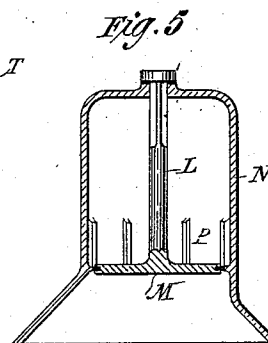
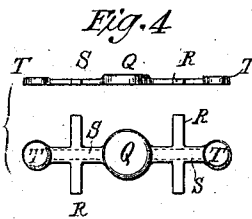
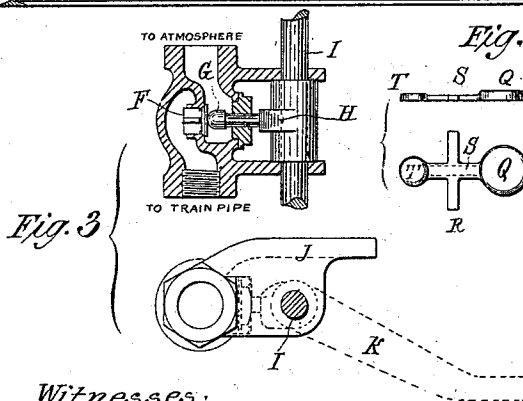
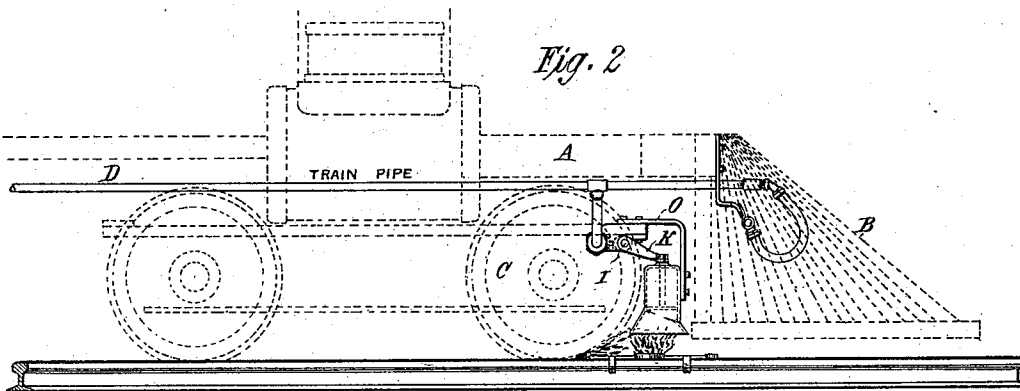
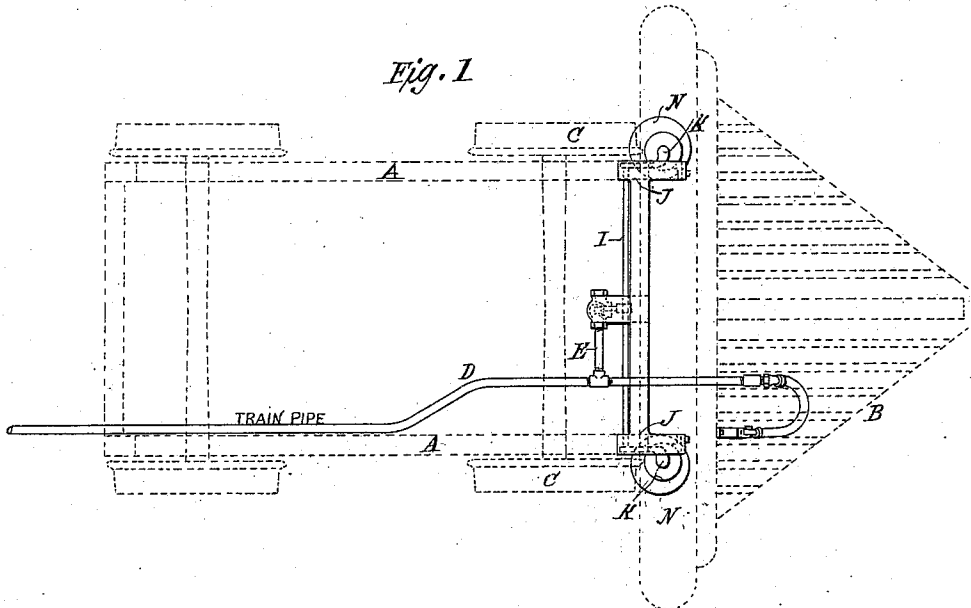


(No Model.)

