

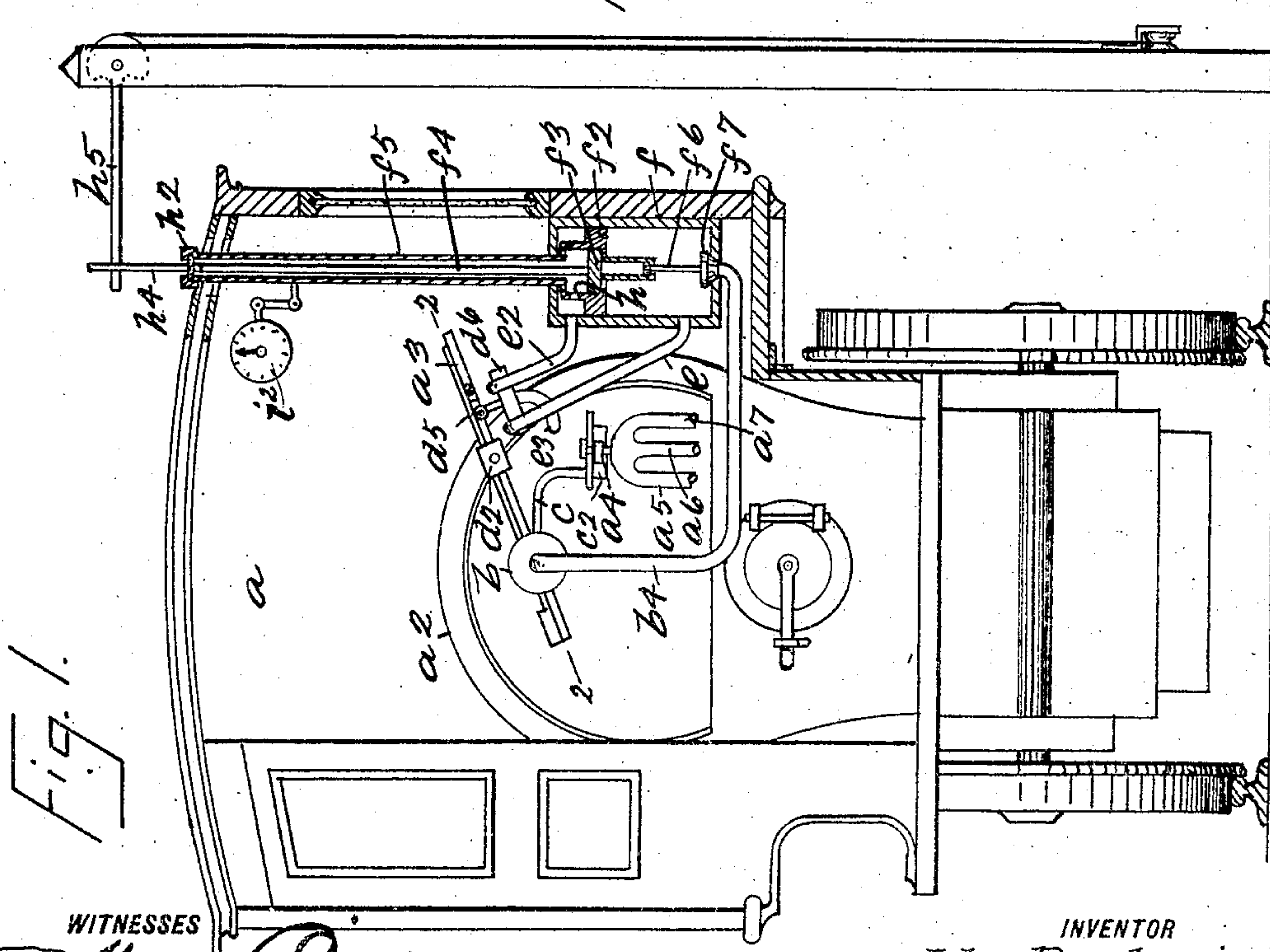
