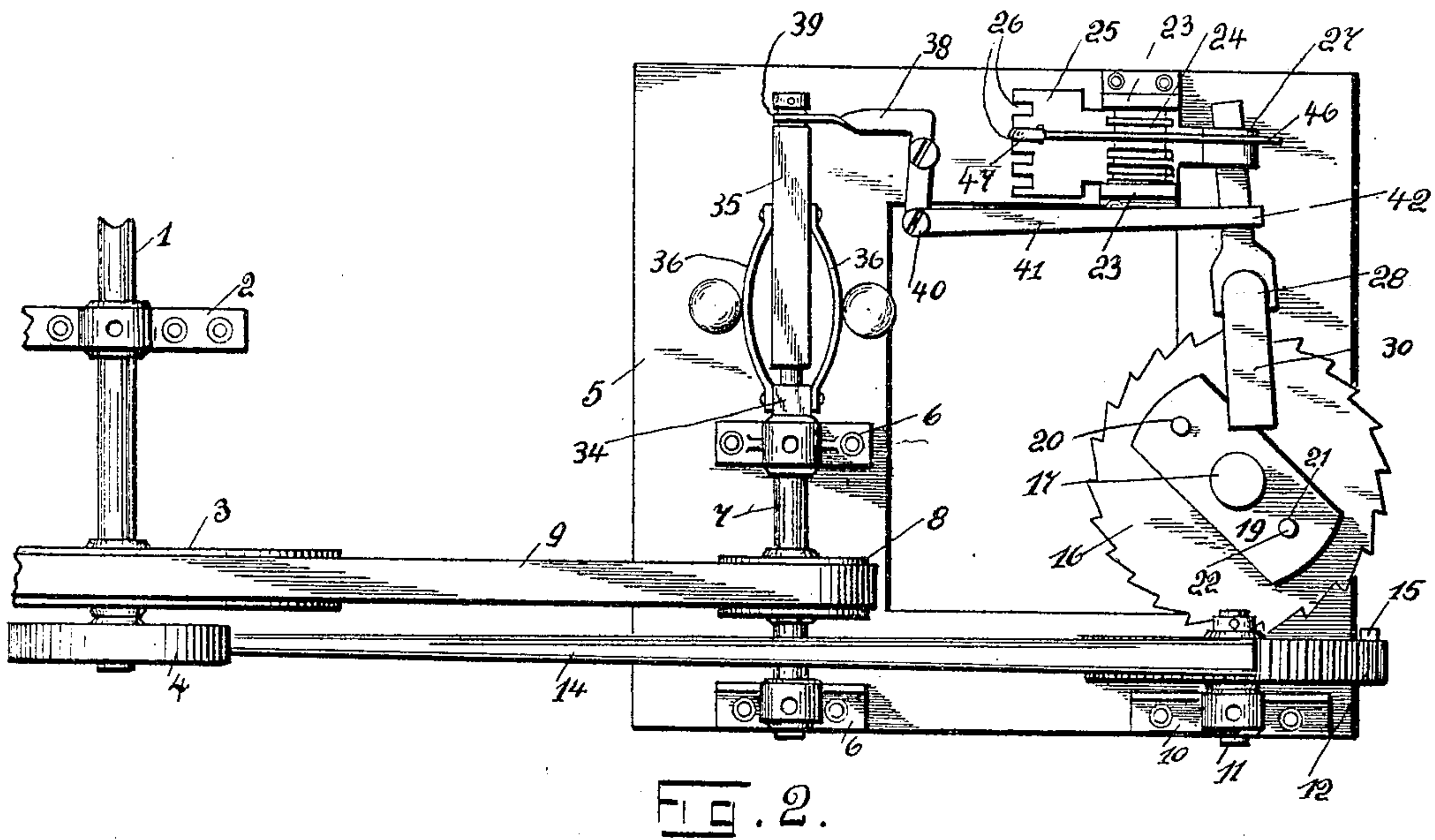
