No. 716,873. Patented Dec. 30, 1902.

F. L. DODGSON.

TRACK CLEARER FOR AIR BRAKE SETTING DEVICES.

(Application filed Oct. 28, 1897.)

(No Model.)

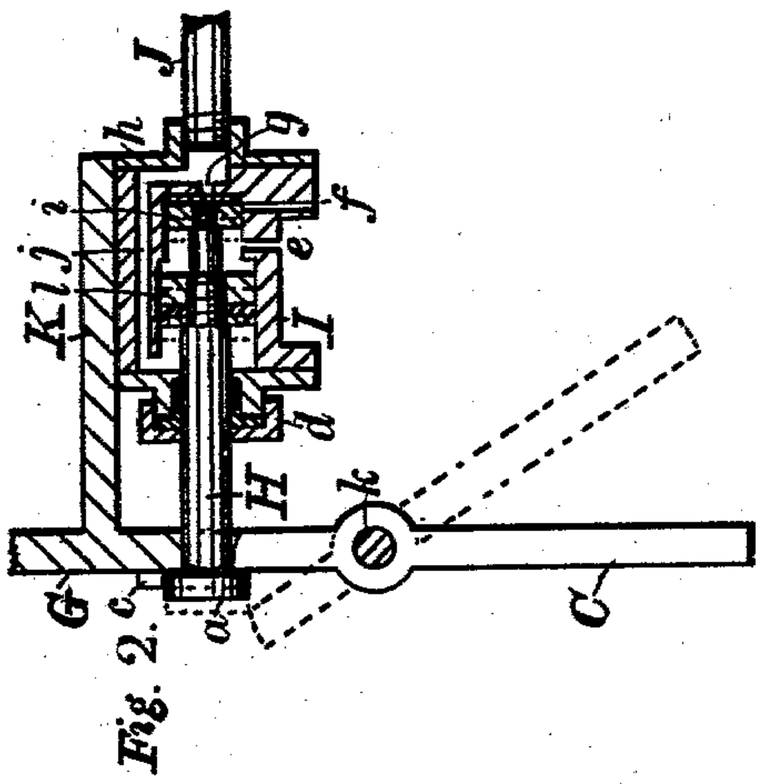

Fig. 2.

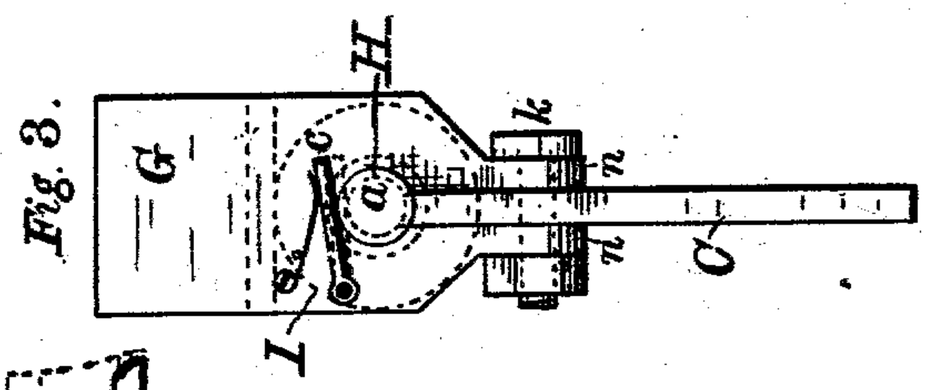

Fig. 3.

