

S. Stanton,
Steam-Engine Valve-Gear.
No 80,025. Patented July 14, 1868.

Fig. 1

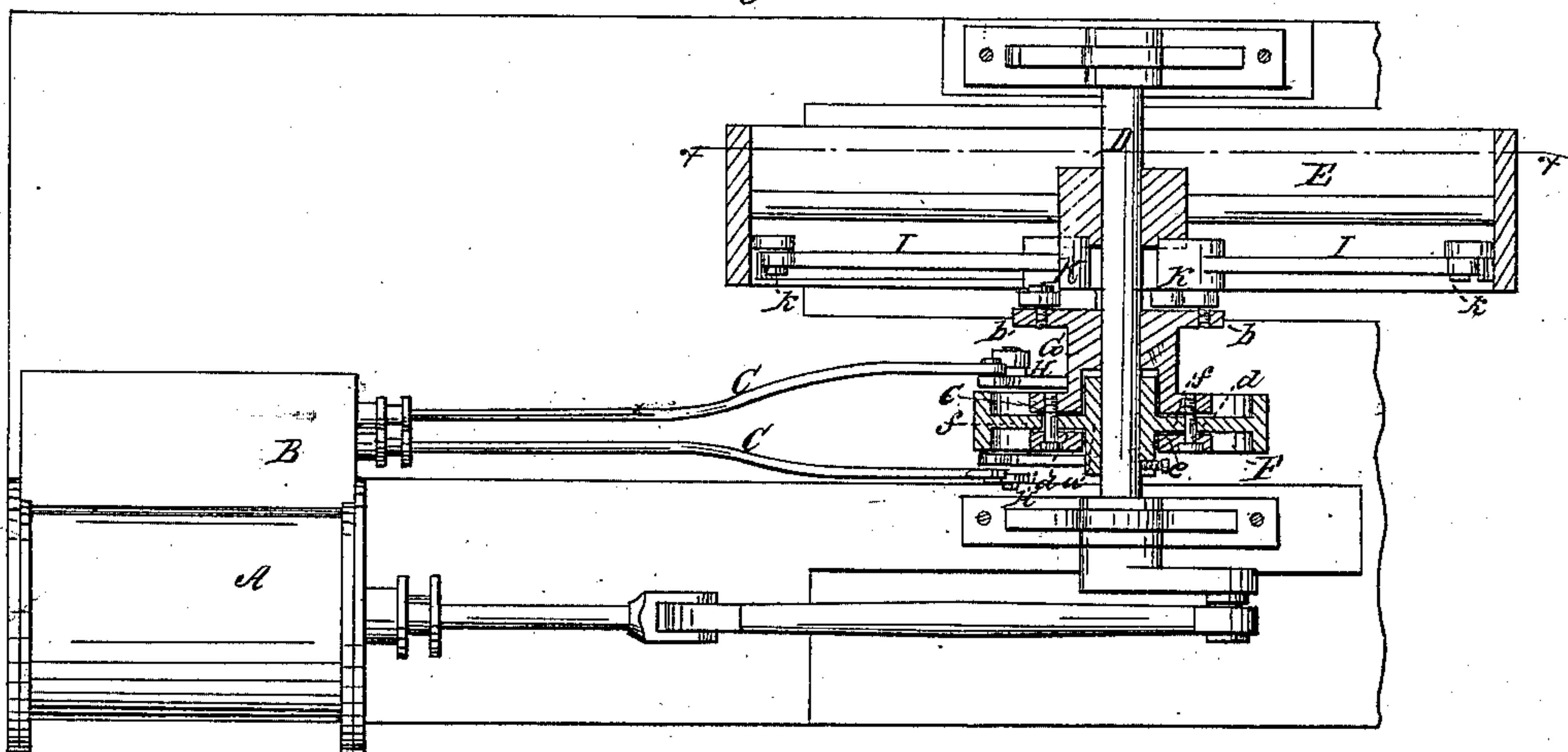


Fig. 2

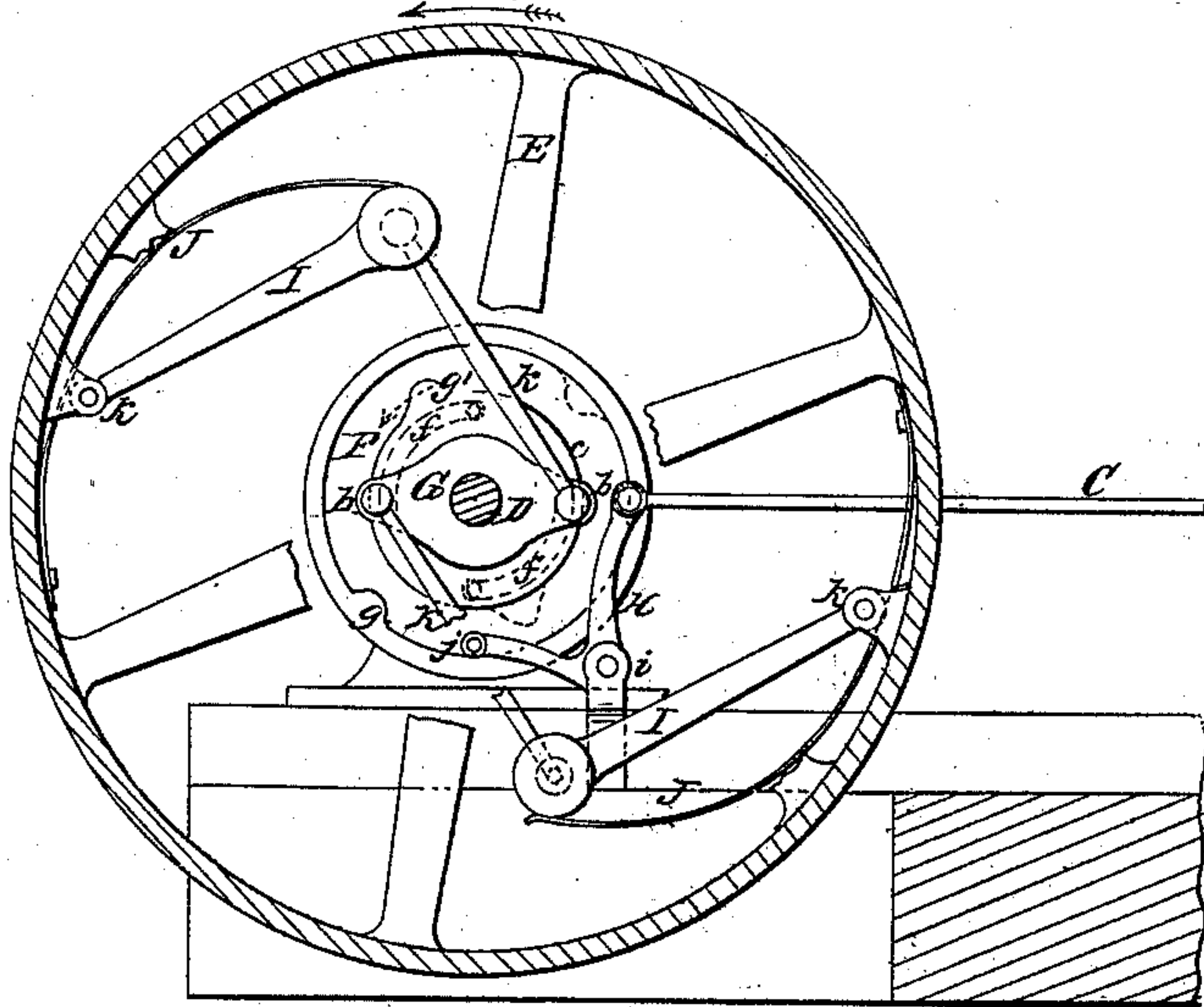
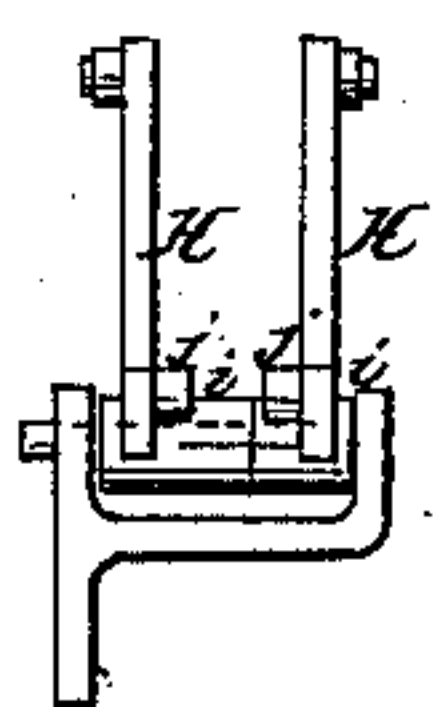


Fig. 3



Witnesses
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United States Patent Office.

SAMUEL STANTON, OF NEWBURG, NEW YORK.

Letters Patent No. 80,025, dated July 14, 1868.

