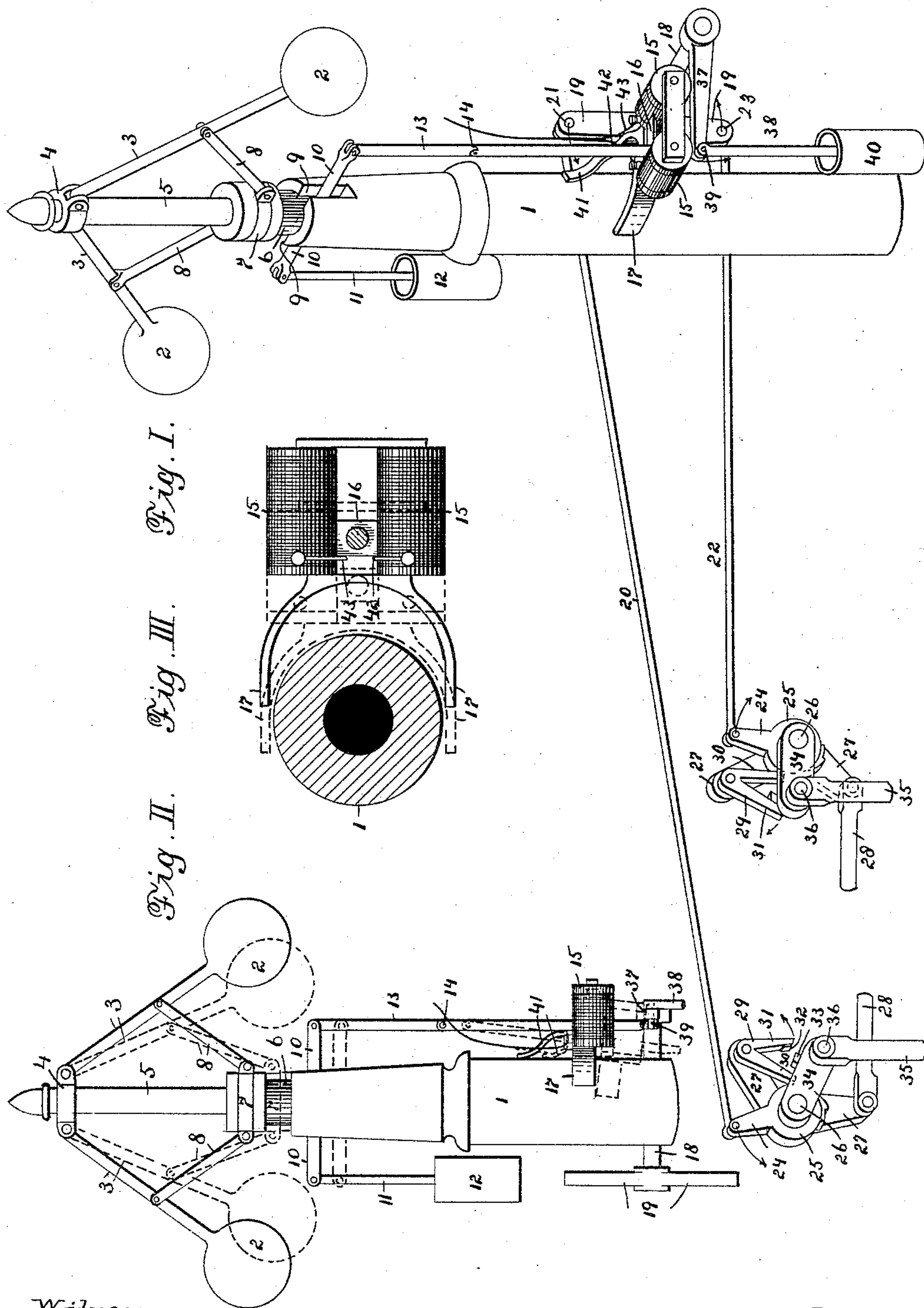


(No Model.)

T. CONROY & L. P. FUHRMAN.
SHUT-OFF DEVICE FOR ENGINES.

No. 442,956.

