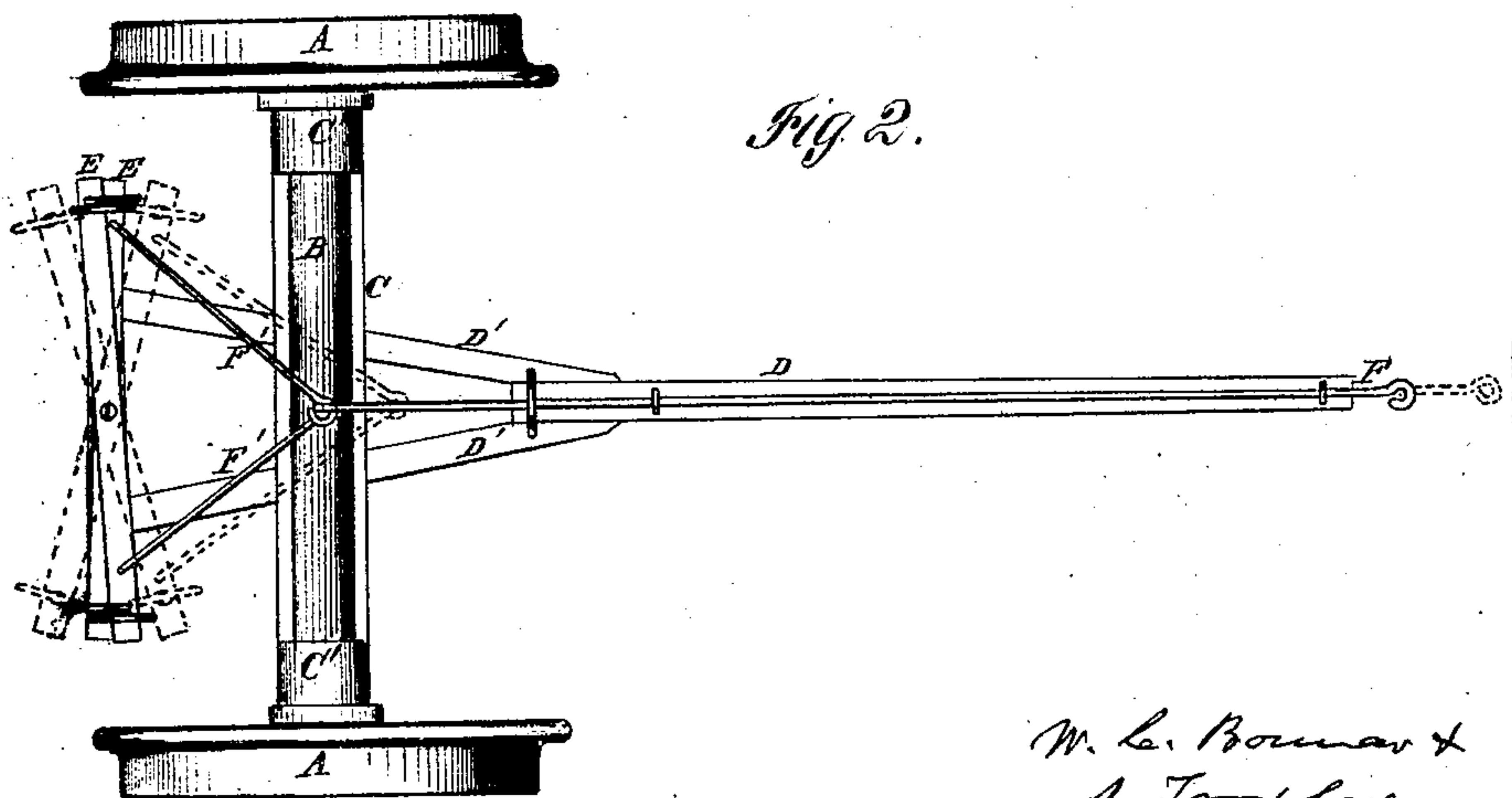
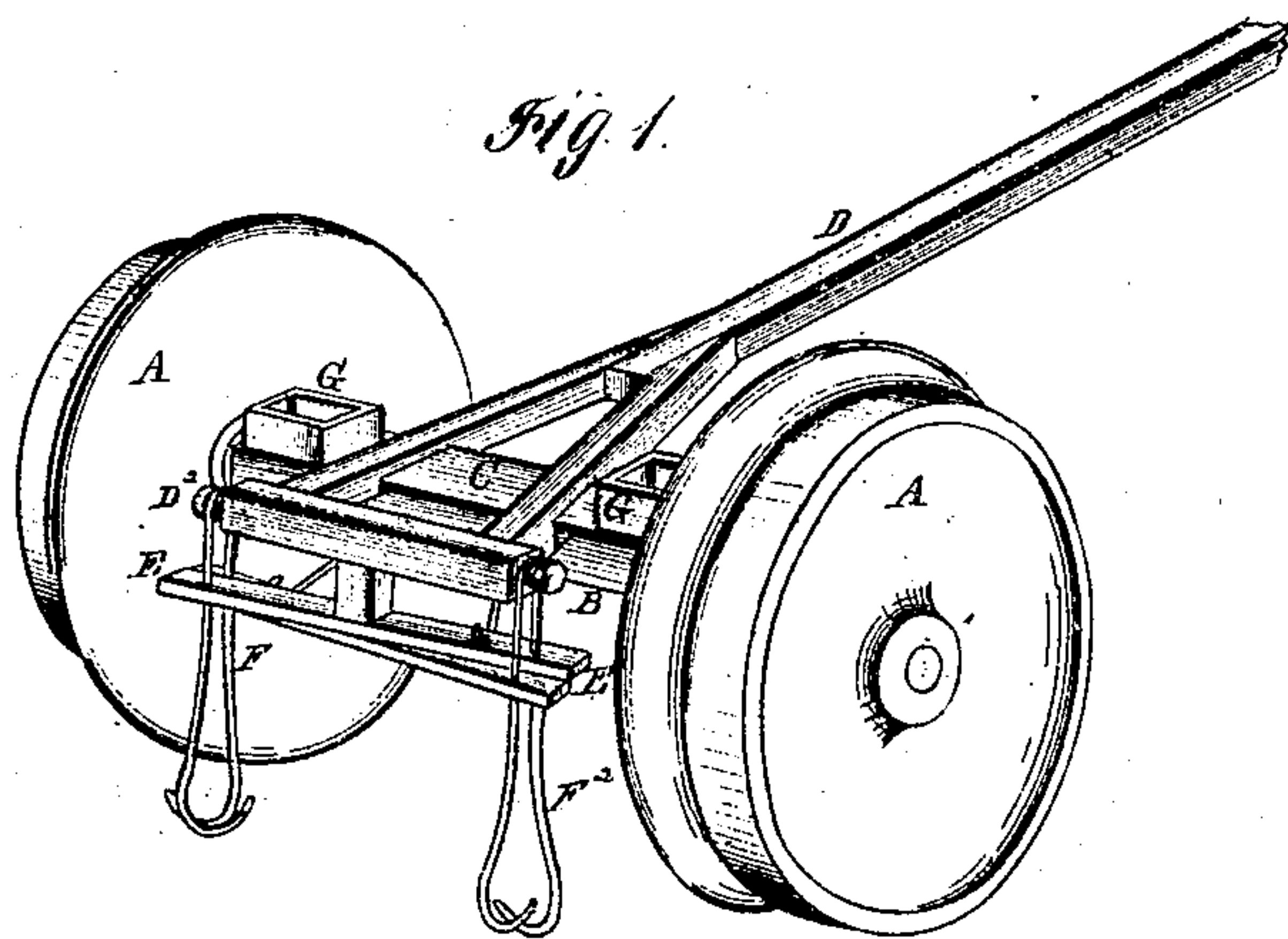


