

(No Model.)

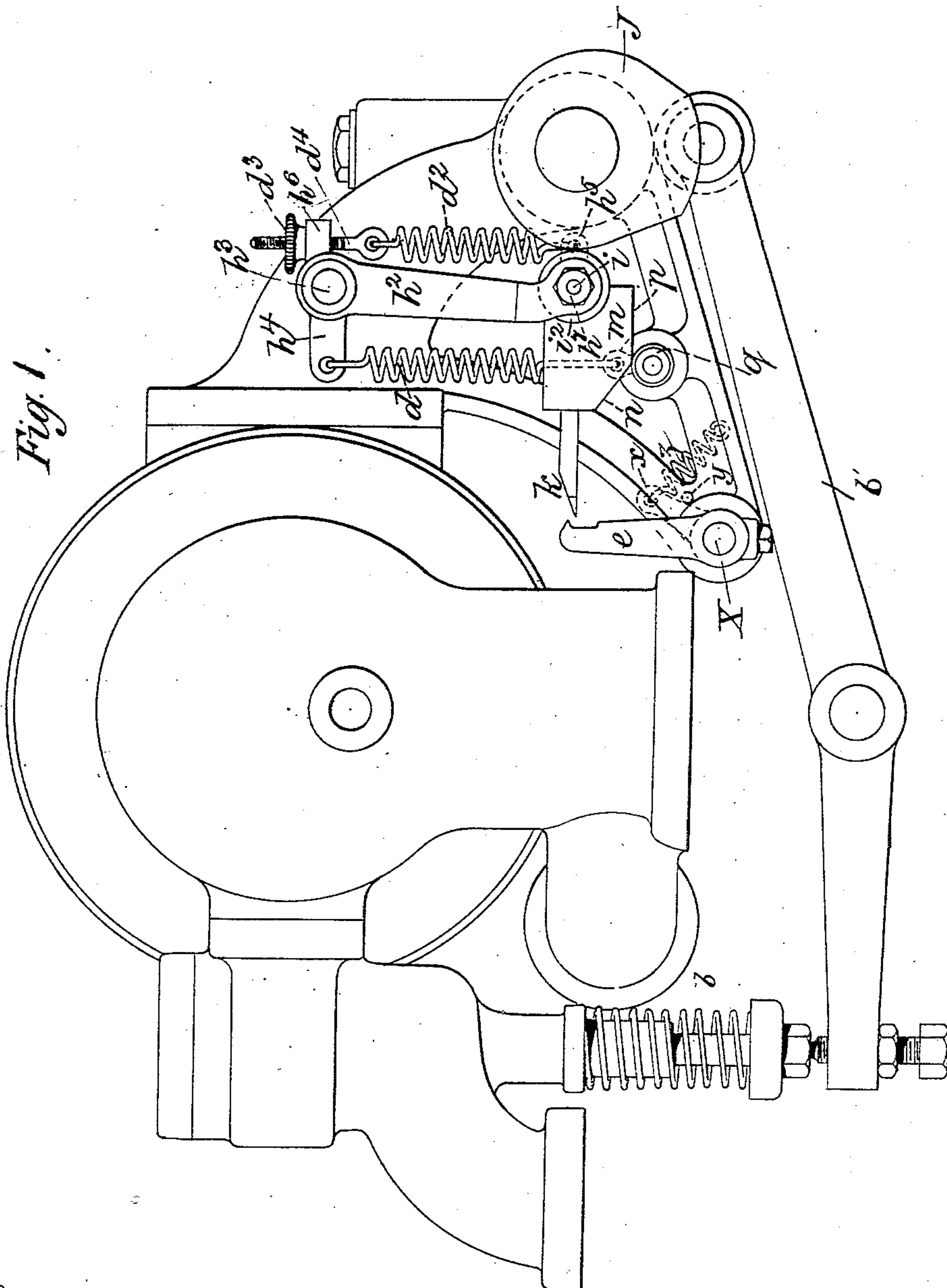
3 Sheets—Sheet 1.

C. W. PINKNEY.

APPARATUS FOR GOVERNING GAS, STEAM, OR OTHER
MOTIVE POWER ENGINES.

No. 504,613.

Patented Sept. 5, 1893.



Attest.

Arthur A. Corb.
Felix Lewis

Inventor:

Charles W. Pickney,
by Joseph Mauro,
his attorney.

(No Model.)

