

No. 624,337.

Patented May 2, 1899.

G. S. JEFFRIES.

AUTOMATIC SAFETY APPLIANCE FOR RAILROADS.

(Application filed July 30, 1898.)

(No Model.)

2 Sheets—Sheet 1.

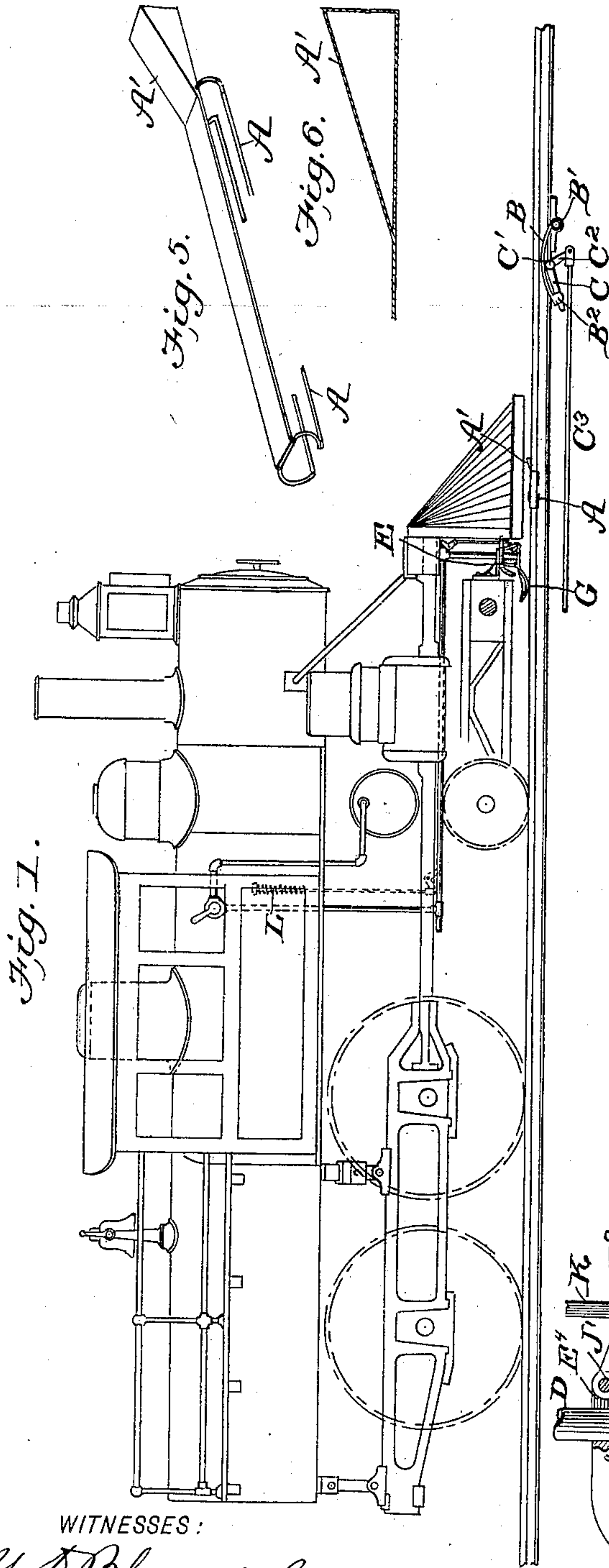


Fig. 1.

WITNESSES:

