

No. 760,344.

PATENTED MAY 17, 1904.

E. A. PAGE.
GOVERNOR.

APPLICATION FILED JAN. 22, 1904.

NO MODEL.

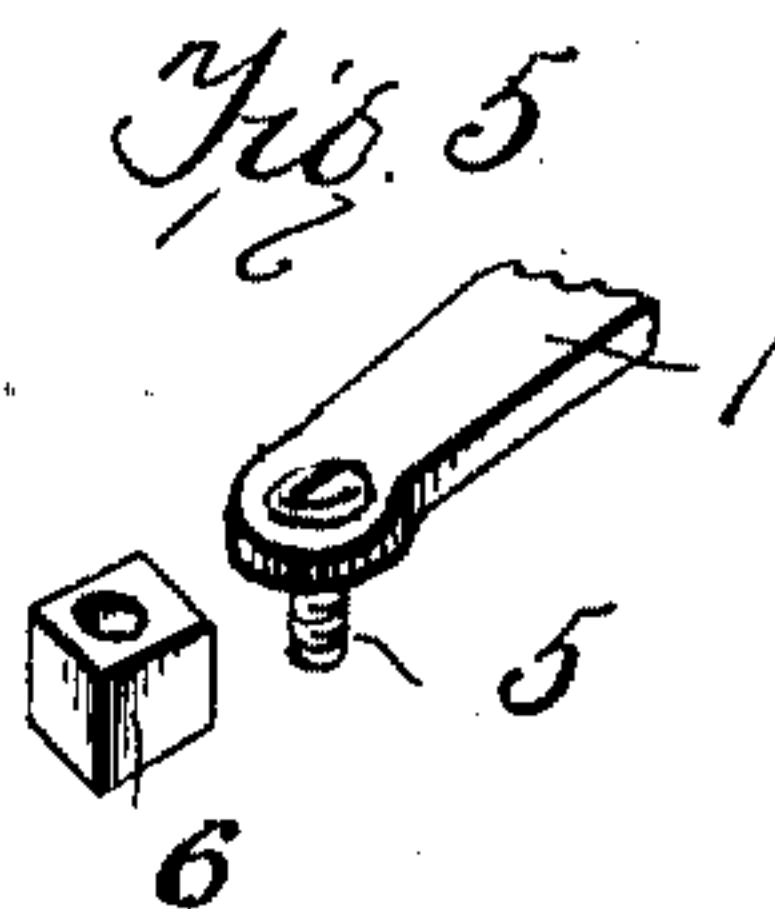
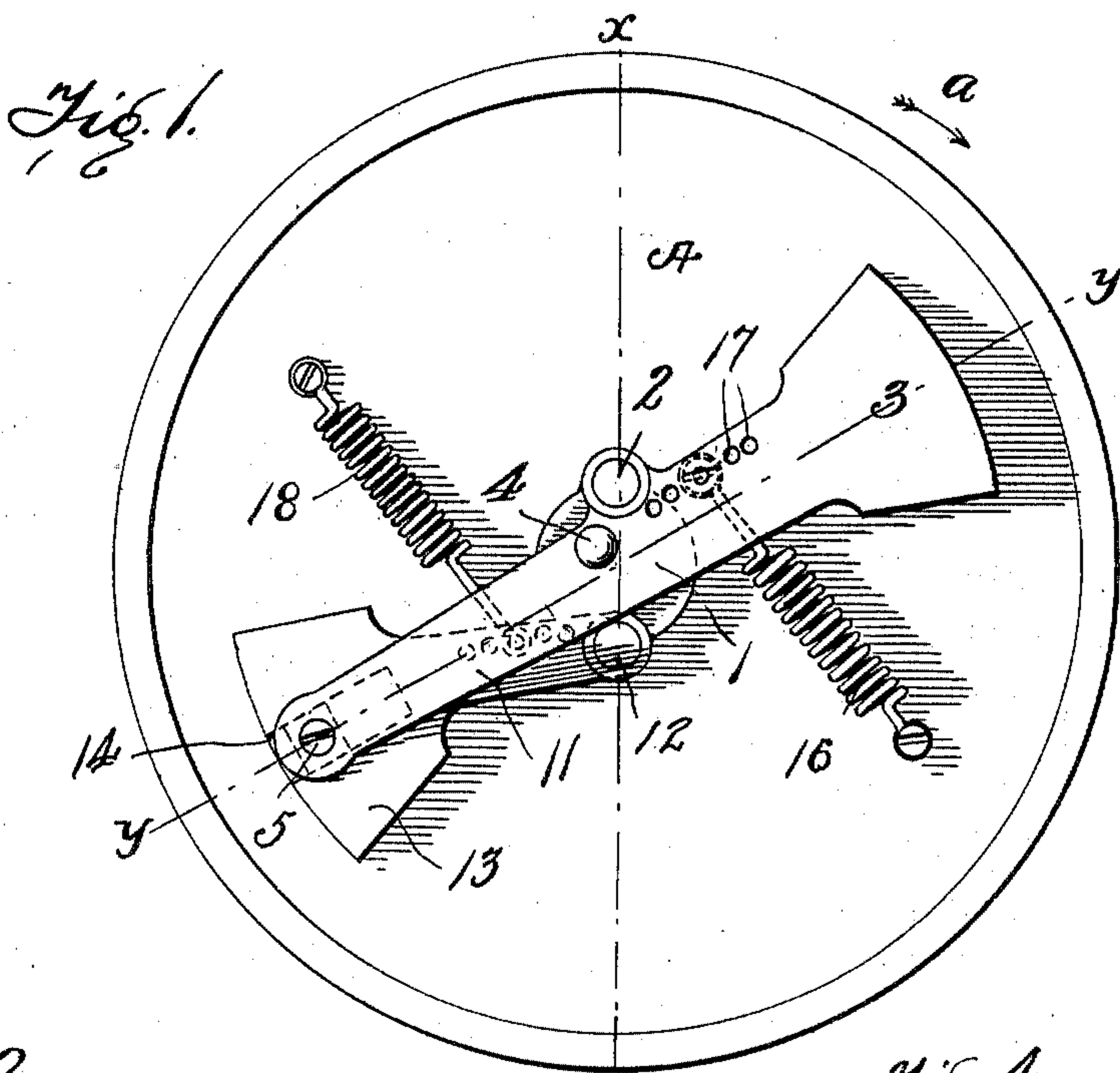


