

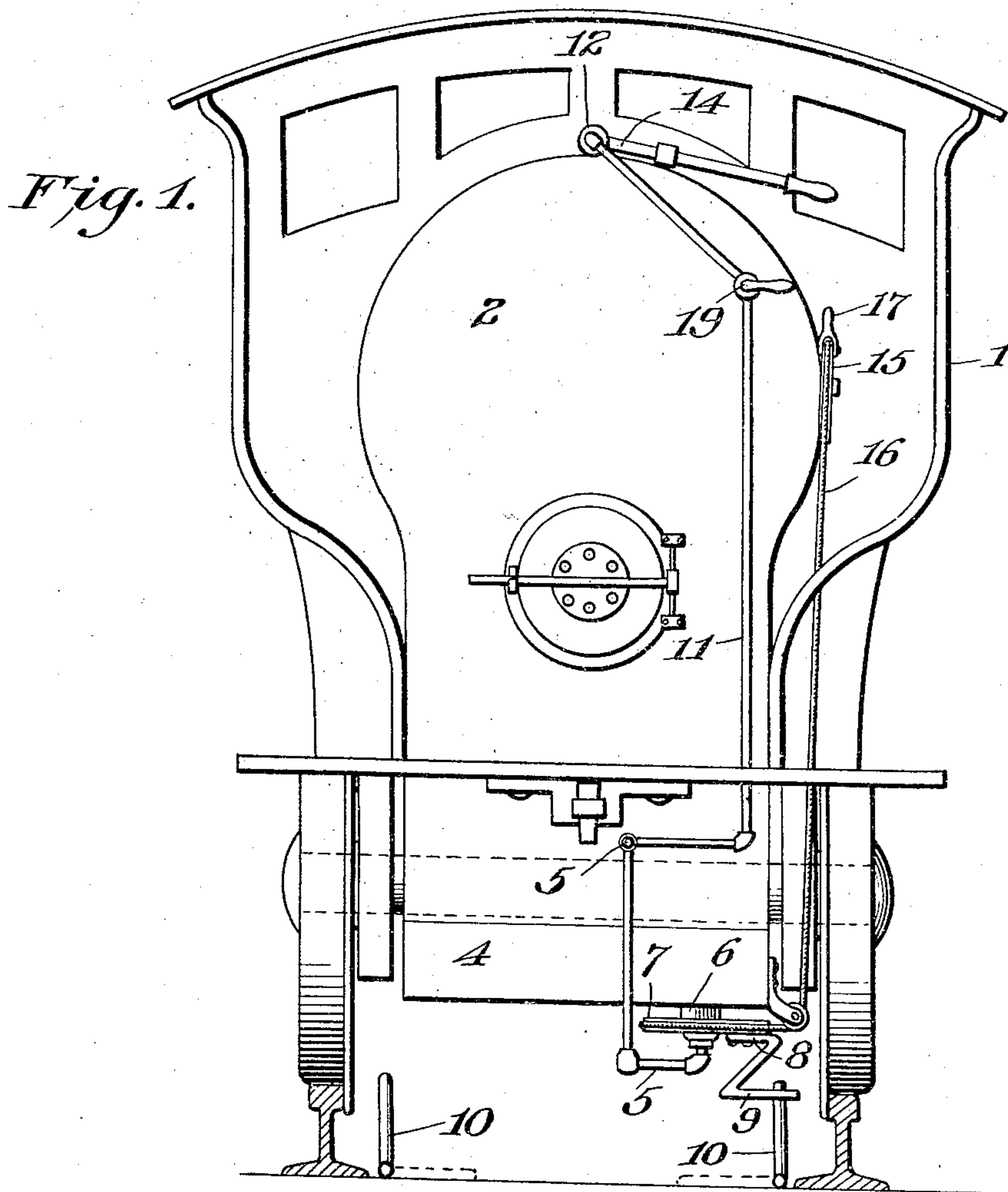
No. 894,204.

PATENTED JULY 28, 1908.

M. E. HOGAN.  
RAILWAY SAFETY APPLIANCE.

APPLICATION FILED FEB. 4, 1908.

