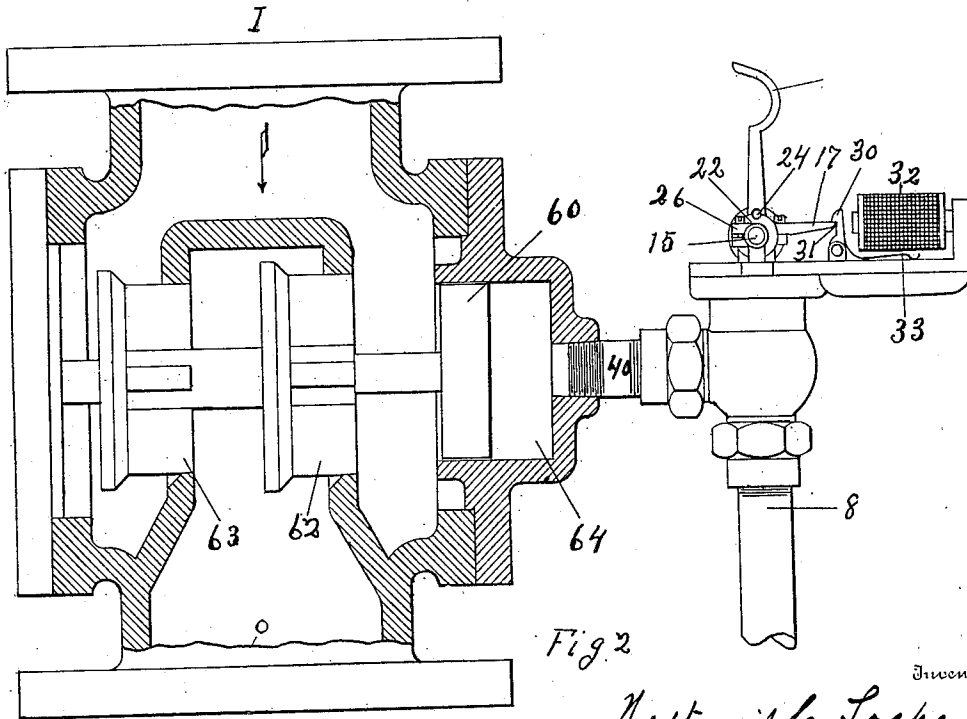
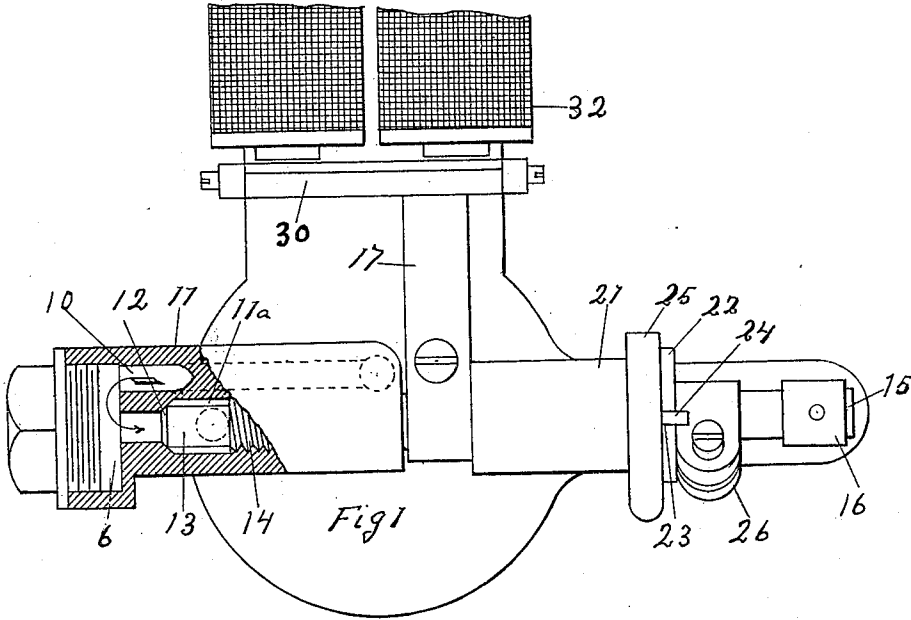


No. 812,279.