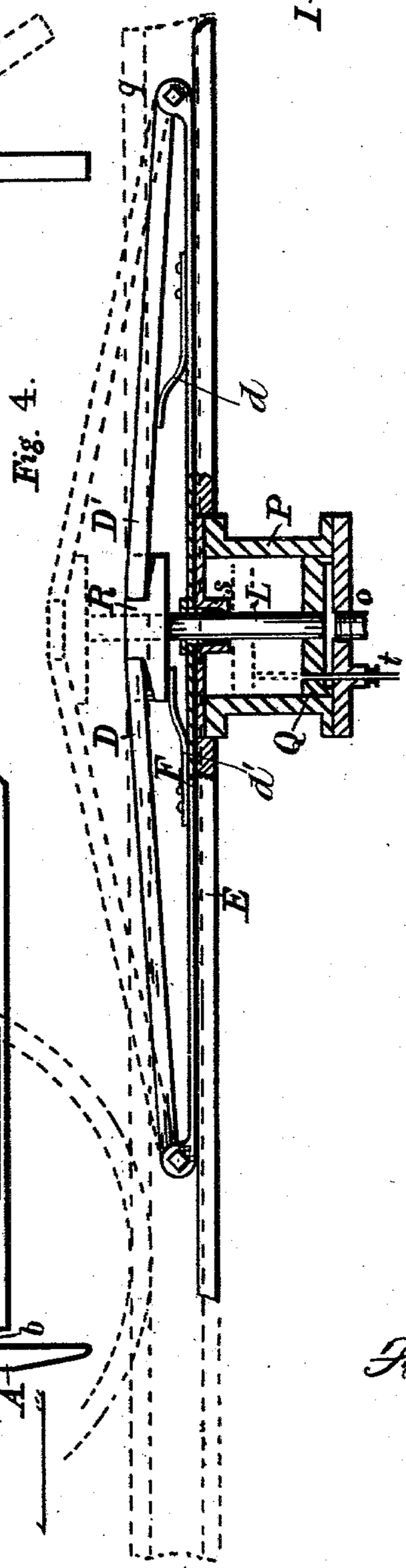

Fig. 4.

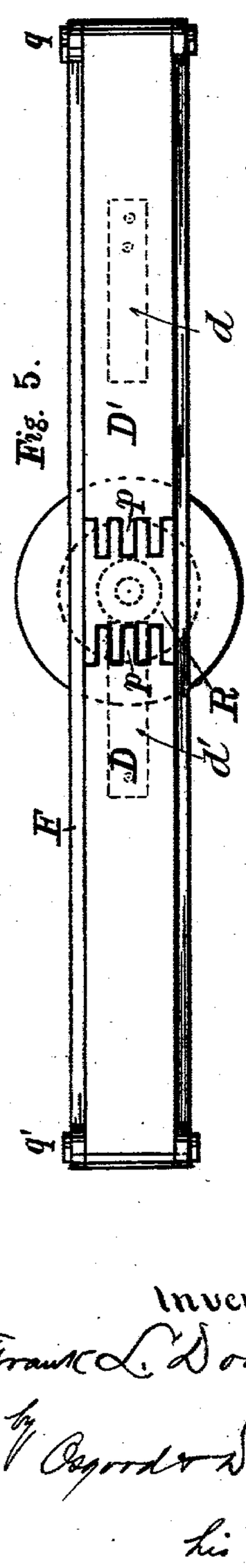

Fig. 5.

