Feb. 12, 1957 H. H. TALBOYS 2,781,002

POSITIONING AND REMOVING DEVICE FOR RAILROAD MACHINE

Filed Aug. 16, 1952 3 Sheets-Sheet 1

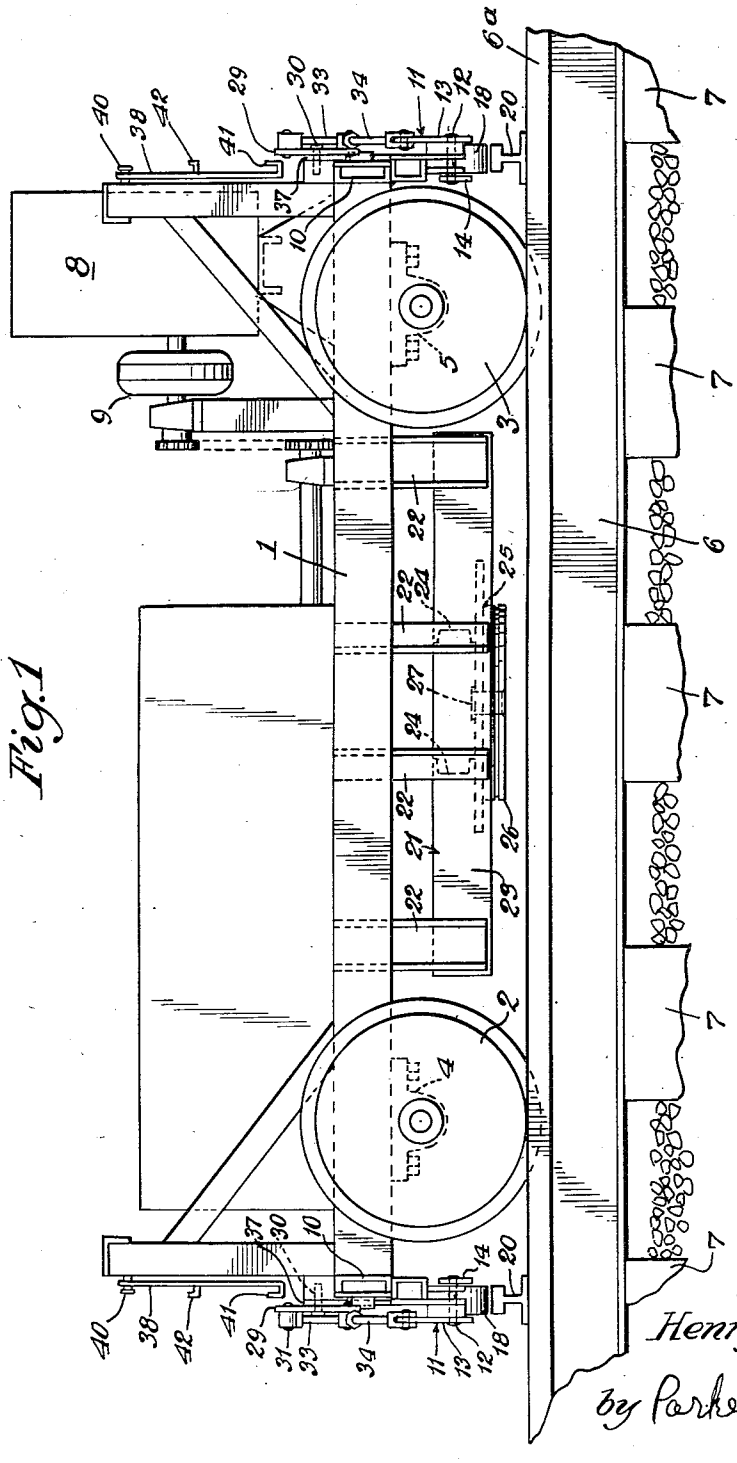


Fig. 1

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Filed Aug. 16, 1952 3 Sheets-Sheet 2