PATENTED FEB. 13, 1906.

N. C. LOCKE.
AUTOMATIC ENGINE STOP.
APPLICATION FILED APR. 10, 1905.

2 SHEETS—SHEET 1.



Witness
E. A. Allen.
J. M. Loring.

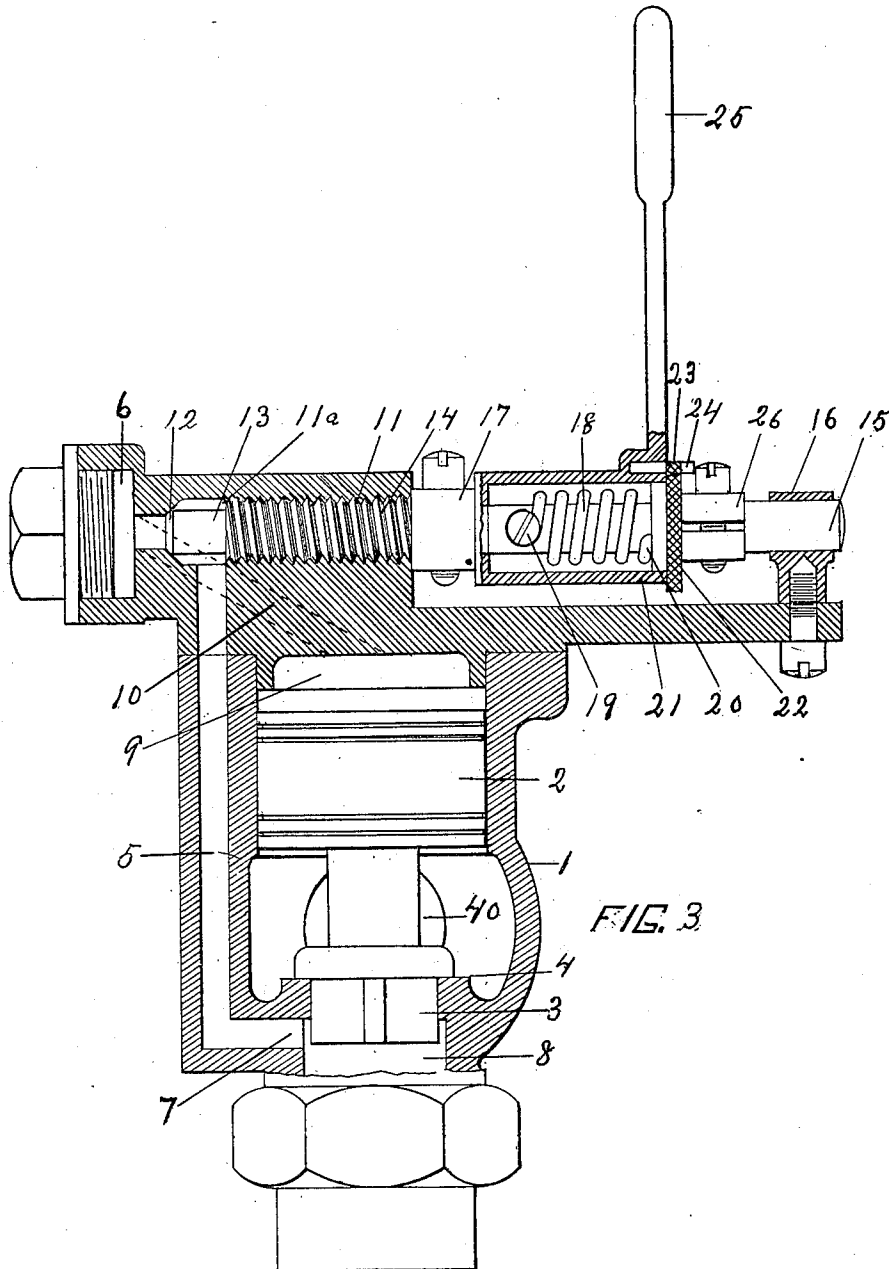
Inventor
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by Edward S. Beach
Attorney

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2 SHEETS—SHEET 2.



