(No Model.)

W. COOKE.

AUTOMATIC GOVERNOR.

No. 519,322. Patented May 8, 1894.

Fig. 1.

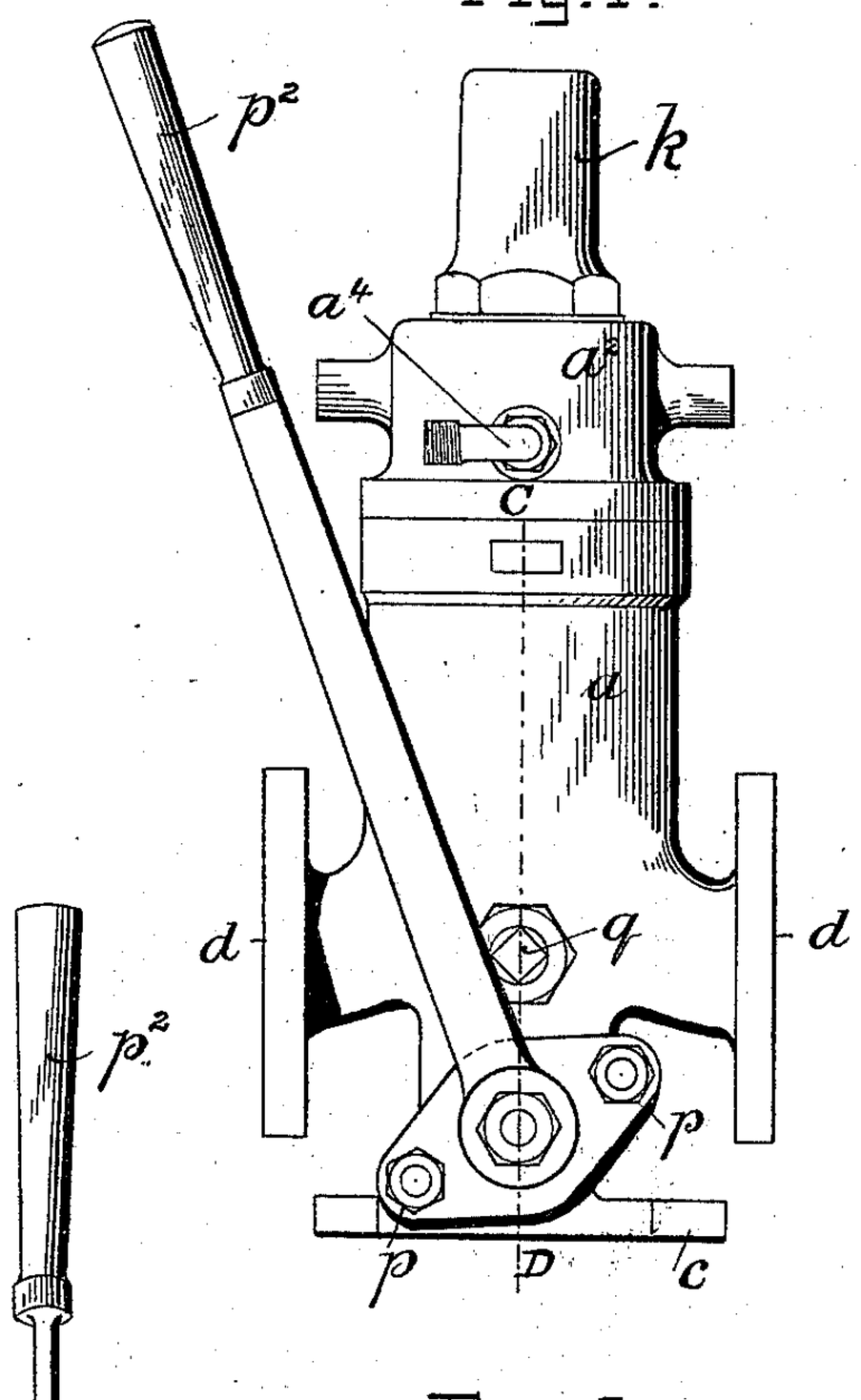


Fig. 2.