Fig. 2

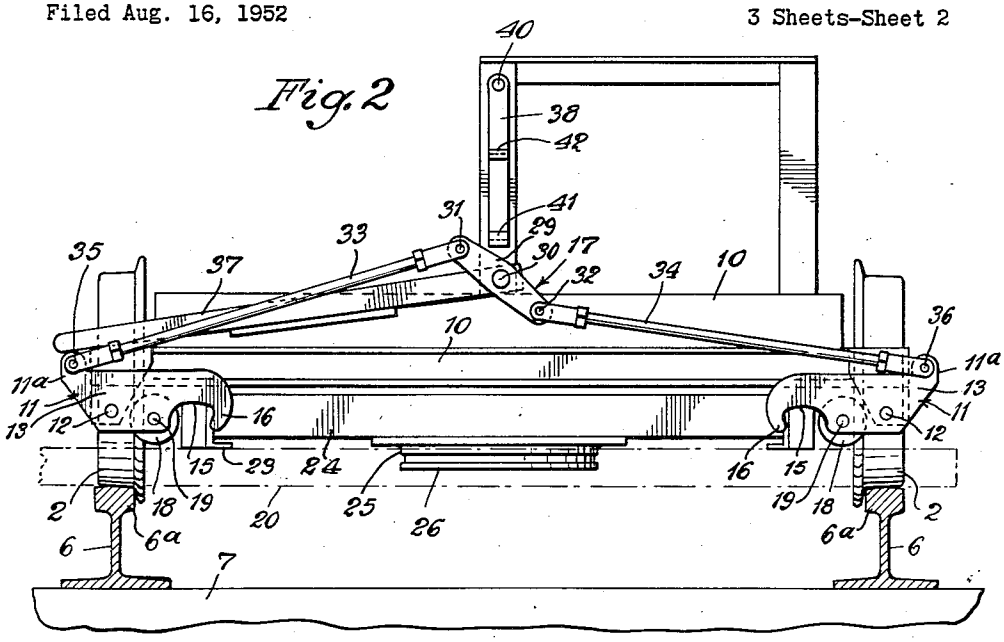
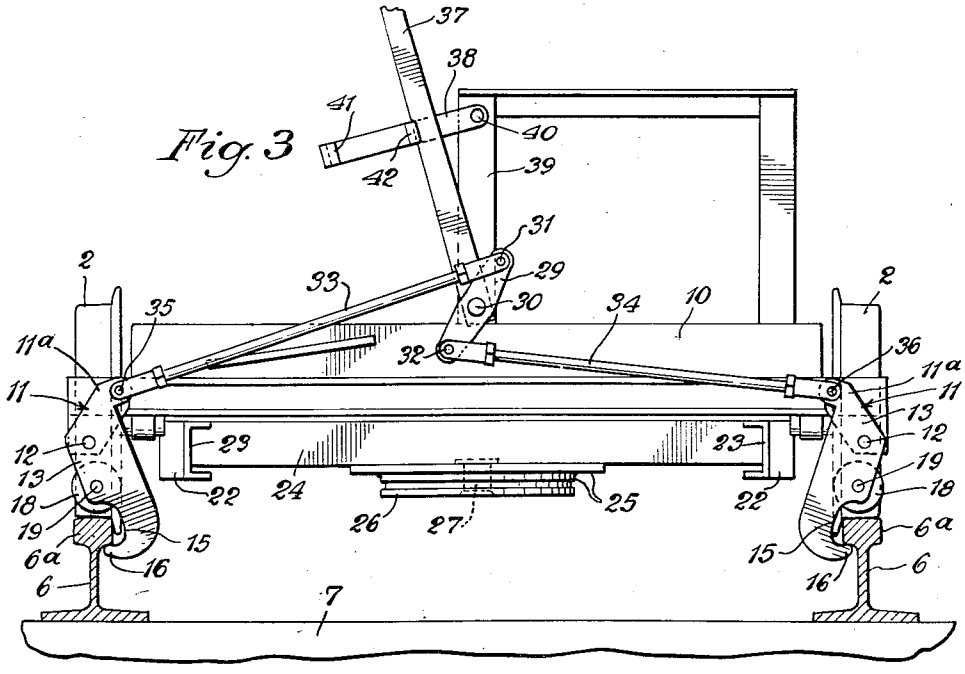


