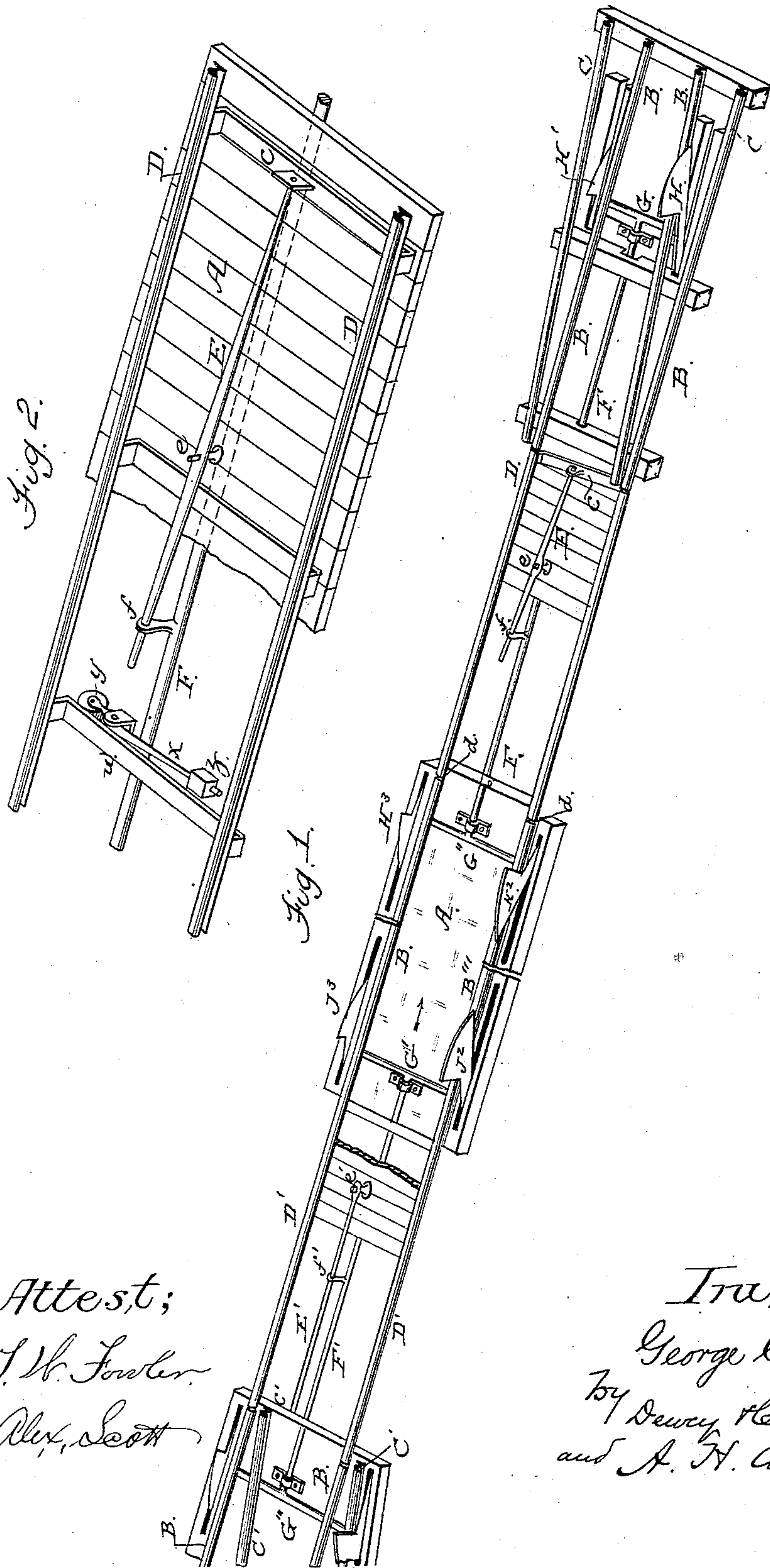


2 Sheets—Sheet 1.

No. 286,682.

Patented Oct. 16, 1883.



