

No. 647,108.

Patented Apr. 10, 1900.

W. O'BRYAN.
RAILWAY DITCHER.

(Application filed Apr. 26, 1899.)

(No Model.)

3 Sheets—Sheet 1.

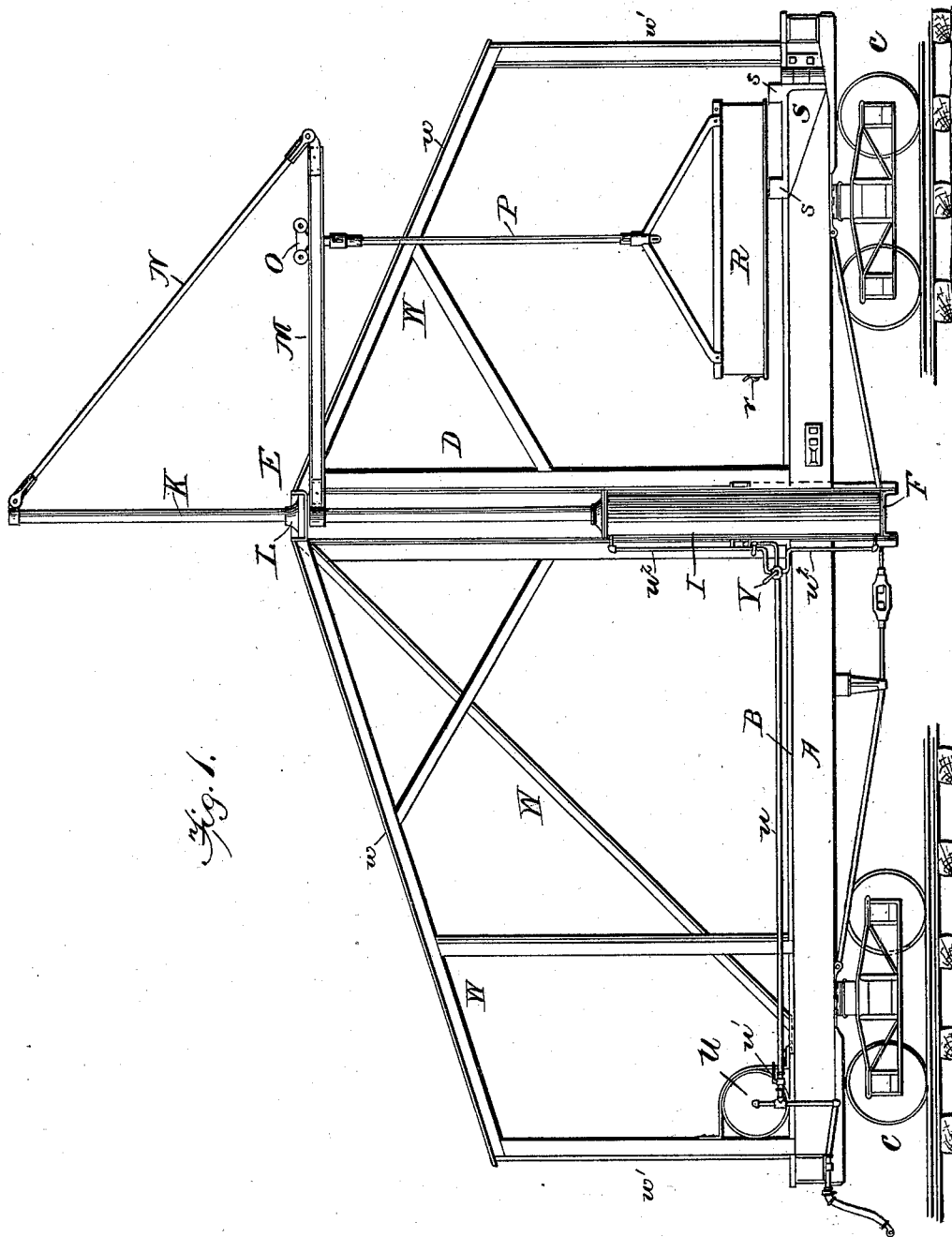


Fig. 1.

Witnesses
J. L. Moxham
Grace P. Breton

Inventor
William O'Bryan,
By Geo. W. Hursey
Attorney

No. 647,108.