Fig. 3



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Filed Aug. 16, 1952 3 Sheets-Sheet 3

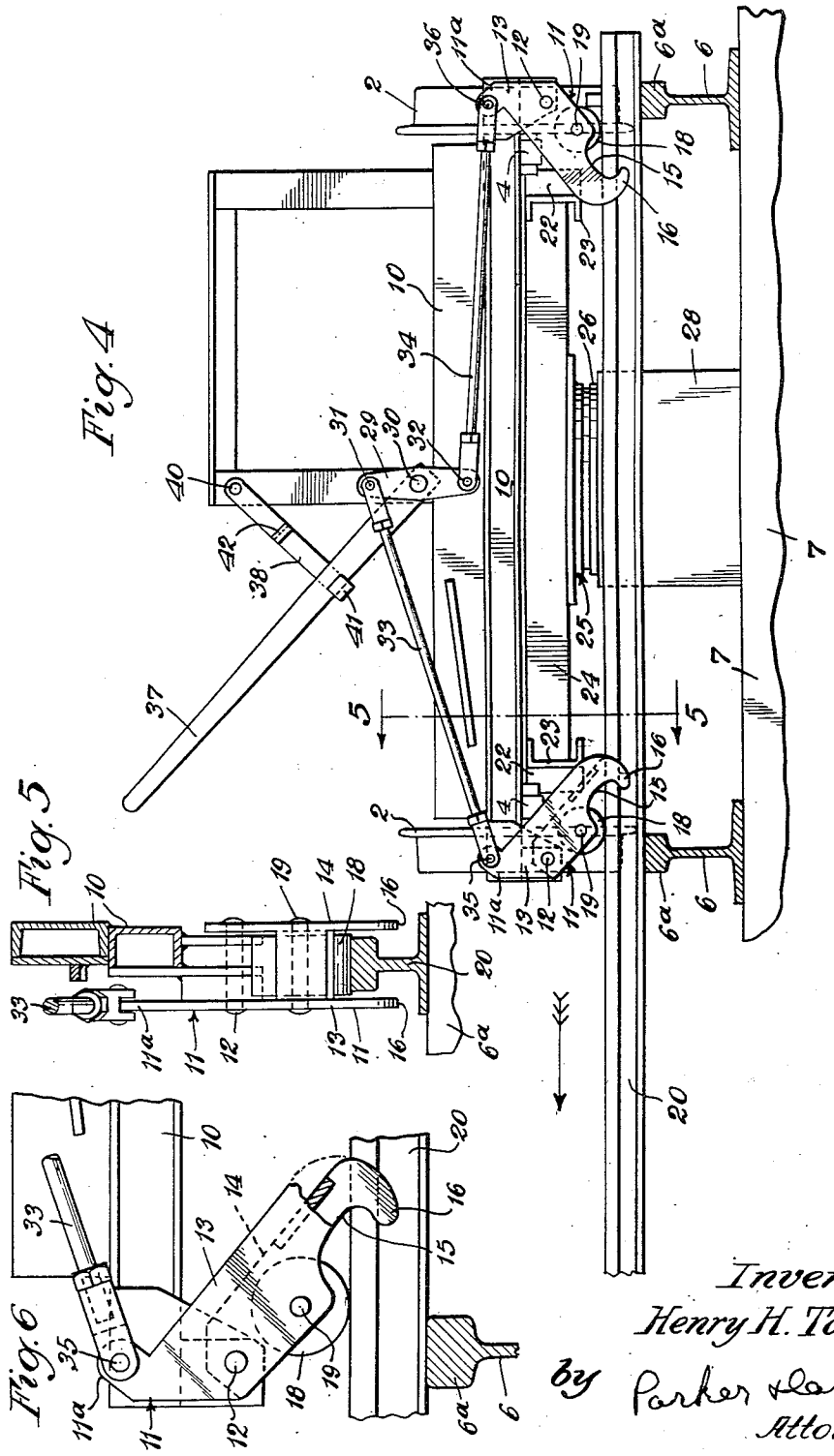


Fig. 4

Fig. 5

Fig. 6

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POSITIONING AND REMOVING DEVICE FOR RAILROAD MACHINE

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Application August 16, 1952, Serial No. 304,827

7 Claims. (Cl. 105—177)

It is an object of this invention to construct a positioning device which facilitates removal of a machine from railroad tracks upon which the machine operates.

This invention is directed to an improved device for proper positioning of a railroad machine, such as a crane, ballast digging machine, or the like, along a pair of set-off rails positioned at right angle to the railroad track on which the machine operates.

Another object of this invention is the provision of a positioning device or system adapted to hold a machine on the set-off rails when moving.

Another object of the invention is to provide an improved positioning device which facilitates turning the machine on railroad tracks.

Another object of the invention is to provide an improved controlled positioning mechanism, which includes means for holding the machine in place along tracks of a railroad and also includes means for removing the machine from the railroad tracks.

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

Referring generally now to the drawings,

Figure 1 indicates a side elevational view of a railroad machine provided with my improved positioning device;

Figure 2 is an end view of the machine shown in Figure 1 and having the operative parts of my device in inoperative position;

Figure 3 is an end view similar to Figure 2, but showing the operative parts of my device in an operative position;

