

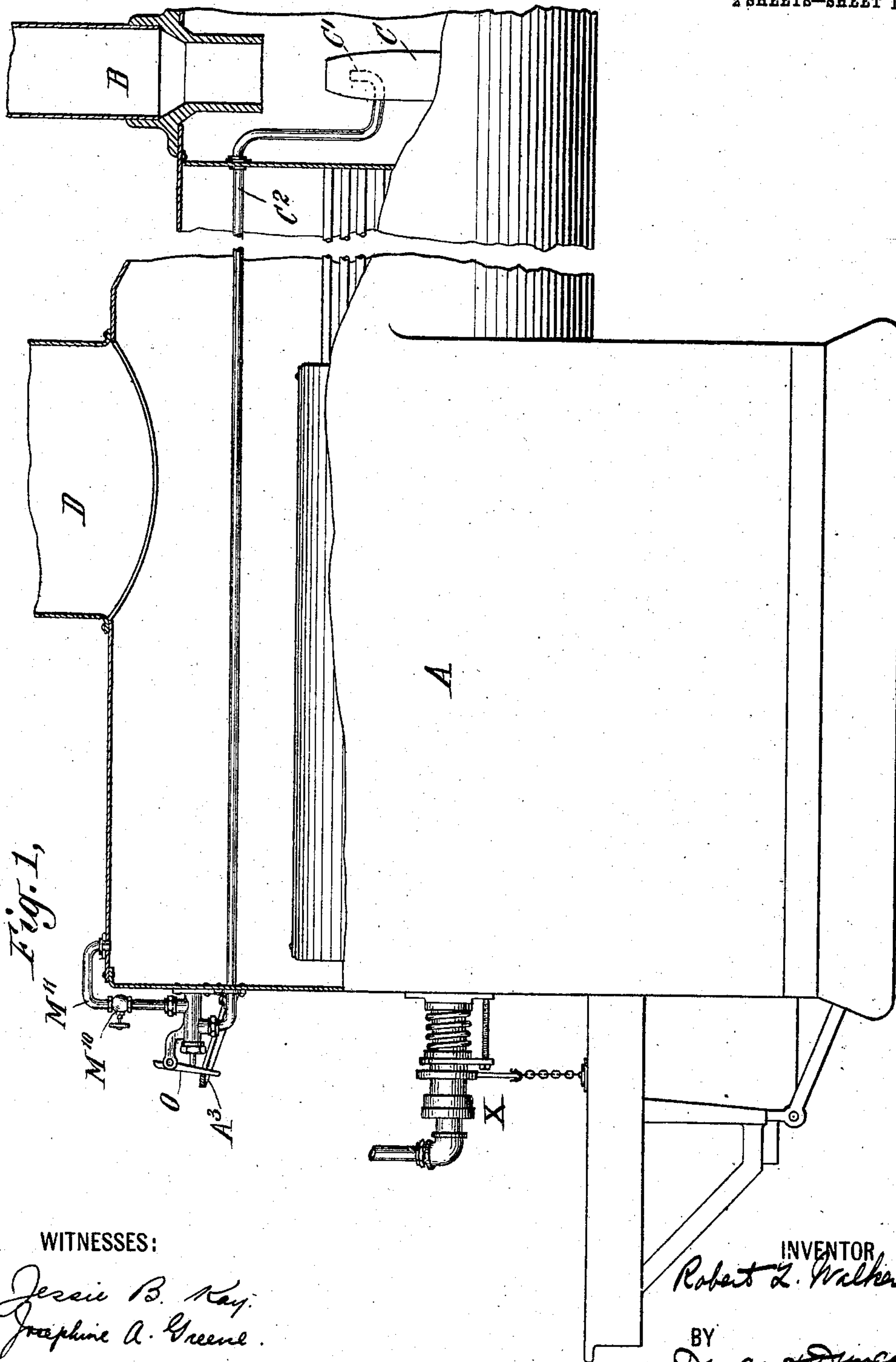
No. 858,690.

PATENTED JULY 2, 1907.

R. L. WALKER.
BLAST DEVICE.

APPLICATION FILED JUNE 8, 1906.

2 SHEETS—SHEET 1.



WITNESSES:

Jessie B. Kay.
Josephine A. Greene.