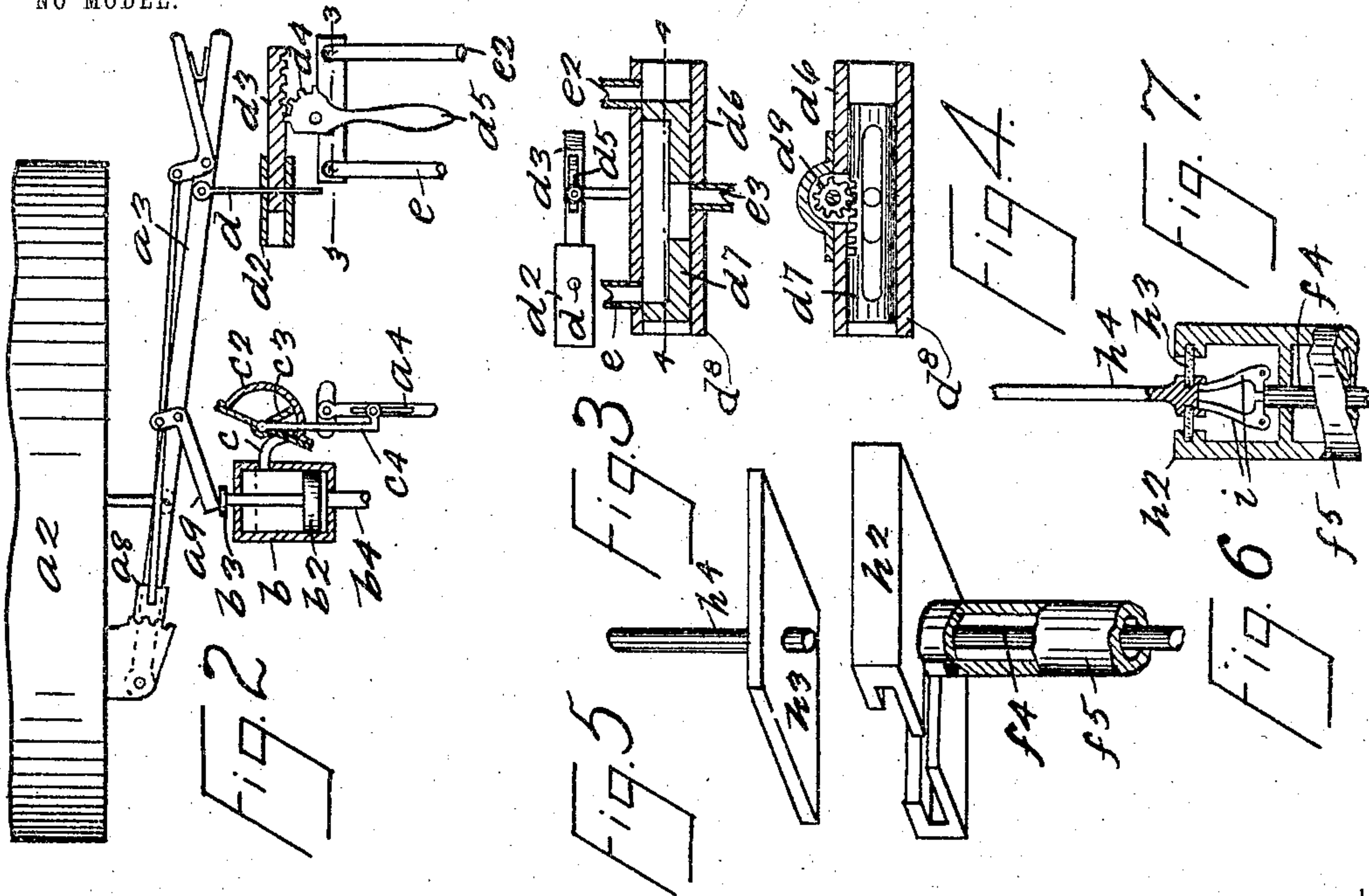
No. 772,395.

