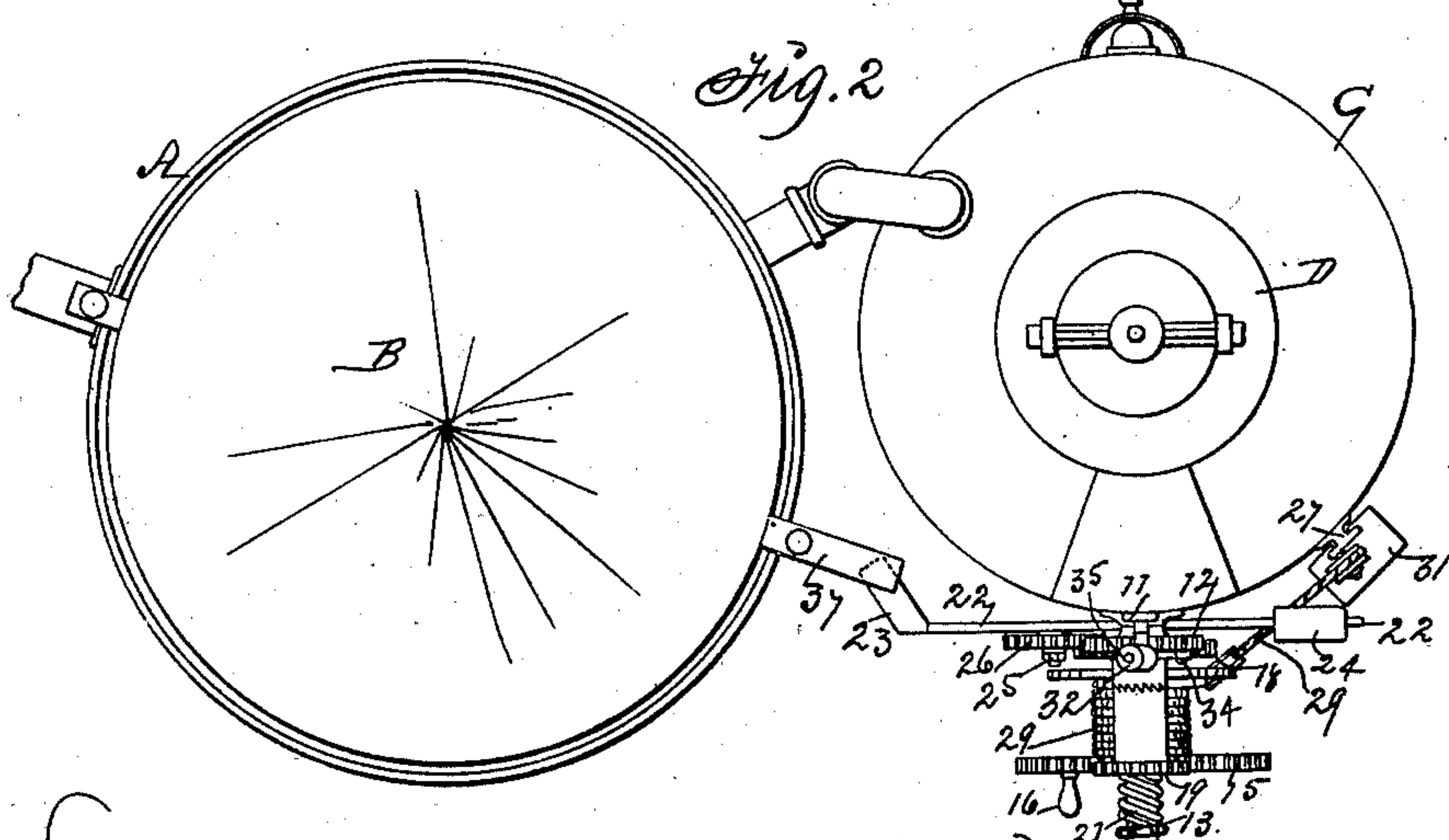