Attest;
J. W. Fowler.
Alex. Scott

Twentor;
George Chalmers,
by Dewey & Co.
and A. H. Evans & Co.
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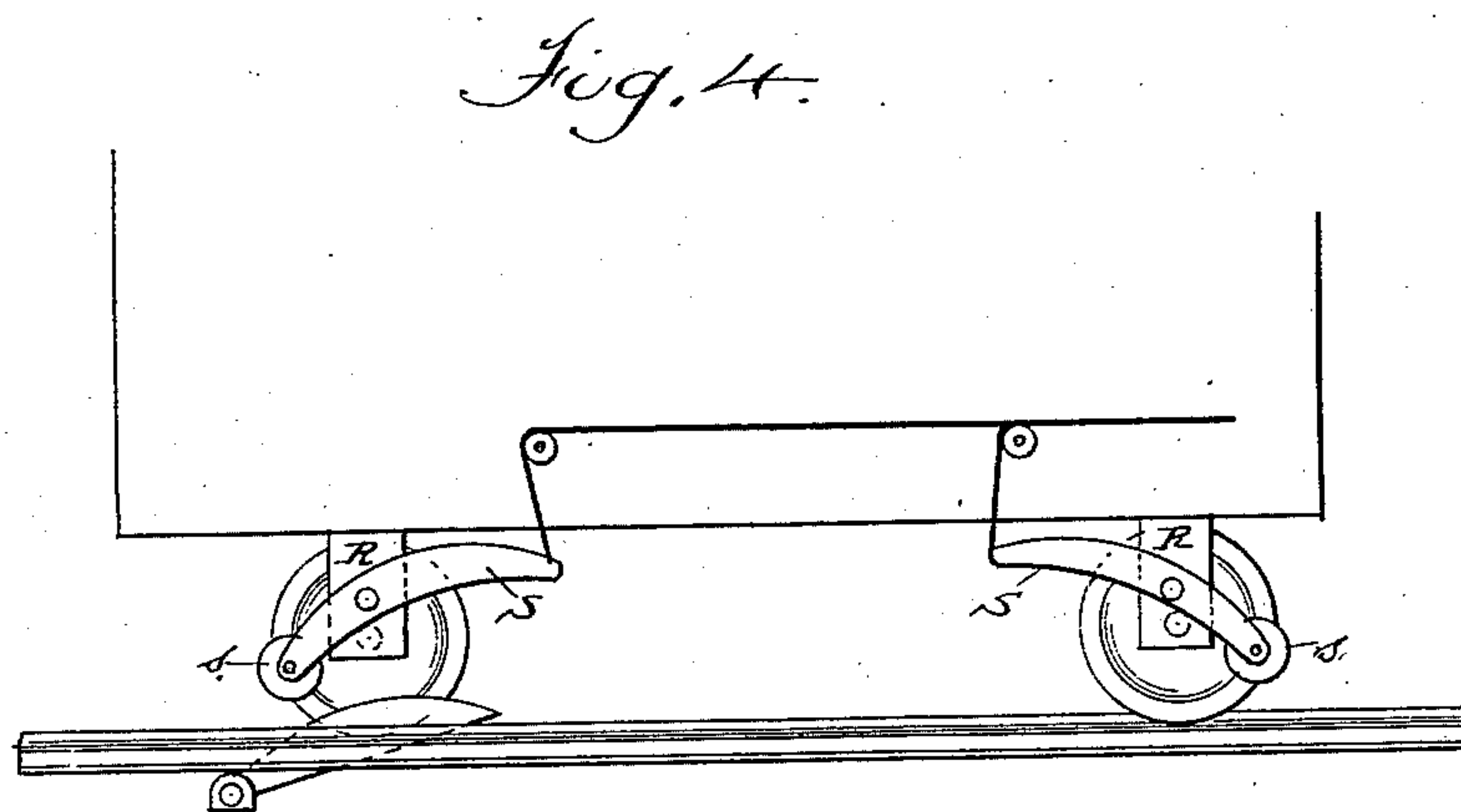
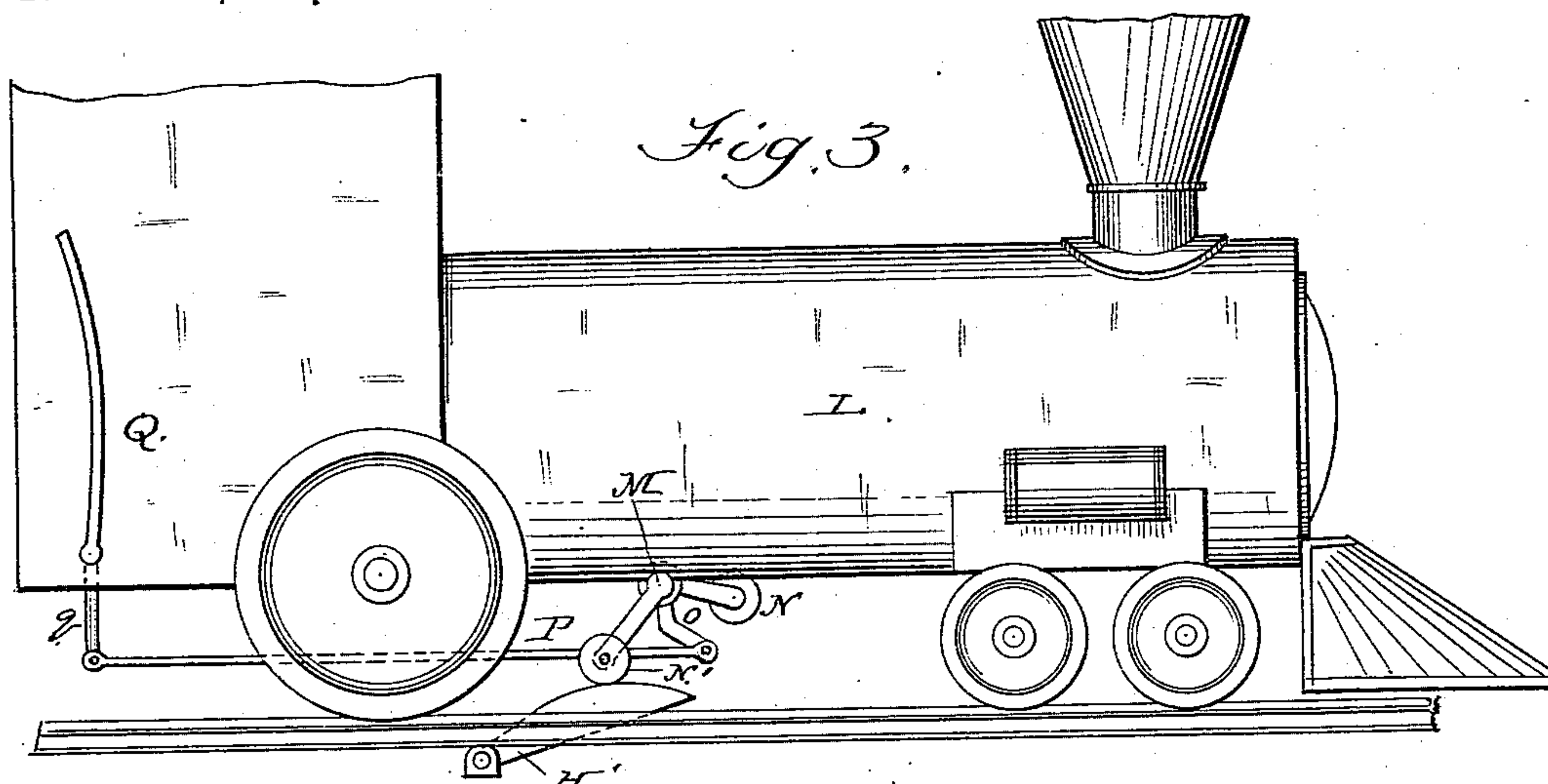
(No Model.)