2 SHEETS—SHEET 1.



*Witnesses;*  
*A. A. Olson*  
*H. S. Austin*

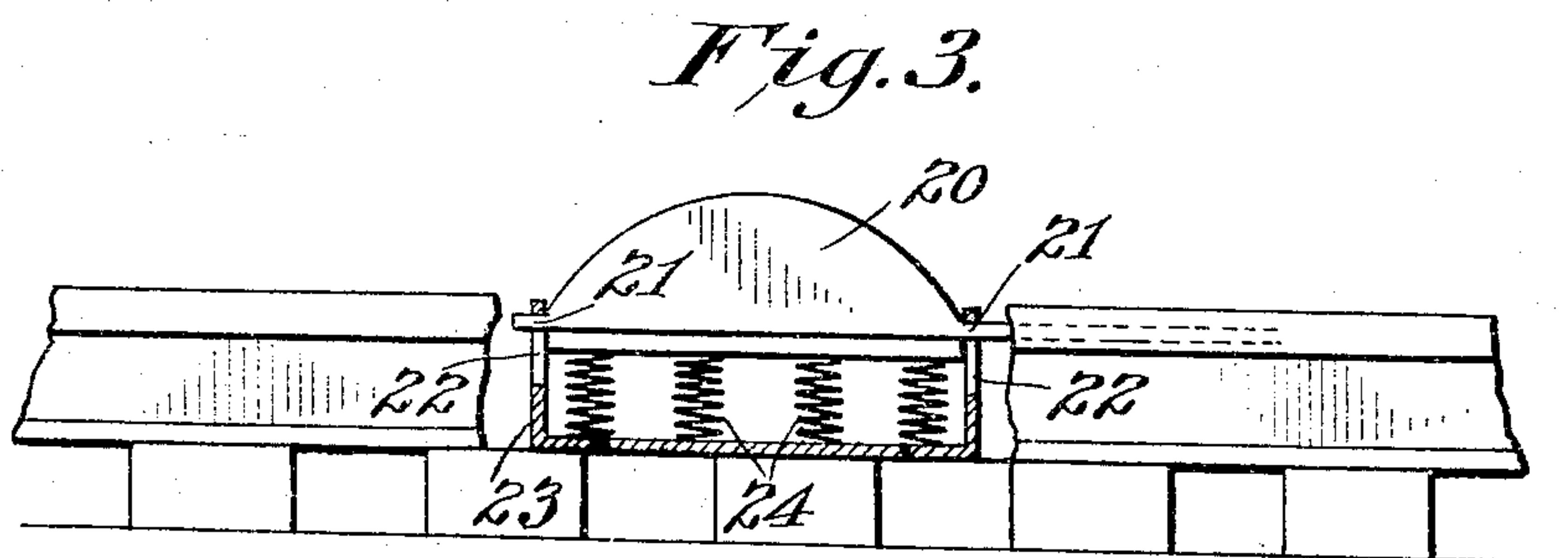
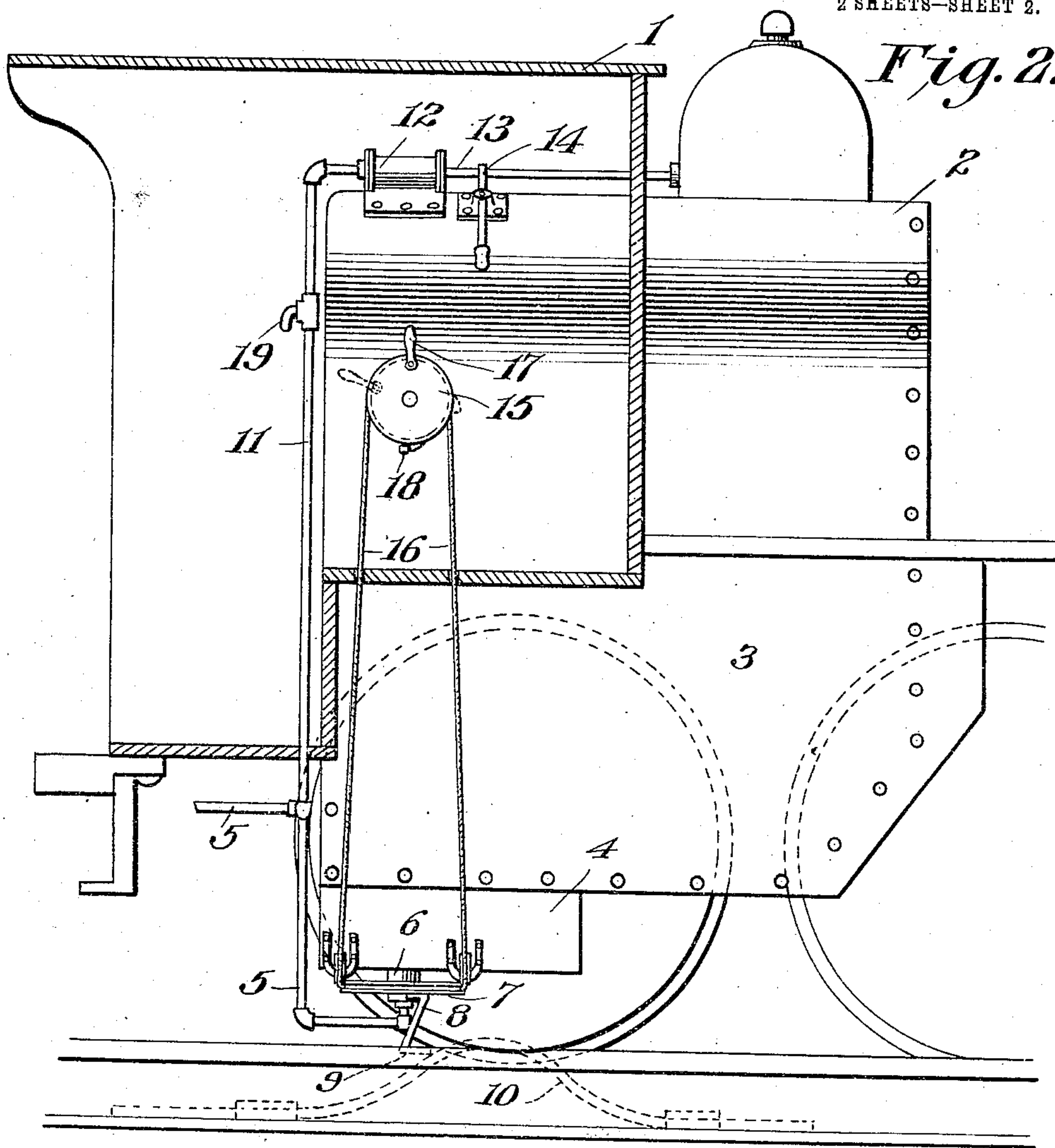
*Inventor;*  
*Michael E. Hogan*  
*by*  
*Joshua R. Potts.*  
*Att'y.*

