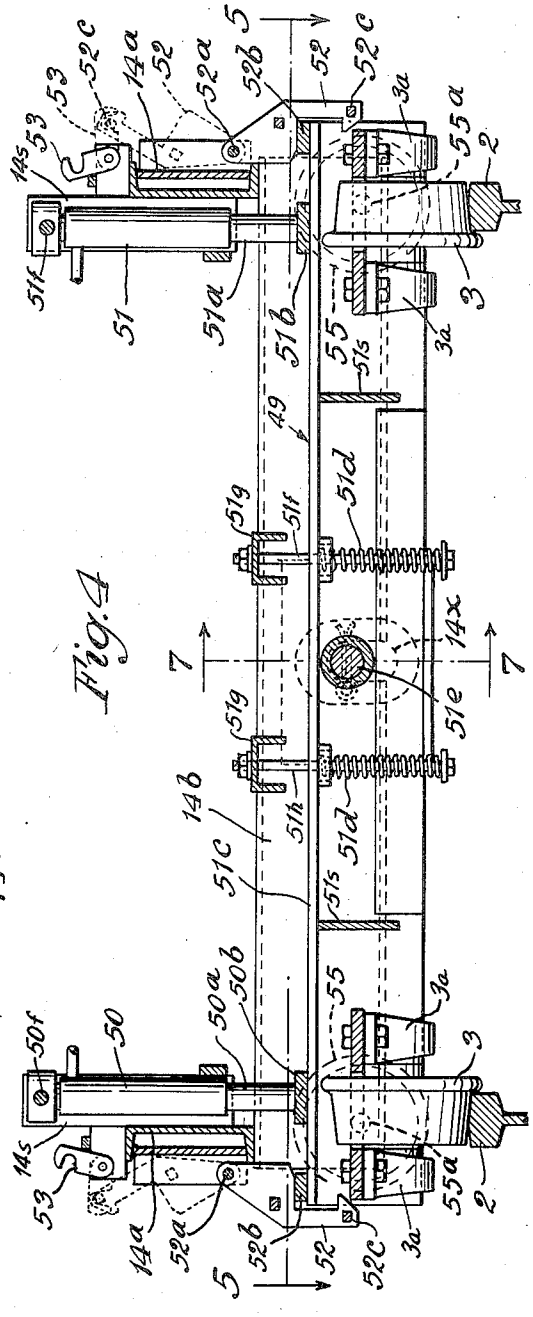


Fig. 4

Inventor
Henry H. Talboys
by Parker & Carter
Attorneys

Oct. 7, 1958 H. H. TALBOYS 2,854,930

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Fig. 6

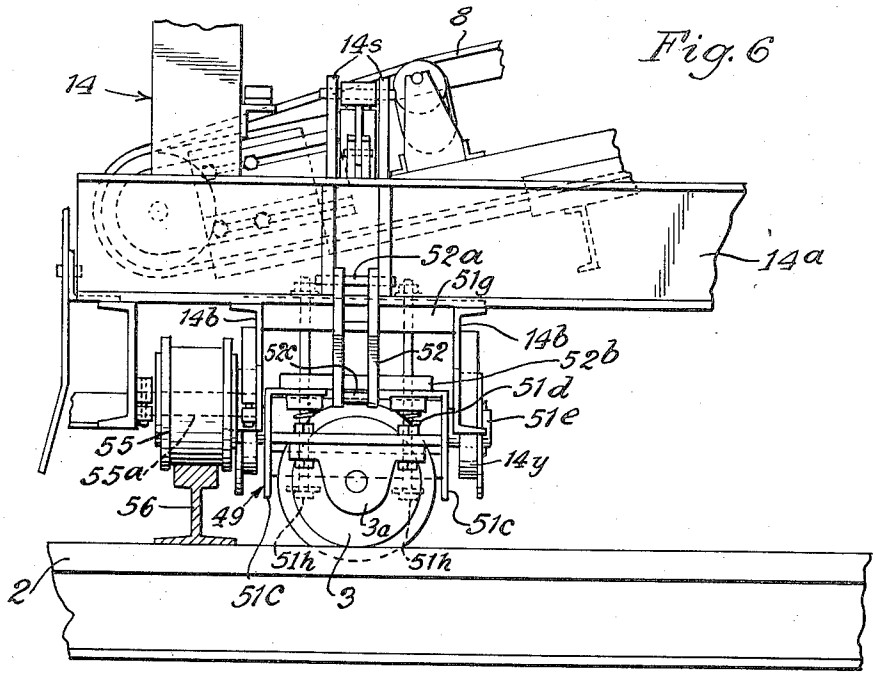
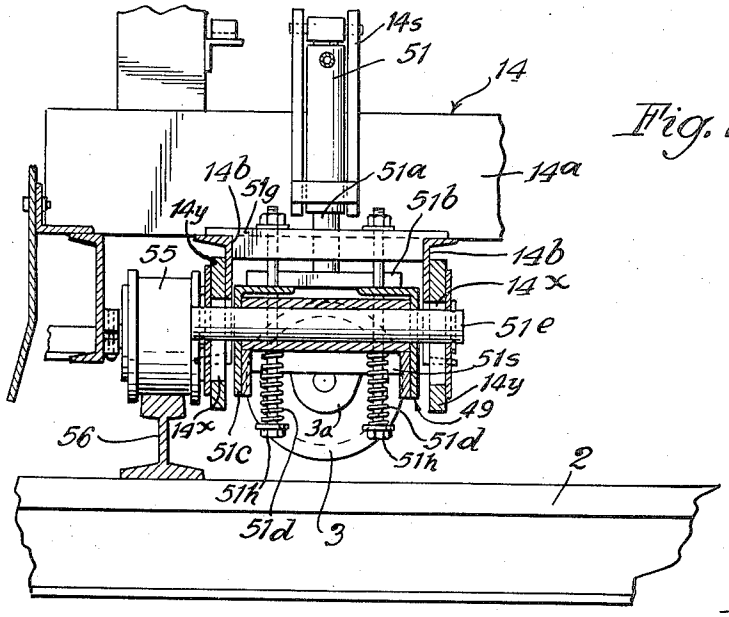