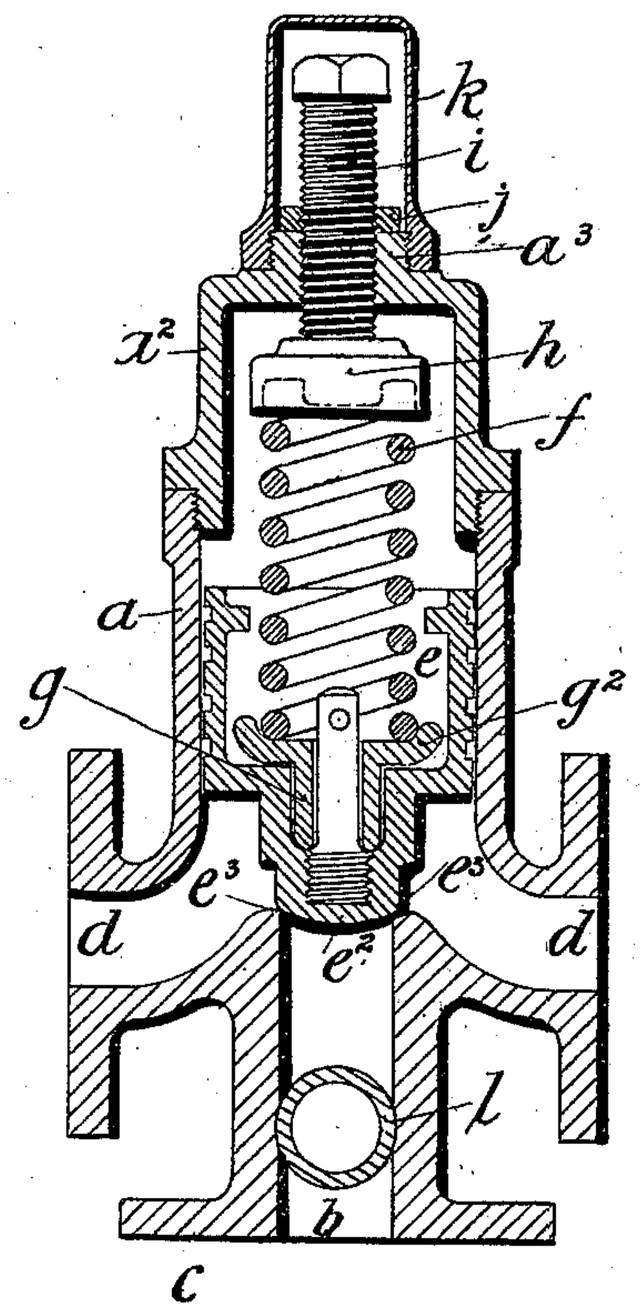


Fig. 3.

