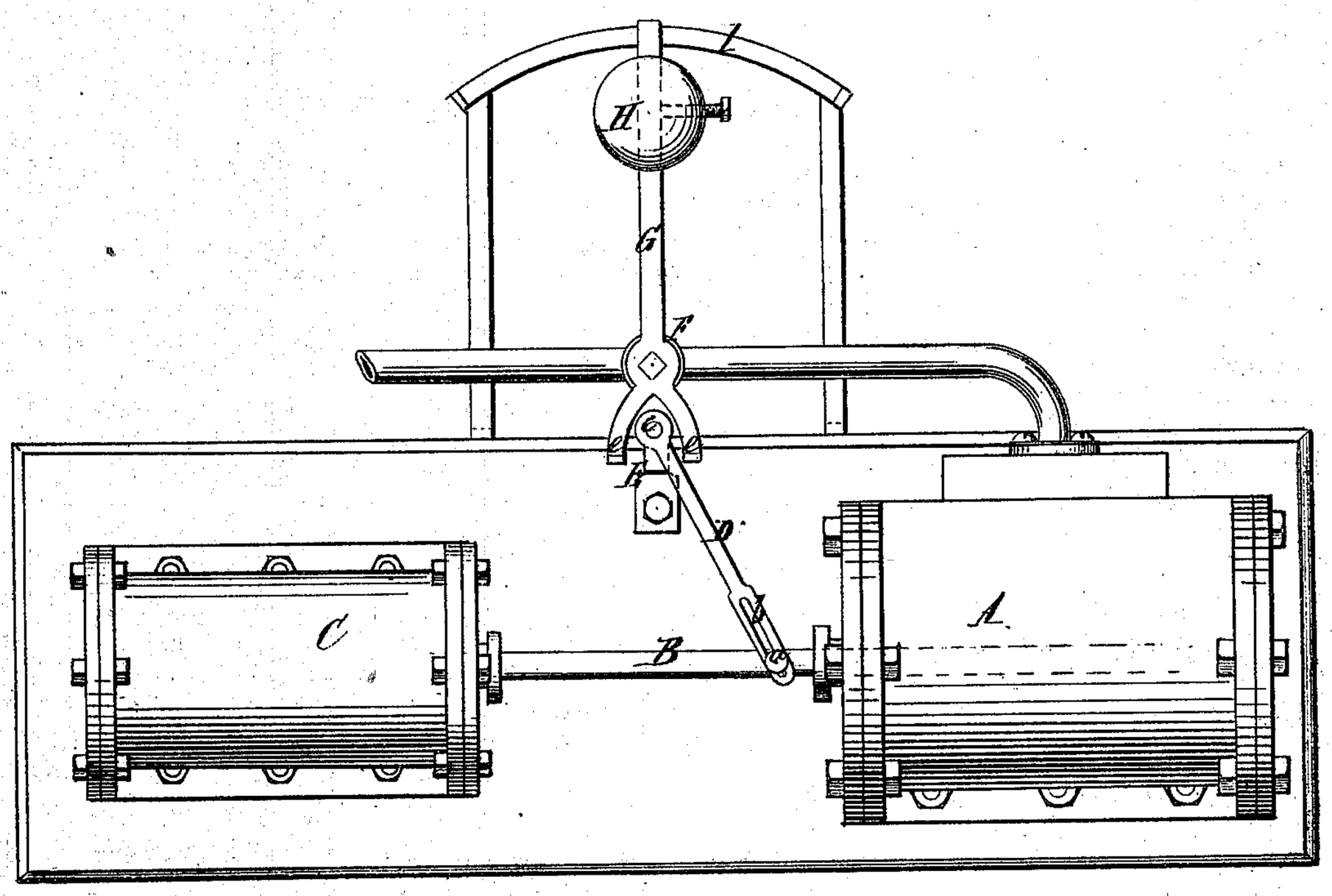
A. S. Cameron,

Governor.

No. 112,415. Patented Mar. 7. 1871.



Witnesses:

E. F. Kastenhuber

C. Wahlers.

Inventor:

A. S. Cameron

per

Van Santvoord & Hauff

Attys

UNITED STATES PATENT OFFICE.

ADAM S. CAMERON, OF NEW YORK, N. Y.

IMPROVEMENT IN GOVERNORS FOR DIRECT-ACTING ENGINES.

Specification forming part of Letters Patent No. **112,415**, dated March 7, 1871.

To all whom it may concern:

Be it known that I, ADAM S. CAMERON, of the city, county, and State of New York, have invented a new and Improved Governor for Direct-Acting Engines; and I do hereby declare the following to be 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 drawing, forming part of this specification, which drawing represents a plan or top view of a direct-acting engine fitted up with a governer according to my invention.

This invention consists in controlling the supply of steam to the cylinder of a direct-acting engine, in which the length of the stroke of the piston, in the absence of a crank, changes with the speed at which said piston travels, by causing the piston itself to partially or wholly close the throttle-valve whenever its speed, and consequently its stroke, increase beyond the desired limit.

In the example shown by the drawing, the letter A designates the steam-cylinder of a direct-acting engine, the piston of which connects by a rod, B, with the plunger working in the pumping-cylinder C.

In the rod B is secured a stud, *a*, which catches in a slot, *b*, in the end of a lever, D, which swings on a vertical pivot, *c*, secured in a bracket, E, rising from the bed-plate of the engine, or which may be made to swing loosely on the spindle of the throttle-valve F, said valve being so arranged that its spindle occupies a vertical position.

With said spindle are firmly connected two tappets, *e*, which are situated one on each side of the lever D, and at such a distance apart that the lever will just come in contact with the same at each end of the regular stroke of the steam-piston.

On the spindle of the throttle-valve is also mounted a rod, G, on which is secured a weight, H, and the outer end of which is supported by an arc, I. The weight H is made adjustable on the rod G, so that it can be moved in and out, and it is secured in the desired position by a set-screw.

If the engine runs at its regular speed the lever D just touches the tappets *e* at the end of each stroke of the piston, and the throttle-valve and the rod G, with its weight, are not disturbed; but if the speed of the engine, and in consequence thereof the stroke of the piston, increase, the lever D strikes one of the tappets *e* at the end of the first increased stroke of the piston, and the throttle-valve is partially closed, and remains thus while the engine is taking steam during the succeeding stroke, and the engine is thereby prevented from running away.

The amount of the motion imparted to the throttle-valve by the lever D depends in some measure upon the position of the weight H. If this weight is far out on the rod G and the lever D strikes one of the tappets, said weight is carried farther by its momentum than it is if it is situated close to the spindle of the throttle-valve; and if from some cause the piston flies out with very great velocity and the weight H is far out on the rod G, said rod is carried by the momentum of the weight far enough to close the throttle-valve almost entirely; but if the weight is close in toward the spindle of the throttle-valve, its momentum is not great enough to carry the rod G any farther than it would be carried by the direct action of the lever D against one of the tappets.

By these means the supply of steam to the cylinder is regulated automatically, according to any increase of the stroke of the piston due to an increase of the speed of the engine.

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

The mechanism, substantially such as herein set forth, whereby the steam-piston of a direct-acting engine is caused to partially or wholly close the throttle-valve whenever the stroke of said piston increases beyond the desired limit.

A. S. CAMERON.

Witnesses:
W. HAUFF,
E. F. KASTENHUBER.