Fig. 7



Inventor
Henry H. Talboys
by Parker & Carter
Attorneys

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2,854,930

SCREENING ASSEMBLY FOR SCREENING AND RETURNING RAILWAY BALLAST AND RAIL SET OFF MEANS THEREFOR

Henry H. Talboys, Milwaukee, Wis., assignor to Nordberg Manufacturing Company, Milwaukee, Wis., a corporation of Wisconsin

Original application August 11, 1950, Serial No. 178,821, now Patent No. 2,734,730, dated February 14, 1956. Divided and this application May 14, 1953, Serial No. 355,039

7 Claims. (Cl. 105—177)

This invention is directed to trackworking units employed on railroad rights of way.

An object of this invention is the provision of a novel supporting assembly for a trackworking unit which includes means for maintaining the unit in a predetermined working plane and means for removing the unit from the track.

Another object is to combine a mechanism for maintaining a trackworking unit in a predetermined working plane with a mechanism for removing the unit from a track in a supporting assembly for the unit.

Another object is an improved set-off device for a trackworking machine or the like.

Another object is a set-off device of the above type, at least a portion of which is an integral part of a leveling device for the machine, usable for example on a curve.

Another object is an improved leveling device for a trackworking machine or the like, usable for example on curves, with means for otherwise preventing the machine from tilting or rocking, for example, on the straightaway.

Other objects will appear from time to time in the course of the ensuing specification and claims.

Referring generally now to the drawings:

Figure 1 is a side elevational view of my improved trackworking unit;

Figure 2 is a plan view of Figure 1, looking in the direction of arrows 2—2 of Figure 1, portions being omitted for clarity;

Figure 3 is a side elevational sectional view of the machine in Figure 1 taken partly in longitudinal section;

Figure 4 is a sectional view taken along the sectional lines 4—4 of Figure 1;

Figure 5 is a sectional view taken along the section lines 5—5 of Figure 4;

Figure 6 is an enlarged detail view of one portion of the assembly shown in Figure 1, illustrating the use of the take-off wheels; and

Figure 7 is a sectional view taken along the lines 7—7 of Figure 4.

This application is a division of my copending application Serial No. 178,821, filed on August 11, 1950, now U. S. Patent No. 2,734,730, for Screening Assembly for Screening and Returning Railway Ballast.

Referring specifically now to the drawings wherein like elements are designated by like characters throughout, 1 generally designates a trackworking assembly which, in this instance, is a ballast screening unit. The unit may be towed along rails 2 by means of a prime mover mounted on the unit or by any suitable propelling assembly mounted separately from the unit. The unit is supported by longitudinally spaced pairs of track engaging wheels 3 and 4. As shown, the unit proper includes a screen assembly 5 which is adapted to receive ballast from a conveyor 6. The unit is provided with suitable conveyors for delivering ballast to the conveyor member 6 and receiving ballast from a conveyor 8, disposed beneath screen 5 for deposit along the railroad right of way.