2 Sheets—Sheet 2.

G. CHALMERS.
RAILWAY SWITCH.

No. 286,682.

Patented Oct. 16, 1883.



Attest;
Walter Fowler,
Alex Scott

Inventor;
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UNITED STATES PATENT OFFICE.

GEORGE CHALMERS, OF SAN JUAN, CALIFORNIA.

RAILWAY-SWITCH.

SPECIFICATION forming part of Letters Patent No. 286,682, dated October 16, 1883.

Application filed January 18, 1882. (No model.)

To all whom it may concern:

Be it known that I, GEORGE CHALMERS, of San Juan, county of San Benito, State of California, have invented a Railway-Switch; and I hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to a railway-switch; and it consists in the arrangement of levers operated by suitable devices upon the locomotive or car from which, through intermediate mechanism, motion is transmitted to the switch or throw rails to connect them with the side or main track, this said arrangement being for the purpose of operating all the levers upon one side to keep a straight or main track and all the levers upon the other side to connect the throw-rails with the sidings.

The object of this invention is to provide a switch in the operation of which the greatest simplicity exists, thereby lessening the danger of accident, both on account of construction and the difficulty of acquiring the knowledge of its operation. All that is required is to remember upon which side all levers work to one purpose, and upon which to another, as will be fully seen in the course of the following description and by reference to the accompanying drawings, in which—

Figure 1 is a perspective view, showing my improved switch. Fig 2 is an enlarged view of one section of same. Figs. 3 and 4 show apparatus for operating the switch from a locomotive.