M. S. Blouddell
P. B. Turpin.

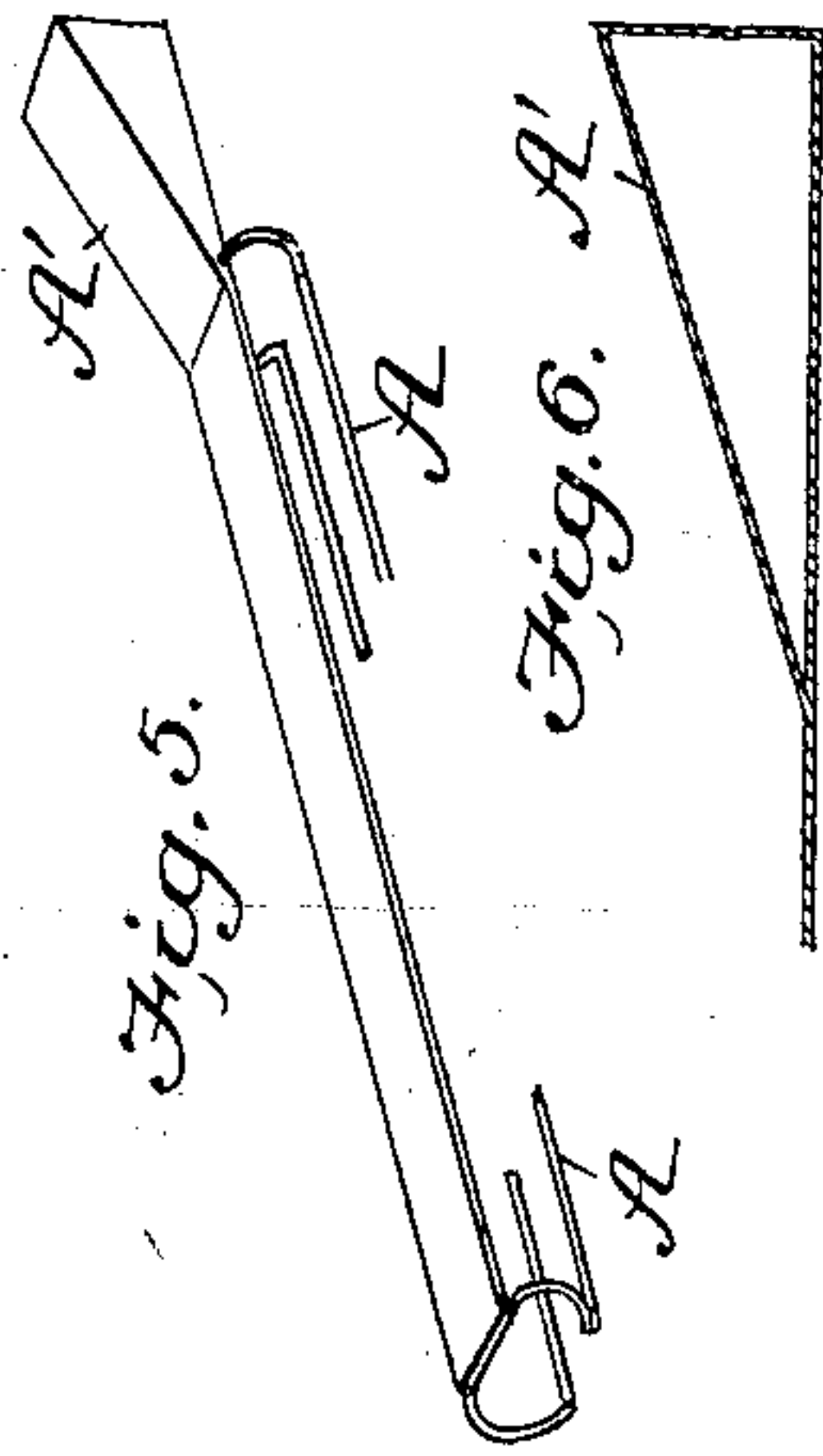


Fig. 5.

Fig. 6. A'



Fig. 8.