The unit is preferably provided with a power assembly

9 and 10 for vibrating the screen bed. In operation, the screen assembly 5 delivers ballast of the proper size to the rail area and undersize ballast or waste is delivered, through use of conveyor 8 and other conveyors, to any suitable deposit. The details of these units are unimportant to this invention.

The frame of the unit includes a main or bottom frame or base 14 which may include generally longitudinal frame elements or channels 14*a* resting on and connected by welding or otherwise to transversely extending frame members or channels 14*b*. These members 14*a* and 14*b* may carry transverse truck units or carriages, indicated generally at 49, which include the normal rail engaging wheels 3 and 4. As shown, two pairs of such transverse frame members or channels 14*b* extend across under the longitudinal frame elements or channels 14*a*, one such pair generally at one end and the other pair at the other end of the main frame. Each pair of transverse members or cross channels 14*b* form, in effect, a transverse opening or housing under the main frame for receiving the truck units 49.

Each such truck 49 may include a pair of main transverse angles 51*c*, spaced from each other and interconnected, as shown in Figures 4 and 5, by suitable intermediate braces 51*s*, for example, as well as end braces 52*b*. As shown in Figure 2, which is a bottom view of the unit, the wheels 3 and 4 have bearing units 3*a* and 4*a* suitably connected between and below the angles 51*c* of the truck units 49 in any suitable manner.

It is important that the screening and conveying assembly or unit B be mounted in proper horizontal level during operation. For example, when the device is operating on a curve, and the opposite rails are at different levels, it is important to hold the screen bed level. In order to obtain this result, I have provided an assembly of hydraulic cylinders arranged in pairs at opposite sides of the unit B. Referring for example to Figures 3 and 4, I illustrate pairs of cylinders 50, 51, such cylinders being suitably mounted upon the lower frame or assembly 14. The wheel trucks 49 are pivotally mounted with relation to the frame 14 at 51*e* and also mounted for movement toward and away from the frame 14 as units as explained hereinbelow.

In order to adjust the bottom frame 14 in relation to the carriages or trucks 49, I provide pistons 50*a* and 51*a* in the cylinders 50 and 51, which bear against any suitable abutment elements or plates 50*b* and 51*b* respectively on the transverse truck elements 49. The cylinders 50 and 51 are mounted in any suitable manner on parts or upward extensions 14*s* of the bottom frame, the upward extensions being suitably welded or otherwise connected to the main longitudinal elements 14*a* of the frame, as shown in Figure 4, with the cylinders 50 and 51 pivoted to them such as at 50*f* and 51*f*. Suitable braces or bars 51*g* extend between the transverse members 14*b* of the frame and carry suitable bolts or rods 51*h*, shown in Figure 4, which extend through the truck elements 51*c*, as seen in Figures 4 and 5. The transverse trucks are normally upwardly urged by springs 51*d*. Springs 51*d* urge the truck elements 51*c* upwardly within the transverse frame elements 14*b* as will be seen best in Figure 7. The truck elements 51*c* ride between transverse frame members 14*b* extending between the members 14*a*. A pin 51*e*, carried by the truck unit 49, connects the members 14*b* and acts as a pivot, and rides in elongated vertical slots 14*x* in bearing plates 14*y* attached to the members 14*b*. With reference to Figure 4, if the right-hand rail is at a level higher than the left-hand rail then, in order to maintain the upper unit's level, the left-hand pistons 50*a* should be subjected to hydraulic pressure and should be moved downwardly in the cylinder 50. The result will be slightly to tilt the entire frame struc-

ture of the unit B about the pivot pin **51***e*. The operator can control the tilt by controlling the amount of movement of the pistons **50***a* and he can thereby level the entire assembly. At the same time a release of pressure in the cylinders **51** may be employed to permit a corresponding upward movement of the pistons **51***a* in the cylinders **51**. Pressures may be controlled by a manually actuated pump **11** through the control box **12**, as shown in Figure 1.