A represents the road-bed. Upon one end of the track-section herein shown are the rails B of the main track and also the rails C of the side track, represented as coming in from the right-hand side. At one end of a central section, B'', of the main track are the throw or switch rails D, which are adapted, as I shall presently explain, to have one end thrown in relation with either rails B or C. The other ends of the switch-rails are pivoted at d, and are always in connection with the rails B of the main track. At the other end of this central section of the main track B'' are pivoted the throw or switch rails D' of a second switch, said switch being always in connection with the rails B B of the main track. The other ends of the throw-rails D' are adapted to be thrown into connection with the rails of the

main track B, and also with a side track, C', which I have here represented as leading away to the left of the main or straight track.

It will be seen from this general description that a car coming on the main track may, by proper arrangement of the switch, proceed the entire length on said track, or may proceed to the left upon the siding C', or, coming in upon the siding C, may proceed upon the main track or switch off upon siding C', in which latter case it will have completely crossed the main track.

The swinging ends of the switch-rails D are connected by a cross-piece, c, as shown, which lies upon and is adapted to slide upon a proper bed. Connected with this piece c is a lever, E, pivoted to the bed at e, and having its other end attached to a vertical arm, f, upon a horizontal rock-shaft, F. This rock-shaft F lies below the cross-ties or the bed, and is journaled so that it may rock, and when such motion is imparted to it the arm f, which projects upward through the bed, will also rock. This motion of the arm turns the lever E upon its pivot, and will thus throw the switch-rails to connect with the main rails B or siding-rails C as the direction of the movement of the lever is changed.

The shaft F is made to rock as follows: Upon one of its ends is a cross-lever, G. Upon the left of one of the siding-rails C is pivoted a lever, H. This is constructed with a large rounded head adapted to be elevated above the rails, and a stem, by which it is pivoted at h, Fig. 2, in appropriate housing. (Not shown.) This lever H, when pressed down, bears upon the end of the cross-lever G and presses it down, thereby rocking the shaft F. Upon the right of one of the main rails B of the track is a similar lever, H', which is adapted to rest upon the other end of the cross-lever G, and thus it will be evident that the oscillations of the lever G alternately raise and lower the levers H H', and in Fig. 1, for illustration, I have shown lever H raised and in position, when depressed by an approaching engine on a side track, to throw the switch-rails D D in connection with the side track, so that the train can pass from the side-track rails C C to the central section of main track. (Shown at B''.)

The forward end of shaft F extends to the central section, B''', of the main rails B of the track, and is provided with a cross-lever, G'', similar to G, the ends of which are alternately depressed and raised by the operation of two levers similar to levers H and H', and marked here H² and H³. These levers are to operate the throw-rails D when the car is moving in the direction of the arrows. It will be seen in this case that the lever H² is up in a position on the side of the central section, B''', of the main track to be depressed and to operate the working-shaft F and lever E to connect the throw-rails D with the siding-rails C, and the lever H³ upon the opposite side of the track-section B''', when depressed, connects the switch-rails D with the rails B of the main track.

The operation of the throw-rails D' is somewhat similar to the description just given, with, however, a slight change in order to make the levers upon the left connect the switch with the siding and the levers upon the right connect with the main track.

F' is the rocking shaft, and G' G''' the cross-levers upon its ends. It has an upright arm, f', which is connected with a lever, E'. This lever, instead of having its fulcrum between the power and the weight, has the power between the fulcrum and the weight. It is therefore pivoted, as shown at e', at one end, and is connected with a cross-piece, C', at the other, this cross-piece joining the ends of the throw-rails D' and affecting them as described in the case of throw-rails D. The object of this construction is that the levers J J' J² J³, similar to those H H' H² H³, may throw the rails D' in the manner described—that is, that levers J and J², upon the left, shall always connect the switch-rails with the siding-rails, and levers J' and J³, upon the right, connect them with the main rails B of the track.

