No. 897,748. PATENTED SEPT. 1, 1908.

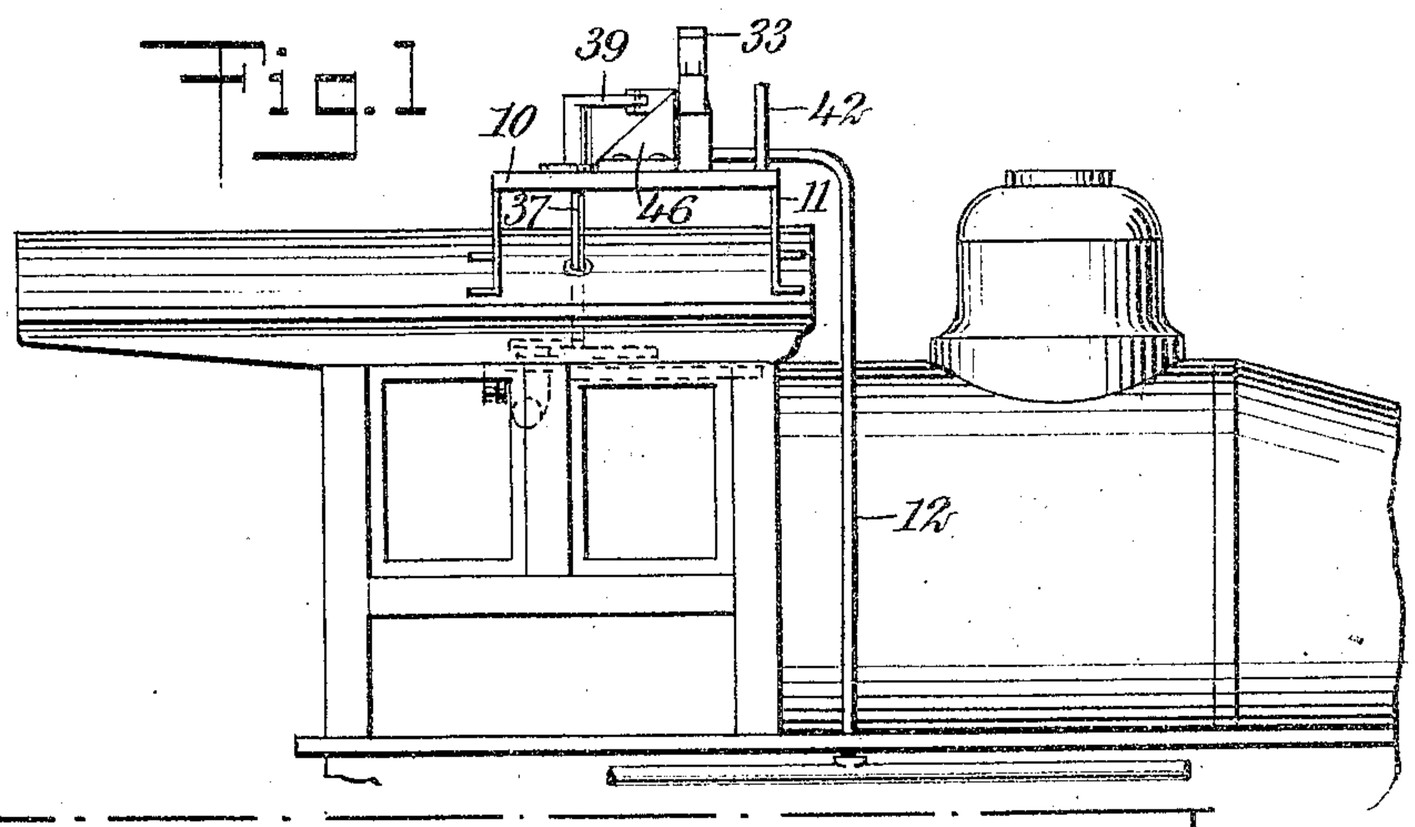
J. JUDGE.

