Nov. 21, 1933. H. H. TALBOYS 1,935,753

RAIL CLAMPING DEVICE

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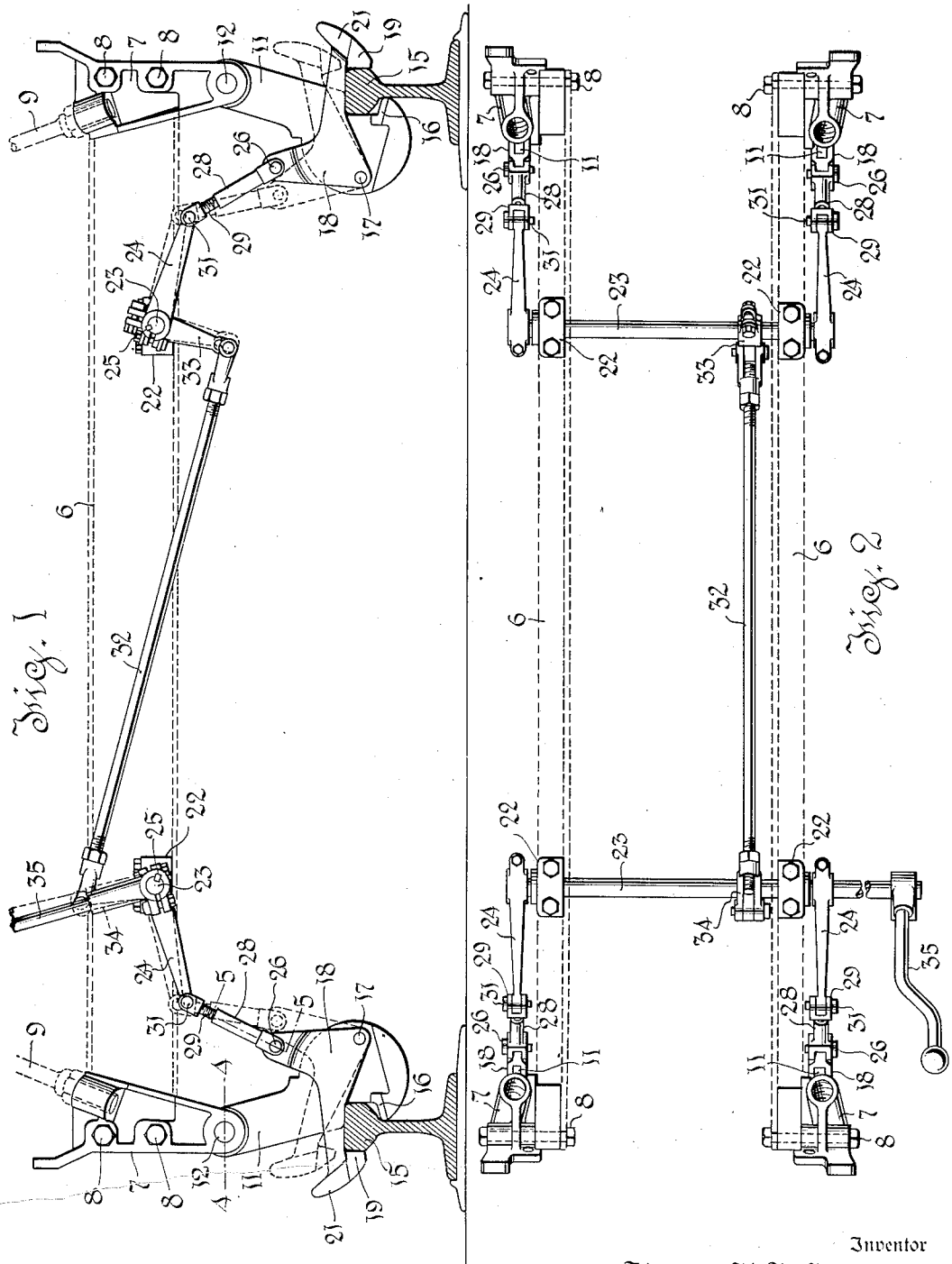