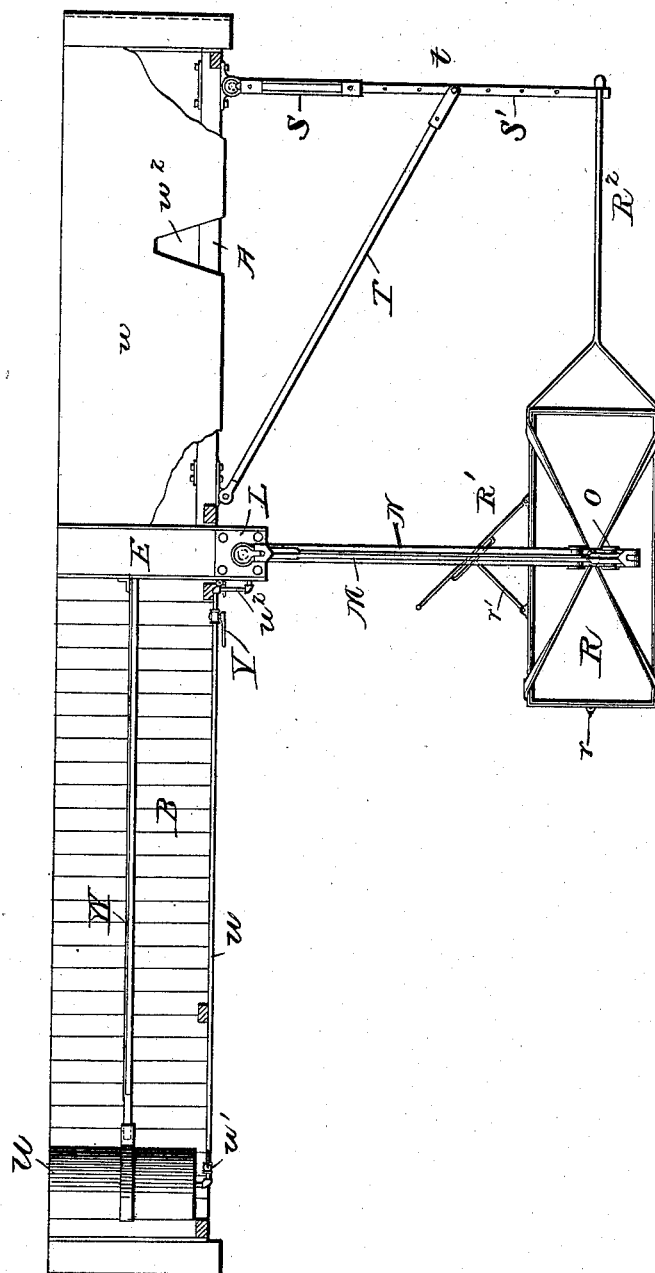
Patented Apr. 10, 1900.

W. O'BRYAN.
RAILWAY DITCHER.

(Application filed Apr. 26, 1899.)

(No Model.)

3 Sheets—Sheet 2.



Witnesses
T. L. Moxabee
Grace P. Brewster

Inventor
William C. Byars
By Geo. W. Linscott
Attorney

No. 647,108.