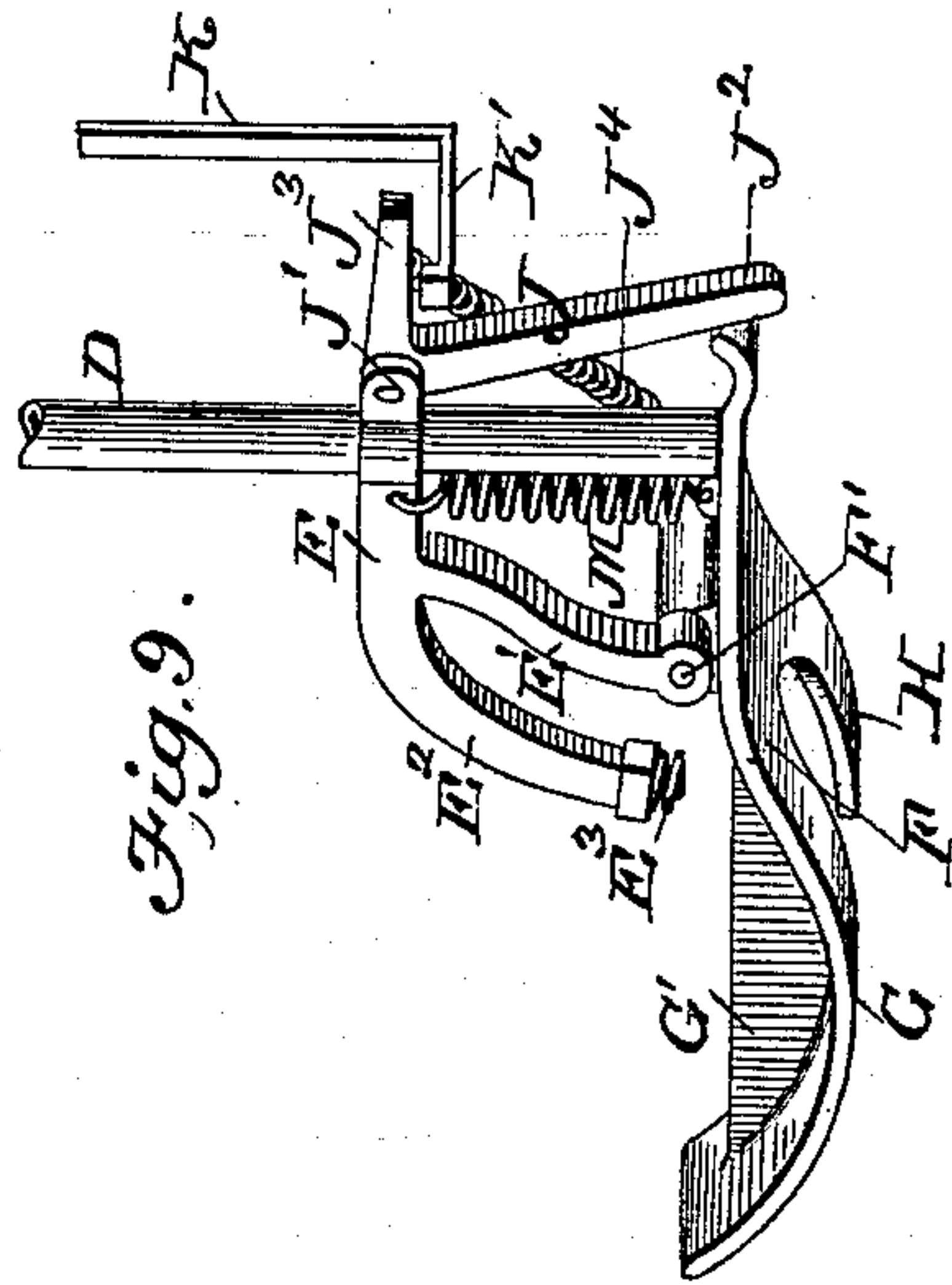


Fig. 9.