Fig. 1

Fig. 2

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Fig. 3

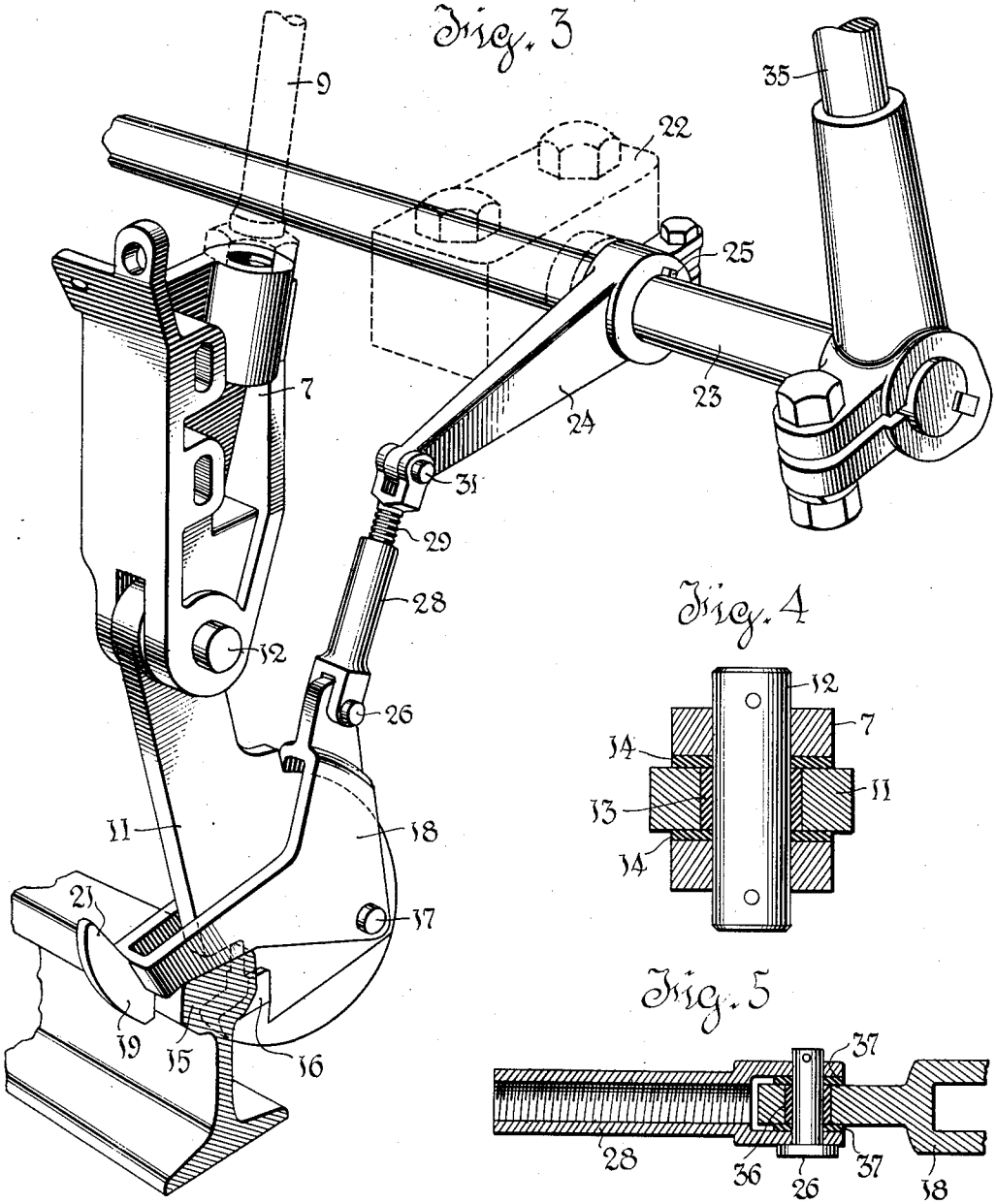


Fig. 4

Fig. 5

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1,935,753

RAIL CLAMPING DEVICE

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8 Claims. (Cl. 188—43)

This invention relates to rail-gripping devices for use on track-jacks, track leveling cars, track-shifting devices, and similar apparatus.

