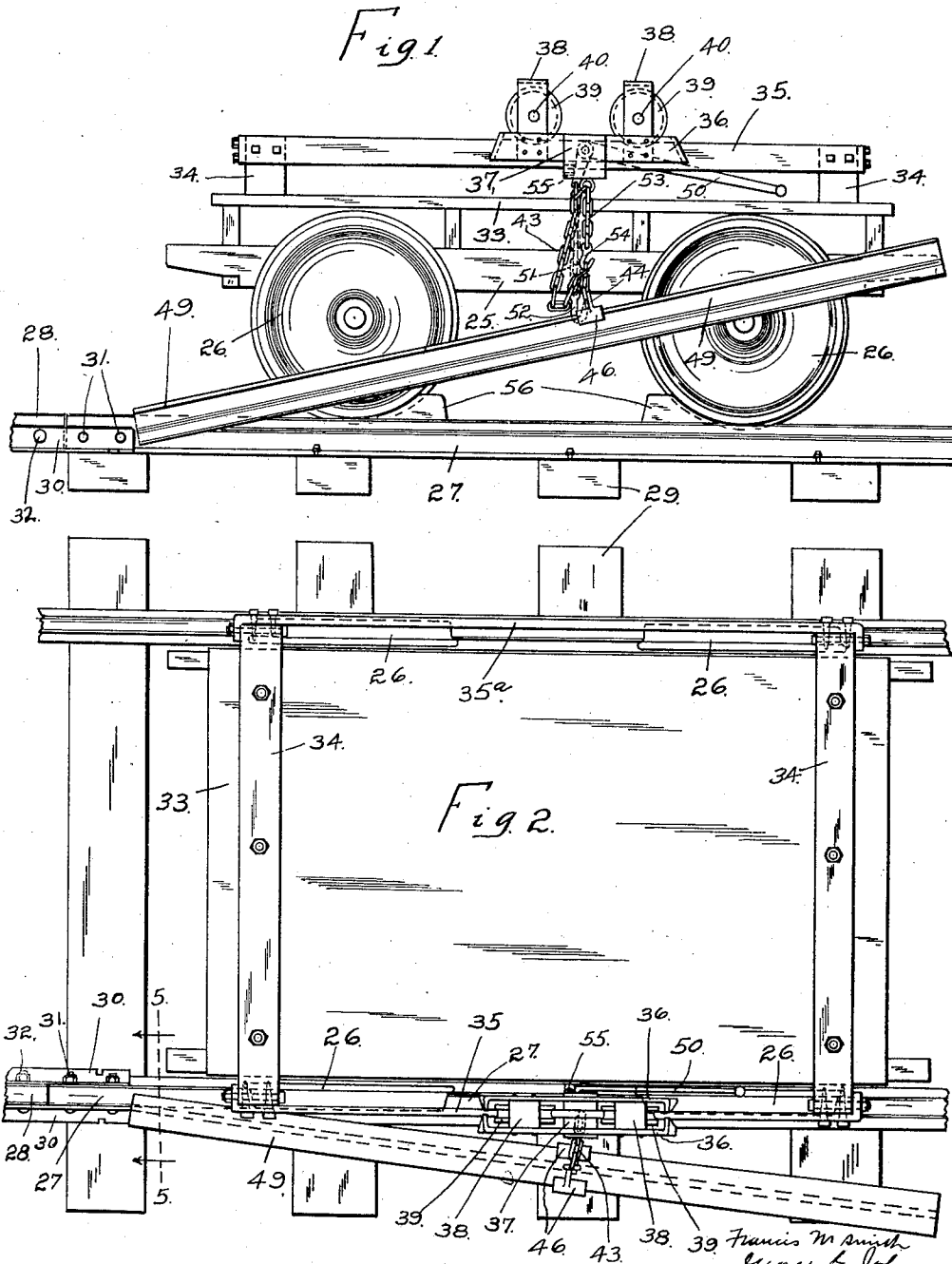


F. M. SMITH & G. E. JOHNSON.
RAIL BUCKING APPARATUS.
APPLICATION FILED JAN. 13, 1913.

1,058,801.

Patented Apr. 15, 1913.