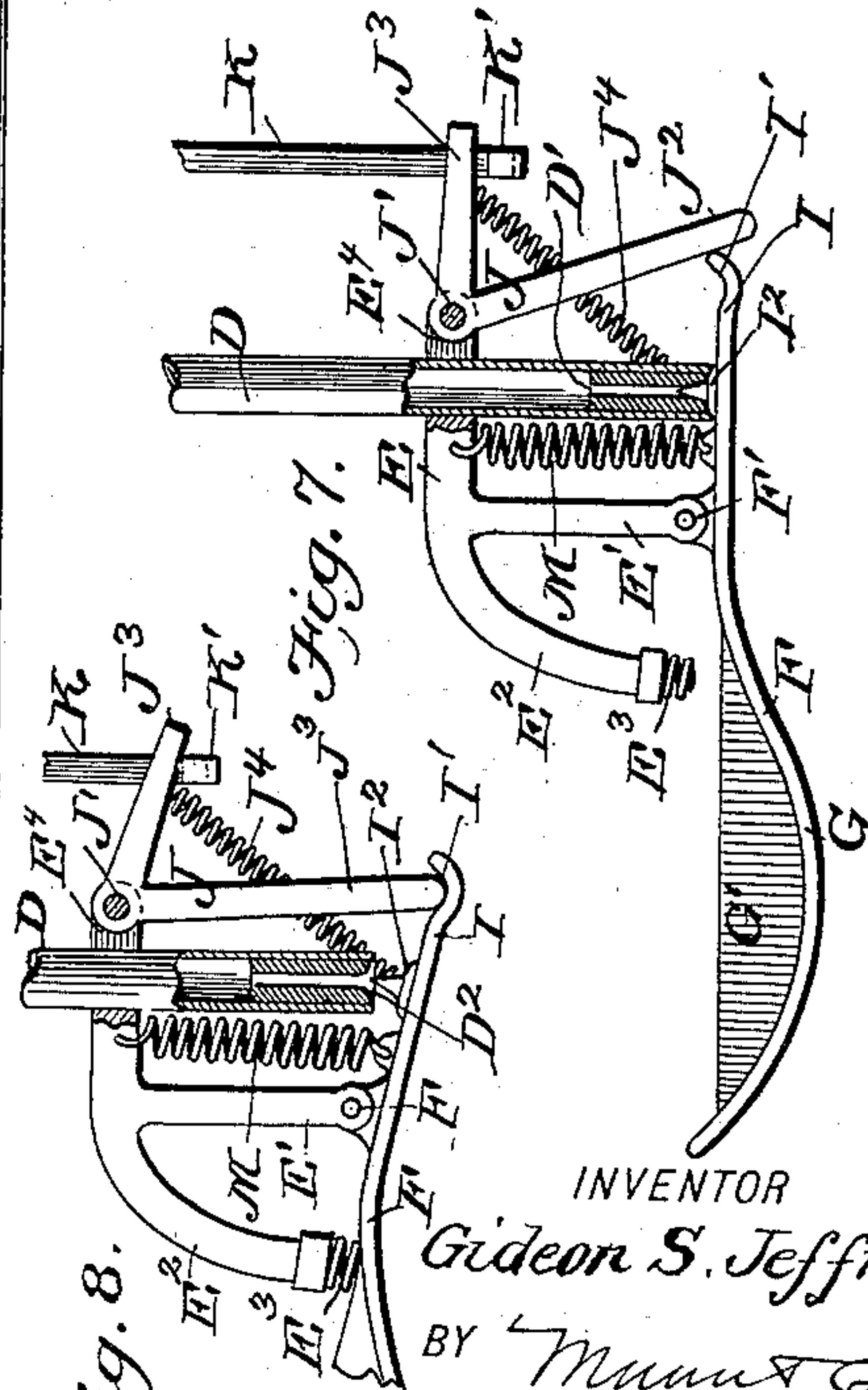


Fig. 7.