The purpose of the invention is to simplify construction, increase the strength and positiveness of the gripping action, and ensure ready engagement and disengagement by manipulation of a single lever.

The invention will now be described as embodied for use on the track-jack described and claimed in Patent No. 1,780,989, issued November 11, 1930.

In the drawings:—

Fig. 1 is an elevation of the rail gripping mechanism engaged with two track rails which are shown in transverse section. The positions of the parts at the moment of initial release and just before final locking engagement are indicated in dotted lines.

Fig. 2 is a plan view.

Fig. 3 is a perspective view of one rail gripper engaged with a rail.

Fig. 4 is a section on the line 4—4 of Fig. 1.

Fig. 5 is a section on the line 5—5 of Fig. 1.

As the construction of the track-jack proper is not a feature of the invention, all the framework, except the cross-frame members 6 has been omitted. A suitable frame structure is fully disclosed in the prior patent above identified.

Connected to the ends of the cross members 6, two of which are shown, are the hangers 7 for the rail engaging jaws. The hangers 7 are bolted to the framework as indicated at 8 and may be tied to the jack screw elements by tie rods indicated in dotted lines at 9 (as in the prior patent above identified). The particular form of the hangers 7 is not a feature of the invention.

The lower ends of the hangers 7 are slotted to receive the rail clamping jaws 11 which are pivoted on pins 12. As shown in Fig. 4, an insulating bushing 13 and two insulating washers 14 are used in conjunction with each pin 12, so that track signal circuits will not be affected if the jack is used on main lines. The center of mass of the jaw 11 is so offset relatively to the pivot 12 that the jaw 11 tends to gravitate into engagement with the inner side of the rail head 15. Each jaw 11 is reinforced and given an extended bearing surface, as indicated at 16.

Pivoted at 17 on each jaw 11, and straddling the same, is a slotted latch member 18 having at its end a latch nose 19 with a beveled extension 21. It is designed to lift the member 18 and guide it over the top of the rail head in case of necessity.

Pivoted in bearings 22, which are shown as supported on the cross frame members 6, but which might be supported in any suitable manner, are two rock shafts 23. Each rock shaft carries at its ends two parallel lever arms 24 which are keyed to the shaft, as indicated at 25. The end of each lever arm 24 is connected to a pivot pin 26 in the latch member 18 by means of an extensible link, made up of a forked threaded sleeve 28 and a forked threaded rod 29 screwed into the same. The member 28 is connected to the pin 26 and the member 29 is pivoted to the lever 24 by means of a pin 31. This provides a simple construction in which it is possible to vary the length of the link 28 for the purpose of adjusting the position of the latch member 18.

The parts are so arranged that when the jaw 11 and the latch 19 are engaged with the rail head, the pivot 26 is out of line with the pivots 17 and 31, and so displaced that when the lever 24 swings upward, the first effect will be to draw these three pivots into line and thus lift the latch nose 19 clear of the rail head. When this has been accomplished, further lifting motion will draw the jaw 11 clear of the rail. Similarly, if the lever 24 be swung downward, the first effect is to allow the jaw 11 to swing into engagement with the lower side of the rail. When this has been accomplished, continued downward motion of the lever 24 permits the latch member 18 to drop until the nose 19 engages over the outer side of the rail.

Each shaft 23 operates the two jaw mechanisms on the corresponding side of the mechanism. The two shafts 23 are connected to operate in unison in reverse angular directions by means of a link 32 which connects reversely arranged lever arms 33 and 34 on the two shafts 23. Obviously, the two shafts 23 must turn in reverse angular directions to secure engagement and disengagement of all the rail clamping jaws in unison.

An actuating lever 35 is fixed on one of the shafts 23 and serves as the means for actuating both. As indicated in Fig. 5, the pivot pin 26 is insulated by means of a bushing 36 and two washers 37 for the same purpose as described with reference to the pivot 12.

The construction above defined has a number of important advantages over the structure illustrated in the prior patent above identified. Each clamp is self-retaining, so that the shafts 23,

levers 24 and connected parts, are not subjected to stress during the track-lifting operation. The device engages readily and releases readily as the result of simple reverse movements of a single lever. The gripping action on the rails is stronger and more positive than that exerted by prior art structures.