Let L represent a locomotive. Under it, between the wheels, is journaled a shaft, M, the ends of which project on the sides, and are turned at right angles with the shaft and with each other, and carry rollers upon their outwardly-turned ends. The one upon the left I mark N, the other N'. The center of the shaft is provided with a crank, O, with which a rod, P, connects, the rear end of which connects with an arm, q, upon a lever, Q. This lever Q is bent on the side and projects upward to within the reach of the engineer. When the lever is pushed forward, the roller N upon the left is made to turn downward, while the roller N' upon the right is turned up to one side. Suppose, now, that the locomotive be upon the siding C, and both switch-rails D and D' are in connection with the main or straight track, as seen in Fig. 2. The object is to go upon the main track and again to leave it for the siding C' upon the other side. The lever Q is pushed forward and the roller N upon the left lowered. The locomotive progresses, and the roller, meeting the lever H' upon the left of the

siding, depresses it and throws the rails D into connection with the siding C, and at the same moment the lever H² is lowered out of the way of the roller. It now passes over lever H² upon the main-track section B''', and roller N meets with the lever J² upon the left of the track and depresses it, and the switch-rails D' are thereby thrown over into connection with the siding C'. Returning under similar circumstances, the levers J and H² upon the left are brought into operation, excepting that roller N' is used, and not N. In like manner the levers H', H³, J³, and J' upon the right always keep a straight or main track, the roller N' upon the right of the locomotive being used when going in one direction, (opposite to that indicated by the arrows,) and the roller N upon the left being used when going in the opposite direction, (with the arrows.) The object of this is to simplify the device.

The levers H² J² on the central section of the main line are so connected and operated as to occupy depressed or raised positions reversely to the positions of the levers H J and H' J'. If all the switches were arranged likewise, all that the operator would have to bear in mind would be that by dropping his roller upon one side he could leave the main track for a siding or leave a siding for the main, and by dropping the other he could always remain upon the straight or main track.

It may happen that it will be necessary to run the coaches off upon a siding while the locomotive remains upon the main track. In Fig. 5 I show the provision for this. To braces R, under the side of the car, are pivoted arms S, one at the front and the other at the rear. These carry in their ends rollers s, and, are so pivoted that their tops are heavy, and, falling of their own weight, raise the rollers away from the track. Suitable cords raise their heavy tops, and thus throw their rollers down for contact with the levers. Two similar ones are upon the other side of the car. The object in having two upon a side is that the car may be backed or progressed with safety, it being so long that if there were but one it might not operate the switches in time to prevent the end of the car from leaving the track.

In order to render the operation of the acting levers H and J and the other similar levers as easy as possible, I have the following construction: I here show it in connection with the throw-rails D, Fig. 2. Between these rails is a cross-plate, w. In the bed of the road, under the plate and in a suitable casing, is pivoted a lever, x, the short end of which carries a roller, y, and the long end a weight, z, the whole being in the form of a common steelyard. By hanging the weight far enough out upon the long arm, the roller y is made to rise up against the plate w, and to support, to some extent, the throw-rails, and thus reduce their friction in swinging. By a proper adjustment of this weight the throw-rails may be raised just enough to allow them to be moved

with ease, and yet not enough to prevent them from remaining steady.

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

5 1. The main track B, side track C, and throw or switch rails D, cross-piece *c*, lever E, rocking shaft F, with its arm *f* and cross-levers G G', and levers H H' H² H³, arranged
10 to operate substantially as shown, in combination with the means for operating these devices, consisting of the rollers N N' upon each side of the locomotive, said rollers being adapted to be depressed in turn to act upon
15 the levers H H' H² H³, and likewise to be raised out of the way by means of the rocking shaft M, crank O, rod P, and lever Q, substantially as herein described.

20 2. The arrangement of the series of levers H H' H² H³ J³ J² J' J, the side tracks C C', main track B, and switch or throw rails D D', rocking shafts F F' with their cross-levers G

G'' G' G''' and arms *ff'*, levers E E', and cross-pieces *c c'*, in combination with the rollers N N' or equivalent devices upon the car, where-
25 by the operation of all the levers H' H³ J³ J' upon one side will keep the car upon the main track, and the operation of all the levers H H² J² J upon the other side will switch the car upon the sidings, substantially as herein
30 described.

3. The series of levers H H' H² H³ J³ J² J' J, in combination with the throw or switch rails D D' and the intermediate mechanism, whereby motion is transmitted from the said
35 levers to said rails, consisting of the rocking shafts F F', with their cross-lever G G'' G' G''' and arms *ff'*, levers E E', and cross-pieces *c c'*, substantially as herein described.

In witness whereof I hereunto set my hand.
40 GEORGE CHALMERS.

Witnesses:

C. D. COLE,
J. H. BLOOD.