2 SHEETS—SHEET 1.



WITNESSES:

H. M. Gillespie

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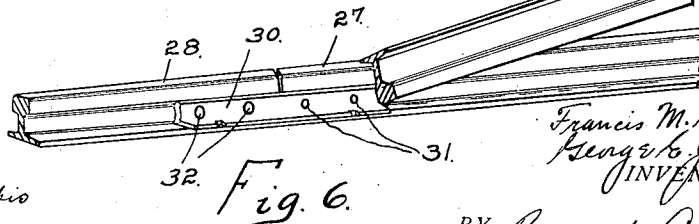
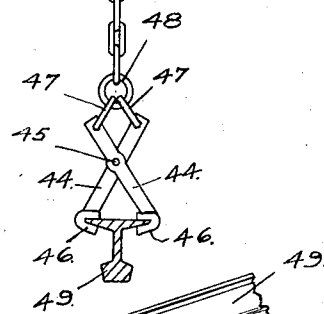
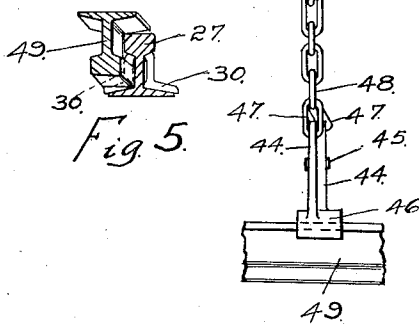
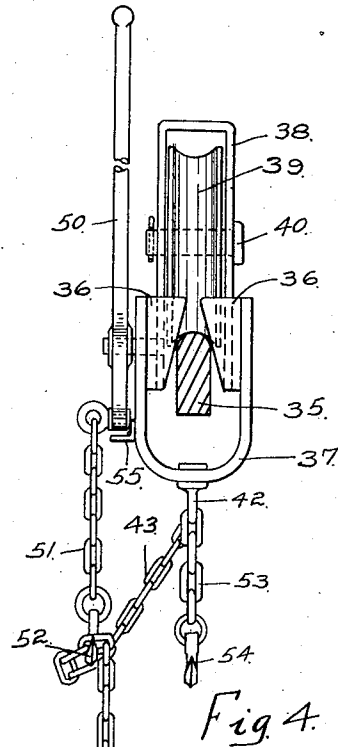
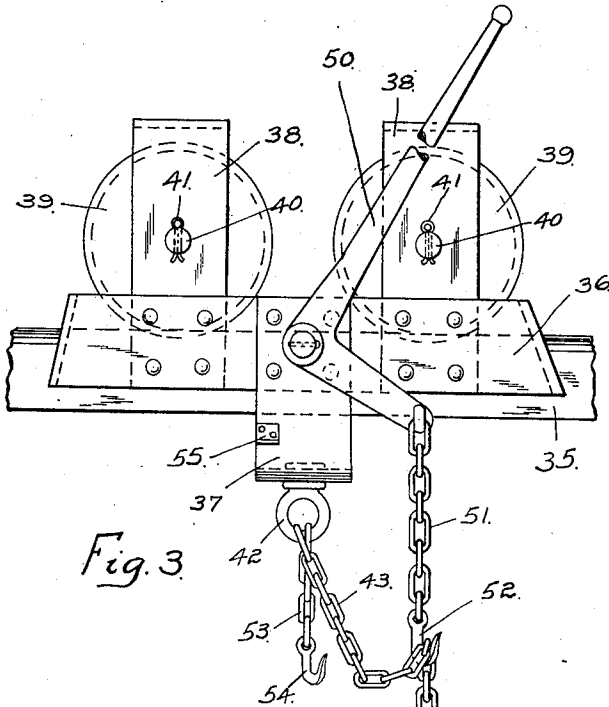
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1,058,801.

2 SHEETS—SHEET 2.



WITNESSES:

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FRANCIS M. SMITH, OF SEATTLE, WASHINGTON, AND GEORGE E. JOHNSON, OF CHICAGO, ILLINOIS.

RAIL-BUCKING APPARATUS.

1,058,801.

Specification of Letters Patent.

Patented Apr. 15, 1913.

Application filed January 13, 1913. Serial No. 741,741.

To all whom it may concern:

Be it known that we, FRANCIS M. SMITH and GEORGE E. JOHNSON, citizens of the United States, residing at Seattle, in the county of King and State of Washington, and Chicago, in the county of Cook and State of Illinois, respectively, have invented certain new and useful Improvements in Rail-Bucking Apparatus, of which the following is a specification.

Our invention relates to an operation known to railway track men as "rail bucking," the purpose of which is to readjust railroad rails which have crept longitudinally from their original position.