3 Sheets—Sheet 2.

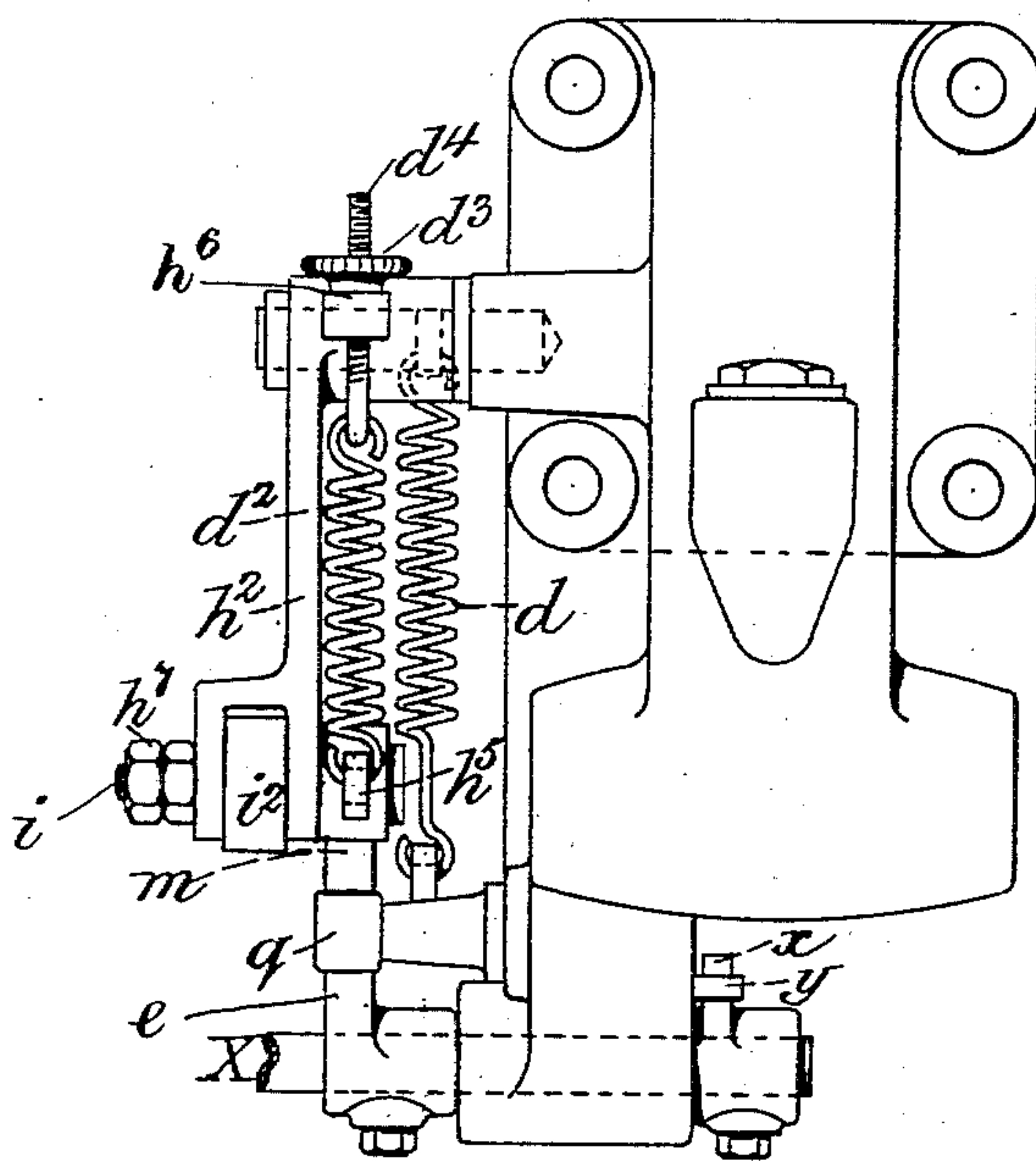
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Fig. 2.



Attest:

*Arthur A. Corb.
Per Lewis.*

Inventor:

*Charles W. Pinkney
by J. J. Mans,
his attorney.*

(No Model.)

3 Sheets—Sheet 3.

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Fig. 3.