*Bonar & Troxler,*

*Lifting Jack.*

*No. 103710.*

*Patented May 31. 1870.*



*Witnesses*  
*C. Clausen*  
*A. Ruppert*

*M. L. Bonnar &*  
*A. Troxler*  
*Inventor.*  
*D. P. Holloway & Co*  
*Attys*



# United States Patent Office.

WILLIAM C. BOMAR AND ANDERSON TROXLER, OF WARTRACE, TENNESSEE.

Letters Patent No. 103,710, dated May 31, 1870.

## IMPROVEMENT IN RAILROAD-TIE LIFTERS.

The Schedule referred to in these Letters Patent and making part of the same.

*To all whom it may concern:*

Be it known that we, WILLIAM C. BOMAR and ANDERSON TROXLER, of Wartrace, in the county of Bedford and State of Tennessee, have invented certain Improvements in Railroad-Tie Lifters; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the annexed drawing making part of this specification, in which—

Figure 1 is a perspective view of our improved device, showing the wheels upon which it rests, the hooks for grasping the ties, and the lever for raising them.

Figure 2 is a plan view of the lower side of the lifter, showing the means of attaching the parts to the axle, the levers which carry the grappling-hooks, and the rod for operating them.

Corresponding letters refer to corresponding parts in the several figures.

This invention relates to that class of devices which is used for raising the ties of railroads; and

It consists in the construction, combination, and arrangement of its parts, as will be more fully described hereinafter.