The object of our invention is to provide an apparatus which will enable this operation to be performed more quickly and easily and with a fewer number of men than has been possible with the methods heretofore employed.

The method of rail bucking which has been commonly used up to the present time is as follows: The spikes which spike down the angle bars constituting the joint between the rail to be operated upon and the next adjacent rail are pulled and the bolts securing the angle bars to the rail adjacent to the one to be moved are loosened or removed. A length of rail is then grappled by a crew of men and thrust against one of the angle bars a sufficient number of times to force the rail back to the desired position. This operation is repeated for each rail. Ordinarily, it requires a crew of 8 or 10 men. Our invention provides an apparatus by means of which this operation may be performed more rapidly and with a smaller crew. For example, a fair average for a crew of 8 or 10 under the old method was about a half a mile of rail in a 10-hour day. Our machine with a crew of 6 men will buck a mile of rail in the same length of time.

The invention is illustrated in a preferred embodiment in the accompanying drawings, wherein—

Figure 1 is a side elevation of the apparatus; Fig. 2, a plan view; Fig. 3, a detail side elevation of a trolley grappling and elevating device; Fig. 4, an end view of the same; Fig. 5, a detail section taken on the line 5—5 of Fig. 2; and Fig. 6, a diagram showing the manner in which the operation is carried out with the machine of our invention.

Like characters of reference designate like parts in the several figures of the drawings.

Referring to the drawings, 25 designates a carriage which is shown as an ordinary flat car or push car provided with flanged wheels 26 adapting it to run upon a railroad track. The bucking operation is carried out first with the rails at one side of the track and then with those on the other side.

27 and 28 designate two rails at the side of the track on which the machine is operating. 29 designates the ties on which they rest. The joint between the rails 27 and 28 is shown as consisting of angle bars 30 secured to the rail 27 by bolts 31 and to the rail 28 by bolts 32.

Bolted to opposite ends of the deck 33 of the truck or carriage are blocks 34 the extremities of which preferably extend out beyond the side of the truck. These blocks support at their extremities a strip of metal or track 35 secured to the blocks in any suitable manner. Mounted to run upon the track 35 is a trolley consisting in the preferred form shown in the drawings, of side pieces 36, a yoke 37 extending around and under the track 35 and upstanding yokes 38 in which are mounted trolley wheels 39. The latter turn on headed axles 40 held in place in the yokes 38 by cotter pins 41. On the under side of the yoke 37 is a ring 42 to which is attached a chain 43 carrying at its lower extremity a pair of grappling tongs adapted to grapple the base flange of an ordinary T-section railroad rail. The tongs consist, in the preferred construction shown, of a pair of members 44 hinged together by a pin 45, with their lower extremities formed with hooked engaging devices 46 and their upper extremities connected by means of links 47 with a ring 48 on the lower end of the chain 43.

In the preferred form of our invention the bucking element consists of a piece of T-section rail of suitable length, designated 49, the base of which is engaged by the tongs 44 so that the rail is sustained in an inverted position. The bucking element might be specially made for the machine and have a different cross-sectional configuration. One of the advantages of our machine is, however, that a piece of ordinary railroad rail may be used in this connection. Preferably, the chain 43 is long enough to reach

from the trolley to the ground so that the piece of rail employed as the bucking element may be picked up from the ground at the side of the track. In such case the machine is preferably provided with a device for raising the bucking element to its operative position and for sustaining the same in that position. We have shown, for performing the first of these functions, a bell-crank lever 50 pivotally mounted on the trolley, to the shorter arm of which is secured a chain 51 having a hook 52 at its lower extremity. This hook is adapted to engage the chain 43 so that by rocking the lever 50 the bucking element 49 can be raised to the desired altitude. For holding it in this position a third chain 53 is provided which is attached to the ring 42 and has a hook 54 which can be hooked into one of the links of the chain 43 when the bucking element has been raised to its operative position. A stop 55 is provided on the yoke 37 for the short arm of the lever 50.

While we have described our invention in a preferred embodiment, and one which has proven satisfactory when put to the test of actual use, it will be obvious that modifications may be made in the devices, constructions and arrangements employed without departure from the principles of the invention.