Figure 4 is an end view of my device in position on the railroad machine similar to Figures 2 and 3, but showing the operative elements of my device in another operative position on the set-off rails;

Figure 5 is a detail view of a portion of the device shown in Figure 4 taken along the line 5—5 of Figure 4; and

Figure 6 is a side view of the operative elements shown in Figure 5.

Referring specifically now to the drawings, wherein like parts are designated by like characters throughout, in Figure 1 is shown a side view of any suitable railroad machine equipped with my positioning device. The machine itself may take any one of several forms and is shown in the drawings more or less diagrammatically. For example, the machine may carry a suitable boom assembly equipped with winch and cable or may take the form of an excavator adapted to dig ballast from between the ties of a railroad track or alongside the ties of a railroad track. Essentially, the machine includes longitudinally extending side frame members 1 and front and rear wheels 2 and 3, suitably mounted in bearings 4 and 5 carried by the longitudinally extending frame members. Shown in the drawings are track rails 6, upon which the wheels are adapted to rest, and supporting ties 7. The machine may be driven by any suitable motor 8 in driving engagement with the wheels through any suitable actuating connection 9. Transversely extending frame members 10, seen best in Figures 2, 3 and 4, join the longitudinally extending side frame members 1 in making up the remainder of the supporting frame.

In the normal use of a machine adapted to be utilized in work along the railroad track, some provision has to be made for the removal of the machine from the track at periodic intervals. Suitable provision should also be made for the turning of such a machine on the track, and furthermore suitable means should be provided to keep the machine from overturning. My improved positioning device makes provision for these operations.