Patented Dec. 16, 1890.



Witnesses:

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UNITED STATES PATENT OFFICE.

THOMAS CONROY AND LEWIS P. FUHRMAN, OF KANSAS CITY, MISSOURI,
ASSIGNORS OF ONE-THIRD TO ALBERT W. DOLD, OF SAME PLACE.

SHUT-OFF DEVICE FOR ENGINES.

SPECIFICATION forming part of Letters Patent No. 442,956, dated December 16, 1890.

Application filed May 21, 1890. Serial No. 352,618. (No model.)

To all whom it may concern:

Be it known that we, THOMAS CONROY and LEWIS P. FUHRMAN, both of Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in a Shut-Off Device for Engines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

Our invention relates to a device whereby the steam may be shut off from an engine at a point removed from the engine; and our invention consists in features of novelty hereinafter described, and pointed out in the claims.

Figure I is a perspective of our improved device. Fig. II is a front elevation. Fig. III is an enlarged detail showing the magnet.

Referring to the drawings, 1 represents the ordinary governor-standard, and 2 the governor-balls, which are connected by arms 3 with an upper collar 4, journaled on a central post 5.

6 represents a vertically-adjustable sleeve surrounding the post 5. At the upper end of the sleeve is journaled a collar 7.

8 represents pivoted arms connecting the collar 7 with the arms 3. The standard 1 is provided with slots 9, which permit bar 10, which is secured to the sleeve 6, to move in a vertical direction with said sleeve as it is moved either up or down by the action of the governor.

To one end of the bar 10 is secured a piston-rod 11, which may be connected at its lower end to a piston working in a dash-pot 12. On the opposite end of the bar 10 is pivoted a rod 13, said rod having a hinged joint at 14.

15 represents a magnet, said magnet being supported by the rod 13, which passes through a plate 16, secured to the magnet. On the inner end of the magnet is a bifurcated arm 17 for engaging the governor-standard 1.

18 represents a shaft, on one end of which is secured a double-ended lever 19.

20 represents a rod pivoted at 21 to the upper end of the lever 19, and 22 represents a rod pivoted at 23 to the lower end of the lever 19. The rods 20 22 connect the lever 19 with

the well-known device used in the Corliss type of engines for admitting and cutting off the supply of steam, the same being represented as follows: The rods 20 22 are connected to arms 24 of cams 25, said cams being loosely journaled on shafts 26.

27 represents bell-crank levers loosely journaled on the shafts 26, the lower ends of the levers 27 having rods 28 pivoted thereto, said rods being suitably connected with the operating mechanism of the engine, whereby the bell-crank levers 27 are rocked on the shafts 26.

29 represents V-shaped pendants pivoted to the upper ends of the bell-crank levers 27, said pendants having arms 30 31.

As the upper ends of the bell-crank levers 27 rock forward, lugs 32 on the arms 31 will engage lugs 33 on arms or links 34, said arms 34 being pivoted at their inner ends to the shafts 26. Then as the upper ends of the levers 27 rock backward the arms 31 will be raised, and the lugs 32, lifting on the lugs 33, will raise the arms 34, and at the same time raise rods 35, which are pivoted to the arms 34 at 36, and thus open the steam-admission valves. The lugs are so formed that when they have raised the rods 35 to a certain extent the lugs will slip out of engagement and let the arms 34 and rods 35 drop, and thus again close the valves. The distance to which the valves may be opened is controlled by the cams 25, which engage the arms 30 of the pendants 29, the cams, according to the position they are in, causing the pendants to oscillate, and thus causing the lugs 32 to leave the lugs 33 at an earlier or later period, the cams of course being controlled by the governor in the manner described.

37 represents a lever on the opposite end of the shaft 18 from the lever 19.

38 represents a rod pivoted at its upper end to the inner end of the lever 37 by a pin 39. To the lower end of the rod 37 may be secured a piston working in a dash-pot 40. The lower end of the rod 13 fits loosely on the pin 39 on the inner side of the lever 27.