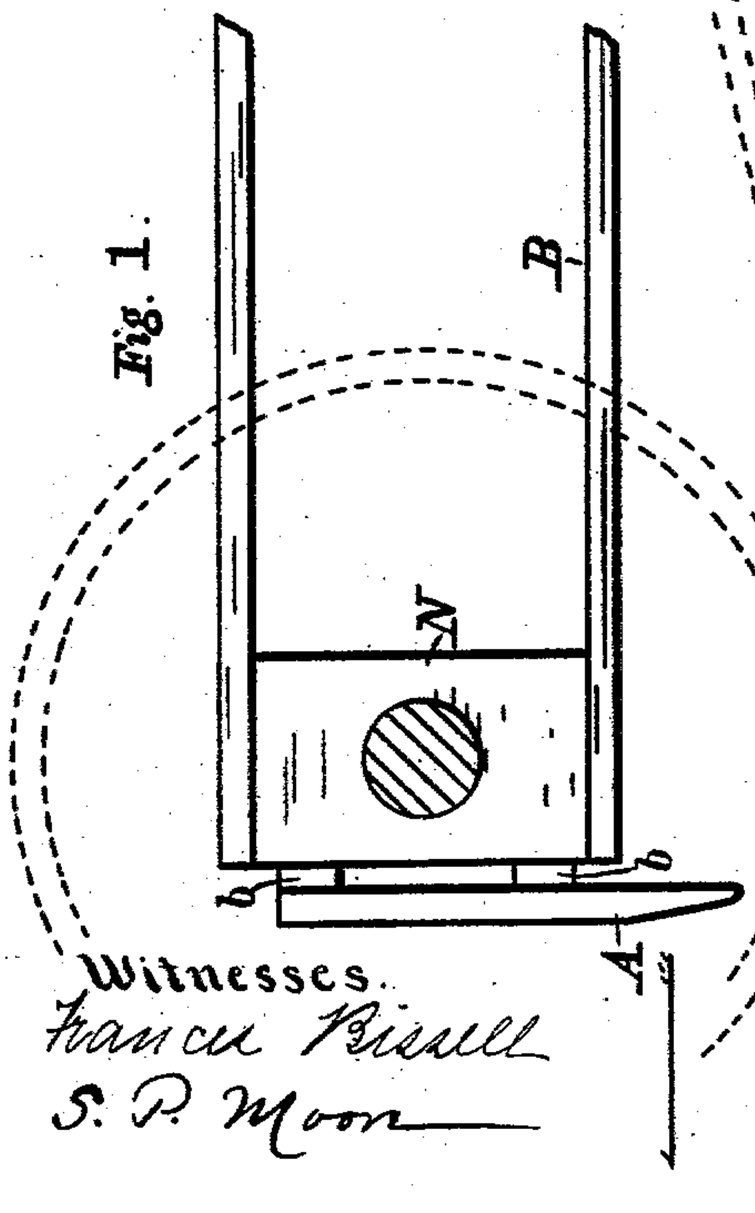

Fig. 1.

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UNITED STATES PATENT OFFICE.

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TRACK-CLEARER FOR AIR-BRAKE-SETTING DEVICES.

SPECIFICATION forming part of Letters Patent No. 716,873, dated December 30, 1902.

Application filed October 29, 1897. Serial No. 656,858. (No model.)

To all whom it may concern:

Be it known that I, FRANK L. DODGSON, a citizen of the United States, residing at Rochester, New York, have invented an Improved Track-Clearer for Air-Brake-Setting Devices, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to an improved device for clearing the track in front of the trip-arm of an air-brake-setting device, which improvement is fully described and illustrated in the following specification and the accompanying drawings, the novel features thereof being specified in the claims annexed to the said specification.

In the accompanying drawings, representing my invention, Figure 1 is a diagram representing the clearer-bar attached to the truck-frame. Figs. 2 and 3 represent the air-brake-setting valve and its trip-arm. Fig. 4 represents the movable contact-bars on the ties between the rails. Fig. 5 is a plan view of the same.

In the accompanying drawings, A, Fig. 1, represents the clearer-bar, which is attached to the locomotive-truck frame B or other suitable part of the engine or train in front of the air-brake-setting mechanism represented in Figs. 2 and 3, so that any ice, snow, or other obstructions in the path of the trip-lever C of the air-brake valve are removed. The clearer-bar is attached to the truck-frame in any suitable manner—such, for instance, as by being bolted to the cross-bars *b b*, connecting the journal-boxes N.

The trip-lever C is pivoted at *k*, Figs. 2 and 3, to an arm or plate G, attached to any convenient part of the train below the springs and in rear of the clearer-bar. This plate is provided with the lugs *n n*, through which the pivot *k* passes. The plate is provided with a projecting arm K, which sustains a cylinder I, which contains a plunger H, arranged to be moved lengthwise by the tripping of the lever C, so as to open an escape-passage to reduce the pressure in the air-brake apparatus.