Fig. 2.

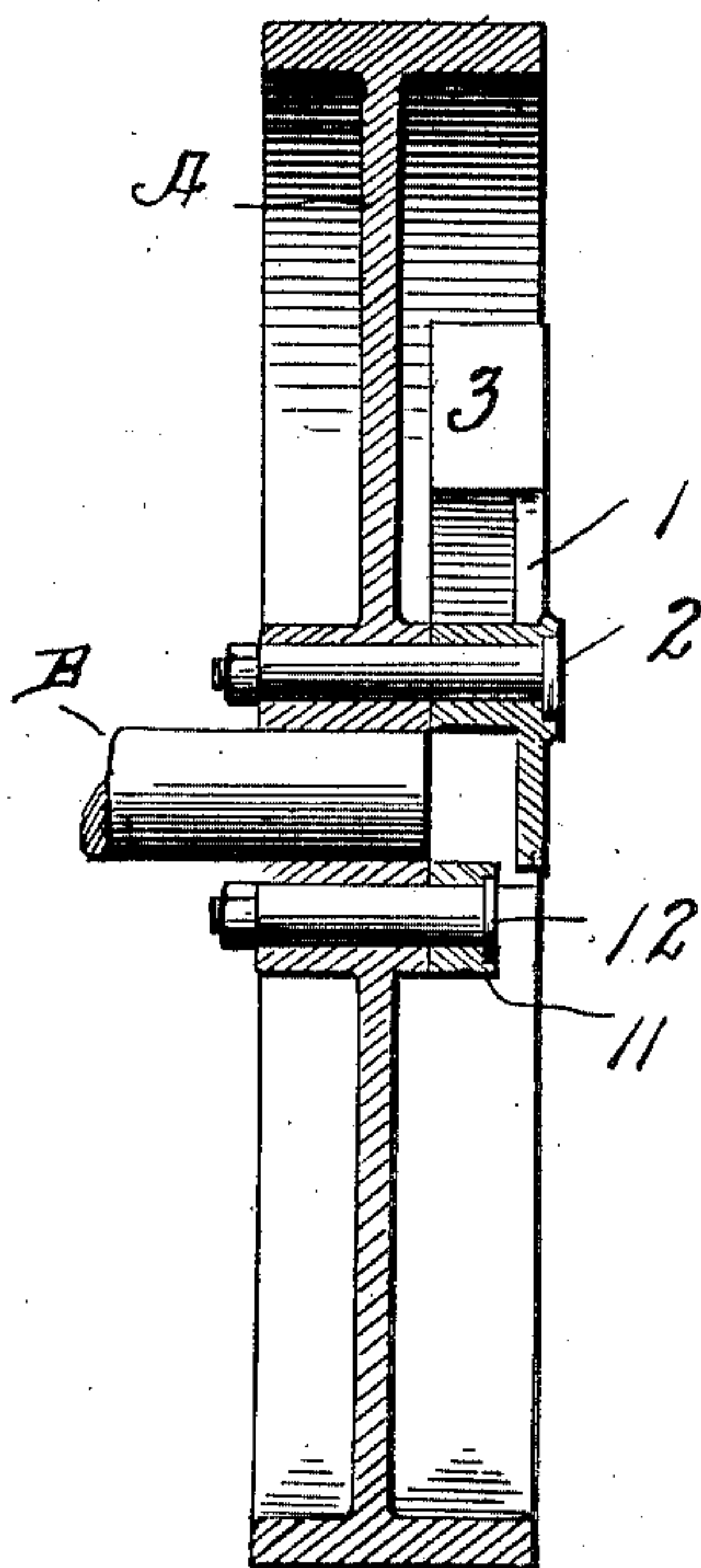


Fig. 3.