SAFETY DEVICE FOR AIR BRAKES.

APPLICATION FILED MAY 14, 1908.

2 SHEETS—SHEET 1.

Fig. 1



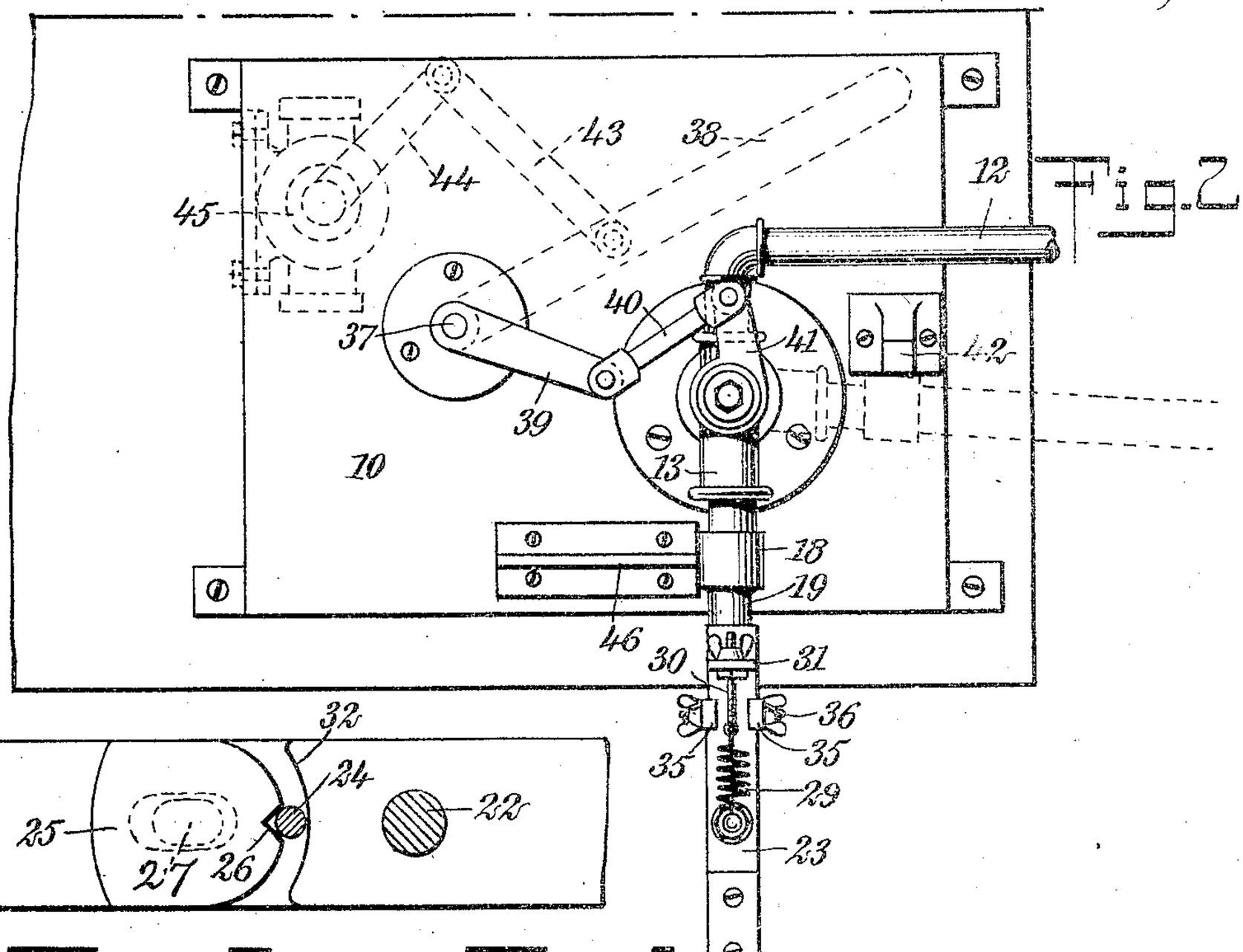


Fig. 2

Fig. 7

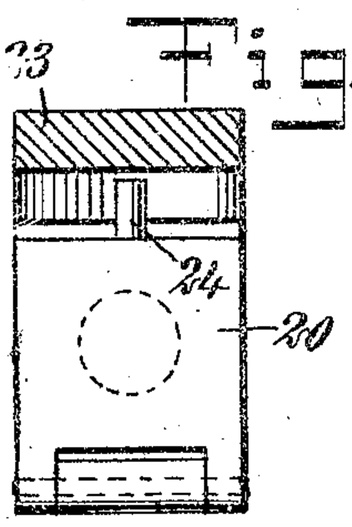


Fig. 8

WITNESSES

John A. Seegstrom

C. W. Fairbank

INVENTOR

Joseph Judge

BY Munn & Co

ATTORNEYS

No. 897,748. PATENTED SEPT. 1, 1908.

J. JUDGE.

SAFETY DEVICE FOR AIR BRAKES.

APPLICATION FILED MAY 14, 1908.

