

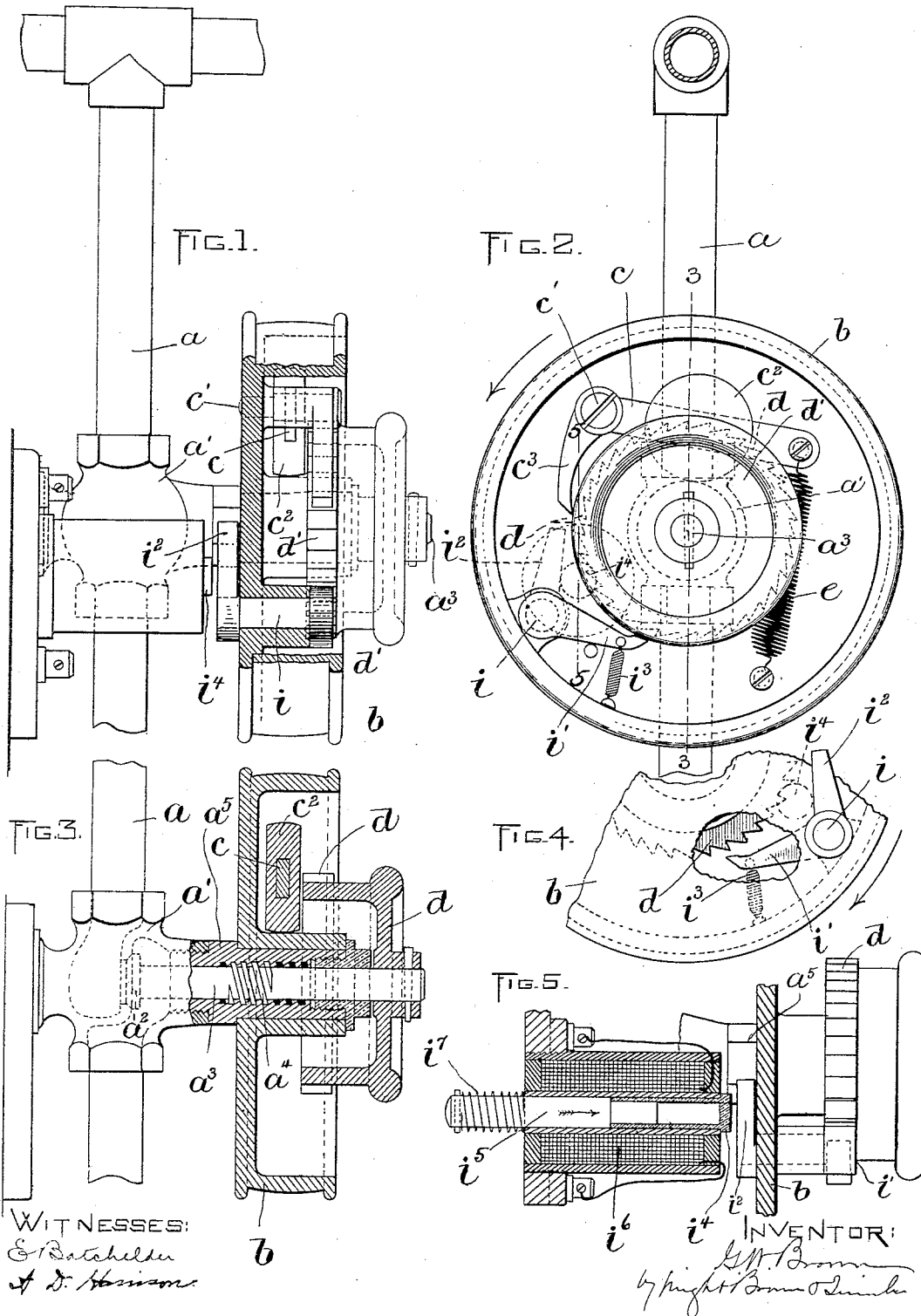
(No Model.)

2 Sheets—Sheet 1.

G. W. BROWN.
APPARATUS FOR STOPPING ENGINES.

No. 576,514.

Patented Feb. 2, 1897.