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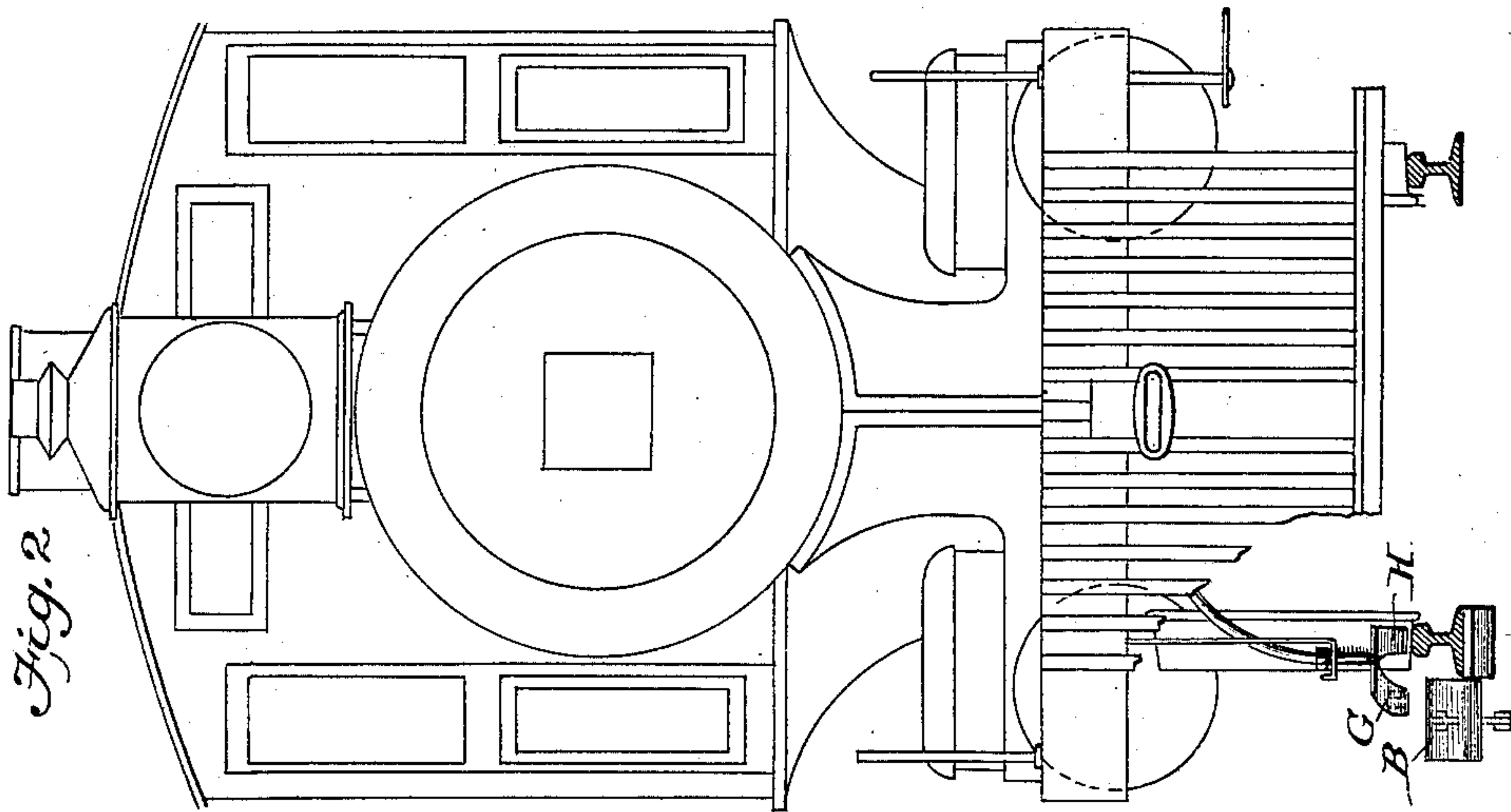
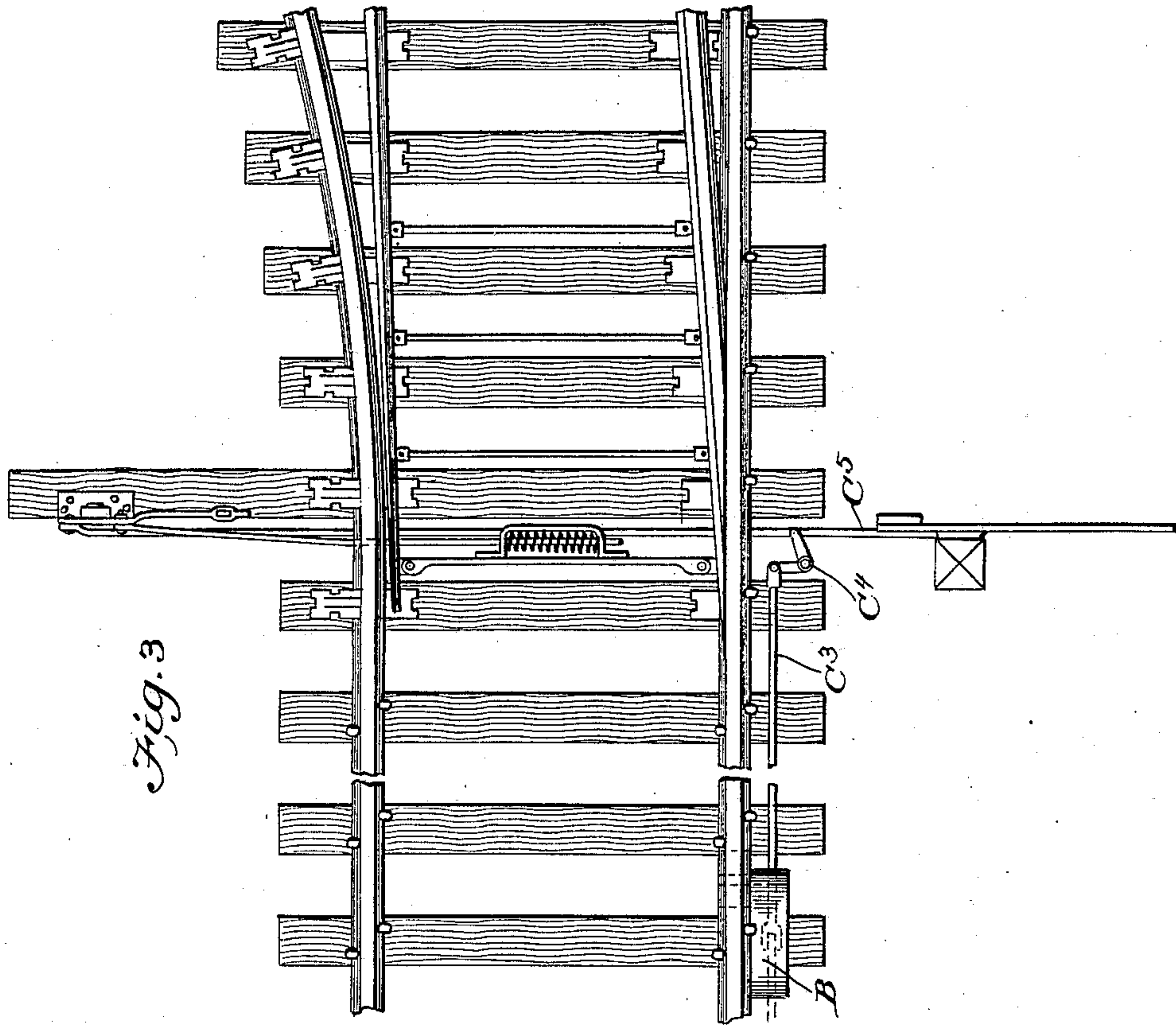
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2 Sheets—Sheet 2.