PATENTED OCT. 18, 1904.

J. BARBERIE.
SAFETY APPARATUS FOR LOCOMOTIVES.

APPLICATION FILED JUNE 16, 1904.

NO MODEL.



WITNESSES

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SAFETY APPARATUS FOR LOCOMOTIVES.

SPECIFICATION forming part of Letters Patent No. 772,395, dated October 18, 1904.

Application filed June 16, 1904. Serial No. 212,775. (No model.)

To all whom it may concern:

Be it known that I, JOHN BARBERIE, a citizen of the United States of America, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Safety Apparatus for Locomotives, of which the following is a specification, such as will enable those skilled in the art to which it appertains to make and use the same.

This invention has for its object the improvement of safety apparatus for locomotives, whereby a destructible member on said locomotive upon being externally struck is broken, and thereby shuts off the steam-supply to the engine and sets the air-brakes, a further object being to provide such an apparatus which may be moved out of operative position, if desired, in order to pass a set signal or to replace said destructible member when broken, the means whereby such removal is accomplished being only operative when the throttle is closed, and operating also to lock the throttle in the closed position when said destructible member is out of its operative position, and a still further object being to provide means for accomplishing these results which are simple, composed of few parts, very inexpensive, and readily adaptable to any locomotive.

My invention is fully described in the following specification, of which the accompanying drawings form a part, in which the separate parts thereof are designated by suitable reference characters in each of the views, and in which—

Figure 1 is a rear view of the cab of a locomotive provided with my apparatus; Fig. 2, a section on the line 2 2 of Fig. 1; Fig. 3, a section on the line 3 3 of Fig. 2; Fig. 4, a section on the line 4 4 of Fig. 3; Fig. 5, a perspective view of the destructible member which I employ; Fig. 6, a view of the means for holding the destructible member, and Fig. 7 a modification of the construction shown in Fig. 6.

In the drawings forming part of this specification I have shown a cab *a* of a locomotive

provided with the usual boiler *a*², throttle *a*³, and engineer's brake-valve *a*⁴, with which is connected the usual main reservoir-pipe *a*⁵, train-line pipe *a*⁶, and exhaust-pipe *a*⁷, said throttle *a*³ being also provided with a latch *a*⁸ and toggle-lever *a*⁹ therefor, and to the rear of the toggle-lever *a*⁹ is a cylinder *b*, provided with a piston *b*² and rod therefor and a plate *b*³ on the outer end of said rod and bearing against said toggle-lever, and to the rear end of the cylinder *b* is connected a pipe *b*⁴. Communicating with the cylinder at a point adjacent to the outermost position of the piston *b*² is a pipe *c*, which also communicates with a segmental casing *c*², provided with a pivoted wing or blade member *c*³, to the shaft of which is connected a handle or lever *c*⁴, which is in turn connected with the engineer's brake-valve handle *a*⁴, and, as will be seen, if steam is admitted to the cylinder *b* the piston is forced out and closes the throttle *a*³, and at this time the steam also passes to the casing *c*², forces the wing member outwardly, and thereby operates the brake-valve handle *a*⁴ and the engine is stopped.

Pivoted to the throttle *a*³ is a pin *d*, which normally passes through a guide *d*² for a slide-bar *d*³, provided with a rack with which is engaged a segment-gear *d*⁴ on a handle *d*⁵ of a valve *d*⁶, consisting of a slide-block *d*⁷ in a casing *d*⁸, said slide-block *d*⁷ being provided with a rack engaging a gear *d*⁹ on the valve-stem, and the slide-block *d*⁷ is so recessed as to communicate either of two pipes *e* or *e*² with a supply-pipe *e*³, permitting the other of said pipes to be in communication with the outer air.

Mounted in the cab *a* is a supplemental cylinder *f*, provided with a piston *f*², in turn provided with a central recess in which is a supplemental piston *f*³, and to the supplemental piston *f*³ is secured a rod *f*⁴, which passes through and adjacent to the end of a tube *f*⁵, secured to the piston *f*²; and the supplemental piston *f*³ also carries at the bottom thereof a telescopic rod *f*⁶, to which is secured a valve *f*⁷, adapted to rest normally in a seat in the bottom of the supplemental cylinder *f*,

thereby closing communication between said last-named cylinder and the pipe b^4 , which is connected therewith at this point.

The pipe e is connected with the supplemental cylinder f at a point below the extreme lowest position of the piston f^2 , and the pipe e^2 is also connected therewith above the highest position of the piston f^2 , and the valve d^6 normally admits steam to the pipe e , thereby keeping the piston f^2 at its uppermost position; but if the valve d^6 be operated steam enters the pipe e^2 and exhausts from the pipe e and the piston f^2 is forced downwardly, and because of an opening h in the recess of the piston f^2 steam also enters said recess and forces the supplemental piston f^3 downwardly.

The outer end of the tube f^5 is provided with a grooved block h^2 , in which is slipped a plate h^3 , of frangible material, and in which is secured a rod h^4 , which is adapted to be struck by a set semaphore-arm h^5 or other suitable device, and upon being so struck the plate h^3 is broken, and as the rod f^4 is held in its lowermost position by the rod h^4 , against which it bears, said rod h^4 being removed permits the rod f^4 to rise, as well as the piston f^3 thereof, and the valve f^7 is removed from its seat and the steam from the pipe e passes into the cylinder b and the throttle a^3 is closed and the air-brakes set, as hereinbefore described, and the train is stopped.