J is a pipe connected in any suitable way with the train-pipe or other suitable part of the air-brake apparatus. This pipe is screwed into the head *h* of the cylinder L, which head is provided with a small opening *g*, normally closed by the piston *i* on the end of the plunger H. The piston is provided with a suitable packing which contacts with the inner surface of the head *h*.

j is a divergent passage in the cylinder-wall by which pressure is carried from the cavity in the head *h* to the other end of the cylinder, so as to act on the piston *l* on the plunger H. The piston *l* is preferably larger than the piston *i*. The pressure on the piston *l* holds the piston *i* to its seat and effectually closes the opening *g*. The piston *l* is provided with packing in any suitable way. The plunger H is provided with a suitable stuffing-box *d*.

f is a vent-hole through the wall of the cylinder through which the air escapes from the air-brake pipe when the piston *i* is moved off its seat. A hole *e* through the cylinder I prevents the accumulation of pressure between the pistons *l* and *i*.

The operation of the device is as follows: The trip-lever C being turned on its pivot to the position approximately represented by the dotted lines in Fig. 2, the plunger H and its attached pistons are drawn forward, thus opening the passage *g* and permitting the air in the air-brake apparatus to escape through the vent-hole *f*, thus setting the brakes and stopping the train. The upper end of the lever C bears against the inside of the head *a* on the plunger H and causes the plunger to move lengthwise when the lower end of the lever is swung backward. When the plunger is drawn out, a spring-dog *c* is forced in between the plate G and the head *a*, and the return of the plunger is thereby prevented.

Any suitable device may be employed to secure the movement of the trip-lever. A stationary plate secured to the cross-ties may in some cases be employed for this purpose where a train is always to be brought to a stop. The contact-plates may also be made movable and controlled by any suitable style of signaling apparatus—such, for instance,

as the pneumatic cylinder P and piston Q represented in Figs. 4 and 5 and which operate to raise the contact-plates D D′ into the path of the trip-lever C on the admission of pressure through the pipe *o*. The rod L on the piston Q is provided with a slotted head R, into which the tongues *p* on the inner ends of the bars D D′ are fitted. The outer ends of the bars D D′ are pivoted at *q q′* to lugs on the ends of the plate F, which is supported by the base E, secured to the cross-ties. The bars normally occupy the position shown by the full lines in Fig. 4; but on the admission of pressure below the piston Q they are raised to the position indicated by the dotted lines, in which position they operate the trip-lever as the train passes over them. On the release of the pressure the bars return to normal position. The upper cylinder-head is provided with a stuffing-box *s*, and the piston may be provided with a drip-pipe *t*, which passes through a stuffing-box in the lower head.

The slotted head R, Figs. 4 and 5, has a series of slots *r* cut into the two sides of its upper surface, and, as above stated, a series of corresponding tongues on the inner ends of the bars D and D′ fit into the slots *r*. It is obvious that as the head R rises and falls the tongued ends of the bars D and D′ will remain in place upon said head and that the parts, whatever their position of elevation, will maintain their proper relative positions, and when the trip-lever C strikes either of the bars D or D′ it will be gradually tilted into the position shown in dotted lines in Fig. 2, thereby setting the air-brake valve. The bars D and D′ may be made of any suitable length in order to produce a gradual tilting of the trip-lever C and may, in fact, be twenty or more feet long in order to operate the better if a train should pass the bars at high speed.

The clearer-bar serves to remove any obstructions from the contact-plates. It will be observed that the contact-plates will be depressed by the clearer-bar, so that the bar should be located on the train at such a distance in front of the trip-lever C that the plates may rise again after the clearer-bar has passed, so as to act on the trip-lever. The contact-plates may be arranged to be elevated by a spring of any suitable kind, such as the spring *d* or *d′*.