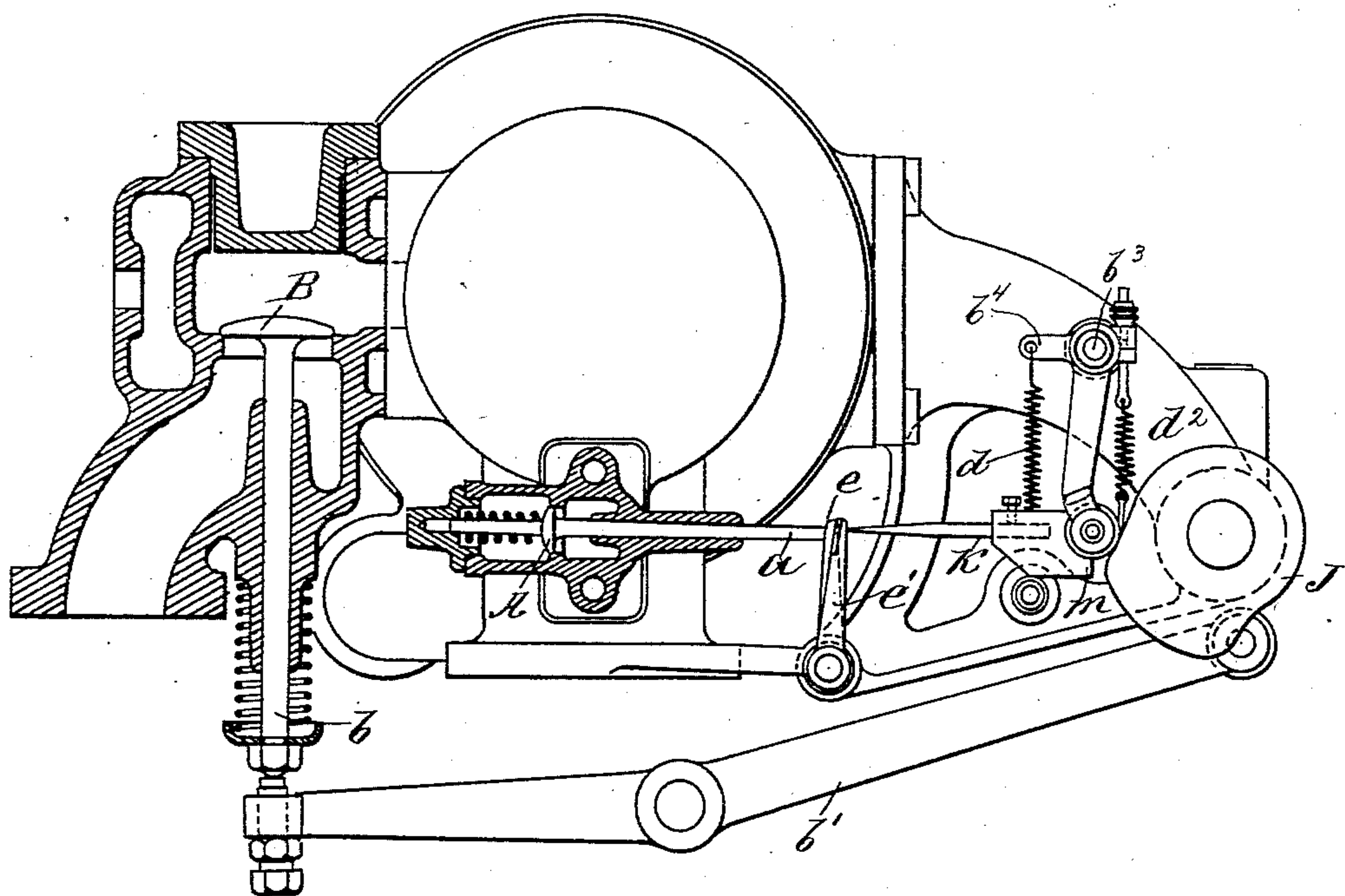
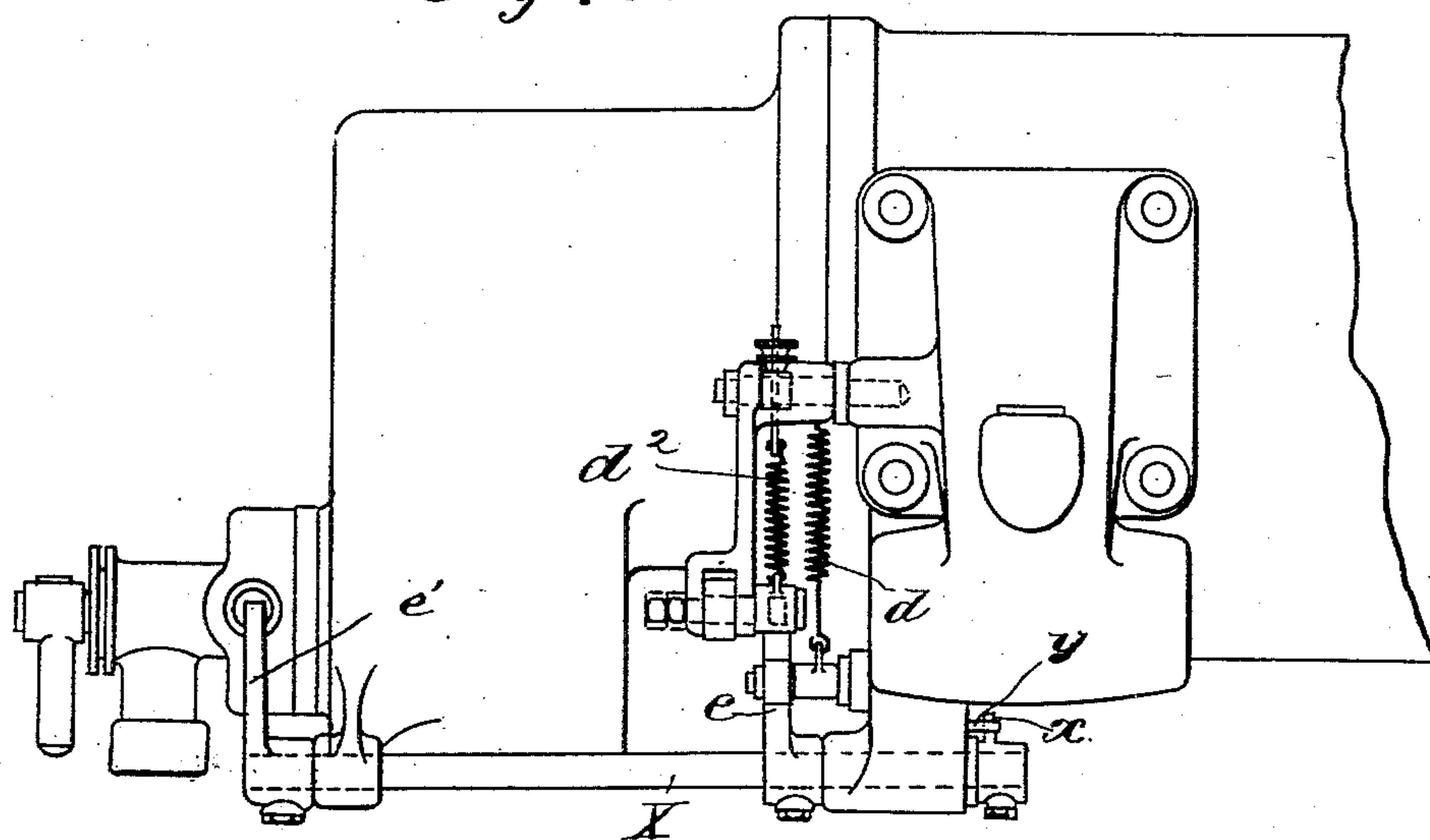