In Fig. 7 of the drawings is shown a modification of that last described, the rod h^4 being recessed at its lower end to engage the upper ends of reducing-levers i , which normally hold the rod f^4 down, and when the rod h^4 is struck and the plate h^3 broken the levers i permit the rod f^4 to rise and the operation described in the last paragraph is performed, and in practice I use a time-recorder i^2 to indicate the time of removal of the rod h^4 from operative position as a check upon the engineer, and various changes may be made in the construction without sacrificing the advantages of my invention, and, with this reservation, having fully described the same,

What I claim as new, and desire to secure by Letters Patent, is—

1. In a safety apparatus for locomotives, a frangible plate, a rod held therein and adapted to be externally struck, said rod being in operative connection with the steam-supply and air-brakes of said locomotive, and means for moving said rod out of operative position, substantially as shown and described.

2. In a safety apparatus for locomotives, a frangible plate, a rod held therein, a supplemental rod bearing against said first-named rod and in operative connection with the steam-supply and air-brakes of said locomotive, and means for moving said first-named rod out of operative position, substantially as shown and described.

3. In a safety apparatus for locomotives, a

tube, a rod held therein, a frangible member held by said tube, a supplemental rod held in said frangible member and serving to hold said first-named rod against pressure and means for moving said tube inwardly and outwardly, substantially as shown and described.

4. In a safety apparatus for locomotives, a cylinder, a piston provided with a recess in said cylinder, a supplemental piston in said recess, a tube on said piston, a rod on said supplemental piston and within said tube, a frangible member on the outer end of said tube and serving to hold said rod downwardly, substantially as shown and described.

5. In a safety apparatus for locomotives, a cylinder, a piston therein and provided with a recess, a supplemental piston in said recess, a tube on said piston, a rod on said supplemental piston, a frangible member on the outer end of said tube and serving to hold said rod downwardly and means for admitting steam to said cylinder, on either side of said piston, substantially as shown and described.

6. In a safety apparatus for locomotives, a cylinder, a piston therein and provided with a recess, a supplemental piston in said recess, a tube on said piston, a rod on said supplemental piston, a frangible member on the outer end of said tube and serving to hold said rod in its normal position, means for admitting steam to said cylinder, on either side of said piston and means connected with said rod for closing the steam-supply and setting the air-brakes when said frangible member is removed.

7. In a safety apparatus for locomotives, a cylinder, a piston therein and provided with a recess, a supplemental piston in said recess, a tube on said piston, a rod on said supplemental piston, a frangible member on the outer end of said tube and serving to hold said rod in its normal position, means connected with said rod for closing the steam-supply and setting the air-brakes when said frangible member is removed and external means for removing said frangible member, substantially as shown and described.

8. In a safety apparatus for locomotives, provided with the usual throttle, boiler and brake-valve, a cylinder to the rear of said throttle, a piston therein and bearing against said throttle, a wing-casing in communication with said cylinder and with said brake-valve, a supplemental cylinder, a piston therein, a tube on said piston, a frangible member on the end of said tube, a supplemental piston in said first-named piston, a rod thereon and bearing against said frangible member, a pipe connecting said cylinders, a valve closing said communication and in connection with said rod, and means for destroying said frangible member, thereby releasing said rod and closing said throttle and operating said brake-valve, substantially as shown and described.

9. In a safety apparatus for locomotives, a tube, a frangible plate held thereon, external

devices for breaking said plate, means for shutting the throttle and setting the air-brakes when said member is broken, and means for moving said tube and frangible member out of and into operative position, said means being only operative when the throttle is closed and locking the same in a closed position when said member is out of operative position, substantially as shown and described.

10 10. In a safety apparatus for locomotives, a cylinder, a piston therein, a tube thereon, a supplemental piston in said first-named piston, a rod thereon, a pipe in said cylinder above said piston, a pipe therein below said
15 piston, a pipe in the bottom thereof and a valve for said last-named pipe and in operative connection with said supplemental piston, substantially as shown and described.

20 11. In an apparatus of the class described, a frangible plate, a rod held therein, devices for holding said plate and rod in an operative position and external means for striking said rod and thereby destroying said plate, substantially as shown and described.

12. In a safety apparatus for locomotives, a 25 vertically-movable tube, a rod therein, a frangible member on said tube and holding said rod in normal position, external means for striking said frangible member, destroying the same and releasing said rod, means con- 30 nected with said rod for closing the steam-supply and setting the air-brakes when said rod is moved from normal position, devices for moving said tube and frangible member from and into operative position and record- 35 ing devices connected with said tube for indicating such vertical movement, substantially as shown and described.

In testimony that I claim the foregoing as my invention I have signed my name, in pres- 40 ence of the subscribing witnesses, this 15th day of June, 1904.

JOHN BARBERIE.

Witnesses:

MARCIE DUNN,
THOMAS J. WALSH.