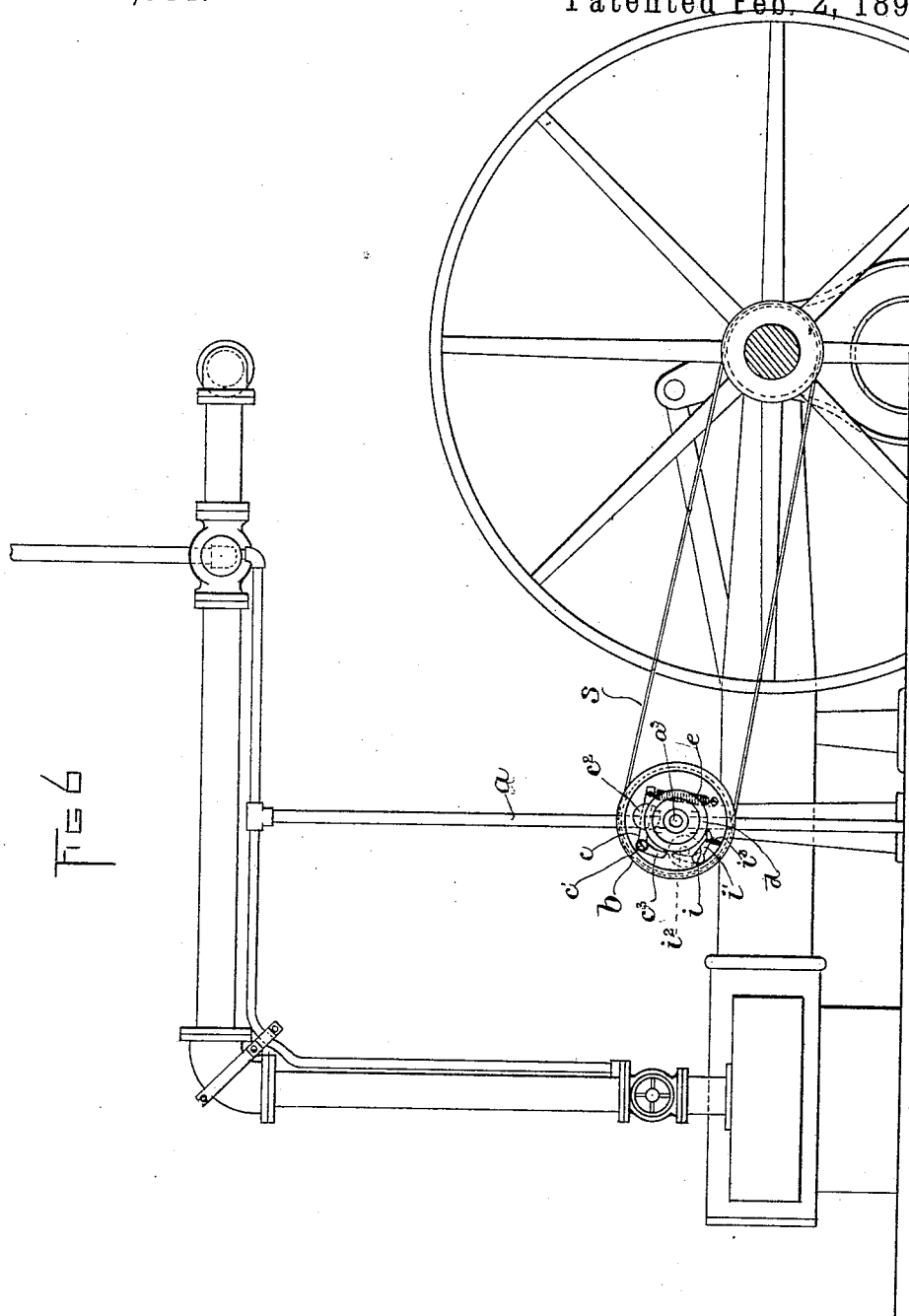
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WITNESSES:

E. Batchelder
A. D. Harrison.

INVENTOR:

G. W. Brown
by Wright, Brown & Quincy
Attys.

UNITED STATES PATENT OFFICE.