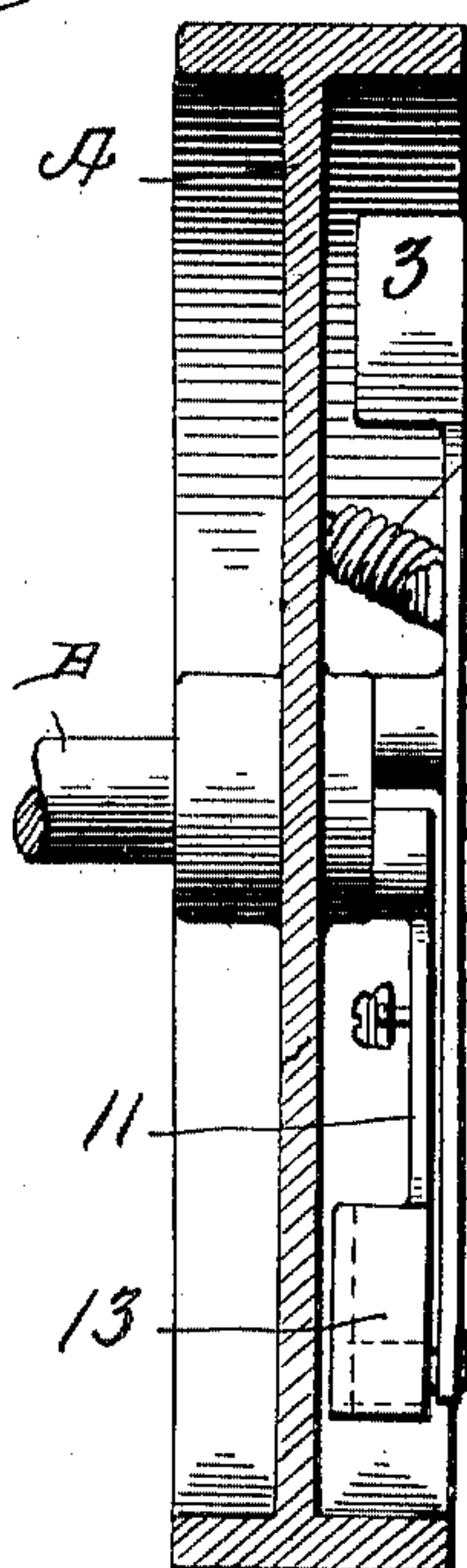
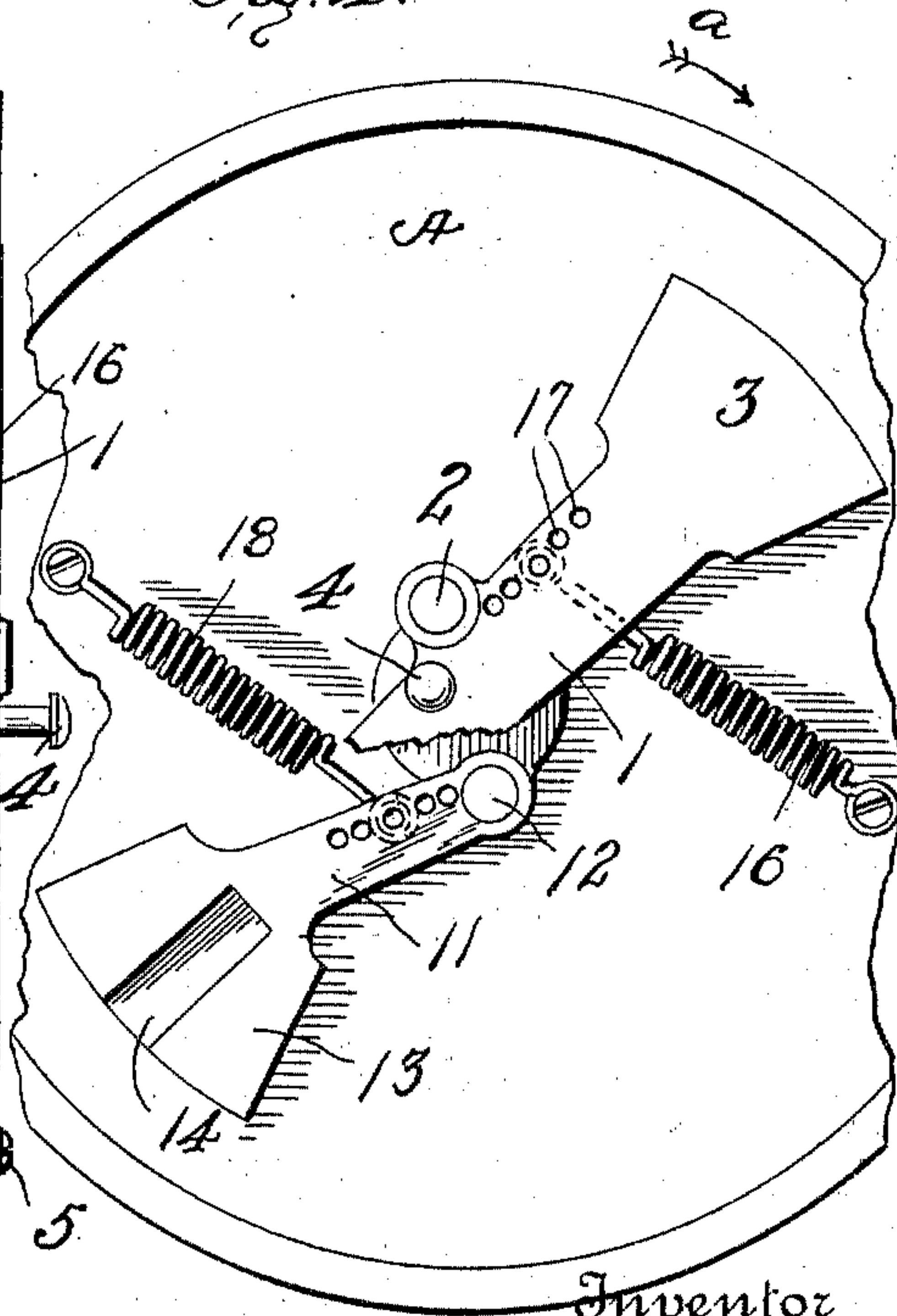


