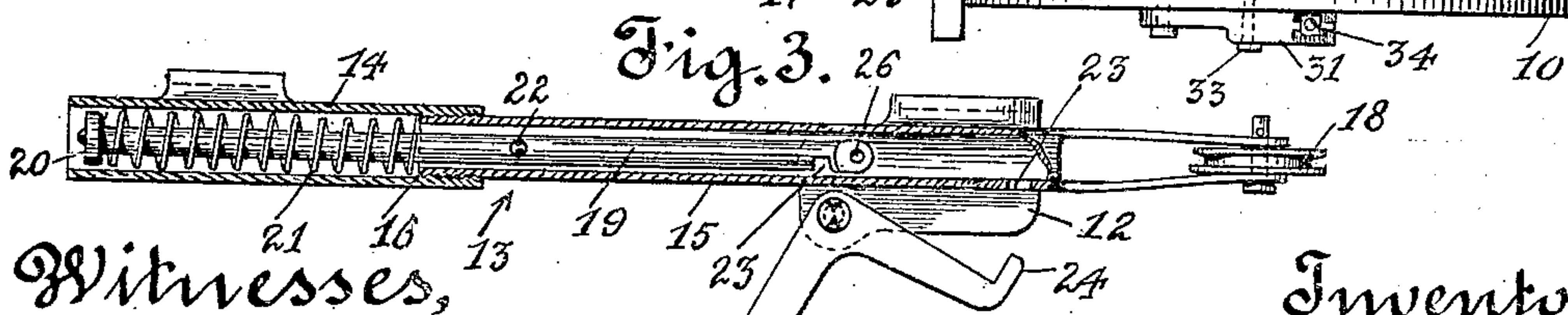
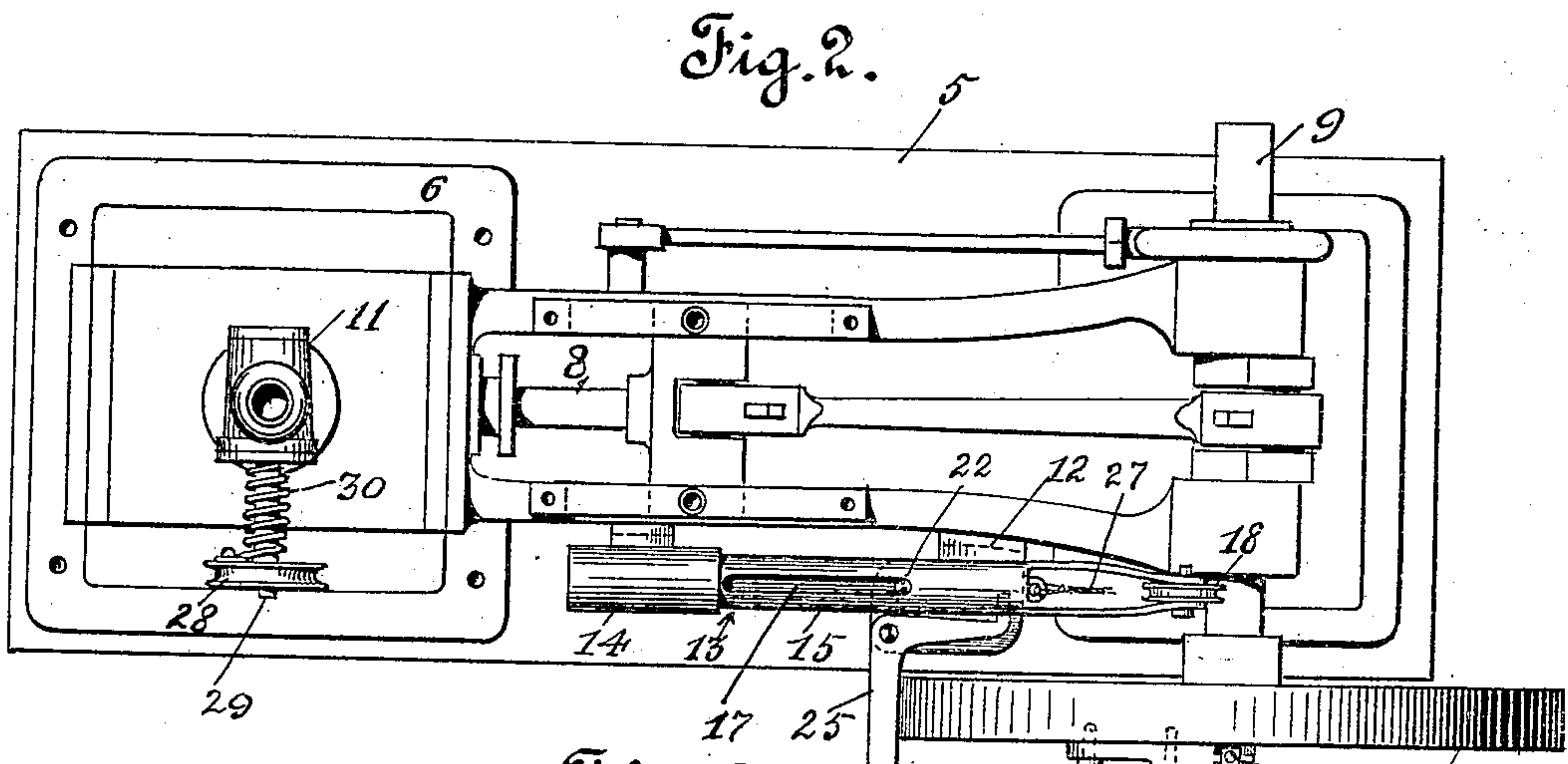
