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W. M. JACKSON.

AUTOMATIC FUSEE IGNITER AND DISCHARGER.

APPLICATION FILED DEC. 12, 1904.

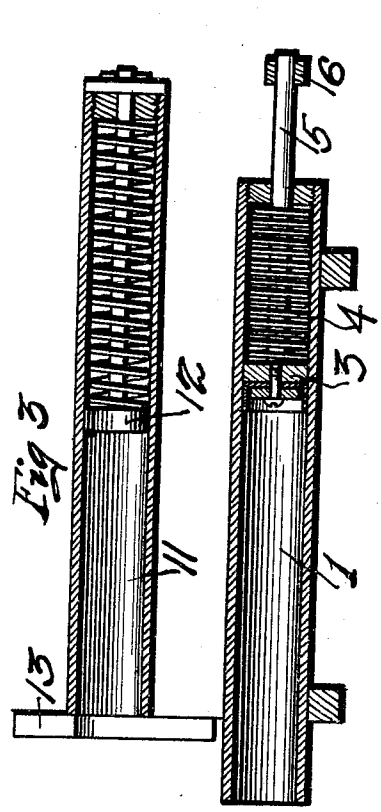


Fig. 3

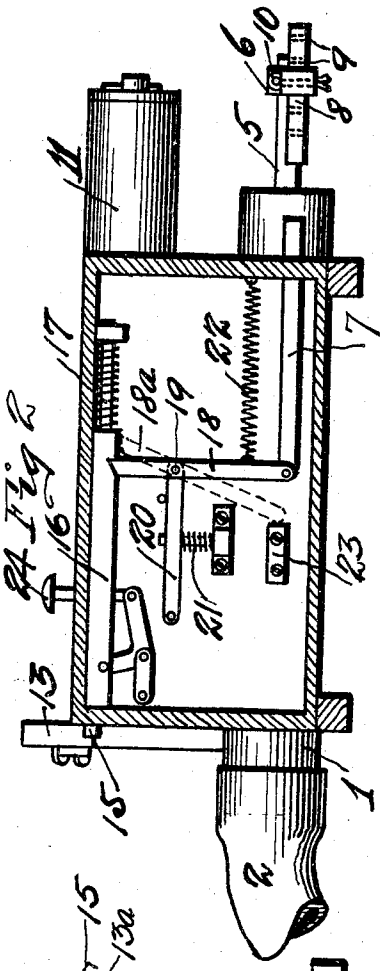


Fig. 2

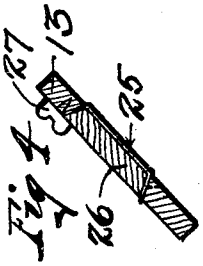


Fig. 4

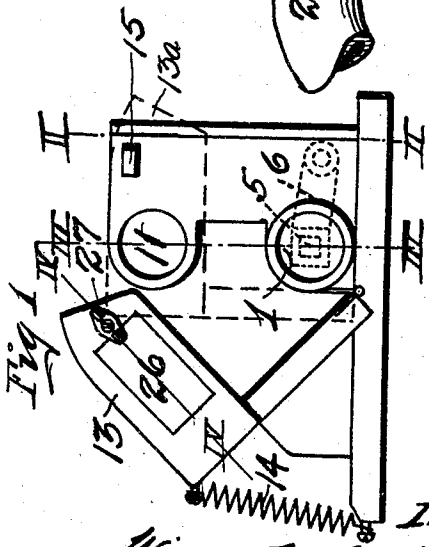


Fig. 1

WITNESSES

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UNITED STATES PATENT OFFICE.

WILLIAM M. JACKSON, OF JONESBORO, ARKANSAS.

AUTOMATIC FUSEE IGNITER AND DISCHARGER.

SPECIFICATION forming part of Letters Patent No. 785,886, dated March 28, 1905.

Application filed December 12, 1904. Serial No. 236,641.

To all whom it may concern:

Be it known that I, WILLIAM M. JACKSON, a citizen of the United States, residing at Jonesboro, Craighead county, State of Arkansas, have invented certain new and useful Improvements in Automatic Fusee Igniters and Dischargers, of which the following is a specification.

My invention relates to certain new and useful improvements in automatic fusee igniters and dischargers, and has especial reference to a device in which the fusee is automatically ignited and discharged by a reduction in train-pressure in the air-brake pipes.

The object of my invention is to provide means of automatically igniting and discharging a fusee from a train when from any reason, either accidental or otherwise, the brakes are applied with greater force than a predetermined normal amount and when thereby the speed of the train is suddenly checked, so that a train following closely would be in danger of running into it. I accomplish this object as will be more fully hereinafter set forth in the drawings, specification, and claims.