Fig. 4.



Attest

Per Lewis
A. A. Erb.

Inventor.

Charles William Pinkney
by Edward Mauro
his atty.

UNITED STATES PATENT OFFICE.

CHARLES WILLIAM PINKNEY, OF SMETHWICK, ASSIGNOR OF TWO-THIRDS
TO GEORGE TANGYE AND GEORGE HANDEL HASWELL, OF BIRMINGHAM,
ENGLAND.

APPARATUS FOR GOVERNING GAS, STEAM, OR OTHER MOTIVE POWER ENGINES.

SPECIFICATION forming part of Letters Patent No. 504,813, dated September 5, 1893.

Application filed February 13, 1893, Serial No. 462,187. (No model.) Patented in England January 23, 1885, No. 1,218, and
April 28, 1891, No. 7,313.

To all whom it may concern:

Be it known that I, CHARLES WILLIAM PINKNEY, mechanical engineer, a subject of the Queen of Great Britain and Ireland, residing at 77 Raglan Road, Smethwick, in the county of Stafford, England, have invented certain Improvements in Apparatus for Governing Gas, Steam, and other Motive Power Engines, (for which I have obtained patents in Great Britain, No. 1,218, dated January 28, 1885, and No. 7,313, dated April 28, 1891,) of which the following is a specification.

My invention consists in constructing governors for regulating the speed of gas engines, steam engines and compressed air engines in the manner hereinafter explained whereby the regulation of the speed of the engine is effected by mechanism much simpler than that ordinarily employed, the present invention being an improvement on that described in Letters Patent No. 339,461, dated April 6, 1886.

I will describe my invention in connection with a horizontal gas engine from which its other applications will also be understood.