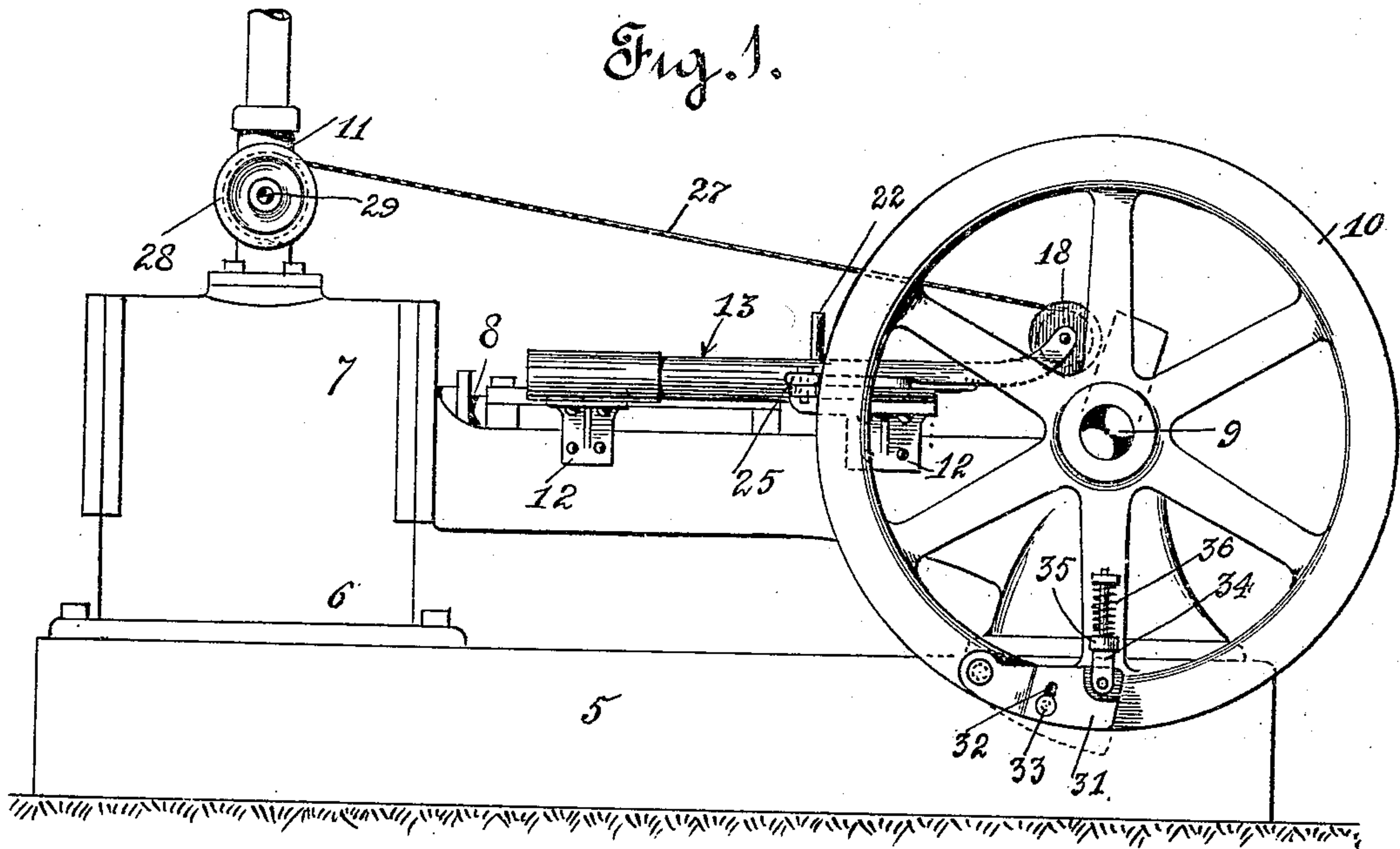


