

No. 717,383.

Patented Dec. 30, 1902.

L. B. FULTON.
PUMP GOVERNOR.

(Application filed Oct. 3, 1901.)

(No Model.)

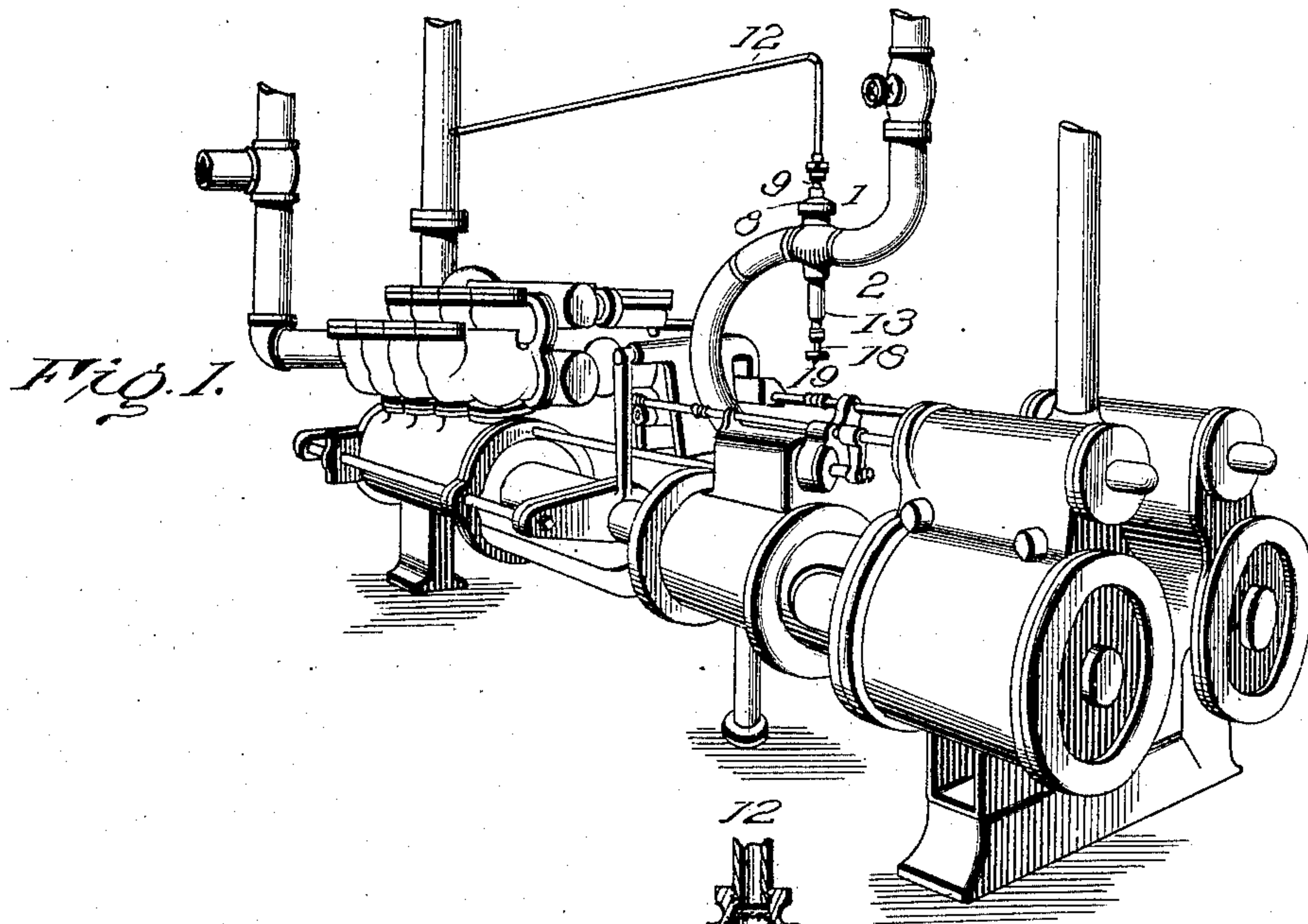


Fig. 2.

