No. 660,034. Patented Oct. 16, 1900.

D. C. STREETER.

AUTOMATIC VALVE GOVERNOR.

(Application filed June 6, 1900.)

(No Model.)

Fig. 1.

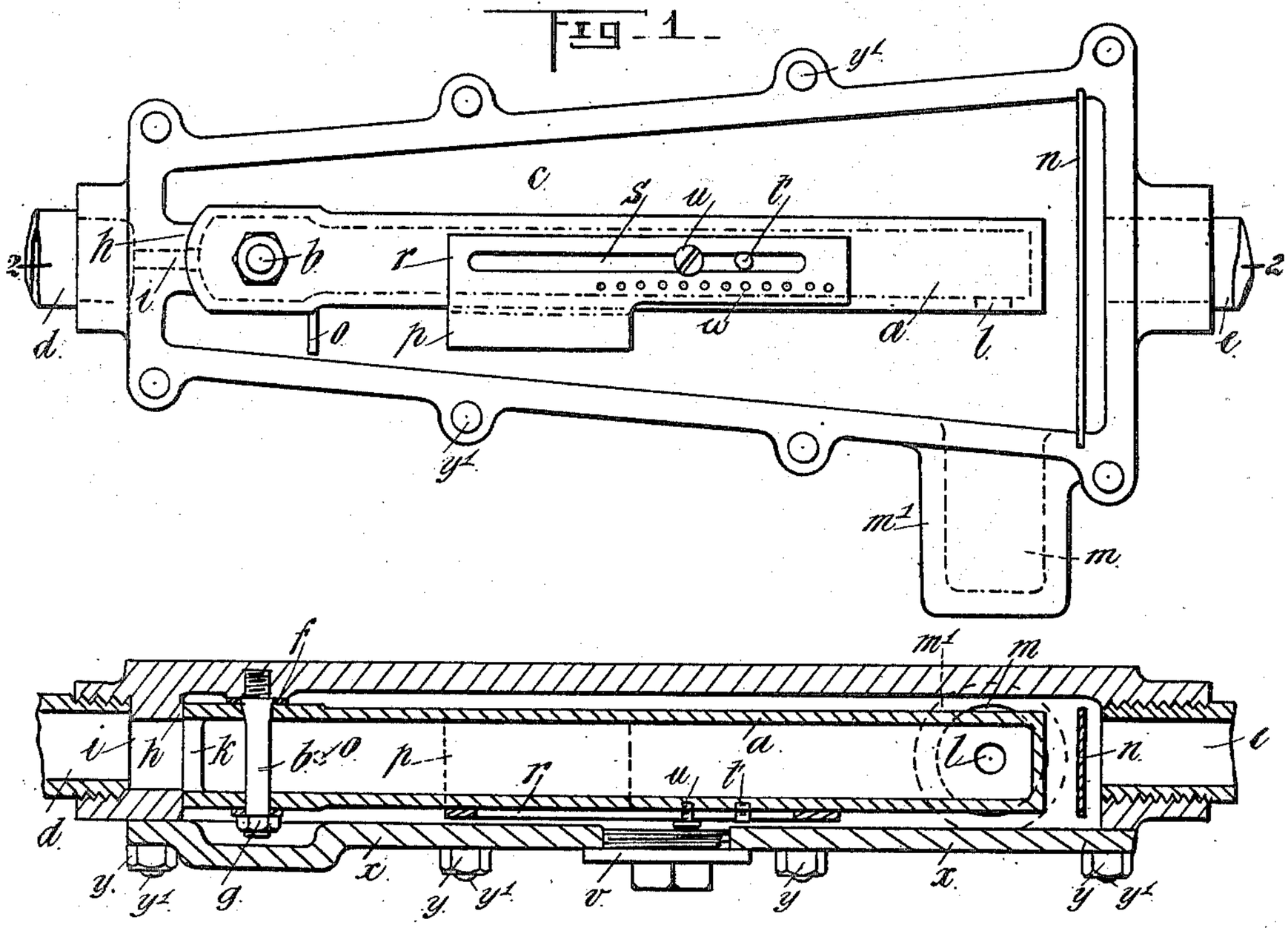

Fig. 2.

Witnesses.
J. Wm. Jones,
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Inventor:
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by his Attorney Henri A. Hayward Jr.

UNITED STATES PATENT OFFICE.

DAVID CHARLES STREETER, OF CHRISTCHURCH, NEW ZEALAND.

AUTOMATIC VALVE-GOVERNOR.

SPECIFICATION forming part of Letters Patent No. 660,034, dated October 16, 1900.

Application filed June 6, 1900. Serial No. 19,314. (No model.)

To all whom it may concern:

Be it known that I, DAVID CHARLES STREETER, a citizen of Great Britain, residing at 183 Hereford street, Christchurch, in the Colony of New Zealand, have invented a new and useful Improved Automatic Valve-Governor; and I do hereby declare the following to be a full, clear, and exact description of the same.