J. W. BRIGGS.
 AUTOMATIC THROTTLE CONTROLLING DEVICE FOR ENGINES.
 APPLICATION FILED APR. 19, 1909.

946,493.

Patented Jan. 11, 1910.



Witnesses,
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UNITED STATES PATENT OFFICE.

JOSEPH W. BRIGGS, OF McKITTRICK, CALIFORNIA, ASSIGNOR OF ONE-HALF TO FRED N. SMITH, OF McKITTRICK, CALIFORNIA.

AUTOMATIC THROTTLE-CONTROLLING DEVICE FOR ENGINES.

946,493.

Specification of Letters Patent.

Patented Jan. 11, 1910.

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To all whom it may concern:

Be it known that I, JOSEPH W. BRIGGS, a citizen of the United States, residing at McKittrick, in the county of Kern and State of California, have invented new and useful Improvements in Automatic Throttle-Controlling Devices for Engines, of which the following is a specification.

This invention has relation to means for automatically governing or controlling the speed of pumping engines or engines not provided with the usual governor, and a prime object thereof is to provide mechanism which will operate so that when the fly wheel attains a high or unusual speed it will automatically throttle the engine and stop it. To effect this I preferably employ a spring controlled plunger operatively mounted in a cylinder secured to the engine frame, the plunger being connected to the engine throttle by flexible means, the plunger itself being provided with a notch at the outer end thereof adapted to engage a trigger as hereinafter described. A trigger operating device is secured to the fly wheel of the engine, and is operated by the centrifugal action of the fly wheel when the engine attains an unusual speed and releases the trigger and throttles the engine.

In the drawings annexed hereto and forming a part of this specification:—Figure 1 is a side elevation of the pumping engine equipped with my device. Fig. 2 is a plan view of the same. Fig. 3 is a sectional view of the throttle operating device.

Heretofore in the drilling of oil wells, small engines have been employed without a governor, and when the drilling was completed the engines have been utilized in pumping the wells, several wells being operated by a single engine. During pumping operations, or the drilling of wells the driving belt of the engines frequently slips off, or the sucker rods become parted, and as a result the engine attains an unusual speed and “races,” thereby causing damage to the engine and the mechanism operated thereby.