WITNESSES:

W. S. Bloudek

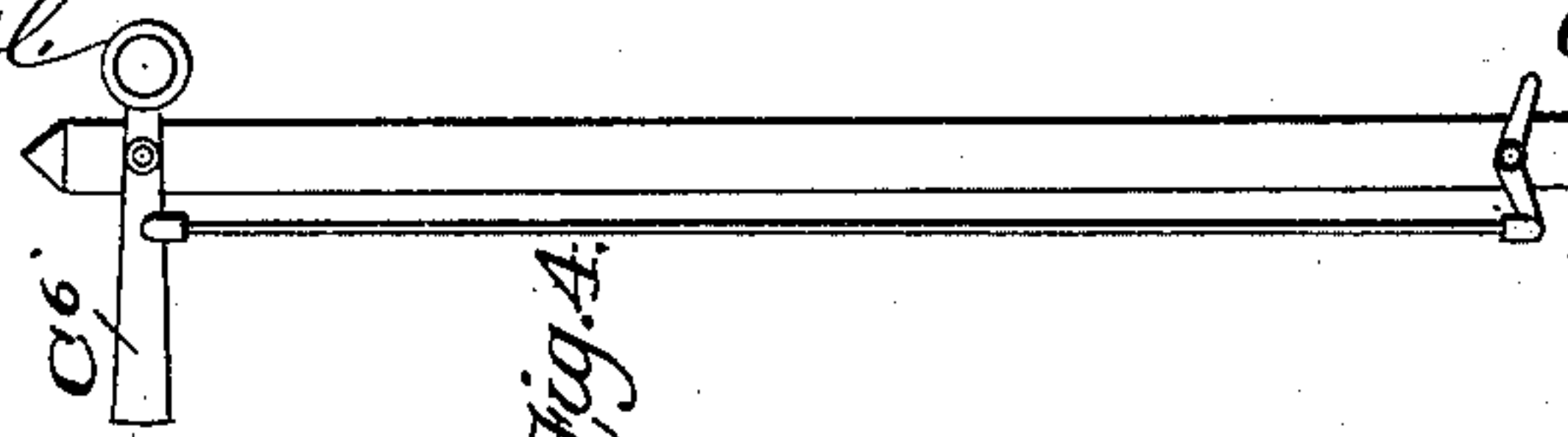
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UNITED STATES PATENT OFFICE.

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AUTOMATIC SAFETY APPLIANCE FOR RAILROADS.

SPECIFICATION forming part of Letters Patent No. 624,337, dated May 2, 1899.

Application filed July 30, 1898. Serial No. 687,307. (No model.)

To all whom it may concern:

Be it known that I, GIDEON S. JEFFRIES, a resident of Reading, in the county of Berks and State of Pennsylvania, have made certain new and useful Improvements in Automatic Safety Appliances for Railroads, of which the following is a specification.

My invention is an improvement in apparatus for controlling the application of air-brakes independent of the engineer or other person upon the train to be braked, the invention furnishing means whereby an obstruction placed upon the railroad-rail will operate the brake or whereby the setting of a semaphore-arm or a switch will move an obstruction into the path of devices on the train, which devices will operate to release the air in the train-pipe and so set the brakes on the train.