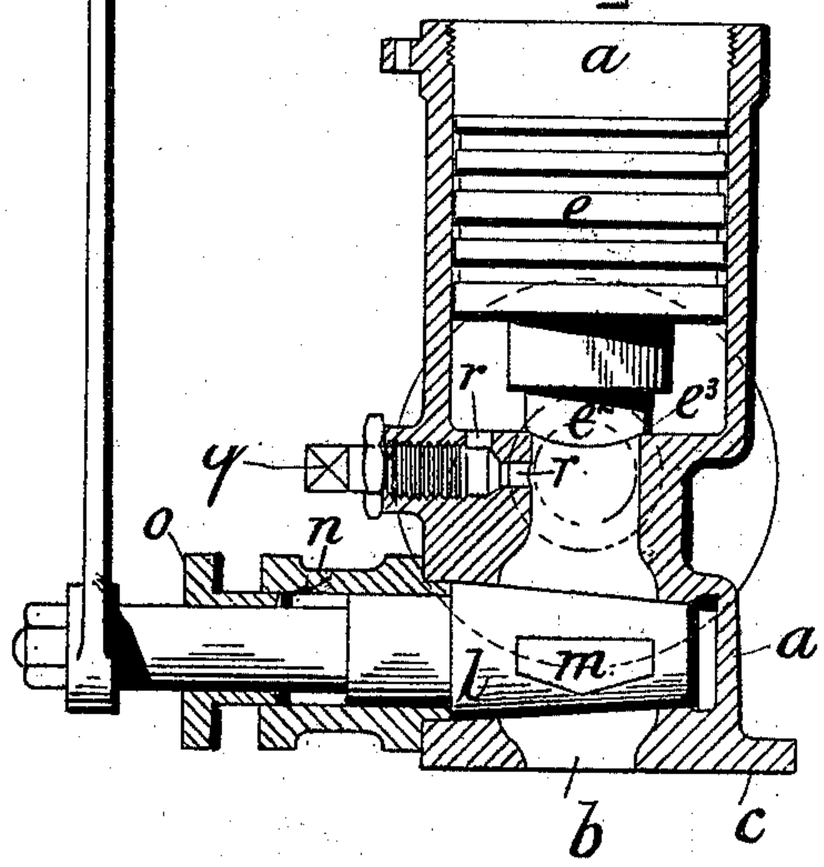
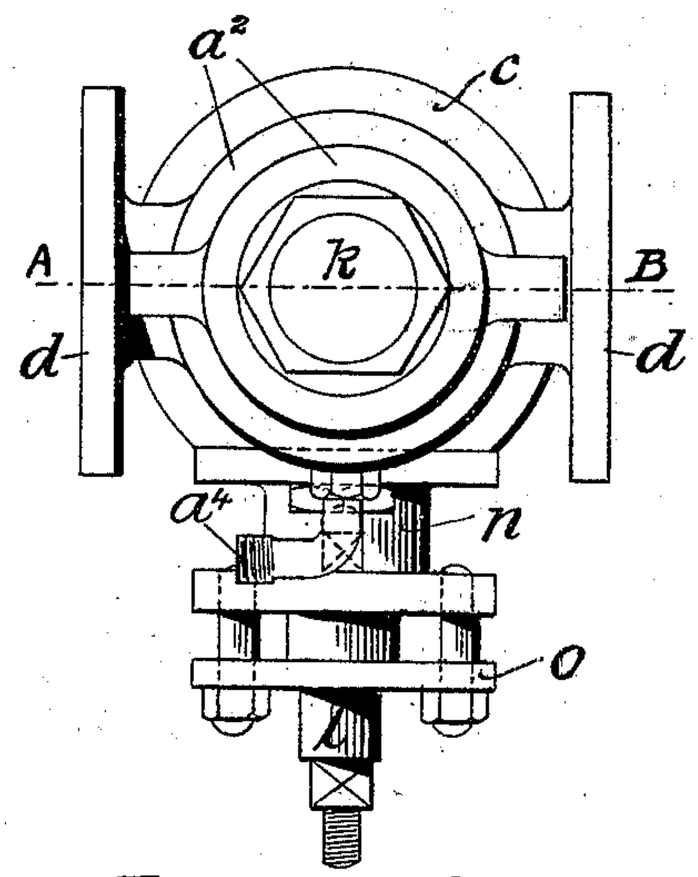


Fig. 4.



Witnesses
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UNITED STATES PATENT OFFICE.

WILLIAM COOKE, OF OXTON, ENGLAND.

AUTOMATIC GOVERNOR.

SPECIFICATION forming part of Letters Patent No. 519,322, dated May 8, 1894.

Application filed July 11, 1893. Serial No. 480,190. (No model.) Patented in England May 5, 1892, No. 8,526.

To all whom it may concern:

Be it known that I, WILLIAM COOKE, a subject of the Queen of Great Britain and Ireland, residing at Storeton Road, Oxton, in the county of Chester, England, have invented a certain new and useful Automatic Governor, (for which I have obtained Letters Patent in Great Britain, No. 8,526, dated May 5, 1892,) of which the following is a specification.

The objects of my invention are to economize steam, and to prevent racing and consequent damage to the steam motor or motors to which they may be applied.

Referring to the drawings which form a part of this specification Figure 1 is a front elevation of an automatic governor made according to my invention suitable for winches having steam cylinders about seven inches in diameter. Fig. 2 is a front sectional elevation of Figs. 1 and 4 taken through the line A—B of Fig. 4. Fig. 3 is a side sectional elevation of the body or lower portion of the casing of the governor taken through the line C—D on Fig. 1. Fig. 4 is a plan view of Fig. 1.