The operation of the apparatus above described is as follows: Assuming that the rail 28 is to be moved in the direction to the left of Figs. 1, 2 and 6, the spikes securing the angle bars 30 to the tie below them are removed and the spikes which spike down the rail 28 to the other ties on which it rests are partially withdrawn. The bolts 31 securing the angle bars to the rail 27 are loosened or removed. The bucking element or rail 49, if not already in its raised position, is grappled by the tongs 44 and is raised by engaging the hook 52 with the chain 43 connected with the tongs and rocking the lever 50. When the bucking element has been raised to the proper point the hook 54 is hooked into one of the links of the chain 43 and the hook 52 disengaged from the chain. The bucking rail 49 is held in an inverted position. It is grappled at one side of the center so that the end nearest the rail 28 rests upon the rail 27. The base flange of the bucking rail bears upon the ball of the rail 27 while the ball of the bucking rail fits into the channel between the ball of rail 27 and its base flange. The bucking rail is grappled by the crew and thrust forward and back, the trolley traveling on the track 35, so as to deliver a succession of blows against the end of one of the angle bars 30. By this means the rail 28 may be quickly forced back into the desired position. Under ordinary circumstances it will not be necessary to buck each separate rail. The machine is sufficiently powerful

to move 3 or 4 rails at a time. To operate upon the rails on the other side of the track the machine may simply be reversed; or, if desired, a trolley and grappling apparatus may be provided for the track, designated 70 35^a, on the opposite side of the car.

In order to keep the carriage from moving during the bucking operations it is fixed or anchored to the track in some suitable manner. For example, we have shown the 75 wheels 26 as blocked by ordinary chock blocks 56.

We claim:

1. In apparatus of the character described, the combination with a movable support, of a track on said support, a trolley on the track, and a rail bucking element sustained on said trolley.

2. In apparatus of the character described, the combination with a carriage adapted to run upon a railway track, a track arranged on said carriage at one side thereof, a trolley on said last-named track, and a rail bucking element sustained on said trolley.

3. In apparatus of the character described, the combination with a carriage adapted to run upon a railway track, of a track on said carriage, a trolley on said last-named track, a chain sustained on said trolley provided with grappling means, and a bucking element adapted to be grappled by said last-named means.

4. In apparatus of the character described, the combination with a carriage adapted to run upon a railway track, of a track on said carriage, a trolley on said last named track, a chain sustained on said trolley, and grappling means on the chain adapted to grapple the base of a T-section rail and hold the same in inverted position.

5. In apparatus of the character described, the combination with a movable support, of a bucking element movably sustained on said support so as to be capable of giving a longitudinal thrust to the rail operated upon, and means for raising said bucking element into operative position.

6. In apparatus of the character described, the combination with a carriage adapted to run upon a railway track, of a bucking element, means at one side of the carriage adapted to movably sustain said bucking element in position to give a longitudinal thrust to a rail forming part of said railway track, and means for raising said bucking element into operative position.

7. In apparatus of the character described, the combination with a carriage adapted to run upon a railway track, a bucking element, means comprising a chain and a grappling device for movably sustaining said bucking element in position to give a longitudinal thrust to a rail forming

part of said railway track, and an elevating device adapted to engage said chain so as to raise said bucking element into operative position.

5 8. In apparatus of the character described, the combination with a carriage adapted to run upon a railway track, of a track arranged on said carriage at one side thereof, a trolley on said track, a chain on
10 the trolley provided with grappling means adapted to grapple the base of a T-section rail, and means adapted to engage said chain so as to raise the grappled rail into position to buck one of the rails forming
15 part of said railway track.

9. In apparatus of the character described, the combination with a carriage adapted to run upon a railway track, of a track arranged on said carriage at one side
20 thereof, a trolley on said track, a chain on the trolley provided with grappling means adapted to grapple the base of a T-section rail, means adapted to engage said chain so as to raise the grappled rail into position

to buck one of the rails forming part of
said railway track, and means for holding the grappled rail in its raised position.

10. In apparatus of the character described, the combination with a carriage adapted to run upon a railway track, of a track arranged at one side of said carriage, a trolley mounted on said last-named track, a chain on said trolley provided with tongs adapted to grapple the base of a T-section railroad rail, a bell-crank lever mounted on
35 said trolley and provided with a chain terminating in a hook, and a short chain having a hook carried on said trolley for the purpose described.

FRANCIS M. SMITH.
GEORGE E. JOHNSON.

Witnesses to signature of F. M. S.:

O. C. CRAIT,
C. A. WINKLER.

Witnesses to signature of G. E. J.:

AXEL F. JOHNSON,
VICTOR SARNER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."