In the drawings, Figure 1 is an end elevation of my device, showing same just after discharging a fusee. Fig. 2 is a sectional side elevation taken on the line II II of Fig. 1, showing position of the parts when normal pressure of air is in the train-pipes. Fig. 3 is a section on the line III III of Fig. 1. Fig. 4 is a section on the line IV IV of Fig. 1.

Referring now to the drawings, in which the parts are indicated by numerals, 1 is a plunger-chamber adapted to be connected by a hose 2 to the air-pipe which supplies air for and actuates the brakes on the train.

3 is a plunger in the chamber 1, which is held forward by a spring 4 against the air-pressure. As shown, this spring is compressed by the pressure of the air against the plunger and where the air-pressure is reduced throws the plunger forward, as will be further described.

5 is a plunger-stem which extends from the plunger 3 out through the back end of the chamber 1 and carries an arm 6, which extends over into line with a trip-rod 7. This arm 6 carries an adjustable bar 8, which is provided with a number of holes 9, any one of which may be engaged by a cotter-pin 10. This bar may by this means be adjusted to any desired position and the space between same and the trip-rod 7 be lengthened or shortened to regulate the device and cause same to act at any desired pressure in the train-pipes.

11 is the fusee-discharge chamber, from which the fusee is thrown by a spring-operated plunger 12. This chamber is closed to hold the fusee by a sliding door 13, which is preferably hinged, as shown in Fig. 1, and operated by a tension-spring 14. When closed, as shown by the dotted position 14^a, to hold a fusee in the chamber 11, it is held by a lug 15, which is carried by a rod 16 and is normally held forward by a compression-spring 17. The rod 16 is tripped to withdraw the lug 15 and release the door 13 by a trigger 18, which engages a notch in the rod and which is pivoted at 19 to an arm 20, which arm is forced upward by a compression-spring 21 to hold the trigger 18 in engagement with the notch. The lower end of the trigger is attached to the trip-rod 7 and is operated by same.

22 is a tension-spring which normally holds the trigger in the position shown.

23 is a stop.

24 is a button to withdraw the lug 15 by hand.

18^a (shown dotted) is the position occupied by the trigger when it withdraws the lug and releases the door 13.

The fusee is ignited by means of a strip of especially-prepared chemical paper 25, carried by the door 13. This paper is removable and is held in the door by a removable piece 26, which is preferably held by a thumb-nut 27 or similar device and is furnished by the manufacturers of the fusees with each fusee for the purpose of igniting them.

In use the device is set up on the rear platform of the last car of a train, and the hose 2 is connected to the air-brake train-pipe, the pressure of the air forcing the plunger back and allowing the rod 7 and trigger to be pulled to their normal position and the said trigger 18 to engage the notched rod 16. The fusee,

(not shown,) which is specially coated on the end with a preparation such as is used for parlor-matches, is placed in the chamber 11, and the plunger 12 is forced back until the fusee is fully within the chamber and the door is shut, as shown by the dotted position 13[a] in Fig. 1. When thus shut, the prepared end of the fusee rests against the prepared paper on the door and is held in the chamber by same. The device being now operatively set, a sudden application of the brakes would reduce the pressure in the train-pipe and the chamber 1 and would allow the spring 4 to force the rod 8 against the trip-rod 7 and through the trigger 18 and the rod 16 withdraw the lug 15 and release the door 13. This door sliding in frictional contact with the fusee ignites it and the next instant passing clear allows the plunger to eject it with sufficient force to cause it to reach the track, where it performs its mission of warning a following train.

Having now fully described my invention, what I claim, and desire to secure by Letters Patent in the United States, is—

1. In a fusee igniter and discharger for trains, the combination with the train air-brake pipe of an air-chamber connected therewith a fusee-discharge chamber, a spring-actuated plunger in said chamber, a door closing said chamber and means actuated by the reduction in pressure in said air-pipe for releasing said door, for the purposes set forth.

2. In a fusee igniter and discharger for trains, the combination with the air-brake pipe, of an air-chamber connected therewith, a fusee-discharge chamber, a spring-actuated plunger therein, a door closing said chamber, a spring attached to said door, normally holding same open and means actuated by the reduction of pressure in said air-pipe for releasing said door.

3. In a fusee igniter and discharger for trains, the combination with the air-brake pipe, of an air-chamber connected therewith, a fusee-discharge chamber, a spring-actuated plunger therein, a door closing said chamber, a spring attached to said door normally holding the same open, a latch to hold said door closed, and means actuated by the reduction in pressure in said air-pipe for releasing said door.