INVENTOR

Robert L. Walker

BY

Duncan & Duncan

ATTORNEYS

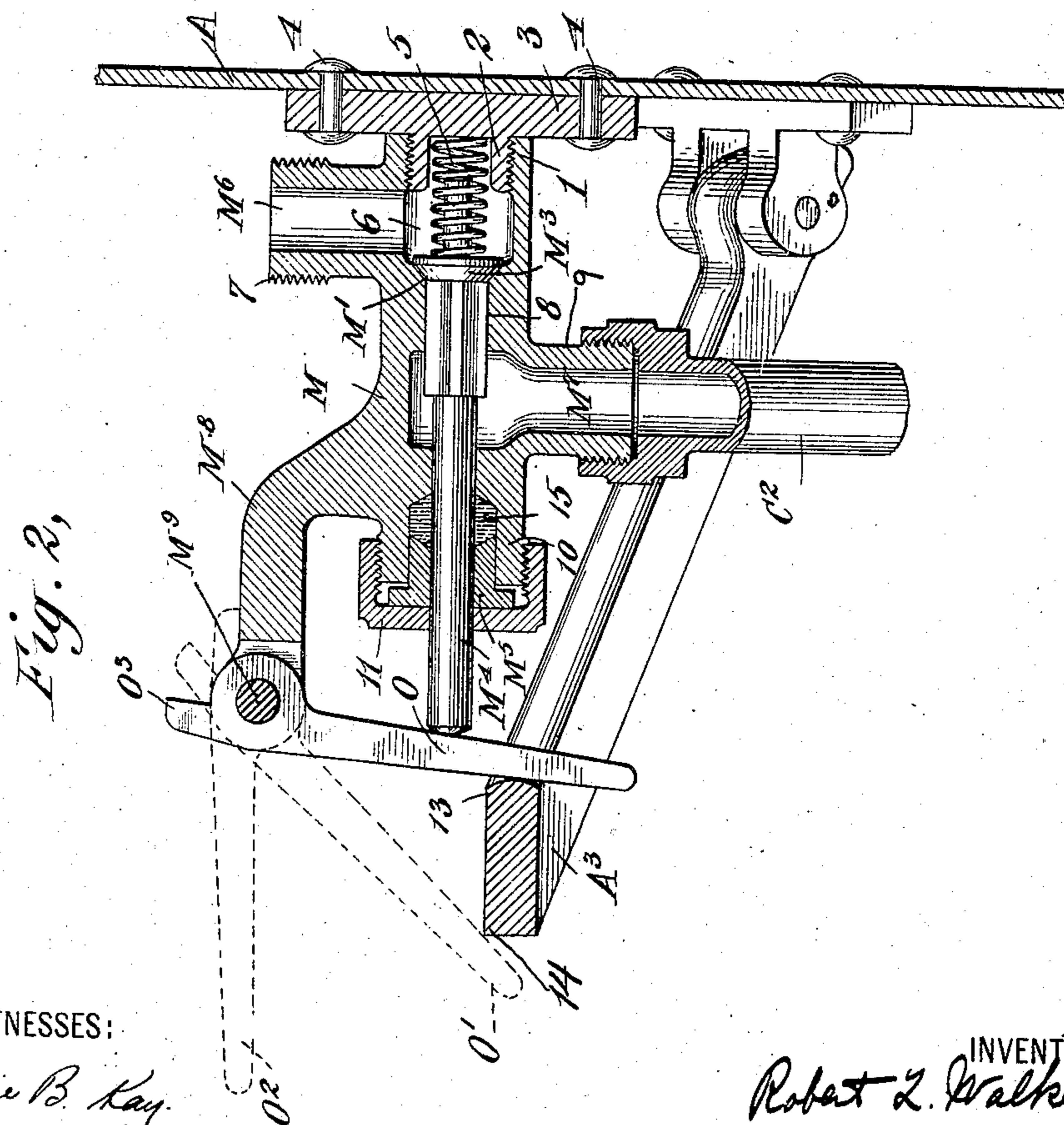
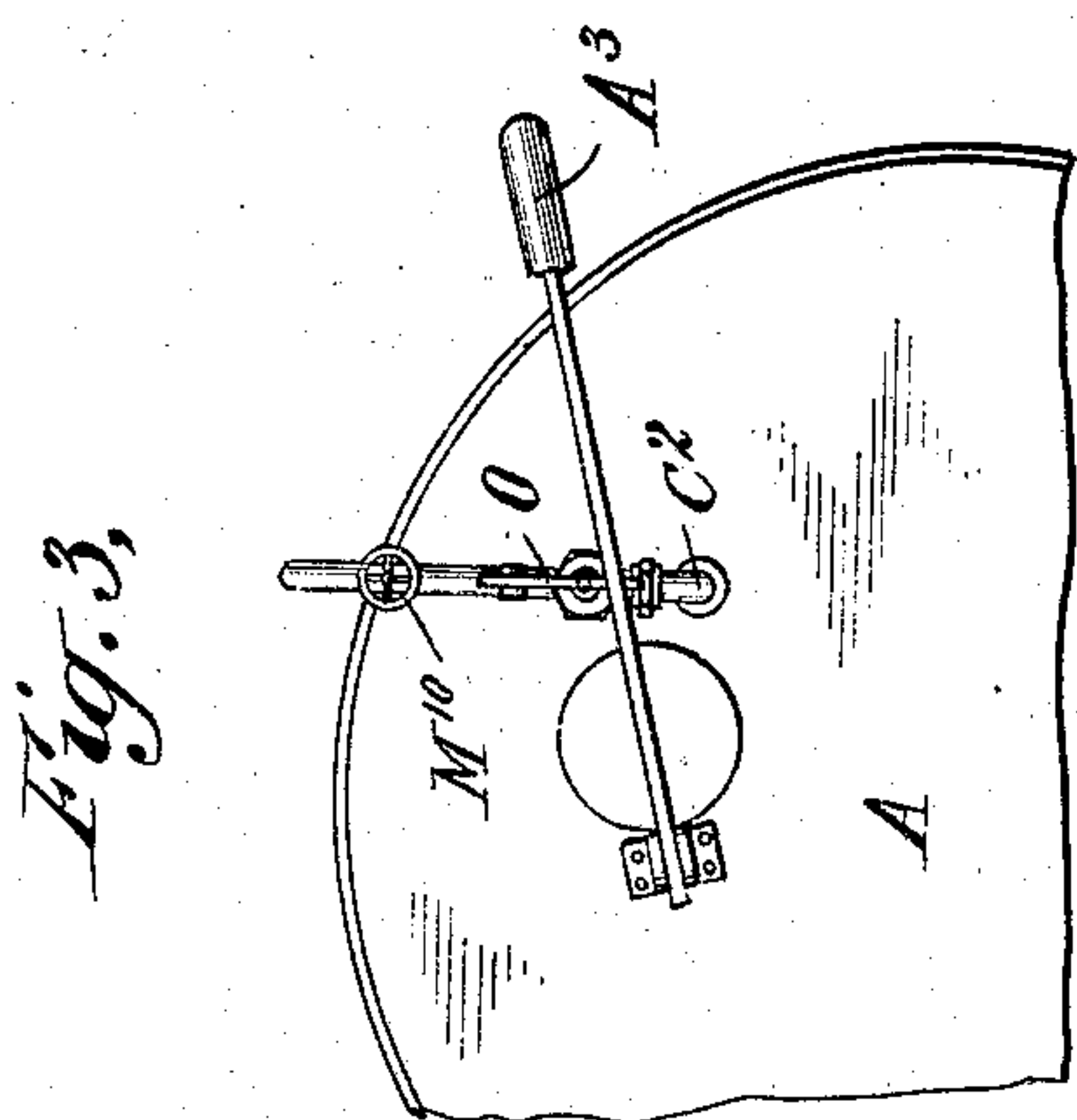
No. 858,690.