2 SHEETS—SHEET 2.

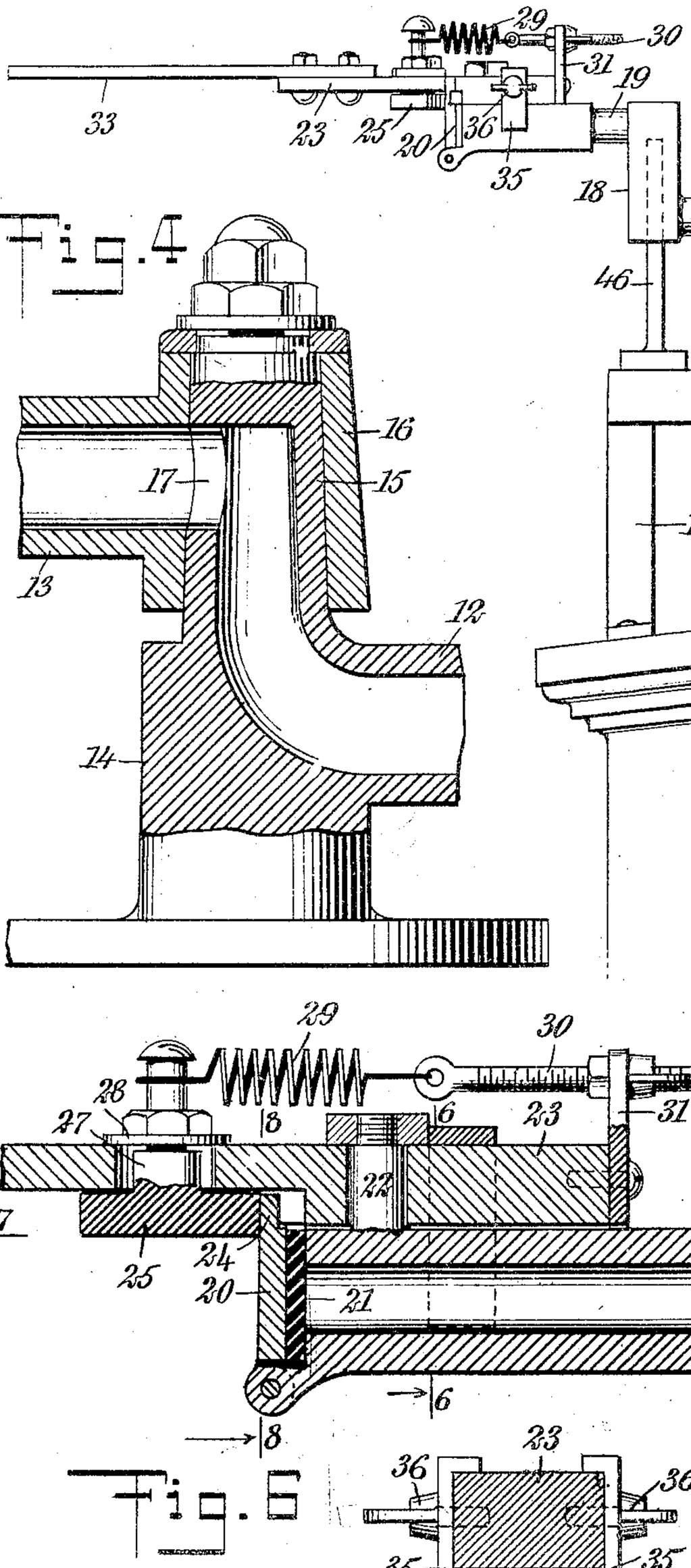


Fig. 3

Fig. 4

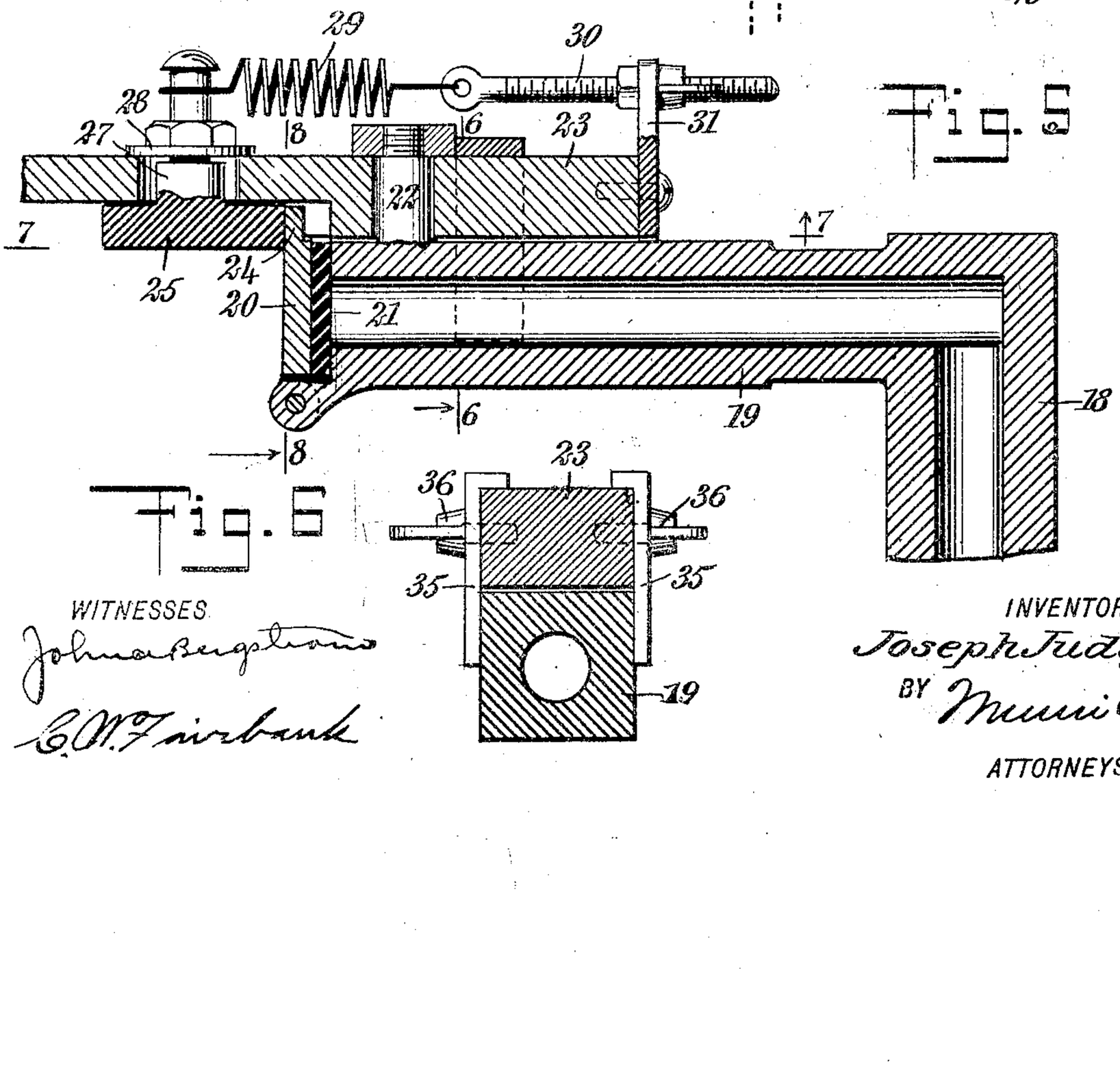


Fig. 6

Fig. 5

WITNESSES

John A. Bergstrom

C. W. Fairbanks

INVENTOR

Joseph Judge

BY Munn & Co.

ATTORNEYS

UNITED STATES PATENT OFFICE.

JOSEPH JUDGE, OF PITTSTON, PENNSYLVANIA.

SAFETY DEVICE FOR AIR-BRAKES.

No. 897,748. Specification of Letters Patent. Patented Sept. 1, 1908.

Application filed May 14, 1906. Serial No. 432,794.

To all whom it may concern:

Be it known that I, JOSEPH JUDGE, a citizen of the United States, and a resident of Pittston, in the county of Luzerne and State of Pennsylvania, have invented a new and Improved Safety Device for Air-Brakes, of which the following is a full, clear, and exact description.

This invention relates to certain improvements in safety devices for air brakes, and more particularly to certain improvements over the construction shown in my previous patent No. 839,598, issued December 25, 1906. In my previous construction, I provided a pivoted or swiveled pipe terminating in a frangible portion extending into the path of the signal or other means adapted to engage therewith. Upon the breaking