IMPROVEMENT IN CUT-OFF-VALVE GEAR.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, SAMUEL STANTON, of Newburg, in the county of Orange, and State of New York, have invented a new and improved Self-Acting Variable Cut-Off; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

This invention relates to a new and improved application of a governor to the slide-valves of a steam-engine, whereby a more equable motion than usual is obtained, and the steam admitted into the cylinder at all times, when the ports are fully open, whereby the "wire-drawing" of the steam, occasioned by the latter passing through a partially-opened port, is avoided, and the steam within the cylinder allowed to work under a pressure equal to that which it has in the boiler.

In the accompanying sheet of drawings—

Figure 1 is a plan or top view of my invention.

Figure 2, a side sectional view of the same, taken in the line *x x*, fig. 1.

Figure 3, a detached view of two levers pertaining to the same.

Similar letters of reference indicate corresponding parts.

A represents the steam-cylinder of an engine, and B the steam-chest connected therewith, and provided with two slide-valves, the rods, C C, of which are shown.

D is the crank-shaft, driven from the piston-rod of the steam-cylinder as usual, and E a fly-wheel, firmly secured on shaft D; F is a pulley or wheel, also secured on shaft D; and G is a sleeve, placed loosely on said shaft, and fitting loosely over one end of the hub *a* of the wheel F. One end of this sleeve has two projections, *b b*, extending from it at opposite points, and the opposite end has a circular flange, *c*, which abuts against one side of the wheel F, and this flange *c* is connected by screws *d* to an annular disk or ring, *e*, which abuts against the opposite side of wheel F, and is fitted loosely on the hub of F.

By this arrangement, the sleeve G, flange *c*, and ring *e* are allowed to turn independently of the shaft D and wheel F, the screws *d*, which connect the flange *c* and ring *e*, passing through oblong concentric curved slots *f*, in wheel F, as shown clearly by the dotted lines in fig. 2.

The wheel F has a rim which projects beyond both sides of the wheel F, and to the inner side of the rim there are projections *g*, one at each side of the body or main portion of the wheel, and at the peripheries of the flange *c* and ring *e* there are projections *g'*, one to each, (see fig. 2.)

H H are two bent levers, their axes, *i*, being at their angles, (see figs. 2 and 3.) The outer ends of the lower arms of these levers have pins, *j*, projecting laterally from them, and these pins extend within the rim of the wheel F. To the upper ends of the levers H H the valve-rods C C are attached.

The fly-wheel E has a governor connected with it. This governor is composed of two bars, I I, the outer ends of which are pivoted to the inner side of the rim of the fly-wheel, as shown at *k k*. These bars I I have springs J J, which are attached to the inner side of the rim of the fly-wheel, bearing against their inner ends, as shown clearly in fig. 2. These bars I I are connected by rods K K to the projections *b b*, on one end of the sleeve G, as shown clearly in fig. 2.

When the engine is at work, the fly-wheel E moves in the direction indicated by the arrow, fig. 2, and the arms I I of the governor will, when the fly-wheel E is rotated beyond a certain speed, be thrown outward under the centrifugal force generated by the rotation of the wheel, and the sleeve G turned, and consequently the flange *c* and ring *e*, and the projections *g'* of the flange and ring brought nearer to the projections *g* of the wheel F.

The projections *g g'* operate the levers H H, and consequently the slide-valves, the projections *g* of F opening the valves, and the projections *g'* of *c* and *e* closing them; consequently it will be seen that when the engine is running at its proper speed, and the speed of the rotation of the fly-wheel E is not sufficient to throw out the arms I I of the governor, the valves will be opened and closed at the proper intervals to supply the cylin-

der A with the necessary steam; but when the shaft D increases in speed by having work thrown off from it, or from other causes, the bars I will be thrown out under the increased speed of the fly-wheel E, and the flange *c* and ring *e* turned so that the projections *g'* will be brought nearer the projections *g*, and the valves consequently closed quicker, and the steam cut off from the cylinder earlier in the stroke of the piston, and the engine brought down to a proper speed. The valves are always moved the same distance in order that the ports may be fully opened in every case, the regulating or governing of the amount of steam into the cylinder being effected by the closing of the valves more or less early in the stroke of the piston.

By this arrangement, a very simple, economical, and compact means is obtained for operating the slide-valves, the application of the governor to the valve being very direct, all gearing and belting being dispensed with.

I claim as new, and desire to secure by Letters Patent—

1. The combination of the bent levers H H, rollers upon the pins *j*, and the cams *g g'*, for opening and closing the valves, as herein shown and described.

2. The sleeve G, wheel F, flange *c*, and ring *e*, in connection with the governor and the valve-levers H H', all arranged to operate in the manner substantially as and for the purpose set forth.

The above specification of my invention signed by me, this 9th day of October, 1867.

SAMUEL STANTON.

Witnesses:

WM. F. McNAMARA,

ALEX. F. ROBERTS.