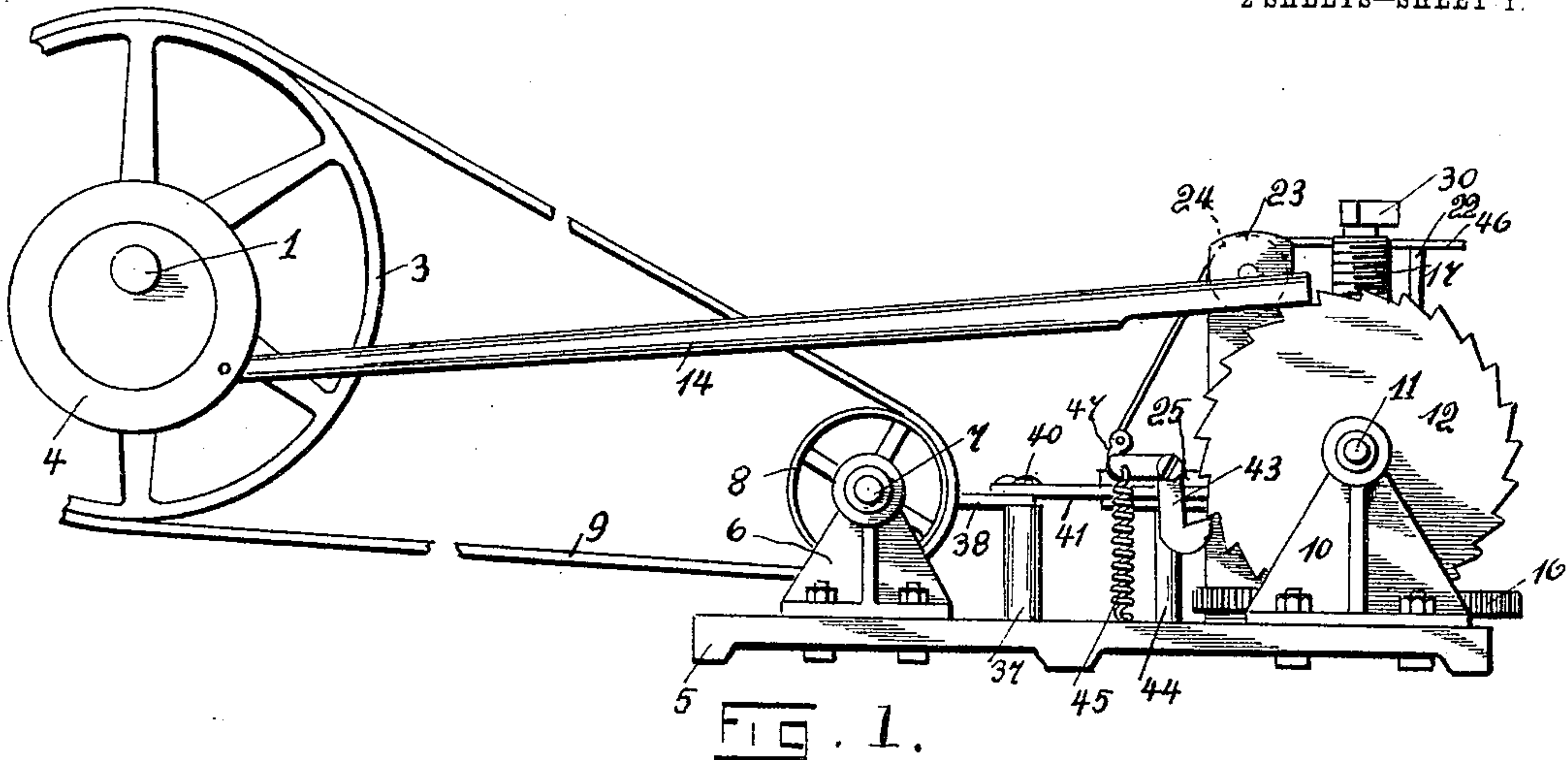