PATENTED JULY 2, 1907.

R. L. WALKER.
BLAST DEVICE.

APPLICATION FILED JUNE 8, 1906.

2 SHEETS--SHEET 2.



WITNESSES:

Jessie B. Kay.
Josephine A. Greene

INVENTOR
Robert Z. Walker

BY
Duncan Duncan
ATTORNEYS

UNITED STATES PATENT OFFICE.

ROBERT L. WALKER, OF NEW YORK, N. Y., ASSIGNOR, BY MESNE ASSIGNMENTS, TO MALCOLM GREEN, OF BOSTON, MASSACHUSETTS, AND JAMES N. CATLOW, OF NEW YORK, N. Y., TRUSTEES.

BLAST DEVICE.

No. 858,690.

Specification of Letters Patent.

Patented July 2, 1907.

Original application filed January 14, 1902, Serial No. 89,647. Divided and this application filed June 8, 1906. Serial No. 320,689.

To all whom it may concern:

Be it known that I, ROBERT L. WALKER, a citizen of the United States, and a resident of New York city, borough of Brooklyn, county of Kings, and State of New York, have invented certain new and useful Improvements in Blast Devices, of which the following is a specification, taken in connection with the annexed drawings, forming a part of the same.

This invention relates to smoke consuming locomotives, and particularly to the blast devices in the locomotive to insure at all times the proper amount of air being supplied to the fire box, and is a division of my application Serial No. 89,647, filed January 14, 1902, for smoke consuming furnaces, patented May 22, 1906, No. 821,268.

In the accompanying drawings showing illustrative embodiments of this invention, and in which the same reference numerals refer to similar parts of the several figures, Figure 1 is a side elevation, partly in section, of a locomotive boiler. Fig. 2 is a vertical sectional view through the blast valve. Fig. 3 is an end elevation of the locomotive boiler showing the blast device and throttle in position.

In the illustrative embodiment of this invention shown in the drawings, A is a locomotive boiler having the steam dome, D, smoke stack B and exhaust nozzle C, located beneath the smoke stack, and X designates certain pipe and damper mechanism fully described and claimed in my patent previously referred to and which forms no part of the present invention.

In order to insure at all times a sufficient draft through the bed of fuel in the firebox, it is desirable that when the engine is not being operated there shall be an induced draft maintained to insure a proper pressure of air and to prevent the production of smoke when fresh coal has been added to the fire. In order to accomplish this result automatically, I have the engineer open a connection from the boiler, permitting the steam to flow therefrom to the smoke stack, when he operates the throttle lever to stop the engine. I preferably accomplish this result by using a blast pipe C—2 passing through the boiler and having its forward end C' located within the exhaust nozzle C. On the rear of the boiler, within the locomotive cab and located adjacent to the throttle lever of the engine, I secure to the boiler A (see Fig. 2) a plate 3 by means of rivets 4—4 or other suitable fastening means. This plate has a hollow exteriorly threaded boss 2 upon which is screwed the interiorly threaded nipple 1 of the blast valve cylinder M. This valve cylinder consists of a hollow casing having a chamber 6 in communication with the passage M—6 of the threaded nipple 7. One end of the chamber 6 is reduced to form a seat M' for the valve M—3 which may be moved inward to its seat by a spring 5

located within the chamber 6 and the hollow boss 2 of the plate 3, although this is not necessary, as the valve may be held to its seat merely by means of the steam pressure in the boiler. A longitudinal passage 8 connects the chamber 6 with the passage M—7 which extends through the depending screw threaded nipple 9. Mounted within the passage 8 and guided by the same, is a valve rod M—4 which passes through a suitable packing 15 and bushing M—5 held within the threaded nipple 10 by means of the apertured threaded cap 11. This rod M—4 at one end contacts normally with the latch O, having a foot piece O—3, and at its other end carries the valve M—3. This latch is pivoted upon the pivot M—9, on the upwardly projecting arm M—8 of the blast valve cylinder M, permitting the lower end of the latch to normally rest in the path of the throttle lever A—3. The nipple 7 of the cylinder M is connected to the pipe M—11, which at its other end is in communication with the interior of the boiler, Fig. 1. The depending nipple 9 is connected to the blast pipe C—2, which extends, as previously noted, from the cylinder M through the boiler to the interior of the exhaust nozzle C. It will be readily seen that when the valve M—3 is moved from its seat M', steam from the boiler will pass through the pipe M—11, passage M—6 chambers 6, 8 and M—7, blast pipe C—2, to the exhaust nozzle C and thence up the stack B, producing an induced draft through the bed of fuel upon the grate, not shown, of the locomotive.

Under normal running conditions, it is not necessary or desirable to permit steam to pass from the boiler through the blast pipe C—2, as sufficient air is supplied to the fuel bed by the exhaust steam of the locomotive passing from the steam cylinders up through the exhaust nozzle C in the well-known manner. When, however, the locomotive is stopped at a station, there is no exhaust steam from the steam cylinders passing up through the exhaust nozzle C and consequently, the draft upon the bed of fuel is materially lessened.