Instead of being worked in the way heretofore described in my said patent I may work the arrangement from a second motion shaft by means of a cam, the lever or pusher k which acts upon the valve opening arrangement being provided with the incline n as heretofore the said lever and incline being carried by a lever-arm centered to any suitable part of the engine the said lever being provided with springs which keep the said lever in proper position and enable the governing arrangement to be used in any position. One of the said springs can by means of a screw be employed as a regulating spring so that by operating the screw the speed of the engine can be regulated without stopping it.

The invention can be more fully understood by reference to the accompanying drawings forming part of this specification, in which—

Figure 1, is an end view of a gas engine to which my improvement is applied. Fig. 2, is an elevation, taken from the right of Fig.

1, of the regulating mechanism. Fig. 3 is a view similar to Fig. 1, the casing around the inlet and exhaust valves being in section, and Fig. 4 is a side elevation of Fig. 3, certain parts being omitted.

The block m carrying the incline n and lever or pusher k are here shown as being fixed at the end of the lever h^2 the opposite end of which is centered on a pin h^3 and is provided with projections h^4 and h^6 to which are attached the springs d and d^2 the spring d serving to keep the roller i^2 at the lower end against the cam J driven by any suitable connection with the working parts of the engine while the spring d^2 (the lower end of which is connected to the projection h^5 on the block m) is used for regulating the speed of the engine being adjusted by the nut d^3 and bolt d^4 . When the engine is working at its normal speed the end of the lever k the latter being thrown into operation by the incline n' on block m engaging the roller q strikes the top of the lever e , on the shaft X rotating the latter and causing arm e' carried thereby to open the gas inlet valve A by engagement with valve-stem a (see Fig. 3) but if the speed of the engine increases beyond its proper rate the outer end of the lever k will be thrown over the top of the lever e and so no gas will be given to the engine.

At the end of the shaft opposite to the gas valve I fix a small lever x , which works against the stop y against which it is held by a spring z thus insuring the levers being held in the same position after being operated by the governor. By this arrangement the governing gear can be used in any position. The lever k and the roller i^2 both work on the same pin i held in its place at the bottom or lower end of the lever h^2 by the nuts h^7 .

The exhaust or discharge valve B is raised from its seat at suitable and proper intervals by a pivoted oscillating lever b' engaging valve stem b at one end, motion being imparted thereto at its other end by cam J .

Although I have described and represented my invention in its application to a horizontal gas engine yet my said invention is applicable to vertical gas engines as well as to hori-

zontal and vertical steam engines and compressed air engines.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

1. In a gas, steam or other fluid motive power engine, the combination with a lever for operating the inlet valve, of a supporting arm pivoted at one end, an oscillatory lever fulcrumed in the opposite end of said arm, the forward end of which is adapted to be engaged at intervals with the valve operating lever, an incline on the oscillating lever engaging a rigid projection for moving said lever to the proper position for contact with the valve operating lever, a spring for limiting the lift of the oscillating lever by the incline, during the normal speed of the engine, but which allows it to escape the valve lever when said speed is increased, a spring for holding the oscillatory lever at the limit of its rearward movement, and means for imparting an oscillating movement to the latter, substantially as described.

2. In a gas, steam or other fluid motive power engine, the combination with a lever for operating the inlet valve, of a supporting arm pivoted at one end, an oscillatory lever fulcrumed in the opposite end of said arm, the forward end of which is adapted to be engaged at intervals with the valve operating lever, an incline on the oscillating lever engaging a rigid projection for moving said lever to the proper position for contact with the valve operating lever, a spring for limiting the lift of the oscillating lever by the incline, during the normal speed of the engine, but

which allows it to escape the valve lever when said speed is increased, means for adjusting the tension of said spring, a spring for holding the oscillatory lever at the limit of its rearward movement, and means for imparting an oscillating movement to the latter, substantially as described.

3. The combination with a lever for operating the inlet valve of a supporting arm pivoted at one end, oppositely extending projections or ears on the pivoted end of the arm, an oscillatory lever fulcrumed in the free end of said arm, the forward end of which is adapted to be engaged at intervals with the valve operating lever, an incline on the oscillatory lever engaging a rigid projection for moving the lever to the proper position for contact with the valve operating lever, a spring connecting one of the ears on the supporting arm with the oscillatory lever for limiting the lift of the latter by the incline during the normal speed of the engine, but which allows it to escape the valve lever when said speed is increased, a spring connected with the other ear of the supporting arm, for holding the oscillatory lever at the limit of its rearward movement, and means for imparting an oscillating movement to the latter, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES WILLIAM PINKNEY.

Witnesses:

JAMES ROBSON,
48 Linwood Road, Handsworth.

EDWARD J. HODGKINS,
208 Westminster Road, Handsworth.