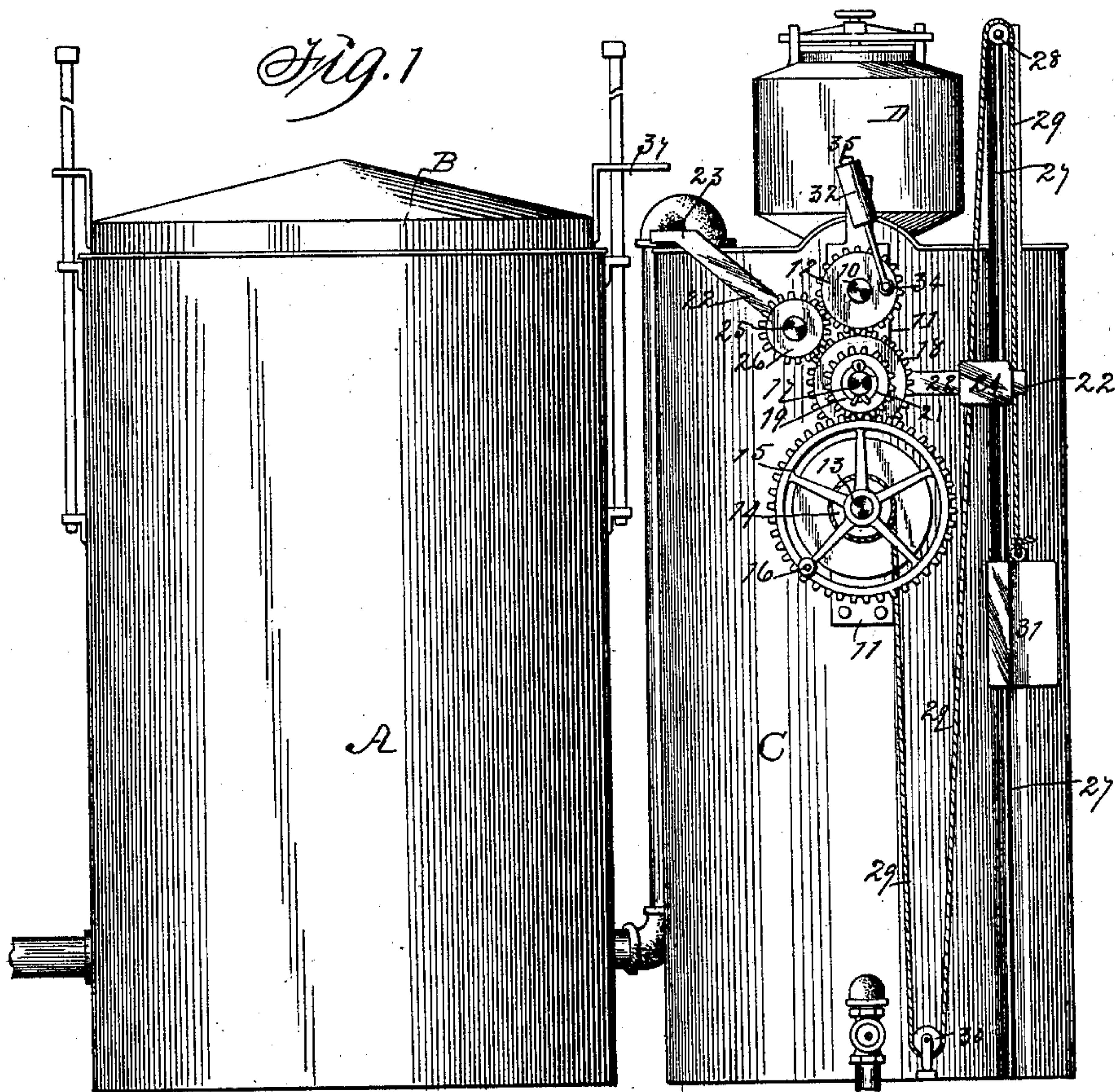