Inventor
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Witness

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UNITED STATES PATENT OFFICE.

NATHANIEL CHASE LOCKE, OF SALEM, MASSACHUSETTS, ASSIGNOR TO
LOCKE REGULATOR COMPANY, OF KITTERY, MAINE, A CORPORATION
OF MAINE.

AUTOMATIC ENGINE-STOP.

No. 812,279.

Specification of Letters Patent.

Patented Feb. 13, 1906.

Application filed April 10, 1905. Serial No. 254,735.

To all whom it may concern:

Be it known that I, NATHANIEL CHASE LOCKE, a citizen of the United States, residing at Salem, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Automatic Engine-Stops, of which the following is a specification, reference being had therein to the accompanying drawings.

10 The object of my invention is to produce an improved automatic engine-stop in which an electrically-operated auxiliary valve controls the action of the main shut-off valve by which steam is cut off from the engine by
15 closing an electric circuit.

In the drawings, Figure 1 is a top plan view of my new automatic engine-stop, a part being broken away for greater clearness. Fig. 2 is a view, partially in section and partially
20 in elevation, showing the main and auxiliary valves in combination; and Fig. 3 is a vertical sectional view of a part of my new engine-stop at line 3 3 of Fig. 1.

In the drawings, 1 is a valve-casing containing a piston-tube connected with a puppet 3, which seats on valve-seat 4. Casing 1 contains a steam-exhaust from chamber 6 to a point 7 below valve-seat 4, where it communicates with a steam-outlet passage 8, which
30 may lead to an exhaust-pipe or any suitable draining apparatus.

On the side of piston 2 opposite puppet 3 there is a live-steam chamber 9, the steam passing between the opposed walls of cylinder 2 and casing 1. For this purpose piston 2 is slightly loose in the casing, so as to allow live steam to readily pass it. From chamber 9 an exhaust-steam passage 10 leads to chamber 6, which is formed in the upper part 11 of
40 the engine-stop. Casing 1 is attached to upper part 11, which has a horizontal chamber 11^a, provided with a valve-seat 12 for auxiliary valve 13, which controls at this point the passage 10 into chamber 6. Valve 13 is carried by a quick-screw 14, suitably threaded in chamber 11^a, the screw having a cylindrical extension 15, which is perfectly journaled in a bearing 16, fast to head-piece 11. Extension 15 is provided with a latch 17 and
50 is further provided with a spring 18, one end of which is fast at 19 to the extension 15 and the other end of which is fast at 20 to a disk 22; which is loose on extension 15. Disk 22

has a peripheral notch 23, in which a pin 24 rests, the pin being fast in the spring-barrel 21, which is preferably provided with a handle 25. Extension 15 is provided with an abutment 26, against which pin 24 brings up when the spring-barrel is rocked to unseat the auxiliary valve 13. For this purpose the
60 outer end of pin 24 projects beyond the notch 23. To seat valve 13, the valve-screw 14 and extension 15, which are all in one piece, rock backwardly. During the time the valve 13 is seated the free end of the latch is held
65 down by an armature-catch 30 against the tension of the spring 18. When the latch is released, the force of the spring rocks disk 22 to carry the pin 24 against abutment 26, which is fast on extension 15, and thereby
70 this extension is rocked to unseat the valve.

The top piece 11 carries the armature 30, provided with a catch-shoulder 31, with which the free end of latch 17 engages when there is no current through the magnets 32. At this time the valve is seated and held seated by the cooperation of the latch with the shoulder 31. A light spring 33 holds the armature normally toward the latch and away from the magnets. When a current passes
80 through the magnets, the armature is drawn away from the latch, which is thereby released from shoulder 31, and the valve 13 is unseated, as described. In operation steam enters at inlet 40, passes above piston 2, and fills chamber 9. Whenever valve 13 is electrically operated, spring 18 uncoils, rotating the spring-barrel 21, which carries pin 23. Pin 23 strikes the cam or abutment 26, which is clamped to the extension 15, which forms
90 the auxiliary-valve spindle and which rotates one-fourth of a turn, removing valve 13 from its seat 12 by about one-sixteenth of an inch and exhausting steam from chamber 9 through passage 10, chamber 6, and passage
95 5 to the outlet end of the valve 3. Piston 2 is larger than puppet 3, and consequently the puppet is forced open, allowing steam to pass puppet 3 and pass through the valve-body. This in turn exhausts steam from the top side
100 of the piston 60 of the main shut-off valve 61 and closing the same. This shut-off valve 61 is conveniently in the form of a balanced valve with a cylinder and piston at one end. As one puppet 62 is larger than the other
105 puppet 63, the puppets are forced open by