A pair of positioning elements 11 are mounted at each end of the machine frame, and arranged to engage each of the track rails at each end of the frame. Each positioning element 11 is pivotally mounted on the frame as at 12. The positioning elements 11 include a pair of spaced side portions 13 and 14, for a purpose to be described, as seen best in Figure 5. The positioning elements 11 may preferably take the form of a U-shaped channel member given a configuration to be later described. Each positioning element 11 is movable between an inwardly extending inoperative position as shown in Figure 2 to a generally downwardly extending operative position as shown in Figure 3 and an intermediate operative position shown in Figure 4. The positioning elements are of a length sufficient to extend below the enlarged upper portion of the track rails, as seen best in Figure 3. The elements are cut away as at 15, in order to provide hook portions 16 adapted to swing into engagement with the underside of the head portions 6a of the rails 6, as seen in Figure 3. By swinging the positioning elements from the inoperative position, shown in Figure 2, to the operative position shown in Figure 3, the hook portions 16 of the positioning elements will engage the track rails, in order to hold the machine in position and prevent it from overturning. When in the position shown in Figure 3, the positioning elements serve to preclude tipping of the machine about one rail as an axis. An actuating linkage, designated generally at 17, to be described in detail in ensuing portions of this specification, serves to swing the positioning elements from their inoperative position to their operative position. It will be apparent that a similar actuating linkage is provided at each end of the machine frame, for each pair of elements.

Rollers 18 are journaled at 19 in the side portions 13 and 14 of each positioning element, intermediate the hook portions 16 and pivot 12. The position of the rollers is such, that when the positioning elements are swung downwardly into rail engaging operative position, the peripheries of the rollers are spaced a slight distance above the top surface of the track rails, as seen best in Figure 3. When it is desired to remove the machine from the track rails, a set-off rail is positioned transversely of the track rails beneath the positioning elements on each end of the machine frame. It will be apparent that by swinging the positioning elements 11 into the operative position of Figure 4, the rollers will engage the transversely extending rails 20 and elevate the machine from the track rail 6. The machine may then be simply rolled on the transversely extending rails 20 to a position alongside the track rails. When so moving the machine, the side members 13 and 14 of the positioning elements serve to maintain the position of the machine with respect to the rails 20, as will be apparent from Figure 5. That is to say, the side plates or members 13 and 14 extend downwardly to a position on each side of the transverse rails 20 and preclude transverse displacement of the machine with respect to these set-off rails.

Under some conditions of operation of track machines, a machine is provided with a mechanism adapted to work on one side of the machine only. Thus, as such a machine moves down a railroad track or right-of-way upon which it is working, it can operate along one side of the track only. When it is desired to operate on the other side of the track, it is necessary to lift the machine from the rails and turn the machine around for working along the other side of the track. My improved positioning device includes a means which eliminates the necessity for removing the machine in its entirety from the track for turning of the machine.

As seen best in Figure 1, a sub-frame indicated generally at **21** is positioned centrally and intermediate the front and rear wheels **2** and **3** of the machine. The sub-frame includes depending frame members **22** supported by the main frame. Longitudinally extending members **23** and transversely extending members **24** are joined to and supported by the depending frame members **22** and make up the remainder of the sub-frame. A fixed plate **25**, which is preferably disk-shape, is supported in any suitable fashion by the transversely extending frame members **24**, as seen best in Figure 3. A rotatable plate **26**, which is also preferably disk-shape in form, is pivoted to the fixed plate **25** by means of a central pivot member **27**. The rotatable plate **26** may have its upper surface and bearing engagement with a fixed plate **25**. The rotatable plate **26** is adapted to support the entire machine upon any suitable member or supporting block **28** positioned beneath the rotatable plate and intermediate the track rails as seen in Figure 4.

When it becomes necessary to turn the machine, the set-off rails **20** are positioned beneath the rollers **18** and the machine is elevated by swinging the positioning elements from their inoperative position to their intermediate operative position, when the supporting wheels **2** and **3** of the machine are disposed above the track rails **6**. The supporting block **28** is then placed beneath the rotatable plate **26** and the positioning elements are swung back into inoperative position, thus allowing the machine to rest upon the supporting block **28**. The machine may then be rotated about the pivot **27** for operation on the opposite side of the track. After being rotated 180 degrees, the machine may be elevated from its supported position on the supporting block **28** by the use of the set-off rails **20** and rollers **18**, and the block **28** may then be removed. The machine may be moved back to its supported position on the track rails for further working operations by swinging the positioning elements **11** to inoperative position and removing the set-off rails **20**.