The device has peculiar value with the new type of rail now coming into use in which the lower face of the head or bulb of the rail is more markedly beveled than heretofore.

The present type of jaw has the advantage of grasping all types of rail head equally well and of resisting those wedging forces which are likely to be exerted by rails having the lower portions of their heads beveled.

Minor modifications of form are contemplated and, obviously, the actuating mechanism will be modified in some degree to meet the requirements of particular supporting frames. The particular arrangement above described is intended to be illustrative rather than limiting.

What is claimed is,—

1. In a rail-gripping device, the combination of a support; a jaw movably mounted on said support to move into and out of engagement with a rail head; a latch member pivoted on said jaw and adapted to overlie the rail and engage the side thereof remote from said jaw; and actuating means for said jaw mounted on said support pivotally connected with said latch at a point offset relatively to the pivotal mounting of the latch when the latch is engaged.

2. In a rail-gripping device, the combination of a support; a jaw movably mounted on said support to move into and out of engagement with a rail head; a latch member pivoted on said jaw and adapted to overlie the rail and engage the side thereof remote from said jaw; a shiftable actuator mounted on said support, and a link pivotally connected to said actuator, and pivotally connected to said latch at a point offset relatively to a line through the connection of the link and actuator and the pivotal mounting of the latch when the latch is engaged.

3. In a rail-gripping device, the combination of a support; a jaw pivoted thereon so that it tends to move by gravity into engagement with a rail head; a latch member pivoted on said jaw so that it tends to move by gravity into engagement with the opposite side of the rail head when the jaw is engaged; and retracting means mounted on said support, connected with said latch and functioning to lift the latch and while the latch is lifted to control motion of the jaw by force exerted through the latch.

4. In a rail-gripping device, the combination of a support; a jaw pivoted thereon so that it tends to move by gravity into engagement with a rail head; a latch member pivoted on said jaw so that it tends to move by gravity into engagement with the opposite side of the rail head when the jaw is engaged; a shiftable actuator mounted on said support; and a link pivotally connected to said actuator, and pivotally connected to said latch at a point offset relatively to a line through the connection of the link and actuator and the pivotal mounting of the latch when the latch is engaged.

5. In a rail-gripping device, the combination of a support; a pair of jaws mounted thereon to move in opposite directions into and out of engagement with the heads of opposite rails of a track; latch members, one pivoted on each jaw, and adapted to overlie the corresponding rail heads and engage the remote sides thereof; and actuating means for said jaws, mounted on said support and including parts pivotally connected with said latches at points offset relatively to the pivotal mounting of respective latches when the latches are engaged.

6. In a rail-gripping device, the combination of a support; a pair of jaws mounted thereon to move in opposite directions into and out of engagement with the heads of opposite rails of a track; latch members, one pivoted on each jaw, and adapted to overlie the corresponding rail heads and engage the remote side thereof; shiftable actuating means mounted on said support; and links, one for each latch, pivotally connected to said actuating means and pivotally connected to the corresponding latch at a point offset relatively to a line through the connection of the link and actuator and the pivotal mounting of the latch when the latch is engaged.

7. In a rail-gripping device, the combination of a support; a pair of jaws pivoted on said support so that they tend to move by gravity in opposite directions into engagement with the heads of the opposite rails of a track; latch members, one pivoted on each jaw, so that each tends to move by gravity into engagement with the opposite side of the rail head, when the jaw is engaged; and a single actuating means for said jaws, including parts pivotally connected with said latches at points offset relatively to the pivotal mounting of the latches when the latches are engaged.

8. In a rail-gripping device, the combination of a support; a pair of jaws pivoted thereon so that they tend to move by gravity in opposite directions into engagement with the heads of the opposite rails of a track; latch members, one pivoted on each jaw, so that each tends to move by gravity into engagement with the opposite side of the rail head, when the jaw is engaged; shiftable actuating means mounted on said support; and links, one for each latch, pivotally connected to said actuating means and pivotally connected to the corresponding latch at a point offset relatively to a line through the connection of the link and actuator and the pivotal mounting of the latch when the latch is engaged.

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