In the normal use of the device, I employ limit hooks **52**, pivoted as at **52***a* in relation to the longitudinal frame members **14***a*. When the hooks are in the full line position of Figure 4, their hook ends may be spaced downwardly below limit elements or braces **52***b* on the transverse or truck members **51***c*. When the parts are in the position of Figure 4, portions of the hook structures actually engage the upper surface of the end braces **52***b*. There is sufficient play, however, so that although the hooks serve as limits to permit a substantial relative upward movement of the side frame members **14***a* and the transverse frame members **14***b*, in relation to the carriage or truck elements **51***c*, the hooks **52** may be moved to the inoperative or dotted line position of Figure 4, and may be held in the inoperative position by pivoted latches **53**, which may engage cross bars **52***c* of the hook structures.

Since the trackworking equipment herein described is used on tracks which carry traffic, it may from time to time be necessary rather quickly to remove the unit from the rails to permit the passage of a train. I therefore provide a plurality of run-off wheels **55** as will be seen best in Figure 3, which are suitably mounted to rotate about horizontal axles **55***a* extending longitudinally of the rails. As shown in Figures 3 and 4, I may suitably attach, by welding or otherwise, a laterally disposed channel **100** opposite and generally parallel to the channel **14***b* at each end of the frame. The axles **55***a* may be mounted between the channels **14***b* and **100** in suitable bearings **101** which are suitably attached to the channels. Thus, the run-off wheels are connected to the upper frame **14**. As is clear, for example from Figure 3, the run-off wheels **55** are spaced substantially above the plate or the rail tops and do not interfere with the normal movement of the unit along the rails. Any suitable cross or take-off rails may be positioned upon the main rails **2**. For example, I illustrate in Figures 6 and 7 the take-off rails **56**. These rails may be removably positioned upon the track rails **2** in alignment with the take-off wheels **55**. This is done after the entire structure has been elevated in order to raise the main flanged supporting wheels **3** and **4** from the rails **2**, in the following manner.

Pressure is introduced into the cylinders **50**, **51**, as shown in Figure 4, to raise the whole frame or unit which raises the take-off wheels. The take-off rails **56** are then positioned on the track rails, as shown in Figure 6, beneath the run-off or take-off wheels **55**. Pressure is then released from the cylinders lowering the take-off wheels to the take-off rails and the springs **51***d* are then effective to raise the trucks **49** and the flanged wheels **3** and **4** from the track rails **2** to the position shown in Figure 7.

The use, operation and function of my invention are as follows:

I provide a tiltable or adjustable connection between the trucks and the frame of a trackworking unit. The unit may be a ballast screening device, as shown, or it might be otherwise. In any event, the adjustable connection between the trucks and the frame allow the frame to remain in or be adjusted to a horizontal position when the rails are at different levels, for example, on a curve. At the same time, the mechanism may be used to raise the frame above the trucks so that take-off rails can be positioned below the take-off wheels. This is done by extending all of the cylinders and pistons at the same time. This separates the trucks **49** from the main frame **14** and, in effect, raises the frame, while the trucks remain on the rails. This separation or raising of the main frame compresses and stores energy in the springs **51***d*, as shown in Figure 6. Thereafter, the frame may be lowered by contracting all of the cylinders and pistons until the take-off wheels contact the take-off rails. The limit hooks **52** may be down during this operation. Additionally, when the frame has been lowered onto the take-off rails by exhausting fluid from the cylinders **50** and **51**, and additional fluid is exhausted, the resilient connection between the trucks and the frame, shown at **51***d* in Figure 4 for example, causes the trucks to follow the pistons up. Therefore, the normal rail engaging wheels will be raised above the rails, as shown in Figure 7. During the raising and lowering operation the pivot **51***e* moves up and down in the slots **14***x* in the bearing plates **14***y*.

The limit hooks **52** may be only unhooked or unlatched on curves. On the straightaway, or on double tracks where the rails are all on the same elevation, the hooks may be always left in the down or engaged position so that they, in effect, prevent the upper unit from rocking from side to side. Primarily, the limit hooks are down to latch the frame to the trucks during travelling. On a curve, the frame may be leveled by supplying fluid to one cylinder so that the frame will pivot up on one side and down on the other about the pivot **51***e*. The limit hooks **52** are swung up and held by the latches **53**, and one cylinder is extended while the other one is retracted, thus obtaining proper level.

It will be realized that, whereas, I have described and claimed a practical and operative device, nevertheless many changes may be made in size, shape, number and disposition or parts without departing from the spirit of my invention. I therefore wish my description and drawings to be taken as in a broad sense illustrative or diagrammatic, rather than as limiting me to the precise structures herein described and shown. It will be understood, for example, that a variety of screening and conveying mechanisms may be employed. However, I have illustrated a practical and operative structure.