No. 795,554.

PATENTED JULY 25, 1905.

N. T. SHORTS.  
DEVICE FOR CONTROLLING ENGINES.  
APPLICATION FILED JAN. 19, 1905.

2 SHEETS—SHEET 1.



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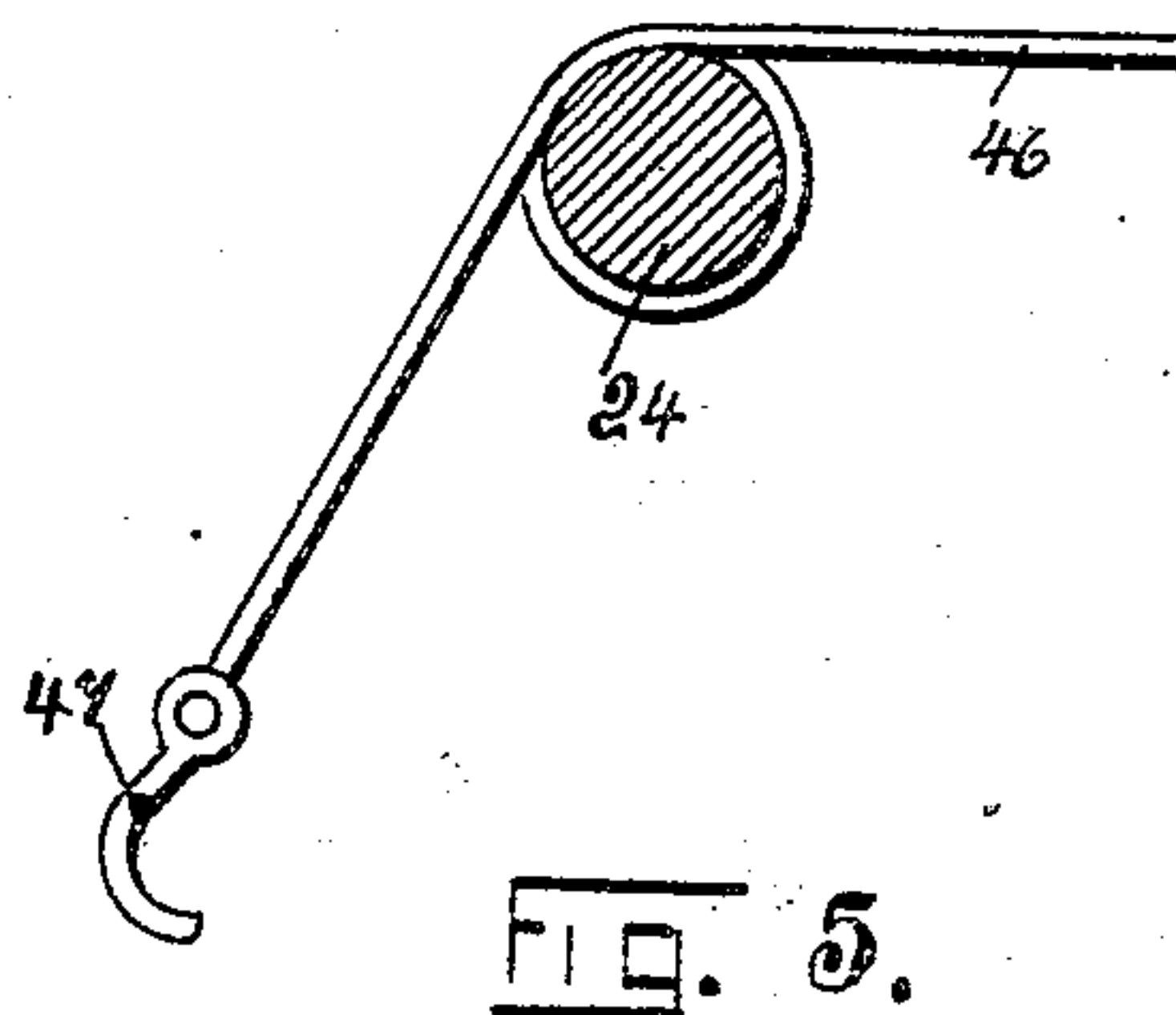
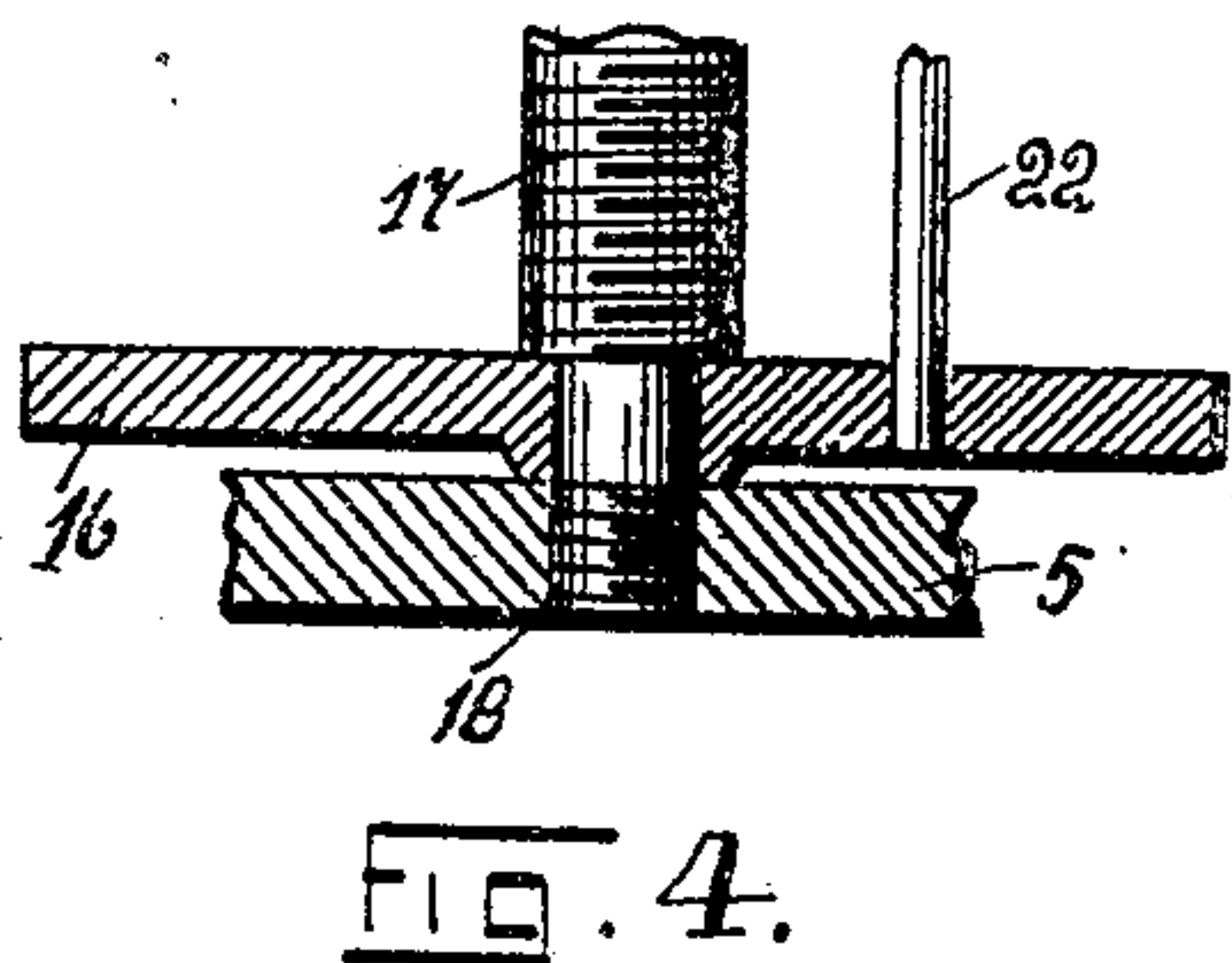