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2 SHEETS—SHEET 2.



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Q. A. Olson  
H. J. Austin

Inventor;  
Michael E. Hogan  
by  
Joshua R. A. Potts.  
Atty.



# UNITED STATES PATENT OFFICE.

MICHAEL E. HOGAN, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO JAMES E. DOUGHERTY, OF CHICAGO, ILLINOIS.

## RAILWAY SAFETY APPLIANCE.

No. 894,204.

Specification of Letters Patent.

Patented July 28, 1908.

Application filed February 4, 1908. Serial No. 414,158.

*To all whom it may concern:*

Be it known that I, MICHAEL E. HOGAN, a citizen of the United States, residing at Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Railway Safety Appliances, of which the following is a specification.

My invention relates to railway safety appliances and has particular reference to devices for automatically stopping a train to prevent the same from passing a danger signal.

The object of my invention is to provide an appliance for railway trains which will automatically operate to throw on the brakes of a train and to close the throttle of the engine when the danger signal is set.

A further object of my invention is to provide a device as mentioned, so arranged that the brakes may be relieved by the engineer from the cab after having been automatically set.

Other objects will appear hereinafter.

My invention will be more readily understood by reference to the accompanying drawings forming a part of this specification and in which,

Figure 1 is a diagrammatic end elevation of a locomotive equipped with a device embodying my invention in its preferred form, and Fig. 2 is a diagrammatic side elevation thereof, and Fig. 3 is a modified form of trip.

Referring to the drawings, 1 indicates the cab of a locomotive, 2 the boiler and 3 the side sheets of the furnace, and 4 the main air reservoir. Leading from the tank or reservoir, 4 is a pipe, 5 by which the air is supplied to the brake system of the train.