GILMAN W. BROWN, OF WEST NEWBURY, MASSACHUSETTS, ASSIGNOR, BY
MESNE ASSIGNMENTS, TO THE ELECTRO STEAM APPLIANCE COMPANY,
OF NEW JERSEY.

APPARATUS FOR STOPPING ENGINES.

SPECIFICATION forming part of Letters Patent No. 576,514, dated February 2, 1897.

Application filed October 4, 1895. Serial No. 564,583. (No model.)

To all whom it may concern:

Be it known that I, GILMAN W. BROWN, of West Newbury, in the county of Essex and State of Massachusetts, have invented certain
5 new and useful Improvements in Apparatus for Stopping Engines, of which the following is a specification.

This invention relates to apparatus of the character described in Letters Patent of the
10 United States No. 544,085, granted to me August 6, 1895, for improvement in apparatus for stopping engines, said apparatus including a casing adapted to form a part of the
15 steam-conduit which supplies the engine and provided with a steam-outlet and with a cylinder having a vent, an outlet-closing valve within the casing adapted to be held in its closed position by the steam-pressure, a valve-
20 operating piston in said cylinder and connected with the outlet-valve, a vent-controlling valve adapted to close said vent, and means for opening said vent-controlling valve
25 to permit the escape of steam from the cylinder at one side of the valve-operating piston, so that steam-pressure in said casing may displace the piston and thus at the same time
30 close the steam-conduit, shutting off the steam from the engine and opening the steam-outlet to the atmosphere.

In my above-mentioned patent I show as the means for opening the vent-controlling
35 valve a weight adapted to be set for action and to open said valve when released and a let-off mechanism for releasing said weight.

My present invention has for its object to enable the vent-valve to be opened directly
40 by the power of the engine without the employment of an actuating-weight; and to this end the invention consists in the improvements which I will now proceed to describe and claim.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents
45 a side elevation of a portion of the vent-pipe and the vent-controlling valve, together with vent-operating mechanism embodying my present invention, portions of the vent-operating mechanism being shown in section.
50 Fig. 2 represents an elevation of the construction shown in Fig. 1 from a different

point of view. Fig. 3 represents a section on line 3 3 of Fig. 2. Fig. 4 represents an elevation showing parts of the mechanism. Fig. 5 represents a section on line 5 5 of Fig. 2. Fig. 6 represents a side elevation of an engine
55 provided with my improvement.

The same letters of reference indicate the same parts in all the figures.

In the drawings, *a* represents the vent-tube, which communicates with the cylinder con-
60 taining the valve-operating piston described in my above-mentioned patent.

a' represents the casing of the vent-controlling valve connected with said vent-tube.

a², Fig. 3, represents the valve, which is
65 adapted to open and close said vent-tube, and *a³* represents the stem of said valve, said stem being provided with a screw-thread *a⁴*, engaging an internal thread in the bonnet *a⁵* of the valve, so that when said stem is rotated
70 the valve will be moved toward or from its seat, as the case may be, this being a common globe-valve of well-known construction. The opening of the valve causes a release of
75 steam-pressure at one side of the valve-operating piston, so that the steam-pressure moves the piston and stops the engine, as fully described in my above-mentioned patent, to which reference may be had.

b represents a rotary actuator, which is
80 here shown as a pulley, the hub of which is mounted to rotate upon a bearing formed upon the valve-bonnet *a⁵*.

The actuator *b* may receive motion from a
85 suitable part of the engine, such as the main shaft, through a belt *s*, running from said shaft upon the periphery of the actuating device or pulley *b* or through any other suitable means.

c represents an arm pivoted at *c'* to the ac-
90 tuator *b* and provided with a weight *c²* and with a pawl *c³*.

d represents a ratchet formed on the flange of a disk or hand-wheel *d'*, which is affixed to the valve-stem *a³*, said ratchet being formed to
95 engage the pawl *c³* under the conditions hereinafter described. The pawl *c³* is normally held out of engagement with the ratchet by means of a spring *e*, connected at one end with the actuator *b* and at the other end with the
100

weighted arm *c*. The force of the spring *e* is sufficient to hold the pawl *c*³ out of engagement with the ratchet *d*, as shown in Fig. 2, when the actuator *d* is rotating at its normal 5 or at a safe rate of speed, the arrangement being such, however, that when the speed of the actuator *b* is increased beyond a predetermined rate the arm *c* will be displaced by centrifugal force against the force of the spring 10 *e*, and will therefore engage the pawl *c*³ with the ratchet *d*, the result being the rotation of the valve-stem, the opening of the valve, and the stoppage of the engine.