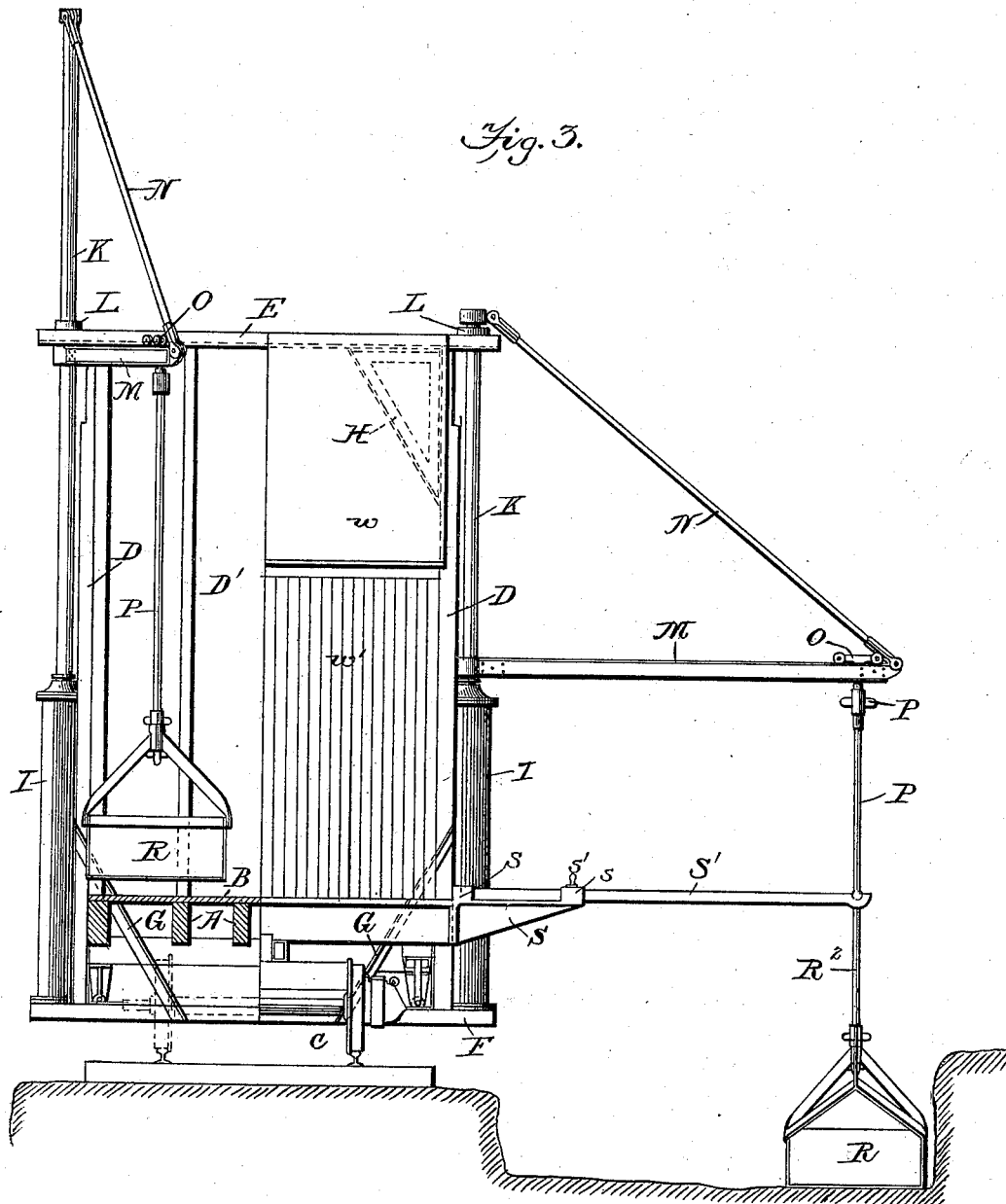
Patented Apr. 10, 1900.

W. O'BRYAN.
RAILWAY DITCHER.

(No Model.)

(Application filed Apr. 26, 1899.)

3 Sheets—Sheet 3.



Witnesses
T. L. Kockstam
Grace O. Breton

Inventor
William O'Bryan,
By Geo. W. W. W. W.
Attorney

UNITED STATES PATENT OFFICE.

WILLIAM O'BRYAN, OF NEWPORT, KENTUCKY, ASSIGNOR OF ONE-HALF TO
HENRY FLETCHER, OF VICKSBURG, MISSISSIPPI.

RAILWAY-DITCHER.

SPECIFICATION forming part of Letters Patent No. 647,108, dated April 10, 1900.

Application filed April 26, 1899. Serial No. 714,614. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM O'BRYAN, a citizen of the United States, residing at Newport, in the county of Campbell and State of Kentucky, have invented certain new and useful Improvements in Railway-Ditchers; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to excavating; and it consists in a machine for digging ditches along a roadway, especially a railway. These "railway-ditchers," so called, are generally mounted upon a platform-car, so that they can be readily moved along the track in the operation of excavating the ditch. They are provided with one or more scoops or scrapers suitably mounted upon the car and adjustable in various ways in order to enable the location of the ditch and its width and depth to be varied at will. In my machine I preferably provide two scoops, one on each side of the car, and mount them in such a manner that they can be operated by fluid-pressure, such as compressed air.

In the drawings, Figure 1 is a side elevation of my improved railway-ditcher, showing the right-hand scoop housed. Fig. 2 is a half plan view, partly broken away, showing the right-hand scoop ready to use. Fig. 3 is an end elevation, partly broken away, showing the right-hand scoop housed and the left-hand scoop in use.

The platform-car shown in the drawings is of the usual construction, comprising sills A, flooring B, and trucks C. At convenient points on opposite sides of the car are located posts D, preferably channel-irons. A top plate E connects the posts at their upper ends, while their lower ends depend below the sills of the car and are connected by a cross-girder F. The top plate and the girder are preferably of channel-iron and their ends project out beyond the sides of the car. Intermediate posts D', braces G, and knees or brackets

H may be used to strengthen the upright transverse framework thus constructed.