of the frangible portion, the air is permitted to escape to operate the brakes. In my present construction I seek to eliminate the frangible pipe, and provide a valve and operating lever therefor, so constructed that when the lever is moved the valve opens, but a return movement of the lever to its original position does not in itself close the valve. I also provide means whereby evidence will be recorded as to the number of times the safety device has been operated on each trip or journey.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures, and in which

Figure 1 is a side elevation of a portion of a locomotive provided with my improved safety device; Fig. 2 is a top plan view on a larger scale than Fig. 1; Fig. 3 is a front elevation of the parts shown in Fig. 2; Fig. 4 is a vertical section through the pivotal mounting of the air brake pipe; Fig. 5 is a vertical section through the outer end of the pipe; Fig. 6 is a transverse section on the line 6—6 of Fig. 5; Fig. 7 is a horizontal section on the line 7—7 of Fig. 5; and Fig. 8 is a transverse section on the line 8—8 of Fig. 5.

In my improved construction, I provide a suitable platform or standard 10, mounted in a horizontal position upon the roof of an engine cab by means of suitable legs or supports 11, and mounted upon this floor or platform is a branch of the air pipe. The pipe includes a branch 12 extending from the main air pipe to the upper surface of the platform, an outwardly-extending pipe 13, and pivotal connections between the two. The pipe 12 preferably leads to a base 14 terminating in an upwardly-extending hollow plug 15 and the pipe 13 terminates at its inner end in a sleeve or casing 16, encircling the plug and held thereon by a suitable nut and washer at the outer end of the plug 15. The plug is provided with a port 17 in one side thereof, so that when the pipe 13 is in one position the interior thereof communicates freely with the pipe 12, but when the pipe 13 is rotated about the plug 15 as a center, the supply of air from the pipe 12 to the pipe 13 may be completely cut off. The pipe 13 is provided with an upwardly-turned portion 18 and an outwardly-extending portion 19 rigid in respect to the pipe portion 13 and substantially parallel thereto. At the outer end of the pipe portion 19 is mounted the main feature of my invention.