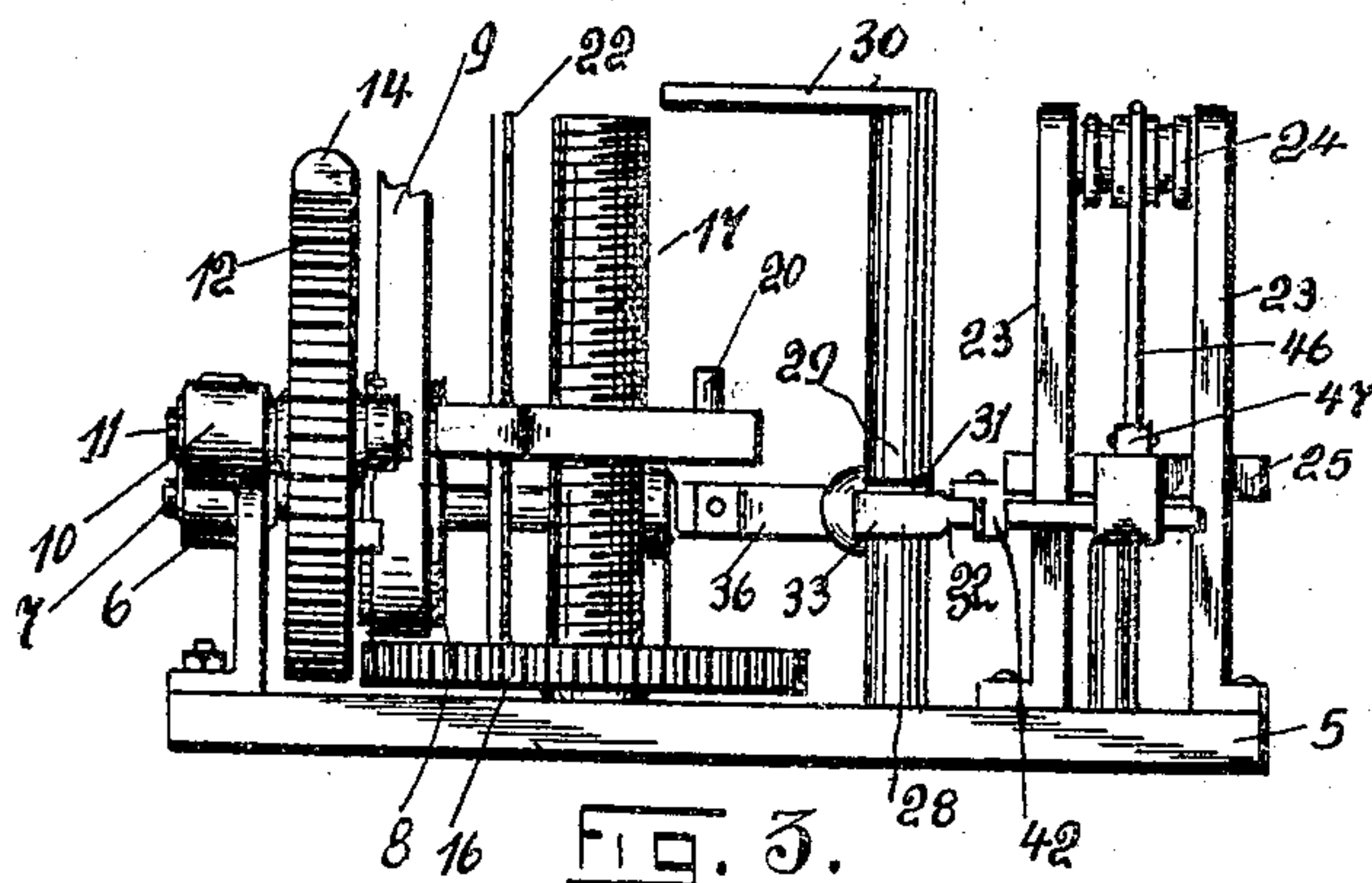
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# UNITED STATES PATENT OFFICE.

