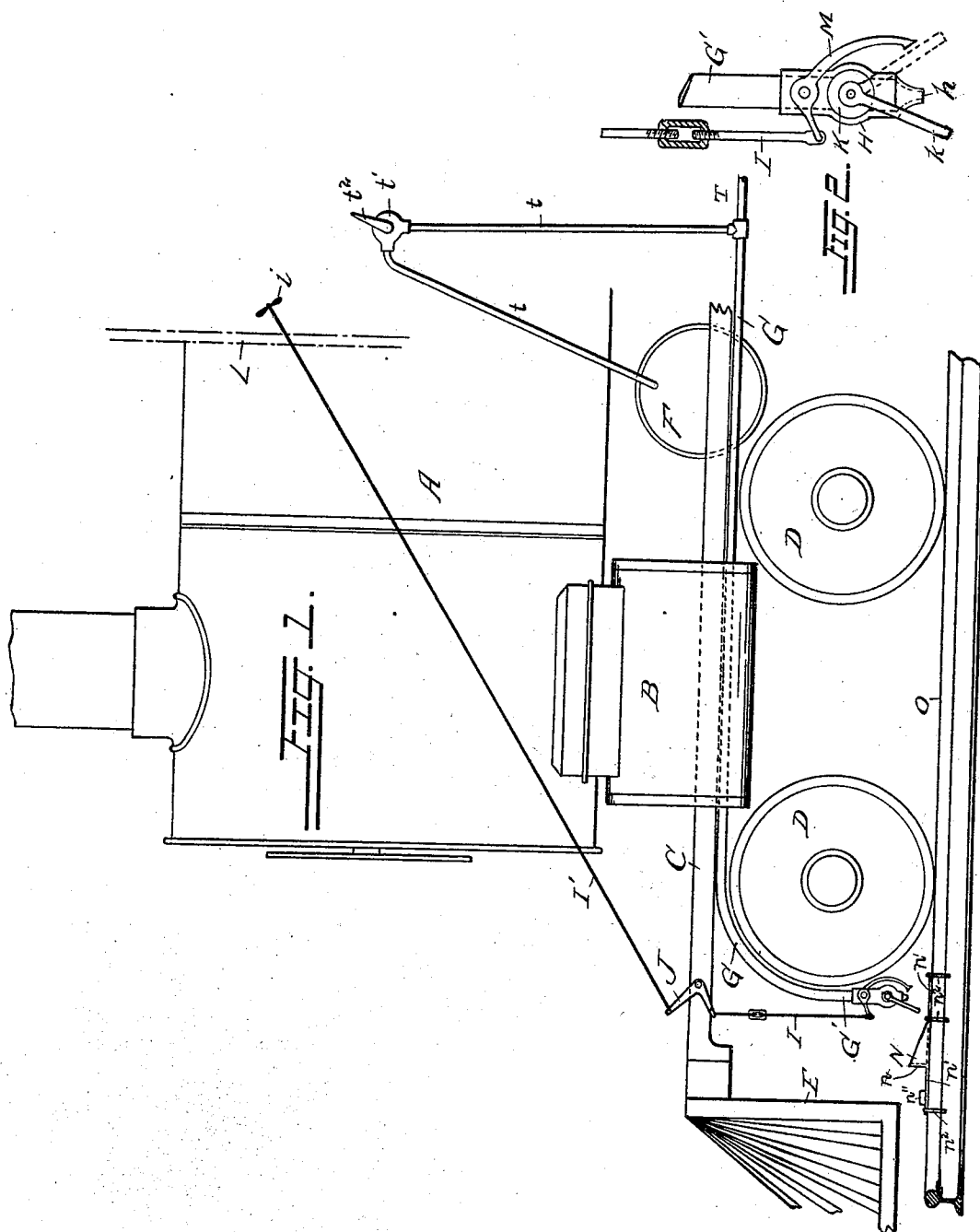


(No Model.)

G. S. JEFFRIES.
AUTOMATIC AIR BRAKE MECHANISM.

No. 513,267.

Patented Jan. 23, 1894.



Witnesses
Edw. J. Bieker
Caleb J. Bieker

GIDEON S. JEFFRIES, Inventor

By Attorney

[Signature]

UNITED STATES PATENT OFFICE.

GIDEON S. JEFFRIES, OF READING, PENNSYLVANIA.

AUTOMATIC AIR-BRAKE MECHANISM.

SPECIFICATION forming part of Letters Patent No. 513,267, dated January 23, 1894.

Application filed June 10, 1893. Serial No. 477,145. (No model.)

To all whom it may concern:

Be it known that I, GIDEON S. JEFFRIES, a citizen of the United States, residing at Reading, in the county of Berks, State of Pennsylvania, have invented certain Improvements in Automatic Air-Brake Mechanism, of which the following is a specification.

The main object of my invention is to decrease the danger of railroad collisions such as now frequently occur owing to the failure to stop promptly a train which is following closely upon another, or other similar cases. It is customary in such cases to send back the hind brakeman of the first train to stop the following train by means of signals. If however such signals are not noticed or are misunderstood or if from any cause the engineer fails to act and act promptly, a collision occurs. To avoid this danger I modify the arrangement of the air brake mechanism and provide means to enable the train to be stopped or slowed up independently of the engineer.

The invention is fully described in connection with the accompanying drawings and is specifically pointed out in the subjoined claims.

Figure 1 is a diagram indicating the front end of a locomotive having my improvement applied thereto and a rail provided with my attachment for automatically applying the brakes. Fig. 2 is an enlarged view of the valve end of the air pipe.