4. In a fusee igniter and discharger for trains, the combination with the air-brake pipe, of an air-chamber connected therewith, a fusee-discharge chamber, a spring-actuated plunger therein, a door closing said chamber, a spring attached to said door and normally holding same open, a latch holding said door closed, a trigger operatively connected to said latch and means controlled by the air-pressure in said air-pipe for operating said latch.

5. In a fusee igniter and discharger for trains, the combination with the air-brake pipe, of an air-chamber connected therewith, a fusee-discharge chamber, a spring-actuated plunger therein, a door closing said chamber, a spring attached to said door and normally holding same open, a latch holding said door closed, a trigger operatively connected to said latch, a trip-rod attached to said trigger, a plunger in said air-chamber, a spring against said plunger normally compressed by the air-pressure in said chamber, a rod extending backward from said plunger, and an arm carried by said rod, having one end extending over into line with said trip-rod, substantially as and for the purposes set forth.

6. In a fusee igniter and discharger for trains, the combination with the air-brake pipe, of an air-chamber connected therewith, a fusee-discharge chamber, a spring-actuated plunger therein, a door closing said chamber, a spring attached to said door and normally holding same open, a latch holding said door closed, a trigger operatively connected to said latch, a trip-rod attached to said trigger, a plunger in said air-chamber, a spring against said plunger normally compresed by the air-pressure in said chamber, a rod extending backward from said plunger, an arm carried by said rod having one end extended into line with said trip-rod and an adjustable bar in said extended end, substantially as and for the purposes set forth.

7. In a fusee igniter and discharger for trains, the combination with the air-brake pipe, of an air-chamber connected therewith, a fusee-discharge chamber, a spring-actuated plunger therein, a sliding door closing said chamber, a spring attached to said door normally holding same open, a strip of friction-paper on said door, and means actuated by the reduction of pressure in said air-pipe for releasing said door.

8. In a fusee igniter and discharger for trains, the combination with the air-brake pipe, of an air-chamber connected therewith, a fusee-discharge chamber, a spring-actuated plunger therein, a sliding door closing said chamber, a strip of friction-paper on said door, a spring attached to said door normally holding same open, a latch to hold said door closed, and means actuated by the reduction in pressure in said air-pipe for releasing said door.

9. In a fusee igniter and discharger for trains, the combination with the air-brake pipe, of an air-chamber connected therewith, a fusee-discharge chamber, a spring-actuated plunger therein, a sliding door closing said chamber, a strip of friction-paper on said door, a spring attached to said door and normally holding same open, a latch holding said door closed, a trigger operatively connected to said latch and means actuated by the air-pressure in said air-pipe for operating said latch.

10. In a fusee igniter and discharger for trains, the combination with the air-brake pipe, of an air-chamber connected therewith,

a fusee-discharge chamber, a spring-actuated plunger therein, a sliding door closing said chamber, a strip of friction-paper on said door, a spring attached to said door and normally holding same open, a latch holding said door closed, a trigger operatively connected to said latch, a trip-rod attached to said trigger, a plunger in said air-chamber, a spring against said plunger normally compressed by the air-pressure in same, a rod extending backward from said plunger, and an arm carried by said rod, having one end extending over into line with said trip-rod, substantially as and for the purposes set forth.

11. In a fusee-discharger for trains, the combination with a discharge-chamber, a spring-operated plunger in said chamber and a door closing said chamber, of a release for said door, a connection between said release and the air-brake train-pipe.

12. In a fusee-discharger for trains, the combination with a discharge-chamber, a spring-operated plunger in said chamber, a spring-operated door closing said chamber, and a lug holding said door closed, of an air-chamber, a connection between said chamber and the train air-brake pipe, a plunger in said chamber, a spring against said plunger compressed by the air-pressure in said train-pipe, and a connection between said plunger and said lug to withdraw said lug and release said door when the air-pressure against said plunger is released.

13. In a fusee igniter and discharger for a train, the combination with a discharge-chamber, a spring-actuated discharge-plunger, a door closing said chamber, a lug engaging said door, a trip-rod carrying said lug, a trigger engaging said rod and a rod attached to said trigger, of an air-chamber, a connection from said chamber to the air-brake pipe-line on said train, a plunger in said chamber, a plunger-rod extending through the rear end of said chamber, a spring against the rear side of said plunger, an arm on said plunger-rod, having one end extending into the path of said trip-rod, substantially as and for the purposes set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM M. JACKSON.

Witnesses:
PRESTON HATCHER,
H. E. SCHNEE.