NELSON T. SHORTS, OF FERN, PENNSYLVANIA.

## DEVICE FOR CONTROLLING ENGINES.

No. 795,554.

Specification of Letters Patent.

Patented July 25, 1905.

Application filed January 19, 1905. Serial No. 241,752.

*To all whom it may concern:*

Be it known that I, NELSON T. SHORTS, a citizen of the United States of America, residing at Fern, in the county of Clarion and State of Pennsylvania, have invented certain new and useful Improvements in Devices for Controlling Engines and Machinery, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain new and useful improvements in devices for controlling engines and machinery, and more particularly to devices adapted to automatically govern machinery and the engine which operates the same.

The object of this invention is to provide a novel form of mechanism which can be manipulated or set to control an engine operating machinery, and in this connection I employ novel means for controlling the inlet of steam or gas to an engine operating machinery.

The invention aims to provide a device which can be set to control machinery, whereby when machinery has operated a predetermined period of time the device will automatically cut off the supply of steam or gas to the engine and cause a cessation of the operation of the machinery.

The device also aims to provide means whereby in case anything should happen to the engine the steam or gas being supplied thereto will be automatically cut off.

The invention finally consists in the novel construction, combination, and arrangement of parts, which will be hereinafter more fully described and then specifically pointed out in the claims, and, referring to the drawings accompanying this application, like numerals of reference designate corresponding parts throughout the several views, in which—

Figure 1 is a side elevation of my improved device, illustrating the same as being connected to the drive-shaft of an engine. Fig. 2 is a top plan view of the same. Fig. 3 is an end view thereof. Fig. 4 is a detail sectional view of a portion of my improved device, and Fig. 5 is a similar view of the valve-controlling mechanism of my improved device.

To demonstrate the construction of my improved device, I have illustrated the drive-shaft of an engine, which is designated by the reference-numeral 1, this drive-shaft being journaled in suitable bearings 2, and said shaft

is provided with a pulley-wheel 3 and an eccentric wheel 4.

My improved device comprises a bed-plate 5, upon which the controlling or governing mechanism is mounted. The bed-plate 5 is provided with brackets 6 6, in which is journaled a shaft 7, and this shaft is provided with a pulley-wheel 8, over which a belt 9 passes, that also passes over the pulley-wheel 3 of the power-shaft. The opposite edge of the bed-plate 5 is provided with a bracket 10, in which is journaled a stub-shaft 11, that carries a ratchet-wheel 12. This ratchet-wheel is operated by a pitman-rod 14, connected to the eccentric 4 of the power-shaft. The ratchet-wheel 12 is provided upon its inner face, preferably near its periphery, with a tooth 15, which is adapted to engage a horizontally-arranged ratchet-wheel 16, mounted upon a vertical screw-threaded stem 17. The stem is secured in a screw-threaded aperture 18, formed in the bed-plate 5, and upon the screw-threaded portion of said stem is mounted a head 19, which is provided with an aperture 21, and in this aperture is adapted to engage a pin 22, carried by the ratchet-wheel 16.

Diametrically opposite the ratchet-wheel 12 and upon the bed-plate 5 are mounted standards 23 23, between the top ends of which is journaled a grooved pulley 24. Pivoted between said standards is a hooked member 25, the one end of which is slotted, as indicated at 26, while the other end thereof carries a hook 27. The slotted end of the member is weighted by forming the same larger than the opposite end, the object of which will be presently described. Between the hooked end 27 of the member 25 and the ratchet-wheel 16 is mounted a standard 28, having a contracted portion 29, and upon this contracted portion I mount the substantially L-shaped lever 30, the lower end of which is provided with parallel faces 31 to support a bar 32, having a spanner end 33, which is adapted to engage over the end 31 of the lever 30. The end of the bar 32 is adapted to engage in the hooked end 27 of the member 25 and hold said member in a horizontal position. When the bar 32 is in this position, the substantially L-shaped member 30 is adapted to overlie the head 19 of the device, the object of which will be presently described.

The end of the shaft 7 is provided with a collar 34, and slidably mounted upon the end of the shaft is a sleeve 35, which is connected



to the collar 34 by the weighted spring-arms 36 36. Mounted between the slotted end 26 of the member 25 and the end of the sliding sleeve 35 is a standard 37, upon the top of which is pivoted a bell-crank lever 38, and the one end of this bell-crank lever is loosely secured, as indicated at 39, to the end of the sleeve 35, while the other end thereof is pivoted, as indicated at 40, to a lever 41, the end of which is bent down, as indicated at 42, to engage the bar 32.

The reference-numeral 43 designates a pawl pivoted upon a standard 44 adjacent to the ratchet-wheel 12, and this pawl is normally held in engagement with the teeth of the ratchet-wheel by a spring 45, said pawl being employed to prevent the wheel from rotating rearwardly.