My improvements also include means for 15 connecting the rotary actuator *b* with the valve-stem by means under control of attendants or workmen, so that the engine can be stopped whenever occasion requires, said means being preferably electrically controlled 20 and comprising, first, a stud or shaft *i*, journaled in a bearing in the rotary actuator *b* and extending through the same, a pawl *i*¹, secured to one end of said stud at one side of said actuator, and an arm *i*², secured to the 25 other end of the stud at the other side of the actuator. The pawl *i*¹ is arranged so that it may be moved into engagement with the ratchet *d*, and is normally held out of engagement with said ratchet by any suitable 30 means, such as a spring *i*³. *i*⁴ represents a stop or detent which is movable into and out of the path through which the arm *i*² revolves, said stop acting when projected into said path to bear against one side of the arm *i*², as indicated in dotted lines in Figs. 2 and 4, and 35 thus turn the stud *i* so as to move the pawl *i*¹ into engagement with the ratchet. The stop *i*⁴ is here shown as secured to the iron core *i*⁵ of a solenoid, of which *i*⁶ is the coil or helix. 40 Said coil is connected in the usual manner with an electric circuit, and when energized by the closure of the circuit moves the core in the direction indicated by the arrow marked thereon, thus projecting the stop *i*⁴ into the 45 path of the arm *i*² and causing the opening of the vent-controlling valve. When the coil *i*⁶ is demagnetized, the core *i*⁵ is released and is retracted from the path of the arm *i*² by means of a light spring *i*⁷.

50 The coil *i*⁶ may be included in an electric circuit which extends to various parts of the establishment where the engine is used, and may be provided with circuit-closing devices or push-buttons at various points.

55 It will be seen that the weighted arm *c* and the pawl *c*³ affixed thereto constitute a coupling or transmitting device normally in position to make the actuator inoperative and connects the actuator with the valve when 60 the speed of the engine exceeds a predetermined rate. I believe it to be broadly new

to open a vent-controlling valve by means of an actuator driven by the power of the engine and provided with an automatic coupling or transmitting device which acts only 65 when the speed of the engine increases above a predetermined rate. I do not therefore confine myself to the details of mechanism in which my invention is here shown as embodied, as said details may be variously modified without departing from the spirit of the 70 invention.

I claim—

1. In an apparatus of the character described, the combination with a vent-controlling 75 valve, of an actuator moved by the power of the engine, and a coupling device or clutch member actuated by the power of the engine to connect the actuator with the valve for the purpose described. 80

2. In an apparatus of the character described, the combination with a vent-controlling valve and a ratchet affixed to the stem 85 of said valve, of a rotary actuator driven by the power of the engine and carrying a pawl normally out of engagement with said ratchet, said pawl adapted to be moved into engagement therewith by the power of the engine through centrifugal force substantially as described. 90

3. In an apparatus of the character described, the combination with a valve-casing, and a vent-controlling valve therein having a screw-threaded stem in engagement with a screw-threaded bore in the casing; of a 95 ratchet-wheel affixed on said stem, a pulley loosely mounted on the casing surrounding the stem and adapted to be driven by the power of the engine, and a weighted ratchet carried by said pulley and adapted to be 100 thrown into engagement with the ratchet-wheel by centrifugal force, substantially in the manner and for the purpose described.

4. An apparatus of the character described comprising a vent-controlling valve, an actuator therefor moved by the power of the engine, two independent coupling devices or 105 clutch members, one adapted to be operated by the power of the engine to automatically connect the actuator with the valve, and manually-controlled means for operating the other 110 clutch member to connect the actuator with the valve at the will of an attendant, substantially as described.

In testimony whereof I have signed my 115 name to this specification, in the presence of two subscribing witnesses, this 19th day of September, A. D. 1895.

GILMAN W. BROWN.

Witnesses:

C. F. BROWN,

A. D. HARRISON.