In the embodiment illustrated in the accompanying drawings, 5 designates a base, 6 the engine frame secured thereto, being provided with the usual cylinder 7, piston rod 8, crank shaft 9, fly wheel 10, and a throttle 11. Secured to frame 6 by brackets 12 in any suitable manner is an elongated cyl-

inder 13 divided into members 14 and 15, member 15 being in screw-threaded engagement with member 14, the engaging end thereof forming a shoulder 16. Member 15 is provided on the upper face thereof with a guide slot 17, and the outer end thereof is bifurcated and carries a grooved pulley 18. Mounted in cylinder 13 is a plunger rod 19, one end of which is provided with a collar 20, and interposed between collar 20 and shoulder 16, formed by the union of the two members, is a coiled compression operating spring 21 that normally serves to retract rod 19, as clearly illustrated in Fig. 3 of the drawing. This rod is provided with a pin 22 that works in the guide slot 17 formed in member 15, and will prevent the rotation of the rod. The outer end of plunger 19 is provided with a tooth-engaging notch 23 adapted to engage a tooth 24 formed on one arm of the bell crank lever 25, which is pivotally mounted on one of the brackets that support the plunger cylinder. Rod 19 is also provided in one end thereof with an aperture 26 in which is secured a flexible operating cable 27 that passes around pulley 18, and is attached to the grooved periphery of a pulley 28 keyed on one end of the valve throttle stem 29. Coiled around this stem between pulley 28 and valve 11, is a coiled spring 30, one end of which is attached to the valve casing and the other to the inner face of the pulley, the tension on which will hold the throttle in its open position (the mechanical construction of which forms no part of my invention and is purposely omitted herefrom).

Pivotally mounted on the rim and near the periphery of the fly wheel 10 is a dog 31 provided with a guide slot 32 to receive a pin 33 which limits the movement of the dog. One end of this dog is pivotally secured in the bifurcated end of the plunger rod 34 mounted in a bearing 35 secured on one of the spokes of the fly wheel, a coiled tension spring 36 maintaining the outer edge of the dog flush with the periphery of the fly wheel when the speed of the wheel is only normal, but will be thrown outwardly beyond the periphery when the wheel attains an unusual or dangerous speed and operate to close the throttle as herein described. The tension of spring 36 may be increased or decreased to throttle the engine at any

rate of speed as desired by tightening or loosening the screw-threaded nut on the end of the plunger 34.

The operation of my device is as follows:

5 The trigger 24 on the bell crank 25 is forced into the notch 23 in the plunger 19, which will bring the free arm of the bell crank into juxtaposition with the periphery of the fly wheel as shown in Figs. 1 and 2. This
10 operation will open the throttle and permit steam to enter the engine cylinder. Now if for any reason the engine should obtain an unusual or dangerous speed, the increased centrifugal force generated by the revolving fly wheel will overcome the tension of
15 spring 36 and permit the dog 31 to contact with the free arm of the bell crank 25, thereby removing tooth 24 from slot 23 when the spring 21 will force the rod 19 rearwardly
20 carrying with it the cable 27, and rotate throttle valve stem 29 and close the throttle and stop the engine.

It will be observed from the foregoing description that I have provided a novel device
25 vice for controlling the operation of engines that are not provided with governors.

Having described my invention what I claim as new and desire to secure by Letters Patent is:—

30 1. In a throttling device for engines, the combination of a resiliently operated spring actuated throttle operating mechanism mounted on the engine, and means mounted on the engine fly wheel and actuated by the
35 rotation thereof to operate the said throttle mechanism.

2. In a throttling device for engines, the combination of a spring operated throttling mechanism mounted on the engine, a trigger means to maintain said spring
40 under compression mechanism in an operative position, and means mounted on the engine fly wheel and actuated by the rotation thereof to release said trigger means.

3. In a throttling device for engines, the
45 combination of a spring operated plunger rod mounted on the engine, a flexible connection from said rod to the engine throttle, a trigger mechanism adapted to engage said rod, means to release said trigger when the
50 engine attains a predetermined speed and means to vary the tension in said trigger releasing means.

4. An engine having a throttle valve and a fly wheel in combination, with a pivoted
55 crank arm projecting across the face of said fly wheel, a plunger, a spring tending to actuate said plunger, means for interlocking said plunger with said crank arm to maintain said spring in a compressed condition,
60 means connecting said plunger with said throttle valve to throttle the engine and a centrifugally controlled device carried by the side of said fly wheel and adapted to strike said crank arm to release said plunger.
65

In witness that I claim the foregoing I have hereunto subscribed my name this 13th day of April, 1909.

J. W. BRIGGS.

Witnesses:

EDMUND A. STRAUSE,
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