In order to move the positioning elements from their inoperative position to their operative positions, I provide a novel control linkage, there being one such control linkage at each end of the machine frame. Each control linkage includes a rockable lever **29** pivotally mounted as at **30** on any suitable frame member positioned centrally of the machine, as shown in Figure 3. Opposed ends of the rockable lever **29** are pivotally connected, as at **31** and **32**, to connecting links **33** and **34** which are, in turn pivotally connected as at **35** and **36** to upstanding portions **11***a* of the positioning elements. It will be apparent that clockwise movement of the rockable lever **29** will swing the positioning elements from their inoperative position, shown in Figure 2, to their operative positions, shown in Figures 3 and 4. A control handle **37** is mounted on the pivot member **30** for unitary movement with the rockable lever **29**. An operator of the machine may selectively actuate the positioning elements by properly swinging the control handle **37** back and forth between the inoperative position, shown in Figure 2, to the operative positions, shown in Figures 3 and 4.

A locking lever **38** is pivotally mounted upon an upstanding frame member **39**, as at **40**, in order to hold the control handle in the proper operative position. For example, the locking lever **38** includes a projection **41** adapted to preclude movement of the positioning elements **11** and control handle **37** to inoperative position when the positioning elements **11** are employed to engage the set-off rails and elevate the machine for removal from the track.

Another locking projection **42** is provided on the locking lever **38** intermediate the projection **41** and pivot **40** and is adapted to preclude swinging movement of the control handle **37** and positioning elements **11** to inoperative position when the positioning elements engage the track rails to hold the machine from overturning. If desired, locking projections may be made integral with the upstanding frame member **39** or other suitable frame members to hold the control handle and positioning elements in their proper positions.

It will be realized that whereas I have described and shown a practical and operative device, nevertheless, many changes may be made in size, shape, number and disposition of 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 my specific showing herein.

The use and operation of my invention are as follows: The positioning elements serve, upon proper actuation thereof, to preclude tipping of the machine about one rail as an axis, to remove the machine from the track rails when necessary and to provide a convenient means for turning the machine with respect to the track rails.

For example, as the machine moves along the track rails **6** during its working operations and where the machine is performing such working operations that would normally tend to provide a tipping moment about one side of the machine, the control handle **37** may be actuated to swing the positioning elements **11** from their inoperative position in Figure 2 to their operative position in Figure 3, where the hooked end portions **16** of the positioning elements grip the underside of the head portions **6***a* of the track rails **6**, thus serving firmly to anchor the machine to both rails. When it is desired to move to another location, the control handle **37** and positioning elements **11** are simply swung back to their inoperative position of Figure 2 and the machine may be moved to another position along the track.

When it is desired to remove the machine from the track, the transverse set-off rails **20** are inserted beneath the rollers **18** at each end of the machine, as shown in Figure 2. The control handle **37** is then swung about its pivot to its intermediate operative position, shown in Figure 4, to raise the machine and the machine may be simply rolled along the set-off rails to a position alongside the track rails **6**. After removal from the set-off rails, the machine may be re-positioned on the track rails by setting the set-off rails **20** on the track rails **6** and rolling the machine into its position over the track rails, as shown in Figure 4. The control handles **37** at each end of the machine may then be swung back into their inoperative position, thus allowing the machine to settle on the track rails.

In case it is desired to turn the machine 180 degrees, the set-off rails are positioned as shown in Figure 4 and the machine is elevated from the track rails by the use of the positioning elements **11** and the rollers **18**. The supporting block **28**, or other suitable supporting structure, is placed beneath the rotatable plate **26**. The machine may then be turned through 180 degrees on the rotatable support **26**. The set-off rails **20** are then reinserted beneath the positioning elements and the machine elevated from the supporting block **28**. When the supporting block **28** has been removed, the positioning elements **11** may be swung back to their inoperative position of Figure 2, thus allowing the machine to settle upon the track rails and the transverse rails **20** may be removed.