41 represents a spring secured to the rod 13, said spring causing the rod 13 to remain on the pin 39 while the engine is in operation.

42 43 represent the wires connected to the

binding-posts of the magnet. Said wires may be extended throughout a building or a series of buildings in which machinery is being operated by the engine.

5 In case of accident at a point remote from the engine it is very essential at times to stop the engine at once and not lose the time necessary to communicate with the engineer. When it is desired to stop the engine, all that
10 is necessary to do is to complete the circuit of the wires by a push-button or by other well-known means. As soon as the circuit is completed the magnet 15 will be attracted to the metal standard 1 and the rod 13 will be dis-
15 engaged from the pin 39, (see dotted lines Fig. II,) thus releasing the lever 37, permitting the inner end of the same to fall, and thus operating the lever 19 and rods 20 22, causing the cams 25 to rotate in the direction
20 shown by arrows, throwing the lugs 32 out of the path of the lugs 33, and thus cease to operate the valves which admit the steam.

We claim as our invention—

1. In a steam-shut-off device, the combina-
25 tion of a governor-rod connected with the governor and a valve-controlling device, and a magnet connected with the rod for moving the same and releasing the valve-controlling device, substantially as described, and for the
30 purpose set forth.

2. In a steam-shut-off device, the combina-
tion of the standard 1, governor supported by the standard, sleeve 6, connected with the gov-
35 ernor, bar 10, secured to the sleeve, hinged rod 13, pivoted to the bar 10, shaft 18, levers 19 37 on the shaft, rod 13, engaging pin 39 on the lever 37, and a magnet for disengaging the rod 13 from the pin 39, substantially as de-
scribed, and for the purpose set forth.

40 3. In a steam-shut-off device, the combina-
tion of the slotted standard 1, bar 10, rod 13, pivoted to the bar 10, means for connecting the rod 13 with a valve-controlling mechanism, magnet 15, connected with the rod 13,
45 piston-rod 11, connected with the bar 10, and a dash-pot 12, in which the piston-rod 11 works, substantially as described, and for the purpose set forth.

4. In a steam-shut-off device, the combina-
tion of the standard 1, sleeve 6, rod 13, hav- 50
ing connection with the sleeve 6 and valve-controlling lever 37, magnet on the rod 13, and a spring for holding the rod 13 in en-
gagement with the lever 37, substantially as described, and for the purpose set forth. 55

5. In a steam-shut-off device, the combina-
tion of a governor, rod 13, secured to the gov-
ernor, magnet on the rod, shaft 18, levers 19
37, secured to the shaft 18, pin 39 on the le-
ver 37, with which the rod 13 engages, rod 38, 60
pivoted to the lever 37, and dash-pot 40, in which the rod 38 works, substantially as de-
scribed, and for the purpose set forth.

6. In a steam-shut-off device, the combina-
tion of standard 1, a governor, rod 13, con- 65
nected with the governor, magnet secured to the rod, bifurcated arm 17 on the magnet, lever 37 for controlling a valve-operating de-
vice, pin 39 on said lever, to which the rod 13
is pivoted, and means for closing the circuit 70
of the magnet and causing the bifurcated arm 17 to engage the standard 1 and causing the rod 13 to release the lever 37, substan-
tially as described, and for the purpose set forth. 75

7. In a steam-shut-off device, the combina-
tion of the shaft 18, levers 19 37 on the shaft,
rod 13, controlling the lever 37, magnet on the
rod 13, means for closing the circuit of said
magnet, rods 20 22, pivoted to the lever 19, 80
cams 25, having arms 24, to which the rods 20 22 are pivoted, bell-crank levers 27, means
for rocking the same, V-shaped pendants 29,
pivoted to the upper ends of the levers 27,
arms 34, valve-operating rods 35, pivoted to 85
the arms 34, lugs 33 on the arms 34, and lugs 32 on the pendants 29 for engaging the lugs 33, the contact of said lugs being governed
by the cams 25 coming in contact with the
pendants 29, substantially as described, and 90
for the purpose set forth.

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