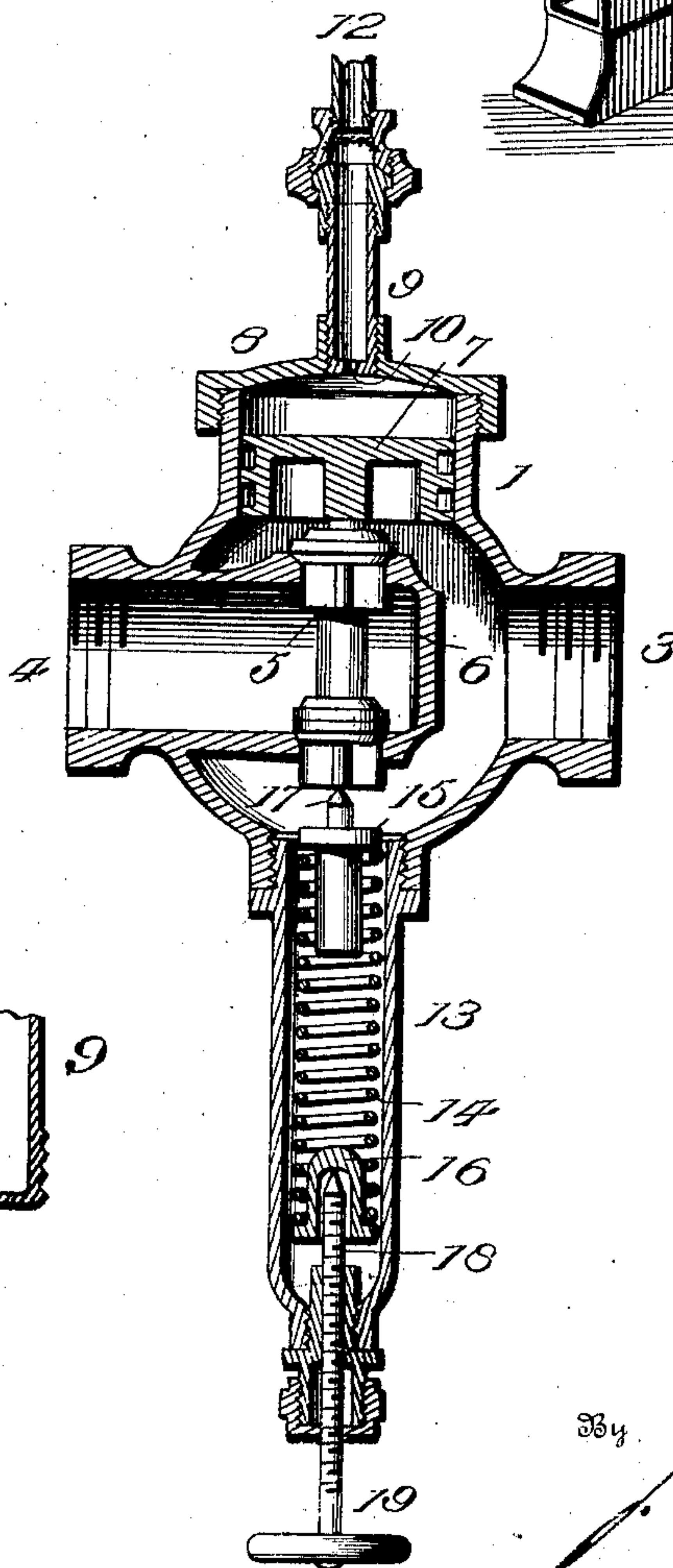
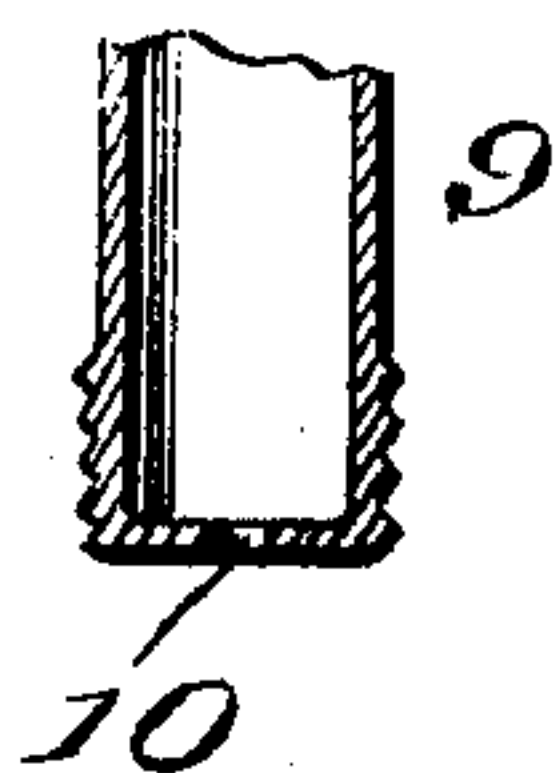


Fig. 3.



Witnesses

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UNITED STATES PATENT OFFICE.

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PUMP-GOVERNOR.

SPECIFICATION forming part of Letters Patent No. 717,383, dated December 30, 1902.

Application filed October 3, 1901. Serial No. 77,454. (No model.)

To all whom it may concern:

Be it known that I, LOUIS B. FULTON, of
Pittsburg, in the county of Allegheny and
State of Pennsylvania, have invented certain
5 new and useful Improvements in Pump-Gov-
ernors; and I do hereby declare the follow-
ing to be a full, clear, and exact description
of the invention, such as will enable others
skilled in the art to which it appertains to
10 make and use the same.