E. G. SHORTT.
AIR BRAKE MECHANISM.

No. 530,904.

Patented Dec. 11, 1894.



Witnesses:
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UNITED STATES PATENT OFFICE.

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AIR-BRAKE MECHANISM.

SPECIFICATION forming part of Letters Patent No. 530,904, dated December 11, 1894.

Application filed March 9, 1893. Serial No. 485,243. (No model.)

To all whom it may concern:

Be it known that I, EDWARD G. SHORTT, a citizen of the United States, residing at Carthage, county of Jefferson, and State of New York, have invented a certain new and useful Improvement in Air-Brake Mechanism, of which the following is a specification, reference being had to the drawings accompanying and forming a part of the same.

10 The present invention relates to mechanism and appliances arranged and operating to automatically apply the air, steam, hydrostatic or similar brakes of a railroad train, car or locomotive, and independently of the volition
15 of any person or persons controlling or in charge of the same, and also independently of the common means for effecting automatic application such as are brought into action by the breaking apart of the train, or by derailment, that is to say, it is desirable that
20 a person not on the train, such as a signal or switch man, or other person designated to direct the movement of a train, may have it in his power to effect the operation of the train's
25 brake mechanism and the stopping of the train, particularly in cases where visual signals cannot be successfully used, or fail of being noticed by the engineer or other of the train men.

30 To this end, the object of the invention, is to provide the fluid-brake mechanism of a locomotive, car or train with suitable valve mechanism adapted to be operated by a device that may be attached to the train road
35 bed, whereby as such locomotive, car or train encounters said device, the brake-mechanism shall be caused to make an application of the brakes and stop the train.

As is well understood, explosive devices,
40 known as torpedoes, are used for the purpose of signaling to an engineer, they being secured to the tread of the rail and exploded by the first passing wheel. The use of such torpedoes is very extensive and well understood,
45 and it is my purpose to avail of the same to effect the stopping, as well as the signaling, of a train, or of a car or locomotive.

The invention, in general, consists of a train, car, locomotive, or other railroad vehi-

cle supplied with a fluid-brake mechanism, 50 which mechanism is provided with a valve or other operative device capable of being worked by the force of an explosion effected by the passage of the car, locomotive or vehicle. 55

In the drawings, Figure 1 is an outline plan view of the front of a locomotive provided with my improved mechanism for effecting the operation of the air, or similar, brake mechanism. Fig. 2 is an elevation view of 60 the same. Fig. 3 is a lengthwise section and an end view of the valve mechanism of the train pipe. Fig. 4 is an edge view and a plan view of a new form of railroad-rail torpedo. Fig. 5 is a central section of the bell of the 65 valve mechanism.

Referring to the views in detail, A represents the body or frame part of the locomotive; B being the pilot; C, the forward wheels, and D, the train pipe of the air-brake mechanism. Between the two forward wheels is a branch E of the train pipe, which branch is closed by a valve F, held to closed position by the cam rod G, and which projects to and is held to place by the cam H when the same 75 is in the position shown in Fig. 3 with its highest peripheral surface toward the valve. This cam is mounted on a shaft I hung in bearings J on either side of the locomotive. At each end of this shaft and mounted rigidly thereon are the arms K, which extend to and rest upon or are otherwise operatively connected to the rods L of the piston-like plates or disks M sliding vertically in the open end cylinders, hoods or bells N, which 85 bells are hung on the guard arms O and are located so that their lower open ends are just above the rails of the road and directly in front of the bearings of the front wheels thereon, as seen in Fig. 2. The bells are provided with ribs P against which the piston bears, and between which the air above the pistons can escape when the pistons are forced upward, and at the same time the pistons will be properly cushioned or their motion resisted so as to prevent their injury or im- 95 proper motion under heavy pressure, so as to prevent their operation by light accidental

shock or pressure, and so as to prevent their too sudden return to normal position when intentionally operated.