I claim:

1. In a trackworking unit, a plurality of trucks, rail engaging wheels on said trucks, a frame mounted for movement upon said trucks, take-off wheels mounted on the frame for rotation about horizontal axes generally parallel with the rails and adapted to be positioned on take-off rails when such rails are positioned across the rails of the track on which the trackworking unit is located, elevator means for elevating the frame in relation to the trucks a distance sufficient to permit the insertion of take-off rails beneath said take-off wheels, and lifting means adapted to move the trucks upwardly from the track rails when the take-off wheels are supported on the take-off rails, pin and slot connections between the trucks and the frame and spring connections between the trucks and the frame adapted to raise the trucks upwardly along said pin and slot connections toward the frame when the take-off wheels are resting on the take-off rails.

2. In a trackworking unit, a plurality of trucks, rail engaging wheels on the trucks, a frame movably mounted on the trucks, take-off wheels mounted on the frame for rotation about horizontal axes generally parallel with the rails and adapted to be positioned on take-off rails when such rails are positioned across the rails of the track on which the trackworking unit is located, and adjusting connections between the frame and the trucks and means for actuating them, including means interconnecting the frame and trucks allowing the frame to be raised relative to the trucks a distance sufficient to permit the insertion of take-off rails beneath the take-off wheels, operable means for raising and lowering the frame relative to the trucks, and resilient means interconnecting the trucks and the frame constructed to automatically move the trucks upwardly from the rails when the take-off wheels are supported on take-off rails.

3. The structure of claim 2 further characterized in that the operable means for raising and lowering the frame relative to the truck include hydraulic cylinders and pistons.

4. In a trackworking unit, a plurality of trucks, rail engaging wheels on the trucks, a frame movably mounted on the trucks, take-off wheels mounted on the frame for rotation about horizontal axes generally parallel with the rails and adapted to be positioned on take-off rails when such rails are positioned across the rails of the track on which the track working unit is located, and adjusting connections between the frame and the trucks and means for actuating them, including means interconnecting the frame and trucks allowing the frame to be raised relative to the trucks a distance sufficient to permit the insertion of take-off rails beneath the take-off wheels, operable means for raising and lowering the frame relative to the trucks so that the take-off rails may be positioned beneath the take-off wheels when the frame is raised and the frame may be lowered to position the frame on the take-off rails through the take-off wheels, and means for automatically raising the trucks from the rails after the take-off wheels are supported on the take-off rails during lowering movement of the frame relative to the trucks.

5. The structure of claim 4 further characterized in that the operable means for raising and lowering the frame relative to the trucks includes hydraulic cylinders and pistons, the means for automatically raising the trucks from the rails after the take-off wheels are supported on the take-off rails includes a plurality of springs arranged to bias the trucks toward the frame, the trucks include lower cross frame members spanning the rails of the track and in a fixed predetermined relation to the axes of the rail engaging wheels, and the frame includes upper cross frame members above the trucks and longitudinal frame members connecting the upper cross frame members.

6. The structure of claim 2 further characterized in that the operable means for raising and lowering the frame relative to the trucks includes a plurality of hydraulic cylinders and pistons, the resilient means includes a plurality of coil springs arranged to bias the trucks toward the frame, the trucks include lower cross frame members spanning the rails of the track and in a fixed predetermined relation to the axes of the rail engaging wheels, the frame includes upper cross frame members above the trucks and longitudinal frame members connecting the upper cross frame members, and further including pin and slot connections, the slot disposed vertically between the trucks and the frame.

7. In a trackworking unit, a plurality of trucks, rail engaging wheels on said trucks, a frame mounted for movement upon said trucks, take-off wheels mounted on the frame for rotation about horizontal axes generally parallel with the rails and adapted to be positioned on take-off rails when such rails are positioned across the rails of the track on which the trackworking unit is located, elevator means for elevating the frame in relation to the trucks a distance sufficient to permit the insertion of take-off rails beneath said take-off wheels, and lifting means adapted to move the trucks upwardly from the track rails when the take-off wheels are supported on the take-off rails, the trucks including lower cross frame members spanning the rails of the track and in a fixed predetermined relation to the axes of the rail engaging wheels, the frame including upper cross frame members above the trucks and longitudinal frame members connecting the upper cross frame members, the elevator means including a plurality of hydraulic cylinders and pistons effective between the frame and the trucks, and the lifting means including a plurality of coil springs.

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