A represents the front end of the boiler, B the steam cylinder and C the frame of a locomotive engine.

F indicates the air reservoir of any ordinary air brake system, which is connected as usual with the air pump and with the brake mechanism under the cars comprising the train.

D indicates the forward truck wheels of the locomotive, and O the rail upon which they ride.

In applying my invention a supplemental air pipe, G, is placed in communication with the parts of the system which supply air to the brakes—or, rather, pistons or other like means connected with the brakes—in such manner that, when the passage through it is opened to the atmosphere the train pipe will be vented and the brakes thereby applied. In the drawings, I have shown said pipe, G, as connected directly to the train pipe, T, and

said train pipe as connected with reservoir F by branch pipes *t t* having in the coupling *t'* connecting them a valve with a suitable handle *h* by which communication between the reservoir and train pipe may be closed, if desired. Said supplemental pipe is shown as carried forward and downward from the train pipe to a place in front of the forward truck wheel, D. To its forward end G' is attached a valve case, H, of any suitable construction, having a valve, K, provided with a lever, *k*, which is suspended somewhat above the rail in such position as to be moved from its normal position by coming in contact with an obstacle, N, placed upon the track for the purpose. In the normal position indicated in full lines in the drawings the valve K tightly closes the end of the pipe G and the brake may be operated as usual by the engineer; but when the lever *k* is moved to the dotted position shown in Fig. 2, the valve is opened and the train pipe is thrown into communication with the atmosphere through the nozzle *h* of the pipe G, thus venting said train pipe and applying the brakes.

M designates a pivoted arm, operatively connected by a rod, I, and bell crank, J, to the engineer's cab, the forward end of which cab is indicated by dotted lines, L. This arm is pivoted intermediate of its ends and is so arranged as to come in contact with the valve lever *k*, thus enabling the engineer to close the valve K when open, merely by pulling up the handle, *i*, thus moving the valve lever *k* to its normal position. The pivoted arm, M, after being so operated may be returned to its usual position either by the weight of the parts or by means of a spring.

The rail attachment, N, shown in the drawings, consists of a plate, *n'*, which rests upon the rail and is provided with wires or clips, *n²*, for securing it thereto, and it has a vertical wall *n* with inclined side braces of sufficient height from the rail to engage the depending valve lever *k*, yet low enough to pass under the pilot E. As the attachment N is located on the track and has an upwardly projecting part with a substantially vertical end wall it is desirable or necessary that it be made of a material which will be collapsed by weight passing over it so as to prevent it from throwing the train off the track. I therefore prefer

to make it of sheet metal, which will allow the upwardly projecting part to be crushed by the pressure of the locomotive wheel thereon. By so constructing the attachment I am also enabled to employ therewith a torpedo or explosive cap, *n''*, suitably supported on the plate *n'*, whereby the device will act automatically to apply the brakes and to audibly signal the engineer.

- 10 I do not claim herein the specific construction of the attachment except as it properly enters into combination with the brake mechanism carried by the locomotive.

What I claim is—

- 15 1. The combination with the train pipe of an air-brake apparatus, and a supplemental pipe, so connected with said train pipe that when opened to the atmosphere it will vent said train pipe, said supplemental pipe being
20 carried downward in front of a wheel of the locomotive, of a valve, normally closing the lower end of said supplemental pipe, a lever, secured to said valve, and an obstruction, placed upon the track rail and having an up-
25 wardly projecting part with a substantially vertical end wall designed to engage said lever and open the valve and to be collapsed by the locomotive wheel passing over it, substantially as set forth.

- 30 2. The combination with a railway train provided with an air brake system substantially as described of an air pipe having communication with the train pipe and carried downward in front of the forward wheels of
35 the locomotive, the lower end of said pipe adjacent to the track being provided with a valve having a lever adapted to be operated by an obstruction placed upon said track and mechanism for reclosing said valve extended
40 to a convenient point for the engineer, substantially as and for the purpose set forth.

- 45 3. The combination with the parts of an air-brake system which supplies air to the brakes, and a supplemental pipe having communication with said part, of a valve, normally closing the lower end of said pipe, a le-

ver, by means of which the valve is opened, another lever, *M*, pivoted intermediate of its ends and having its lower end adapted to engage said first-mentioned lever and thereby
50 close the valve, a bell-crank lever, having its lower member connected with the upper member of said lever *M*, and an operating rod secured at one end to the upper member of said bell-crank lever, substantially as shown and
55 described.

4. The combination with the part of an air-brake system which supplies air to the brakes, and a supplemental pipe having communication with said part, of a valve, normally closing
60 the lower end of said pipe, a lever, by means of which the valve is opened, another lever, *M*, adapted to engage said first-mentioned lever and thereby close said valve, and a rod for operating said lever, *M*, substantially as described.
65

5. The combination with a railway train provided with an air-brake system, substantially as described, of an air pipe having communication with the parts of the system
70 which supply air to the brakes, said pipe being carried downward in front of the forward wheel of the locomotive, a valve, normally closing the lower end of said air pipe, a lever, by means of which the valve is opened, another
75 lever, *M*, secured intermediate of its ends, to said valve and having its lower end adapted when operated to engage said first-mentioned lever, and thereby close the valve, a bell-crank lever, having its lower member
80 connected with the upper member of said lever *M*, and an operating rod, *I'* secured at one end to the upper member of said bell-crank lever, substantially as shown and for the purposes specified.
85

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

GIDEON S. JEFFRIES.

Witnesses:

ED. A. KELLY,

ADAM L. OTTERBEIN.