No. 679,851.

Patented Aug. 6, 1901.

**T. H. J. LECKBAND.**  
**GOVERNOR FOR GAS GENERATORS, &c.**  
(Application filed Mar. 28, 1901.)

(No Model.)



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# UNITED STATES PATENT OFFICE.

THEODOR H. J. LECKBAND, OF DES MOINES, IOWA.

## GOVERNOR FOR GAS-GENERATORS, &c.

SPECIFICATION forming part of Letters Patent No. 679,851, dated August 6, 1901.

Application filed March 28, 1901. Serial No. 53,262. (No model.)

*To all whom it may concern:*

Be it known that I, THEODOR H. J. LECKBAND, a citizen of the United States, residing at Des Moines, in the county of Polk and State of Iowa, have invented a new and useful Governor for Gas-Generators, &c., of which the following is a specification.

My object is to provide automatic mechanism specially adapted for regulating the intermittent rotation of a cylinder for feeding carbide in an acetylene-gas generator and other machines where intermittent rotary motion is required and the speed of such motion regulated.

My invention consists in the construction, arrangement, and combination of a mechanical movement adapted to be started and stopped by means of a weighted lever and the rotary motion produced thereby regulated by a pneumatic governor and a device for increasing and diminishing the force of the pneumatic governor, as hereinafter set forth, pointed out in my claims, and illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of an acetylene-gas generator, showing my invention applied thereto as required for automatically regulating the feeding of carbide in the generator, so that no person need be in attendance to prevent the gas-holder from becoming exhausted before carbide is fed into the generator from a supply stored in the top of the generator. Fig. 2 is a top view of the parts shown in Fig. 1 and aids in illustrating their forms and positions relative to each other.

The letter A designates a cylindrical vessel, in which is fitted a gas-holder B, and C is a generator. They are connected in a common way as required for producing acetylene gas. On top of the generator is a magazine D, adapted to contain a supply of carbide.

The numeral 10 designates a rotatable shaft mounted in a frame 11, fixed to the outside of the generator C, and extended inward to be connected with a rotating cylinder inside of the generator. On the outer end of the shaft 10 is a fixed spur-wheel 12 and in the lower end of the frame 11 is a fixed journal 13, upon which is loosely mounted a drum 14, that has a fixed spur-wheel 15 of larger diameter provided with a handle 16, fixed to the wheel for jointly rotating the

wheel and drum for coiling a rope on the drum and lifting a weight attached to the rope. A journal 17 is fixed to the central part of the frame 11, and upon it is loosely mounted a spur-wheel 13, that meshes with the wheel 12 on the shaft 10. The hub of the wheel 18 is ratchet-faced on its end to serve as a clutch member, and 19 is a spur-wheel loosely mounted on the same journal, and its inner end is ratchet-faced to serve as a clutch member and to engage the end of the hub of the wheel 18, as required to rotate the two wheels jointly. On the free end of the journal 17 is a device adapted to retain a coiled spring 21 on said journal that normally retains the clutch members of the wheels 18 and 19 engaged as required to rotate jointly. An elbow-shaped lever 22 is fulcrumed to the inner end of the journal 17, and its upper end and long arm terminate in a horizontal extension 23, adapted to be engaged by a pressing device, as required to actuate the lever whenever desired. On the short arm of the lever is a fixed weight 24, in a stationary position, as shown in Fig. 1. On a journal 25, fixed to the lever 22, is loosely mounted a spur-wheel 26, adapted to mesh with the wheels 12 and 18 as required to lock them whenever the lever is in its normal position, so the rotatable shaft 10 will remain stationary.

An angle-iron 27 or other suitable support for a pulley 28 at its top is fixed to the generator C, and a rope 29 is fixed to the drum 14 and extended downward and over a pulley 30 at the bottom of the generator and then upward and over the pulley 28 and a weight 31 attached to its end, as shown in Fig. 1, or in any suitable way in such a manner that the rope can be wound upon the drum and the drum rotated by the force of gravity in the weight.

A cylinder 32 is pivotally connected with the top end of the frame 11, and the stem in the cylinder is pivotally connected with a crank-pin 34 on the spur-wheel 12 in such a manner that the rotary motion of said wheel will actuate the piston in the cylinder. To regulate the resistance to the wheel caused by the piston in the cylinder, a plug-valve 35 in the form of a set-screw fitted in a screw-seat in the end of the piston is provided with a tapering groove 36, as shown in Fig. 3, in



such a manner that the amount of resistance can be readily regulated by moving the screw in or out to increase or diminish the opening or port produced by the tapering slot in the screw.

In the practical operation of my invention when the gas-holder descends and a projection 37, extending horizontally therefrom, engages the end of the lever 22 and depresses the long arm of the lever and in so doing releases the wheel 26 from the wheels 12 and 18 and allows the force of the weight 31 to actuate the drum 14 and to transmit therefrom rotary motion to the shaft 10, by means of the intermediate machinery, as required to operate intermittently a feed-cylinder or other device that may be connected with said shaft 10, and when pressure upon the long arm of the lever 22 is relaxed, the lever and the wheel 26 carried by the lever will, by means of the weight 24 on the other arm of the lever, resume their normal positions and lock all the wheels together, as required to retain the shaft 10 stationary. It is obvious the weight on the lever may be adjustably connected therewith and that the lever may be intermittently operated by cams or other devices on different machines that will impart intermittent pressure upon the lever as required to free the mechanism that will automatically impart rotary motion to the shaft 10, and that the variable resistance is provided for by means of the cylinder 32, piston-stem 33, and plug-valve 35, connected with the spur-wheel 12 on the shaft 10. It is also obvious that the weight attached to the rope 29 can be readily elevated by rotating the drum by means of the handle 16 on the wheel 15, while the wheels 12, 18, and 26 are interlocked. The wheel 19, connected with the wheel 18 by means of the ratchet-faced ends of their hubs, will rotate on the journal 17, while the wheel 18 remains stationary.