Fig. 4.



Witnesses
Chas. K. Davis.
Chas. S. Mason

Inventor
E. A. Page
by *W. A. Bartlett*
Attorney

UNITED STATES PATENT OFFICE.

ERNEST A. PAGE, OF LOCKHAVEN, PENNSYLVANIA.

GOVERNOR.

SPECIFICATION forming part of Letters Patent No. 760,344, dated May 17, 1904.

Application filed January 22, 1904. Serial No. 190,158. (No model.)

To all whom it may concern:

Be it known that I, ERNEST A. PAGE, a citizen of the United States, residing at Lockhaven, in the county of Clinton and State of Pennsylvania, have invented certain new and useful Improvements in Governors, of which the following is a specification.

This invention relates to improvements in governors or speed-regulators which control the valve of a steam or other fluid-pressure engine.

The object of the invention is to produce a governor of the class known as "inertia-governors," although centrifugal action as well as inertia are operating forces developed by the rotation of the governor.

The invention consists in the construction of parts and combination of mechanical elements substantially as hereinafter described and claimed.

Figure 1 is a front elevation of a fly-wheel with governor attached. Fig. 2 is a section on line *xx*, Fig. 1. Fig. 3 is a section on line *yy*, Fig. 1. Fig. 4 is a plan, partly broken away to show the position of lever and lever connections. Fig. 5 shows details of broken arm and slide-piece of Fig. 4.