Q represents a torpedo, which is composed of any light thin case of suitable material containing fulminate or other explosive material capable of ignition by friction or attrition.

R R are clamp arms that may be bent around the tread of a rail to secure the torpedo thereto. Heretofore the torpedoes for railroad uses have been of a construction including a single disk or plate of explosive. For the special purposes of this invention I provide a torpedo having the extensions S from the central disk, at the ends of which are smaller disks T of explosive material connected along the extensions with the main disk. By the use of such a torpedo, as the first wheel crushes the first or one of the smaller disks of explosive, the larger disk will be instantly ignited and exploded a short distance ahead of the wheel, and its effects will not be dampened by the wheel.

The operation of the brake mechanism will now be plain. As the first wheel runs upon a torpedo, upon whichever rail it may be placed, the resulting explosion will be mainly below one of the bells of the piston of train-pipe valve, and the effect of the explosion will be felt upon the valve piston, which will be forced up toward the top of the bell, thus turning the cam controlling the train pipe valve and permitting the valve to rise, under train pipe pressure, and the train pipe air to escape. Such escape of air, as is well understood in the art of air-brake mechanism, will cause the brakes of the locomotive, and of the car or cars attached, to be set upon the wheels with full force, thus stopping the train. The advantages of this device are various and highly important, but one of the most importance is that the setting of the brakes is effected at practically the same time that the explosion of the torpedo occurs. Thus, the loss of time, in setting the brakes through the engineer's valve after the signal explosion as heretofore, is obviated. Such delay also is obviated as might readily occur, under the common practice, by reason of negligence, or inattention on the part of the engineer, or by reason of his being engaged in other duties, such as the cutting off of steam, reversing, &c. In fact, with the new mechanism, the engineer hearing the explosion of a torpedo, would know the brakes were going on, and

would give his first attention to the management of his locomotive.

There are many other advantages incident to this invention that will readily occur to those skilled in the art, and which therefore, I do not deem a necessary part of this description.

I do not confine myself to any particular form of train-pipe valve, or to any particular form of devices for causing such valve to be opened by the action of a torpedo or like device, as it is obvious that either may be of various forms. Neither do I confine myself to the location, on the front of a locomotive, of the devices to be operated by an explosion. Manifestly, such location is the most important one, as the first wheel to encounter the torpedo will be one of the first two on the locomotive; but such devices may be put on other railroad vehicles, and at either or both ends thereof.

What is claimed as new is—

1. A railroad vehicle fluid-brake mechanism provided with a valve arranged to move to set the brakes, and a movable device for holding the valve closed and adapted under the force of an explosion to release the said valve.

2. In combination, with a railroad car or locomotive fluid-brake mechanism, a valve in said brake mechanism capable of movement to effect the application of the brakes, and mechanism controlling said valve and positioned near a wheel of the car and adapted to be actuated to release the said valve by the action of an explosion effected by the wheel.

3. In combination with a brake train-pipe valve normally closing said pipe and operative to effect a brake-application reduction of pressure, valve releasing mechanism consisting of a disk or piston connected with said valve, and a hood or bell inclosing said piston and acting to direct the force of a concussion upon the same.

4. In combination, the train pipe provided with the valve F, a cam holding said valve closed, and a disk or plate, as piston M, connected to said cam and adapted to be acted upon by the force of an explosion and to thereby release said valve, as and for the purpose set forth.

EDWARD G. SHORTT.

Witnesses:

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