Having thus described the construction and operation of my invention, its practical utility will be readily understood by persons familiar with the art to which it pertains, and

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

1. In a governor for machines, a frame, a rotatable shaft mounted on said frame, a spur-wheel fixed on said shaft, a journal fixed to the frame, a spur-wheel loosely mounted on said journal, a weighted lever fulcrumed to said journal and a spur-wheel carried by the lever to engage the wheel on the rotatable shaft and also the wheel on the fixed journal, arranged and combined to operate in the manner set forth for the purposes stated.

2. In a governor for machines, a frame, a rotatable shaft mounted on said frame, a spur-wheel fixed on said shaft, a journal fixed to the frame, a spur-wheel loosely mounted on said journal, a weighted lever fulcrumed to said journal and a spur-wheel carried by the lever to engage the wheel on the rotatable shaft and also the wheel on the fixed journal,

a second fixed journal, a drum on said journal and means for transmitting motion from the drum to the wheel loosely mounted on the first-mentioned journal, arranged and combined to operate in the manner set forth for the purposes stated.

3. In a governor for machines, a frame, a rotatable shaft mounted on said frame, a fixed spur-wheel on said shaft, a journal fixed to the frame, a spur-wheel loosely mounted on said journal, a weighted lever fulcrumed to said journal and a spur-wheel carried by the lever to engage the wheel on the rotatable shaft and also the wheel on the fixed journal, a second fixed journal, a drum on said journal and means for transmitting motion from the drum to the wheel loosely mounted on the first-mentioned journal, a rope fixed to the drum and extended over pulleys and a weight on the end of the rope, arranged and combined to operate in the manner set forth for the purposes stated.

4. In a governor for machines, a frame, a rotatable shaft mounted on the frame, a spur-wheel fixed to the shaft, a journal fixed to the frame, a spur-wheel having a clutch member at one end mounted loosely on said journal to engage the fixed wheel on the rotatable shaft, a second spur-wheel on said journal provided with a clutch member and a spring on the journal to normally retain the two clutch members engaged, a weighted lever pivotally connected with the said journal and a spur-wheel mounted on the lever to engage the fixed wheel on the shaft and the inner loose wheel on the said journal, arranged and combined to operate in the manner set forth for the purposes stated.

5. In a governor for machines, a frame, a rotatable shaft mounted on the frame, a spur-wheel fixed to the shaft, a journal fixed to the frame, a spur-wheel having a clutch member at one end mounted loosely on said journal to engage the fixed wheel on the rotatable shaft, a second spur-wheel on said journal provided with a clutch member and a spring on the journal to normally retain the two clutch members engaged, a weighted lever pivotally connected with the said journal and a spur-wheel mounted on the lever to engage the fixed wheel on the shaft and the inner loose wheel on the said journal, a cylinder pivoted to the frame, a piston in the cylinder and the piston-stem pivotally connected with a crank-pin on the fixed wheel on the rotatable shaft, arranged and combined to operate in the manner set forth for the purposes stated.

6. An automatic governor for a machine comprising a frame, a rotatable shaft mounted on the frame, a spur-wheel fixed on said shaft, a cylinder pivotally connected with the frame and the stem of a piston in the cylinder pivotally connected with a crank-pin on said fixed wheel, a journal fixed to the frame, two spur-wheels loosely mounted on said journal and each provided with a clutch member, a spring on the journal to normally retain the



clutch members locked together, a weighted lever pivotally connected with the said journal, a spur-wheel mounted on the lever to engage the spur-wheel on the shaft and the rear  
5 spur-wheel on said journal, a second journal fixed to the frame, a drum loosely mounted on said second journal, a spur-wheel on the end of the drum, a rope fixed to the drum and

extended over an elevated pulley and a weight attached to the rope, arranged and combined to operate in the manner set forth for the purposes stated.

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