Operation: When my improved device is to be employed for controlling and governing the operation of machinery, I provide the steam or gas valves of the engine with cables, one of which is illustrated in Figs. 1, 2, and 5 of the drawings. The cable, as designated by the reference-numeral 46, is adapted to pass over the grooved pulley 24, and a hook 47 is provided on the end of the cable, whereby it may engage the slotted end 26 of the member 25. The cables are employed for controlling the valves of an engine, whereby when the machinery has been in operation a predetermined period of time the cables can be moved to close the valves which admit steam or gas to the engine operating the machinery. I have provided the screw-threaded stem 17 with the head 19, whereby this head can automatically release the member 25 to operate the cables 46. We will assume that the device is in operation and at every revolution of the shaft 1 of the engine the ratchet-wheel 12 is moved the distance of one tooth, and as this ratchet-wheel gradually rotates the tooth 15 will engage the ratchet-wheel 16 and will move it a fraction of a revolution or the distance of one of the teeth of said wheel. The rotation of said wheel carries with it the pin 22, that rotates the head 19 and gradually raises the same upon the stem 17, and upon said head becoming sufficiently elevated to strike the L-shaped lever 30 this lever is moved, which will kick the bar out of the hook-shaped end 27 of the member 25, and the weighted end of this lever causing the same to descend pulls upon the cables 46 and closes the valves of the engine, causing the same to cease operation. The head 19 can be so positioned upon the screw-threaded stem that its vertical movement will cover a certain period of time, and by this novel means I am enabled to set the device whereby it will operate a piece of machinery a predetermined period of time and at the end of this time will stop the engine operating the same and naturally cause the operation of the machinery to cease. During the operation of the device the rapidity at

which the shaft 7 revolves normally holds the sliding sleeve 35 inwardly, compressing the spring-arms 36, and the lever 41 is normally held in engagement with the bar 30. Should anything happen to the engine, such as the slipping of a belt or the breaking of some part thereof, that would cause the same to operate more slowly or entirely cease operation, the spring-arms 36 will move the sliding sleeve 35 outwardly, causing the lever 41 to pull down the bar 30, relieving the hooked end 27 of the member 25 and permitting the weighted end thereof to descend and close the valves of the engine through the medium of the cables 27. When the engine has been stopped in either of the manners above described and it is desired to start the same, the parts are restored to their original position by hand.

While I have herein shown a bed-plate adapted to support the controlling mechanisms of my improved device, it is obvious that these mechanisms can be readily mounted upon other foundations than a bed-plate, and I do not care to confine myself to the size or arrangement of the mechanisms of my improved device, as various changes may be made in the details of construction without departing from the general spirit and scope of the invention.

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

1. In a device of the type described, the combination with a suitable bed-plate, of mechanism carried by said bed-plate and adapted to be actuated from the power-shaft of an engine, a member pivotally mounted upon said bed-plate and adapted to be connected to the controlling-valves of an engine, and means carried by said bed-plate to operate said member at predetermined times, and at times when the speed of said power-shaft decreases, substantially as described.

2. In a machine of the type described, the combination with the power-shaft of an engine and valves for controlling the same, of a mechanism consisting of a pivoted member connected to the controlling-valves of said engine, means for supporting said member in elevated position, means actuated by said power-shaft to release said pivoted member, and allow the same to fall and thereby stop the engine, substantially as described.

3. In a device of the type described, the combination with a power-shaft, of a suitable bed-plate, mechanism carried by said bed-plate and actuated periodically by said power-shaft, a pivoted member mounted upon said bed-plate and adapted to be actuated by said mechanism to stop the engine, substantially as described.

4. In a device of the type described, the combination with a power-shaft, an engine and valves to control the same, of a suitable bed-plate, mechanism carried by said bed-plate and adapted to be actuated by said power-



shaft to control the valves of said engine, said mechanism consisting of a pivoted member, means to normally support said member, a sliding sleeve, governing mechanism connected to said sleeve, means connected with said sleeve to release said supporting means, and a ratchet-wheel adapted to release said pivoted member, substantially as described.

5. In a device of the type described, the combination with a power-shaft of an engine and valves for controlling the same, of a suitable bed-plate, a pivoted member mounted upon said bed-plate, ratchet-wheels carried by said bed-plate and actuated by said power-shaft, a head adjustably mounted upon said bed-plate and operated by said ratchet-wheels to

actuate said pivoted member at a predetermined time, a spring-actuated sleeve mounted upon said bed-plate and revolved by said power-shaft, said sleeve adapted to actuate said pivoted member when the revolutions of said shaft are decreased, said pivoted member being connected to the controlling-valves of said engine to operate the same when actuated by said mechanism, substantially as described.

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

NELSON T. SHORTS.

Witnesses:

G. W. POWERS,  
N. E. HEETER.