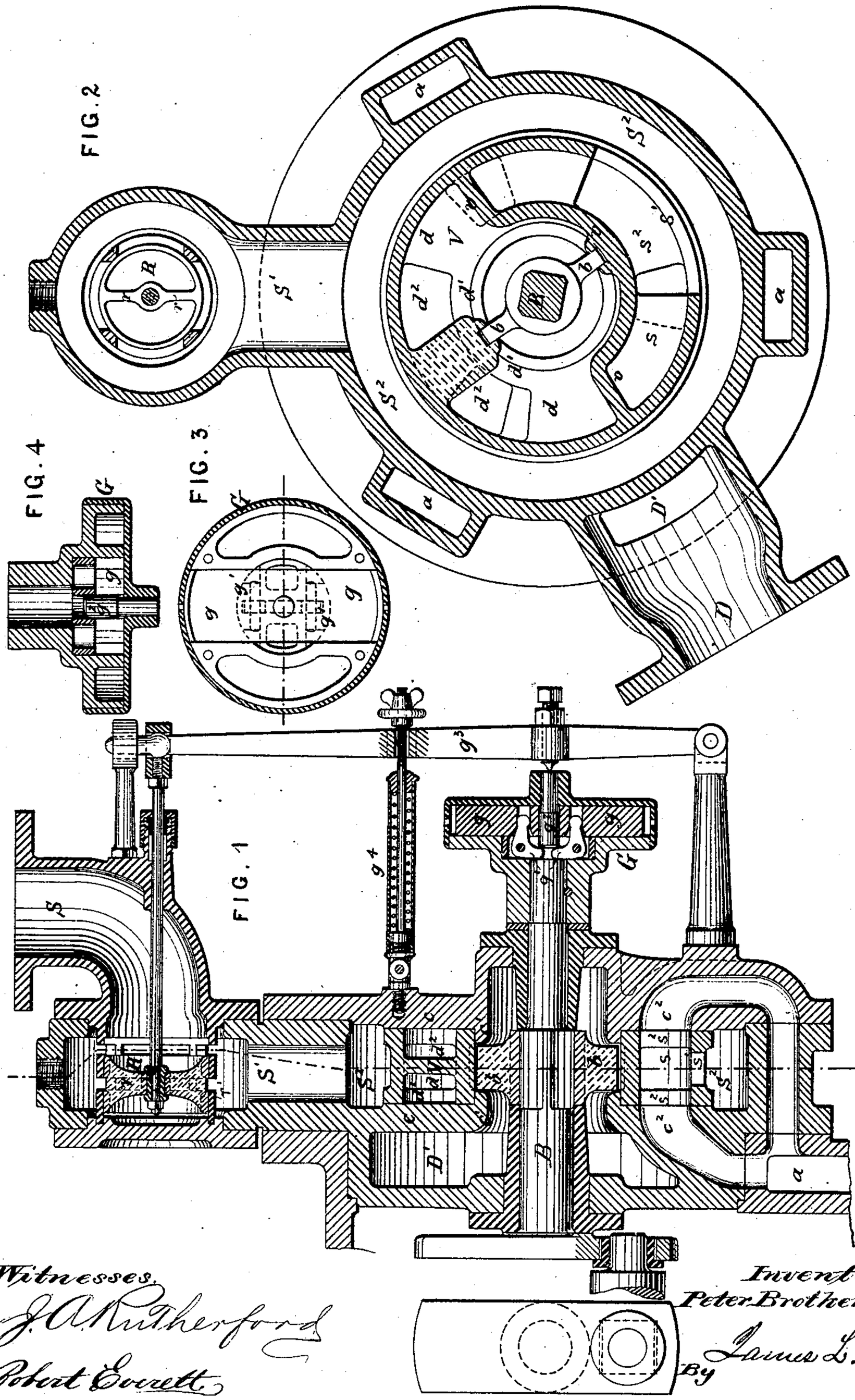
(No Model.)

P. BROTHERHOOD.

Balanced Rotary Valve and Governor.

No. 243,201. **Patented June 21, 1881.**



Witnesses.
J. A. Rutherford
Robert Everett

Inventor.
Peter Brotherhood.
By James L. Norris
Atty

UNITED STATES PATENT OFFICE.

PETER BROTHERHOOD, OF CLERKENWELL, COUNTY OF MIDDLESEX, ENGLAND.

BALANCED ROTARY VALVE AND GOVERNOR.

SPECIFICATION forming part of Letters Patent No. 243,201, dated June 21, 1881.

Application filed May 11, 1881. (No model.) Patented in England February 17, 1881.

To all whom it may concern:

Be it known that I, PETER BROTHERHOOD, a citizen of England, residing at Clerkenwell, in the county of Middlesex, England, have invented an Improved Balanced Rotary Valve and Governor, (for which I have obtained a patent in Great Britain, No. 697, bearing date February 17, 1881,) of which the following is a specification.

In an application for patent filed this day I have described my invention of a balanced rotary valve for governing the ports of several cylinders.

My present invention consists in the combination of such a rotary valve with a governor for regulating, according to the speed of the engine, the supply of steam or working-fluid. As in this combination the valve itself and its casing are constructed in substantially the same manner as I have described in the specification annexed to my application above referred to, I do not now repeat the description of those parts, which in the accompanying drawings I have marked with reference-letters similar to those used to designate the corresponding parts in the drawings accompanying my said application.

Figure 1 is a vertical section of the valve, casing, and governor, according to my present invention, taken in a plane passing through the axis of the valve. Fig. 2 is a vertical section taken in a plane perpendicular to the axis. Fig. 3 is a front view of the governor with its cover-plate removed, and Fig. 4 is a transverse section of the governor.

The valve V, constructed and arranged in its casing as described in my other application of this date, is driven by the arms *b b* from the revolving shaft B. On the outer end of this shaft is fixed a cylindrical casing, G, which has fitted to slide radially within it two weights, *g g*. These weights are notched to receive arms of two bell-crank levers, *g' g'*, the other arms of which bear against a central sliding rod, g^2. This rod is pressed inward by a lever, g^3, which is acted on by a spring, g^4, and is connected at its upper end to the regulating slide-valve R. When the shaft B revolves with excessive speed the weights *g g* are caused by increased centrifugal force to slide outward, and their bell-cranks *g' g'* moving the lever g^3 in opposition to the spring g^4, the supply-valve R is more or less closed, thus retarding the engine.

The valve R, as shown in Fig. 2, is made in the form of two rings, connected by ribs *r*, which work like pistons within a cylindrical casing, *r'*, having two sets of lateral apertures through it. When the valve R is in the position shown in the drawings all these are open, and the steam or working-fluid supplied by the pipe S to the interior of the valve issues in full volume through the apertures into the passage S' leading to the rotary slide. When, by the centrifugal force of the weights *g g* acting through the bell-cranks *g' g'* and spindle g^2 on the lever g^3, the valve R is moved toward the right, its rings cover more or less the lateral apertures, and so throttle more or less the supply of working-fluid, according as the speed of the engine exceeds more or less that to which the governor is adjusted by the screw-adjustment of the spring g^4.

Having thus described the nature of my invention and the best means I know of carrying it out in practice, I claim—

The combination, with a balanced rotary valve and a governor arranged on the shaft of said valve, of a regulating slide-valve arranged in the fluid-supply passage which leads to the rotary valve, and mechanism connected with the regulating slide-valve and arranged to be operated by the governor for controlling the fluid-supply, substantially in the manner described.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 12th day of April, A. D. 1881.

PETER BROTHERHOOD.

Witnesses:
OLIVER IMRAY,
H. E. HOPKINS.