The invention consists in certain novel constructions and combinations of parts, as will be hereinafter described, and pointed out in the claims.

In the drawings, Figure 1 is a side elevation of my invention shown in connection with the railroad-track and a locomotive thereon. Fig. 2 is a front view thereof. Fig. 3 is a top plan view of a switch and a semaphore-arm arranged to operate the obstruction on the track. Fig. 4 is an elevation of the semaphore-arm. Figs. 5 and 6 are respectively perspective and detail sectional views of the obstruction for application to the rail. Fig. 7 is a sectional elevation showing the valve-lever, its supporting devices, and the train-pipe, with the valve adjusted to close the vent of said pipe. Fig. 8 is a view similar to Fig. 7, partly broken away, showing the valve open; and Fig. 9 is a detail perspective view illustrating the parts shown in Fig. 7.

By my invention I provide means whereby a device operated upon by an obstruction on the track opens a vent in the train-pipe and permits the air to escape to set the brakes in the manner usual to air-brake systems now commonly employed.

In carrying out my invention I may use obstructions, such as shown in Figs. 5 and 6, which are designed to be applied to the track at any desired point, be secured by the wires A to the rail, and have an inclined surface A', which engages the device for opening the vent

in the train-pipe and will be crushed down by the pony-wheel of the engine as it rides thereon. I also provide means whereby setting of the switch or the setting of a semaphore-arm, or both, on a railroad-crossing or drawbridge will throw an obstruction B up alongside the rail, so it will engage the device on the train. This obstruction B is in the form of an upwardly-arched plate pivoted at one end B' and having its other end at B² engaged by an arm C of a bell-crank lever, which is pivoted at C' and has its arm C² connected with a rod C³, which may be suitably connected through a bell-crank lever C⁴ with the switch-rod C⁵, which is connected by suitable devices with the semaphore-arm C⁶, so the plate B may be readily operated as may be desired.

The train-pipe D may be suitably connected with the air-brake system and is braced at E to the truck of the pony-wheels. At its lower end the pipe D has a vent D', which is contracted, preferably, by securing a plug in the lower end of the pipe D, such plug being bored to furnish the size of vent desired, and at the outer end of the contracted vent I form at D² a valve-seat, to which is fitted a valve on the lever presently described. In connection with the train-pipe I furnish a lever or movable device, which is tilted by an obstruction on the track and supports the valve in such manner that the valve will be opened when the lever is tilted by such obstructions. I also provide a latch for locking the lever when tilted by the obstruction and devices for releasing said latch, such devices being under the control of the engineer. In the construction shown I employ a bracket E, secured to and supported by the train-pipe and having a depending arm E', to which the lever F is pivoted at F', an arm E² in rear of the arm E' and having a spring E³, which forms a yielding abutment for the lever and cushions the operation of such lever by the obstruction on the track, and a forwardly-projecting portion E⁴, to which is pivoted the latch, presently described. The lever F is pivoted at F' and has in rear of such pivot a portion G, which is convex on its under edge and moves along side the rail, so it will engage the obstruction B, as will be understood from Fig. 2, and I also provide in rear of the pivot F' a portion H, which overlies the rail in position to en-

gage the obstruction A upon the rail, as will also be understood from Fig. 2. The portion G of the lever is upturned at its rear end, so it will ride over the obstruction B if the train should be backed after passing forward over the obstruction; but the portion H need not be so upturned at its forward end, because its obstruction A will be mashed flat by the wheel passing over it, so it will not strike the portion H as the train is backed. I prefer to provide the portion G with a strengthening-web G', as best shown in Figs. 7 and 9.

The lever F has an arm I in advance of its pivot F' and is provided near the forward end of such arm with a notch or seat I' for the latch J, which is pivoted at J' to the portion E⁴ of the bracket and has an arm J², whose point engages in the seat I', as shown in Fig. 8, when the lever is operated by an obstruction on the track and operates to hold the lever in the position shown in Fig. 8 until the latch is released by the arm K, which is hooked at K' and engages the arm J² of the latch J, the bar K being operated by suitable connections leading to a point L in the cab of the locomotive. A spring J⁴ engages the latch and forces the same to the position shown in Fig. 8, and a spring M connects with the lever F and draws the same normally to the position shown in Fig. 7. On the upper side of the arm I of the lever F, I provide the valve I², which is fitted to the valve D² and operates when the lever F is in the position shown in Fig. 7 to close the train-pipe, being held tightly to its seat by the tension of the spring M. This valve I² is preferably of rubber or other suitable material to properly conform to its seat and secure a tight closure of the train-pipe.