This invention provides improved apparatus for regulating the supply of steam to turbine engines, and according thereto the steam in its passage from the generator to the turbine is conducted into a tubular metal arm pivoted at one end within a steam-chamber. The steam passes into the arm through a port parallel with the pin upon which the arm is pivoted, said port corresponding with a port in the steam-chamber. The steam issues from the opposite end of the arm through a hole in the side thereof at right angles to the admission-port. A pipe conducts the steam from the steam-chamber to the turbine.

In the drawings, Figure 1 is a front elevation with the cover of the steam-chamber removed. Fig. 2 is a sectional plan on 2 2, Fig. 1, but with the cover upon the steam-chamber.

The same letters indicate the same parts in both the figures.

The tubular arm *a* is pivoted upon a pin *b* within the steam-chamber *c*, to which steam is admitted through a pipe *d* and discharged through a pipe *e*. The pivot-pin *b* is slightly tapering at one end, so that the pivot-hole in the arm fits closely upon it and makes an approximately steam-tight joint. A washer *f*, placed upon the pin between the arm and the casing, may be withdrawn or substituted by a thinner one as the arm wears upon the pivot-pin, upon which it is secured by a nut *g*. The end of the steam-chamber has a curved valve-face *h*, the curve being struck from the center of pivot-pin *b*, and the end of the arm is formed to work smoothly upon it as the arm vibrates. A port *i* through the valve-face *h* communicates with pipe *d*, and a corresponding port *k* in the end of the arm admits steam to the interior of the arm, through which it flows to a hole *l*, through which it escapes to the interior of the steam-chamber. Opposite the hole *l* is a pocket or recess *m*, formed in a projection *m'* from the steam-chamber, into which steam issuing through hole *l* first passes, forming a cushion for the steam and facilitating the correct operation of the apparatus.

A shield-plate *n* is fitted into guiding-recesses in the end of the steam-chamber and is employed to break the flow of steam to the discharge-pipe *e*, a passage for steam to the pipe *e* being provided between the sides of the plate and the back and cover *x* of the steam-casing. The cover is secured upon the casing by nuts *y* upon studs *y'*. The parts are arranged so that the reaction of the steam flowing through the hole *l* at a certain pressure maintains the arm in position where the port *k* in the arm and the port *i* in the chamber are in correspondence. Rise in the pressure of steam issuing through hole *l* lifts the arm upon its pivot, whereby the port in its end is moved out of correspondence with the port in the casing, and the flow of steam is reduced. A stop-pin *o* is fixed upon the under side of the arm and limits its vibration in a downward direction.

To render the operation of the apparatus adjustable, whereby steam may be delivered therefrom at varying pressures below the pressure in the generator, I employ an adjustable balance-weight *p*, which is fixed upon a plate *r*, having a slot *s*, in which works a guide-pin *t*, and a set-pin *u*, screwed into the arm. Set-pin *u* secures the weight in position after it has been adjusted, the weight being operated through a hole in the cover of the steam-casing usually closed by a screw-plug *v*. Holes *w* in the plate *r* enable the weight to be moved along the arm by means of a wire when set-pin *u* is slackened.

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

1. The combination in apparatus for the purpose described of a tubular arm pivoted within a steam-casing and having one end formed to fit a curved face upon the inside of said steam-casing, a port through said curved face leading from a steam-pipe and a corresponding port in the end of the arm said arm having a hole for the exit of steam near the end opposite to that in which the port is formed and at an angle to the pin upon which it is pivoted, and a pipe upon the casing to conduct steam therefrom substantially as specified and illustrated.

2. The combination in apparatus for the purpose described of a tubular arm pivoted within a steam-casing and having one end formed to fit a curved face upon the inside of said steam-casing a port through said curved face leading from a steam-pipe and a corresponding port in the end of the arm said arm having a hole for the exit of steam near the end opposite to that in which the port is formed and at an angle to the pin upon which it is pivoted, and a pipe upon the casing to conduct steam therefrom a balance-weight adjustable upon the arm and means for adjusting same substantially as and for the purposes herein specified and illustrated.

3. In apparatus for the purpose described the combination of a tubular arm pivoted upon a pin within a steam-casing the end of said arm being curved to correspond with a curved face upon the inside of the steam-casing with which it continues in contact as the arm vibrates the end of the arm and the steam-casing having corresponding parts through which steam is admitted to the interior of the arm from a steam-pipe and said arm having a hole for discharge of steam near the end opposite to the port and at an angle to the pivot-pin, a pocket or recess in the steam-casing opposite to the hole in the arm, a pipe to conduct steam from the casing and a shield-plate to check the flow of steam thereto substantially as and for the purposes herein specified and illustrated.

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

DAVID CHARLES STREETER.

Witnesses:

ERNEST J. ANSTISS,

FRED BROAD.