The letter A indicates a fly-wheel of any usual construction. The wheel might have spokes or arms; but a web and rim are indicated for convenience. The wheel is mounted, as usual, on a shaft B.

To the face or hub of the fly-wheel A a weighted lever 1 is pivoted on a pivot 2, which is at one side of shaft B. One end of this arm 1 carries a weight 3. Arm 1 extends across the center of the wheel and carries a pin 4, from which connection is made to operate the valve of the engine, as is common in governors of this general class. The arm 1 near the opposite end from weight 3 has a pin or pivot 5, connecting to a slide-block 6, said block 6 being free to turn on pivot 5. At the side of the wheel A opposite to pivot 2 I arrange a second pivot 12, on which pivot a short arm 11 is supported. This arm 11 has a weight 13 at its outer end, and substantially opposite to the weight 3 with reference to the shaft B or center of the fly-wheel. The arm 11 or its weight 13 contains a recess or guideway 14 in

which the block 6 may move longitudinally, but not laterally. Thus the arms 1 and 11 are connected together by means of said guideway and slide-block, so that when one of these arms, as 1, swings on its pivot 2 the other arm 11 must swing on its pivot 12, and vice versa.

The arm 1 has a spring 16 connected thereto and to a point on the wheel A near its periphery. Preferably this spring connection with the arm is movable, as by means of a number of holes 17 in the arm 1. A spring 18 is connected to the wheel A in similar manner to spring 16, but at the opposite side of the wheel, and is adjustably connected to the arm 11. The springs 16 and 18 act as a centripetal power to swing the weights 3 and 13 toward the center of the wheel A. The weights 3 and 13 and the arms 1 and 11 practically counter-balance, so that wheel A is evenly and concentrically weighted in all positions.

The rotation of wheel A is in the direction indicated by the arrows *aa*. Such rotation tends to swing the weights 3 13 backwardly with reference to the direction of rotation of the wheel, both weights acting with the same tendency and each reinforcing the centrifugal action of the other against the resistance of the two springs. The outward movement of the weights swings the pin 4 (or other suitable connection) toward the valve-closing position. Any sudden slackening of the speed of the fly-wheel A, as by the addition of a load to the engine, causes the weights 3 13 to swing forward by their inertia or impetus, the centripetal springs 16 18 also assisting in this movement, which movement shifts the valve-controlling pin or part 4 to position to increase the steam-supply.

My construction is such that a very accurate balancing of parts is maintained in all positions of the weighted arms. The construction is simple and the principle of operation easily understood.

What I claim is—

1. In a governor as described, a long weighted arm constructed to pivot at one side of and extend across the center of a fly-wheel, a short weighted arm constructed to pivot at a corresponding position opposite the fly-wheel cen-

ter, a slideway in the shorter arm near its outer end, and a slide-block connected to the long arm, and free to move in said slideway, and means for moving the valve connected to one
5 arm.

2. In a governor as described, the combination with a fly-wheel, of a weighted long arm pivoted to said wheel at one side and extending across its center, a weighted short arm
10 pivoted to the fly-wheel at the opposite side of its center from the pivot of the long arm, and extending from its pivot toward the periphery of the wheel, a sliding connection between the long and short arms, and centripetal springs connecting said arms to the fly-
15 wheel.

3. In a steam-engine governor, the combination with a fly-wheel, of a long arm pivoted to said wheel at one side of the center and extending beyond said center in both directions,
20 one end being weighted, a short arm pivoted next the fly-wheel and extending under said long arm, said short arm weighted at the end remote from the weight on the long arm, a
25 sliding coupling between the two arms, springs connected to the arms to swing the weights

toward the wheel center, and means connected to one arm for shifting the valve.

4. The combination, with a fly-wheel, of two weighted arms pivoted thereon at opposite
30 sides of the center and at about the same distance from the center, a spring connected to one arm and the wheel, a sliding connection between the two arms, and means on one arm for shifting the valve. 35

5. In a governor, a long weighted arm pivoted at one side of the center of the fly-wheel and extending across the center thereof, a short weighted arm pivoted at the opposite
40 side of the center of the fly-wheel and extending toward the periphery thereof close to the long arm, a connection between said arms so that both swing together from their pivots, and a centripetal spring attached to the fly-
45 wheel and one of the arms and acting against the centrifugal action of the weights.

In testimony whereof I affix my signature in presence of two witnesses.

ERNEST A. PAGE.

Witnesses:

DAVID SALMON,

CHAS. E. HELTMAN.