In laying railroad-tracks it often happens that the ties to which the ends of the rails are secured have to be raised some distance above the surface of the earth in order to bring them up to "grade," and that, when this is the case, all the ties which are between them have to be raised up to the under surface of such rails, in order that the spikes which secure them thereto may be driven.

The object of our invention is to provide a cheap and efficient device which will perform this rapidly and economically, and, at the same time, will serve the purpose of a gauge, and thus enable the operators to regulate the distance from one rail to the other, and thus determine the gauge of the track without the use of an additional instrument for that purpose.

To enable those skilled in the art to make and use our invention, we will proceed to describe its construction and operation.

A A, in the drawings, refer to the wheels, which are secured to an axle, upon which the other parts of the device are mounted.

The form of the flange of these wheels is such as to fit the edges of the rails, the wheels being set upon the axles at the proper distance apart, so that as the ties are raised for spiking, the rails are brought into contact with the flanges of the wheels, and their positions thus fixed where the spikes are driven.

B refers to the axle upon which the wheels are mounted, it being a round bar of iron, of the proper length and diameter.

C refers to a bolster, which rests upon the axle B, it having a semicircular recess formed in its under sur-

face, which partially envelopes the axle, its ends having projections C' formed upon it, through which the axle passes, and which form boxes in which the axle turns.

D refers to a nape or lever, which is attached to the bolster C by means of two hounds or braces D<sup>1</sup> D<sup>1</sup>, they being secured to the bolster C in such a manner that, as the front end of the lever is raised, the outer or rear ends of the hounds will be lowered, so that the grappling-hooks may be made to embrace the ties, so that, as the front of the lever is depressed, the tie will be raised.

D<sup>2</sup> refers to a cross-bar, which is attached to the rear end of the hounds D<sup>1</sup> D<sup>1</sup>, it having journals formed upon its outer ends, to which the grappling-hooks are pivoted.

To the center of this cross-bar a vertical stud is secured, to which the pivoted bars which move the grappling-hooks are attached.

E E refer to the bars above alluded to, they being so arranged as to turn upon a pivot formed upon the lower portion of the vertical stud which is attached to the cross-bar D<sup>2</sup>.

These bars have apertures formed in or near their ends, through which the grappling-hooks pass, so that, as their ends move in opposite directions, the lower ends of the grappling-hooks will be thrown outward, when they may be passed under the ties, so that, as the ends of the bars are made to approach each other, the hooks will grasp the tie so that it may be raised, as hereinbefore described.

F refers to a rod, which rests in staples or eye-bolts secured to the under side of the nape or lever D, beyond the outer end of which it projects for some distance, so that it may be operated by the person whose duty it is to control the movements of the machine.

This rod extends rearward the entire length of the lever D, and to a point beneath the axle, where it is connected to two branch rods F<sup>1</sup> F<sup>1</sup>, which extend to the outer ends of the levers E E, the arrangement being such that, as the rod F is moved longitudinally along the under surface of the lever D, the outer ends of the levers E E will be made to approach or recede from each other, according to the direction in which said rod is moved.

G G refer to boxes, which are placed upon the bolster C near its ends, which may be used to carry spikes or the tools of the workmen, as desired.

The operation of this device is as follows:

The parts having been constructed and arranged as described, the wheels are placed upon the rails, and it is so placed that the grappling-hooks will be over the tie which is to be raised, when the outer end of the nape or lever D is raised until the grappling-hooks F<sup>2</sup> F<sup>2</sup> will take hold of the tie, when the rod is drawn

forward, thus separating the parts of the grappling-hooks until they will pass under the tie or take hold of its sides, when the rod F is pushed to the rear, which secures the hooks upon or around such tie; the outer end of the lever is then borne down, and the tie raised. When this is done, the rails are pressed inward by a lever in the hands of a workman, or in any other manner, until they come in contact with the flanges of the wheels, when the spikes are driven, after which the machine is passed to another tie.

Having thus described my invention,

What I claim, and desire to secure by Letters Patent, is—

1. In combination with a tie-lifter, constructed substantially as set forth, wheels, and an axle for moving the same upon the track, as specified.

2. The construction of the bolster C, substantially as and for the purpose set forth.

3. The combination and arrangement of the bolster C, the nape or lever D, hounds D<sup>1</sup> D<sup>1</sup>, cross-bar D<sup>2</sup>, levers E E, grappling-hooks F<sup>2</sup> F<sup>2</sup>, rods F<sup>1</sup> and rod F, substantially as and for the purpose set forth.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

WILLIAM C. BOMAR.  
ANDERSON TROXLER.

Witnesses:

W. M. RIPPEY,  
A. Y. PHILLIPS.