The above figures are drawn about one-third of their full size, and similar letters indicate similar parts throughout the several views.

The metallic casing a I make with an inlet b, by the flange c of which the said casing a is connected to a steam boiler or generator by means of suitable piping, the outlet ways d also being connected by suitable piping to the valve chests of an adjacent winch or other steam motor.

The metallic valve e^2 having a curved or spherical face is shown on the drawings hereunto annexed at Figs. 2 and 3 formed in one with the hollow piston e. I would have it understood that the said piston and valve may be made separately and connected or joined together by any suitable means, the said valve e^2 being retained on its seating e^3 by a metallic spring f, the lower end of which spring abuts upon the upper or flanged end g^2 of a metallic sleeve g, the upper end of the said spring f bearing against the under side of a metallic cap or block h. The lower part of a screwed metallic bolt i which passes through a metallic nut j, and through the upper part a^3 of the metallic cover a^2 bearing against the top side of the said block h, the head and upper portion of the said bolt i being covered or inclosed by a suitably shaped metallic cover k screwed on to the upper threaded portion of the cover a^2, a metallic plug cock or tap l having a suitably shaped orifice or steam-way m formed through same, being retained on its seating by means of a suitable metallic stuffing-box n, gland o, and bolts and nuts p, a metallic handle or lever p^2 of suitable shape and size being fitted or fixed on the outer end of the plug l to facilitate the opening and closing of the said cock or tap.

When such governors are fitted or connected by suitable means to winches, donkey-pumps or other motors, steam when admitted through the aperture m in cock l flow through an adjustable passage or by-pass r which must be regulated by the plug or bolt q according to the pressure of steam so as to admit or pass a sufficient quantity to drive the winch or motor without load. When a load is applied to such motors, the speed of the motor will be somewhat checked, thus causing an accumulation of steam on the under side of the piston e, which together with the pressure on the valve e^2 will overcome the resiliency of the spring f, by this means steam will be admitted in sufficient quantity to the motor without materially increasing or diminishing the initial speed of the motor. The cap a^2 having a suitable outlet a^4 for permitting the escape of the steam which may have passed into the cap a^2 from the under side of the piston e between the external periphery of the said piston and the internal periphery of the casing a. By removing the cover k from the top part of the cover a^2 the bolt i may be turned by any suitable means in either direction so as to increase or diminish the tension of the spring f and thus compensate for varying steam pressures. The said cover K may be fitted or provided with any suitable locking device, so as to prevent un-authorized persons tampering with the said bolt i.

By stopping up either of the outlets d of governors made as herein described and illustrated on the drawings hereunto annexed, such governors may be used for winches, donkey-pumps or other steam-motors having only

one cylinder, or such governors may be constructed with one outlet only, in such cases the steam inlet may be at right angles with the steam outlet, or such governors may be constructed with a steam inlet in line with a steam outlet and at right angles or at about right angles with the body of the governor, the steam being admitted and controlled by means of a cock or tap as shown on the drawings, by a valve or other suitable appliance.

The improved automatic governors hereinbefore described for use in controlling the speed of steam-winches, donkey-pumps and other steam motors I make of any suitable metals or metallic alloys, but I preferably make them throughout of gun-metal.

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

1. In an automatic steam governor, a casing having inlet and discharge ports and a valve seat between the same, a spring pressed valve having faces of different areas, with one of said faces fitting the valve seat, and a by pass connecting the inlet with the outlet and valve chamber for permitting the passage of steam to the pump or winch to keep it normally working when no load is on and to create back pressure on the valve when the load is on in order to open said valve automatically, substantially as described.

2. In combination, the casting having a cylindrical portion, and inlet and discharge openings, a cylinder valve within said cylindrical portion having an annular steam face, and a contracted valve closing the inlet port, a by pass admitting steam from the inlet port against said annular steam face, a metallic cover closing the upper end of the cylindrical portion, a screw passing through the same carrying a block *h*, a spring extending between the block and valve, and a cap upon the cover covering the upper end of the screw, substantially as described.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

WILLIAM COOKE.

Witnesses:

W. J. SULIS,

WM. PIERCE.