It is obvious that when the contact mechanism is raised by the pneumatic pressure into the position shown in dotted lines in Fig. 4 the fixed clearer-bar A can strike said contact mechanism and will depress it against the pneumatic action, clearing obstructions away from it and without affecting the operation of the air-brake-setting device, for the contact mechanism being still under the action of the pneumatic pressure immediately will spring back into said position (shown in dotted lines in Fig. 4) for engaging the trip-lever C. The contact mechanism is therefore flexible or compressible by the fixed clearer-bar, and the clearing action is rendered certain and complete both as to obstructions lying on the contact mechanism and for obstructions to the proper action of the joints of said contact mechanism.

I claim—

1. The combination with an air-brake-valve mechanism upon a train adapted to set the air-brakes, of a tilting trip-lever adapted to operate said valve mechanism, a fixed bar on the train in advance of such trip-lever, a flexible contact mechanism, adjacent to the track which yields to the action of the fixed bar and returns immediately after action upon the trip-lever; and means for raising and lowering said contact mechanism so as to engage or not to engage said lever as desired, substantially as described.

2. The combination, with an air-brake-valve mechanism upon the train adapted to set the air-brakes, of a trip-lever adapted to set said valve, and a contact mechanism adjacent to the track consisting of a base-plate having two contact-bars pivoted thereto, said bars extending from the pivotal points toward each other, and a vertically-movable head whereon the inner ends of said bars rest, whereby the trip-lever may be operated by striking either of said bars, a cylinder and piston adapted to operate said head, and suitable pneumatic connections for operating said piston, substantially as described.

3. The combination, with an air-brake-valve mechanism upon the train adapted to set the air-brakes, of a trip-lever adapted to set said valve, and a contact mechanism adjacent to the track consisting of a base-plate having two contact-bars pivoted thereto, said bars extending from their pivotal points toward each other, and a vertically-movable head whereon the inner ends of said bars rest, whereby the trip-lever may be operated by striking either of said bars, and a clearer-bar attached to the engine or train in advance of the trip-arm and adapted to depress said plates and to remove therefrom obstructions to the action of the trip-arm thereon, substantially as described.

4. The combination, with an air-brake-valve mechanism upon the train adapted to set the air-brakes, of a trip-lever adapted to set said valve, and a contact mechanism adjacent to the track consisting of a base-plate having two contact-bars pivoted thereto, said bars extending from the pivotal points toward each other, and a vertically-movable head whereon the inner ends of said bars rest, whereby the trip-lever may be operated by striking either of said bars, a cylinder and a piston adapted to operate said head, and suitable pneumatic connections for operating said piston, and a clearer-bar attached to the engine or train in advance of the trip-arm and adapted to depress said plates and to remove therefrom obstructions to the action of the trip-arm thereon, substantially as described.

5. The combination, with an air-brake-valve

mechanism upon the train adapted to set the air-brakes, of a trip-lever adapted to set said valve, and a contact mechanism adjacent to the track consisting of a base-plate having two contact-bars pivoted thereto, said bars extending from their pivotal points toward each other, and a vertically-movable head whereon the inner ends of said bars rest, the head and the ends of the bars having matching tongues and grooves on the contact-surfaces thereof, whereby the trip-lever may be operated by striking either of said bars, substantially as described.

6. The combination, with an air-brake-valve mechanism upon the train adapted to set the air-brakes, of a trip-lever adapted to set said valve, and a contact mechanism adjacent to the track consisting of a base-plate having two contact-bars pivoted thereto, said bars extending from the pivotal points toward each other, and a vertically-movable head whereon the inner ends of said bars rest, the head and the ends of the bars having matching tongues and grooves, whereby the trip-lever may be operated by striking either of said bars, a cylinder and piston adapted to operate said head, and suitable pneumatic connections for operating said piston, substantially as described.

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