On the projecting ends of the girder F are erected upright cylinders I, which are also secured to the posts D. The cylinders are long enough to give the required vertical movement to the ditching-scoops. In each cylinder is a piston whose piston-rod K passes up through a guide L in the end of the top plate E. A laterally-extending boom M is pivotally secured to each piston-rod at about the middle thereof and is supported by a lift or diagonal rod N, running from the upper end of the piston-rod to the outer portion of the boom. Each boom is composed, preferably, of two channel-irons placed parallel, with a narrow vertical space between them.

A trolley O runs on the top of each boom, having a hanger which in the case of a double boom depends between the two members thereof. A rod P is keyed or otherwise secured to the hanger and serves to suspend the scoop R, which is a rectangular metallic box having its top and its front end open. The bottom of the scoop is hinged at the front end and is held up at the rear end by a catch *r*, so that it can be released to dump the contents. An upright scraper R' may be hinged to one or both sides of the scoop and is provided with an adjustable brace *r'*, so that it can be set out at an angle to scrape earth from the ends of the ties or the side of the roadway.

A heavy bracket S is hinged or otherwise fastened to the side of the car near its front end, and on this bracket is supported a bar S', which is arranged to slide in collars *s* on the bracket. A set-screw *s'* clamps the bar at any desired point. The outer end of the bar is suitably formed to engage with a tongue R², which is secured to the front end of the scoop R. A diagonal brace T is hinged to the car near the cylinder I, its outer end having an eye to permit a pin *t* to connect it with one of a series of holes in the bar. When not in use, the bar and the brace can be swung in alongside the car or unshipped and stowed on board.

An air-drum U is secured upon the car, provided with pipes and couplings for con-

55

60

65

70

75

80

85

90

95

100

necting it with the train-pipe of an air-brake system. A pipe *u*, controlled by a stop-cock *u'*, leads to a three-way cock *V*, by means of which the air can be admitted to the cylinder
 5 I below the piston through a pipe *u*² or allowed to escape therefrom.

A frame of angle-iron *W* is erected on the car, supporting a roof *w* and ends *w'*. The sides of the car may be left open, if desired,
 10 and must be so at the front portion of the car in order to permit the scoops to be swung in under the roof, which has a notch *w*² to receive the rod *P*. The booms are shorter than the distance from the cylinders to the ends of
 15 the car.

It will be seen that the piston-rod, boom, and lift constitute a derrick for handling the scoop. Its operation is as follows: Let the scoop be housed, as shown in Fig. 1. In this
 20 position it can be readily swung out by hand until it stands as shown in Fig. 2. The trolley enables the scoop to be adjusted in and out along the boom to the desired point. The air is then allowed to escape from the cylinder
 25 *I*, lowering the scoop into the ditch, as shown in Fig. 3. The bar *S'* is run out the proper distance and the brace *T* is secured to it. The tongue *R*² of the scoop is fastened to the bar and the machine is ready for use.
 30 When the car is moved forward, the bar drags the scoop along through the earth, and when the scoop is full air is admitted to the cylinder and lifts the scoop, which can then be swung aside and dumped.

35 Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A ditching-machine, comprising a railway-car, one or more upright cylinders secured thereon near the middle of the car, and depending below the car-floor, a piston and a piston-rod for each cylinder, a boom secured to each piston-rod and shorter than the distance from the cylinder to the end of the car,
 40 a trolley supported on each boom, a scoop

suspended from the trolley, and a reservoir for compressed air carried on the car, and connected with each cylinder.

2. The combination with a railway-car, of two upright cylinders on opposite sides of the
 50 same, a piston in each cylinder, a derrick supported on each piston, means for supplying fluid-pressure to both cylinders, a scoop supported by each derrick and adjustable thereon, and a bar projecting from each end
 55 of the car and connected with the scoop on that side.

3. A ditching-machine, comprising a railway-car, a scoop, means mounted on said car for raising and lowering said scoop by fluid-
 60 pressure, a bracket hinged to the car, a sliding bar carried on the bracket, a diagonal brace hinged to the car and adjustably connected with the bar, and connections between the bar and the scoop.

4. In a ditching-machine, a car having an upright framework composed of posts, a top plate and a bottom girder, upright cylinders supported on the girder, and piston-rods passing through guides in the top plate, substantially
 65 as described.

5. In a ditching-machine, a car having upright cylinders, piston-rods therefor, booms supported on said rods, scoops suspended from said booms, a framework, and a roof
 70 supported thereby, said roof having notches to receive the rods when the scoops are swung inboard, substantially as described.

6. A scoop provided with a scraper hinged to one side thereof.

7. A scoop provided with a scraper hinged to one side thereof, and an adjustable brace for said scraper.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM O'BRYAN.

Witnesses:

SOL BLONDHEIM,
 N. A. HAMMAN.