In the operation of my invention if the parts be as shown in Fig. 1 and in detail in Fig. 7 the pressure in the train-pipe will be retained by the valve I² and the brakes will not be set; but if an obstruction A be placed on the rail or the plate B be lifted alongside the rail the lever F will be operated as it passes over said obstruction to the position shown in Fig. 8, and as the rear end of the lever F is raised its front end will be lowered and the latch J will be forced by its spring J⁴ into engagement with the seat I' of the lever F and will hold the lever in such position until the parts are readjusted by means of the bar K and its connections leading to the locomotive-cab, by which the latch will be brought to the position shown in Fig. 7 and the lever will be forced by its spring M to the position shown in such figure, causing its valve to close the vent in the train-pipe.

The invention is simple in construction, positive in its action, will operate to hold the train-pipe open until it is desired to close the same, and may be readily applied to any style of locomotive.

It will be understood that the obstruction may be operated by electrical devices as well as by the mechanical construction shown; also that the part G may, when desired, be ar-

ranged to operate inside the track instead of outside, as shown.

The device shown in Fig. 5 is made of such length that the pony-wheel will rest on its rear end and anchor it in place before the lever strikes part A', so such part will certainly operate the lever as desired.

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

1. In an apparatus substantially as described, the combination of the train-pipe having a valve-seat and the lever pivoted between its ends and having an arm provided with a valve fitted to said seat and its other arm arranged for operation by an obstruction on the track, substantially as set forth.

2. In an apparatus substantially as described, the combination of the train-pipe, the valve controlling the same, the operating device for said valve arranged for operation by an obstruction on the track to open the valve, a latch for holding the operating device in such position such latch and the operating device being supported on the locomotive-truck and the arm for releasing said latch, such arm being supported on the locomotive-framing and having a sliding engagement with the latch whereby to compensate for changes of relation between the truck and frame as in rounding curves, substantially as set forth.

3. The combination of the train-pipe, the lever arranged for operation by an obstruction on the track and the double-armed latch pivoted at the juncture of its arms having one arm arranged to engage and lock the lever and the other arm arranged for engagement by the latch-releasing device, and means whereby the lever may be readjusted when the latch is released substantially as set forth.

4. In an apparatus substantially as described the combination of the train-pipe, having a vent, the lever having a valve controlling said vent and arranged for operation by an obstruction on the track and a stop for the lever having a yielding abutment by which to cushion the operation of the lever by such obstruction substantially as set forth.

5. In an apparatus substantially as described the combination of the train-pipe, the lever arranged for operation by an obstruction on the track and provided with a depression or seat for the latch and the latch arranged to engage in said seat and lock the lever when tilted by such obstruction substantially as set forth.

6. An apparatus substantially as described comprising the lever pivoted between its ends, having one end arranged for engagement by an operating obstruction on the track and its other end provided with a depression or seat, the latch arranged to lock said lever when the latter is operated by said track obstruction, means for releasing said latch, and the spring for readjusting the lever substantially as set forth.

7. The combination of the bracket having
a depending cushion-arm and a supporting-
arm, the lever pivoted to said supporting-
arm arranged for operation by an abutment
5 on the track and to engage the cushion-arm
when so operated, the spring connecting the
lever with the bracket and arranged to read-
just the lever, the double-armed latch piv-
oted to the bracket and locking the lever
10 when the latch is operated by the track-abut-
ment, the spring for actuating said latch, and
means for releasing the latch substantially as
set forth.

8. In an apparatus substantially as de-
15 scribed a lever having a portion arranged to
overlie the rail and be operated by an ob-
struction thereon, and a portion lateral to

said first portion and arranged for operation
by an obstruction alongside the rail substan-
tially as set forth.

9. In an apparatus for controlling air-brake
mechanism the combination of the train-pipe
having its end open and downwardly directed,
and the lever extended approximately in a
horizontal line and arranged for operation by 20
an obstruction on the track, said lever being
provided with a valve movable therewith up
and down to close and open the downwardly-
directed end of the train-pipe substantially
as set forth.

GIDEON S. JEFFRIES.

Witnesses:

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