6 is a valve for controlling the admission of air to the pipe, 5 hence to the brakes. The valve 6 is automatically operated in the following manner: 7 indicates disk connected to the air valve in such a manner that rotation of the disk in one direction will open the valve and in the other direction will close the same. Depending from the disk, is an arm, 8, which is preferably Z shaped as shown terminating in the horizontal portion, 9. When the danger signal is set a rod or trip bar, 10 is raised into the position shown in full lines in Fig. 1. The rod, 10 is arranged inside of the rail and when in raised position is in the path of the arm, 9. When the arm 9 contacts the rod, 10 the disk, 7 is rotated opening the valve, 6 and throwing on the

brakes of the train. Extending from the pipe, 5 or from the air brake system, is a pipe, 11 leading to a cylinder, 12, the piston, 13 of which is connected to the throttle lever, 14, in such a manner that when the air is admitted to the air brakes the throttle is closed simultaneously therewith. It is obvious that as long as the valve, 6 is open the train cannot be started.

I desire to have the device under the manual control of the engineer from the cab, that is, while the device will be automatically operable in the manner described, to close the throttle and throw on the brakes if the signal is disregarded, the engineer may thereafter relieve the brakes and the throttle without leaving the cab.

15 indicates a disk, rotatably mounted within the cab. This is connected by the cables, 16 to the disk, 7 in such a manner that when the disk, 7 is rotated as before described, the disk, 15 will also be rotated. To shut off the air from the air brakes, the engineer has but to return the disk, 15 to normal position, the disk being provided with a handle, 17 for this purpose and a stop, 18 being provided to limit its movement.

19 indicates a threeway valve for relieving the pressure in the system and in the cylinder, 12 after the valve 6 is closed.

The operation of the device is as follows: When the danger signal is set, the rod, 10, is raised into the position shown in full lines in Fig. 1. If the engineer for any reason should disregard the signal, the arm, 9 when it engages the rod, 10 will automatically open the valve, 6. This throws on the brakes and closes the throttle in the manner before described. As the valve, 6 is opened, the disk, 15 is turned into the position shown in dotted lines in Fig. 2. Before the engineer can start the train, the disk, 15 is returned to normal position shutting off the air tank or reservoir, 4 from the air brakes. The valve, 19 is then opened to exhaust the air from the brake system and from the cylinder, 12 after which the engine may be started in the usual manner.

If the pilot is low or a brake beam or other part is hanging low, considerable damage might be done, by striking the trip, if it is a solid non-yielding member. In Fig. 3 I have illustrated a modified form of trip which is yieldingly held in position, so that if a fixed portion of the train should strike it, it will be



depressed, but will immediately return to normal operative position.

20 indicates the trip, pivotally mounted by the gudgeons, 21, formed of the operating rod, in slots, 22 in the ends of a boxing or housing 23.

24 are a plurality of springs for yieldingly holding the trip in position, and between the springs, 24 and the trip, 20 is a follower, 25.

10 The boxing, 23 is arranged below the level of the rail and the trip, 20 extends above the rail when in raised or operative position.

The operation of the device is obvious.

15 Having described my invention what I claim as new and desire to secure by Letters Patent is:

1. A locomotive and the air brake system of a train including the main air reservoir, in combination with a valve controlling the exit  
20 of air from said reservoir, a pipe leading from said valve to said brake system, the throttle lever, a lever throwing device, a branch pipe leading from the first pipe to a point behind said throttle lever for actuating said lever  
25 throwing device, an arm on said valve, means arranged within the rails for tripping said arms to open said valve, means operable from within the cab for resetting or closing said valve, and a valve in the last said pipe and  
30 within the cab adapted to be manually operated for relieving the pressure on the brakes and the throttle, substantially as described.

2. In a device of the class described, the locomotive and the air brake system of a

train, including the main air reservoir, in com- 35  
bination with a valve arranged on said reservoir, a pipe leading from said valve to the train pipes, a rotary member operable from a point within the rails for opening said valves, an air cylinder arranged adjacent to the throttle lever, a pipe extending from the first said pipe to said air cylinder, a manually operable valve  
40 interposed in said pipe within the cab for exhausting the air from said pipes after the first said valve has been closed, and means operable  
45 from within the cab for actuating said rotary member to close said valve, substantially as described.

3. In a device of the class described, a locomotive and the air brake system of a 50  
train including the main air reservoir, in combination with a valve arranged on said reservoir, means automatically operable for opening said valve to throw on the air brakes and close the throttle, means operable from within  
55 the cab after the device has been automatically actuated for closing said valve, and a valve arranged in the cab for relieving the pressure within said system, substantially as described. 60

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

MICHAEL E. HOGAN.

Witnesses:

HOWARD S. AUSTIN,  
ARTHUR A. OLSON.