By my invention, the engineer in shutting off the steam from his operating cylinders by means of the throttle lever A—3, automatically causes the throttle A—3 to engage with the latch O which in turn presses upon the rod M—4, forcing the valve M—3 from its seat M' against the action of the spring 5, and the steam pressure, permitting the steam from the boiler to pass directly to the exhaust nozzle C by means of the blast pipe C—2, thus insuring a proper induced draft which may be regulated by valve M—10 controlling the amount of steam passing from the boiler to the stack. Although for some purposes it is desirable to always have the engineer automatically throw on the induced draft when he stops his locomotive, I arrange my latch

O so that the blast valve if desired will not be operated at the next movement of the throttle lever A—3 to stop the train. This I accomplish by pivoting the latch O above the throttle lever so that it can be drawn
 5 out into the position shown in dotted lines and designated O'. At no time can the latch O be lifted above the other position shown in dotted lines and designated O—2, on account of the foot O—3 engaging with the bracket M—8. By this arrangement when the
 10 latch O is withdrawn from operative relation with rod M—4, so that it is in the position shown by dotted lines designated O' and engaging with the surface 14 of the throttle lever A—3, the throttle lever can be operated without affecting the rod M—4, which controls
 15 the valve M—3. It is to be noted, however, that at the next outward movement of the throttle lever A—3, to start the locomotive, the surface 14 (Fig. 2) will pass beneath the end of the latch O, when the latch will immediately swing upon its pivot M—9 until it
 20 contacts with the rod M—4. It will then be in an operative position to be engaged by the surface 13, of the throttle lever A—3, causing the induced draft to be brought into operation when the throttle lever is next moved to stop the locomotive.

25 Having thus described this invention in connection with several illustrative embodiments thereof, to the details of which I do not desire to be limited, what is claimed as new and what it is desired to secure by Letters Patent is set forth in the appended claims.

30 1. In a locomotive furnace, a blast pipe, an automatic blast valve adapted to automatically engage a seat to close said valve, a pivoted latch, the stem of said valve lying in the path of the pivoted latch, a throttle lever adapted to automatically actuate the latch, said latch being
 35 manually movable out of the path of the throttle lever.

2. In a locomotive furnace throttle lever, automatic means coöperating with the throttle lever to cause an induced draft in said furnace, said means being adapted to be thrown into an inoperative position.

40 3. In a locomotive furnace, an induced draft mechanism including a valve and a pivoted latch adapted to control the same, a throttle lever to automatically operate the latch, said latch being adapted to be removed bodily into an inoperative position in relation to the throttle
 45 lever.

4. In a locomotive furnace, means for producing an induced draft including a valve and a movable member adapted to control the same, a throttle lever adapted to actuate the movable member, means for regulating the
 50 amount of induced draft, said movable member being

adapted to be moved bodily out of operative relation to the throttle lever.

5. In a locomotive furnace having an induced draft mechanism, a blast valve cylinder comprising a hollow body portion and a plurality of nipples, an upwardly extended arm, a latch pivoted upon the same and adapted to actuate the valve, a valve and rod mounted within the cylinder and controlling the passage between two of the nipples, means for supporting the cylinder in operative relation to the throttle lever, the throttle lever adapted to actuate the latch and connections from the cylinder to the boiler and stack.

6. In a locomotive furnace, a plate secured to the furnace and having a hollow threaded nipple, a blast valve cylinder comprising a hollow body portion having a plurality of hollow nipples, one of which coöperates with the hollow nipple upon the plate to support the cylinder in position, a valve and stem controlling the passage between two other nipples, the stem passing through another nipple, a suitable packing for the rod in this nipple, an upwardly extending arm, a latch pivoted to the same and normally adapted to contact with the end of the valve stem and steam connections from the boiler to one of the nipples and from one of the other nipples to the smoke stack.

7. In a locomotive furnace, means for producing an induced draft including a valve a pivoted latch to control the same and having a foot adapted to limit the movement upon its pivot, and a throttle lever adapted to coöperate with the latch.

8. In a locomotive furnace, a blast valve cylinder connected with the boiler and the smoke stack, a valve and rod within the cylinder, a throttle lever and means between the rod and throttle lever adapted to normally actuate the valve when the throttle lever is thrown in one position but which is adapted to be temporarily moved bodily into an inoperative position with relation to the rod and the throttle lever.

9. In a locomotive furnace, means to produce an induced draft automatically when the locomotive is stopped, a part of said induced draft mechanism being adapted to be thrown temporarily into an inoperative position with relation to the throttle lever but which automatically returns to its operative position when the throttle lever is next moved to start the locomotive.

10. In a locomotive furnace, a throttle lever, automatic means coöperating with the throttle lever to cause an induced draft from said furnace said means having two positions, a normal operative one and an inoperative one, said means when in its inoperative position being adapted to automatically move into its operative position upon the next movement of the throttle lever to start the locomotive.

ROBERT L. WALKER.

Witnesses:

JOHN L. BROWN,
MALCOLM GREEN.