The positioning device herein disclosed thus provides a machine with the utmost flexibility and facility of working operations.

I claim:

1. An anchoring and elevating device for use with railroad machines, including an element having one end portion adapted to be pivotally mounted for movement about an axis upon the machine frame, a rail engaging portion at the other end of said element, said rail engaging portion being formed and adapted to move into gripping engagement with a track rail upon movement of the element from an inoperative position to an operative position, and a roller journaled for rotation intermediate the rail engaging portion and the pivotal end portion of the element, said roller being rotatable about an axis extending generally parallel to said first axis and being formed and adapted to support the machine upon a transverse rail upon movement of the element from inoperative position to operative position.

2. A device as recited in claim 1, wherein said element is formed of a channel-shaped member having side portions adapted to restrict movement of the roller transversely of the set-off rails, and the roller is journaled in the sides of the channel-shaped member.

3. A railroad machine including a machine frame having supporting wheels adapted for supporting engagement with track rails, rail-engaging hook members swingably mounted at each end and at each side of said frame for engagement, upon movement thereof, with the track rails, a setoff roller carried by each hook member whereby said rollers may contact setoff rails extending transversely to said track rails when said setoff rails are positioned beneath said rollers, a linkage for swinging each said hook member toward rail-engaging position, movement of said hook members toward rail-engaging position, when said setoff rails are positioned beneath said rollers, being effective to cause contact of said rollers with said setoff rails, to elevate said frame from said track rails, and clear the hook members from the track rails whereby said frame may be moved laterally from said track rails on said rollers.

4. A railroad machine including a machine frame having supporting wheels adapted for supporting engagement with track rails, rail-engaging hook members swingably mounted at each end and at each side of said frame for engagement, upon movement thereof, with the track rails, a setoff roller carried by each hook member whereby said rollers may contact setoff rails extending transversely to said track rails when said setoff rails are positioned beneath said rollers, a linkage for swinging each said hook member toward rail-engaging position, movement of said hook members toward rail-engaging position, when said setoff rails are positioned beneath said rollers, being effective to cause contact of said rollers with said setoff rails, to elevate said frame from said track rails and clear the hook members from the track rails whereby said frame may be moved laterally from said track rails on said rollers, latch means for holding said hook members in rail-engaging position, and latch means for holding said rollers in engagement with said setoff rails.

5. The structure of claim 3 wherein each said roller is mounted for rotation on its hook member about an axis extending parallel to said track rails, a portion of said hook member being effective when said roller engages said setoff rail to overlie said setoff rail and restrict lateral movement of said roller with respect to said setoff rail.

6. A setoff and anchoring device for railroad machines and the like, comprising, in combination with a machine frame having supporting wheels adapted for supporting engagement with rails, machine anchoring elements disposed at each end of the machine frame adapted to be moved from an inoperative position to a rail engaging position, said anchoring elements including rail engaging members formed and adapted to engage the track rails, and roller elements positioned intermediate the body portions of the anchoring elements, said roller elements being adapted for engagement with setoff rails extending transversely to the track rails upon movement of said anchoring elements toward rail engaging position, movement of said anchoring elements toward rail engaging position and engagement of said roller elements with said setoff rails being effective to elevate said frame and prevent engagement of said anchoring elements with said track rails.

7. A device for use in selectively anchoring a track machine to a railroad track and removing the machine from the track including a body having one portion adapted to be pivotally mounted on the machine, said body including a hook end portion adapted for engagement with a track rail, a roller journaled for rotation in the body and positioned intermediate said hook end portion and said first named portion, said roller being adapted for rotation about an axis extending generally parallel to said railroad track, said roller having an exposed peripheral surface adapted for engagement with a setoff rail extending transversely to the railroad track.

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