The objects of this invention are to provide
a pump-governor wherein all the parts are
inclosed, one free of all stuffing-boxes, one
wherein all jumping or pulsation is avoided,
15 one wherein a uniform relative overpressure
will be maintained in the pump-line regard-
less of fluctuation of the boiler-pressure, and
one wherein the boiler-pressure is conveyed
to the valve-controlling means without the
20 use of a separate pipe.

The invention will be hereinafter fully set
forth, and particularly pointed out in the
claims.

In the accompanying drawings, Figure 1
25 shows my improved governor as used in con-
nection with a pump. Fig. 2 is an enlarged
vertical sectional view of the governor de-
tached. Fig. 3 is an enlarged vertical sec-
tional view of the nipple.

Referring to the drawings, 1 designates the
governor-casing, shown as being mounted in
the steam-line 2. 3 is the inlet, and 4 the out-
let, openings, to which sections of the steam-
line pipe are connected, the casing preferably
35 being located under the throttle-valve. With-
in the casing is a double balance-valve 5,
having seats over upper and lower ports in
an inner extension 6. Above this valve and
resting thereon is a piston 7; but a diaphragm
40 may be substituted, if preferred.

Into an opening in the bonnet 8 above the
piston is secured a stricture-nipple 9—that is,
a short section of pipe having a small or con-
tracted opening 10 directly above the piston—
45 the purpose of such contracted opening be-
ing to prevent the jumping or pulsation which
ordinarily occurs with pump-governors. The
nipple is secured by a union-joint to a pipe
12, leading from the pump-line.

Into the bottom of the casing is secured a
depending tubular portion or housing 13,
wherein is located a spring 14, bearing at its

ends against plates 15 and 16, the former of
which has a central pointed lug 17, which is
held against the lower end of valve 5 by the 55
spring-pressure. The lower plate 16 is cupped
to receive the spindle 18 of a hand-wheel 19,
the adjustment of which controls the tension
of the spring. This spring serves to balance
the overpressure carried in the pump-line, 60
which overpressure is usually from ten to
twenty pounds. It is obvious, of course, that
a weight may be employed for the same pur-
pose; but I prefer the spring, so that there
will be no projecting parts. 65

The steam entering the governor-casing
through opening 3 always acts against the
under side of the piston. In other words,
the under side of the piston is always sub-
jected to the boiler-pressure, with the result 70
that upon the falling of pressure in the pump-
line the pressure on top of the piston will be
instantly overcome, and the piston rising will
allow the unseating of valve 5 under the ac-
tion of spring 14, thus allowing the steam to 75
pass to the pump. Upon the overpressure
being restored in the pump-line the piston
will be forced as against the boiler-pressure
and valve 5 will be instantly resealed. By
means of the stricture-nipple the inflow of 80
the water is checked and all jumping or
pulsation of the governor is avoided.

It will be noted that in a governor construct-
ed in accordance with my invention no stuff-
ing-boxes are required and that all parts are in- 85
closed save the spring-adjusting hand-wheel.
In all governors heretofore constructed, so far
as I am informed, the steam-pressure is always
exerted on the valve in the direction in which
it is moved in unseating. In my governor, 90
however, the steam passes through the casing
in a reverse direction, and in consequence ex-
erts a constant pressure against the under
side of the piston. A governor having the
characteristics herein specified is positive in 95
its operation regardless of any fluctuation of
the boiler-pressure, and the wear on the valve
is reduced to a minimum by reason of the
positive seating and unseating thereof.

I claim as my invention—

1. A pump-governor comprising a valve-
casing within the steam-line, a valve in such
casing, means tending to unseat such valve,
and a piston also within the casing constantly

subjected on one side to the direct action of the boiler-pressure, and on its other side to the pressure in the pump-line.

2. A pump-governor comprising a valve-casing within the steam-line, a valve in such casing, means tending to unseat such valve, a piston within the casing resting directly on the valve and subjected on its under side to the boiler-pressure, and a pipe leading from the pump-line and opening into such casing directly above the piston, as set forth.

3. The combination with the casing mounted in the steam-line and having a piston-chamber, and a piston in such chamber, of the valve directly beneath the piston, means tending to unseat such valve, said piston being subjected on its under side to the action of the boiler-pressure, and a pipe leading from the pump-line opening into the piston-chamber above the piston, as set forth.

4. The combination with the casing mounted in the steam-line, a valve therein and means acting on such valve to seat the same, such means being actuated in one direction by the boiler-pressure and in the opposite di-

rection by the pressure in the pump-line, of a pipe, leading from the pump-line to the casing, having a restricted opening into such casing adjacent to the valve-seating means, as set forth.

5. The combination with the casing having steam inlet and outlet openings and a hollow extension leading inwardly from the steam-outlet opening closed at its inner end and formed with opposite valve-openings, of the double or balanced valve designed to be seated in said openings, means tending to unseat such valve, and a piston within the casing constantly subjected on one side to the direct action of the boiler-pressure admitted through the inlet-opening of the casing, and on its other side to the pressure in the pump-line, as set forth.

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

LOUIS B. FULTON.

Witnesses:

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