The outer end of the pipe portion 19 constitutes a valve seat, and pivoted to the lower edge of the end of the pipe adjacent its valve seat, is a valve 20 having a washer or lining 21 of rubber, leather or other suitable material. The valve is pivoted to swing on a horizontal axis, so that when released at its upper end, it will swing downwardly to a position below the valve seat. The pipe portion 19 carries an upwardly-extending pivot 22 upon which is mounted an operating arm 23. The arm swings in a horizontal plane and is adapted to normally hold the valve in its closed position, but when swung to one side, the valve may drop to its open position and the operating arm may then freely move about the pivot 22 and even return to its original position but will not operate to close the valve. The valve plate preferably terminates in an upwardly-extending pin 24, and on the under surface of the arm 23 is a sliding block 25 having a recess 26 adapted to receive the pin 24 of the valve plate. The block 25 is slidable longitudinally of the arm, and is preferably supported by a stud 27 extending through a slot in the arm. The stud carries a washer 28 upon the outer surface and engages with a spring 29 for drawing the block longitudinally and holding it against the pin 24 of the valve seat. The opposite end of the spring is secured to a bolt 30 extending through a bracket 31 carried by the arm 23 at its base. The block 25 is curved at one end upon opposite sides of the notch or recess 26, and the arm presents a shoulder having curved flanges 32 substantially parallel to the

curved end of the block. As the arm is moved about the pivot 22, the curved shoulder 32 engages with the pin and forces the valve open to avoid any possibility of the valve sticking to its seat after being released by the arm. The arm 23 may be of any length whatsoever dependent upon the position on the cab and the nature of the obstruction with which it is adapted to engage. As shown, the arm is provided with an extension 33 rigidly secured thereto, so that the arm may engage with an obstruction 34, shown in Fig. 2, and beyond the end of the main portion of the arm 23.

In order to prevent the arm from being moved to one side accidentally, by jarring, or by the action of the wind, I preferably provide small locking plates 35 of thin cast iron secured to the sides of the arm 23 adjacent the pivot and adapted to engage with opposite sides of the outer end of the pipe section 19. These cast iron plates may be secured in place in any suitable manner, as, for instance, by set screws 36, and are of such thickness and dimensions that they will be readily broken when the outer end of the arm 23 is struck a blow of the required force. Upon the breaking of the indicating plates 35, the arm may swing to positively open the valve and the latter will remain in its open position until the engineer replaces it in a manner hereinafter described. The engineer would preferably carry a predetermined number of these indicating plates upon leaving the car barn or shops, and at the end of the run or travel he must turn in the remaining plates in his possession. The difference in the number will be the number of times the arm has collided with a signal or obstruction and will indicate the care the engineer has taken in managing his train.

Extending through the roof of the cab and also through the platform or support 10, I provide a vertical rock shaft 37 having a handle 38 secured to the lower end thereof, as shown in dotted lines in Fig. 2. The upper end of the shaft is provided with a lever 39 connected by a link 40 to a lever 41 rigidly secured to the valve casing 16 of the pipe 13. By moving the handle 38, the pipe 13 may be swung about the base 14 as a center to a position longitudinally of the track rather than transversely. The pipe 13 and all of the parts carried thereby then assume the position indicated in dotted lines in Fig. 2 and engage with a stop 42 on the platform 10. This movement serves to close the port 17 and prevent the further escape of air from the train pipe. While holding the parts in this position, the engineer may swing the valve plate upwardly against its seat, return the arm 23 to such a position that it will hold the valve to its seat, and may then apply new indicating plates 35. For normally holding the pivoted pipe portion in its outward or extended position, the lever 38 is preferably connected by a link 43 to an arm 44 of any suitable spring mechanism 45 of the type commonly employed in closing doors. This mechanism will slowly return the parts to their outward or operative position, but will prevent the sudden swinging or slamming thereof. The platform or base preferably carries a vertically-disposed plate 46 adapted to engage with the vertical portion 18 of the pivoted pipe and act as a stop to limit the movement in one direction.