the steam-pressure through the casing of valve 61, bringing piston 60 near the bottom of the cylinder 64, where it remains until the steam is allowed to escape. This is done by tripping the electric valve, which relieves the pressure from the top side of the piston in the main shut-off valve 61, inclosing the same, to the inlet end of the main shut-off valve 61, as indicated by I and the outlet end thereof by O. The electric valve may be tripped by passing a current through the magnets. The main shut-off valve may be connected in any suitable manner with the electric valve.

My invention may be embodied in various forms other than that shown here without departure from it.

Valve 13 is an electrically-actuated auxiliary valve. Puppet 3 is a pressure-actuated valve that is intermediate the electrically-actuated auxiliary valve 13 and the main shut-off valve 61, and I am the first, so far as known to me, to combine any forms of said three valves to produce an automatic engine-stop.

What I claim is—

1. The combination with a main shut-off valve and its casing, of a cooperating puppet-valve and its casing, an auxiliary valve and its casing, a passage from the inlet end of the puppet-casing extending through the auxiliary-valve casing to the outlet end of the puppet-casing, and means for actuating the auxiliary valve to control the said passage, whereby the main shut-off valve may be controlled.

2. The combination with a main shut-off valve, a puppet-valve, and an auxiliary valve, casings for each valve, a passage connecting the casings, the puppet-valve being located in said passage between the main and auxiliary valves, and means for actuating said auxiliary valve to control said passage and thus control the shut-off valve.

3. The combination with a main shut-off valve, of a puppet-valve and an auxiliary valve, casings for each valve, a passage connecting said casings, the auxiliary valve being located in the passage so as to control the same, and means for actuating said auxiliary valve by imparting thereto a rotary reciprocating motion.

4. The combination with a main shut-off valve, a puppet-valve, an auxiliary valve, casings for said valves, a passage connecting said casings, the auxiliary valve being lo-

cated in said passage so as to control the same, an electric circuit, in which said auxiliary valve is inserted, and means whereby the closing of said circuit will actuate the auxiliary valve to open said passage and actuate the shut-off valve.

5. The combination with a main shut-off valve and its casing, of a puppet-valve and an auxiliary valve, a casing for the two valves last named independent of the main-valve casing, a passage connecting the seats of the puppet and auxiliary valves, a passage connecting the two casings, and means for actuating the auxiliary valve to control the passage between the same and the puppet-valve and thus control the operation of the main shut-off valve.

6. The combination of a piston connected with a puppet; a casing therefor; an automatic auxiliary-valve casing provided with an exhaust-steam chamber; a passage from the top side of the piston to the outlet end of the puppet-casing; and an automatically-actuated valve controlling said passage, said auxiliary valve being formed on a rockable spindle extension formed with a quick-screw and mounted in a threaded socket in the auxiliary-valve casing; a latch fast on said extension; a spring operatively connected with said extension; a movable armature provided with a shoulder to engage said latch; a magnet; and means to hold said armature in engagement with said latch.

7. The combination with a main shut-off valve, of a piston connected with a puppet and casing therefor, a passage connecting the piston-casing with the outlet end of the puppet-casing, and an electrically-actuated auxiliary valve controlling said passage, a casing therefor, said auxiliary valve being formed on a rockable spindle provided with a quick-screw mounted in a threaded bearing in the auxiliary-valve casing; a latch fast on said spindle; a spring operatively connected with said spindle; an armature provided with a shoulder to engage said latch; a magnet; and means to hold said armature in engagement with said latch.

In testimony whereof I affix my signature in presence of two witnesses.

NATHANIEL CHASE LOCKE.

Witnesses:

EDWARD S. BEACH,
E. A. ALLEN.