The outer arm 33 may engage with the semaphore signal arm or may engage with any other suitable mechanism which is moved into the path of the arm 33 when it is desired to stop the train. Obstructions may be placed along the track at predetermined intervals, so that in order that the engineer may pass them, he must operate the handle 38 to swing the device to the position shown in dotted lines in Fig. 2. Should he be neglecting his duty or not watching for the obstructions, the device will operate to automatically apply the brakes.

Various changes may be made in the specific construction shown without departing from the spirit of my invention. For instance, a casing or covering may be mounted on the cab to protect the parts of the device from the elements or the device may be mounted upon any other part of the engine or on any part of any car of the train.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. In an air brake system, an air pipe having the end thereof forming a valve seat, a valve hinged adjacent said seat, and a movable arm adapted to be operated by engagement with an obstruction, and serving to normally hold said valve in its closed position.

2. In an air brake system, an air pipe having the end thereof forming a valve seat, a valve hinged adjacent said seat, a movable arm adapted to be operated by engagement with an obstruction, and serving to normally hold said valve in its closed position, and means carried by said arm for positively disengaging said valve from its seat upon the movement of the arm.

3. In an air brake system, an air pipe having the end thereof forming a valve seat, a valve hinged adjacent said valve seat, an arm pivoted to said pipe and adapted to be moved on its pivot by engagement with an obstruction, and means carried by said arm for normally holding said valve in its closed position.

4. In an air brake system, an air pipe having the end thereof forming a valve seat, a valve hinged adjacent said valve seat, an arm pivoted to said pipe and adapted to be moved on its pivot by engagement with an obstruction, means carried by said arm for

normally holding said valve in its closed position, and means for positively opening said valve upon the movement of said arm.

5. In an air brake system, an air pipe, a flap valve closing the end thereof and having an upwardly-extending projection, an arm pivoted to the upper side of said pipe adjacent the end thereof, and means carried by said arm for engagement with said projection to hold said valve in its closed position.

6. In an air brake system, an air pipe, a flap valve closing the end thereof, a pivoted arm, a spring-pressed block carried by said arm and in engagement with said valve for normally holding the same in its closed position, and means whereby the movement of said arm positively opens said valve.

7. In combination with a train pipe, a swivel valve connected therewith, a pipe connected with said valve, a second valve closing said pipe, and an arm pivoted to said pipe for holding said valve in its closed position.

8. In combination with a train pipe, a swivel valve connected therewith, a pipe connected with said valve, a second valve closing said pipe, an arm pivoted to said pipe for holding said valve in its closed position, and means carried by said arm for normally holding the same rigid in respect to said pipe.

9. In combination with a train pipe, a swivel valve connected therewith, a pipe connected with said valve, a second valve closing said pipe, an arm pivoted to said pipe for holding said valve in its closed position, and frangible means carried by said arm for normally holding the same rigid in respect to said pipe.

10. In combination, an air pipe, a valve for closing said pipe, an arm pivoted to said pipe for holding the valve in its closed position, and frangible means for holding said arm and pipe normally rigid in respect to each other.

11. In combination, an air pipe, a valve for closing said pipe, a movable arm for holding the valve in its closed position, and frangible means for holding said arm and pipe normally rigid in respect to each other.

12. In combination, an air pipe, a valve for closing said pipe, a movable arm, means carried by said arm for resiliently holding said valve to its seat, means for positively disengaging said valve from its seat upon the movement of the arm, and means for normally preventing movement of the arm in respect to the valve.

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

JOSEPH JUDGE.

Witnesses:
W. H. GILLESPIE,
M. J. BERRY.