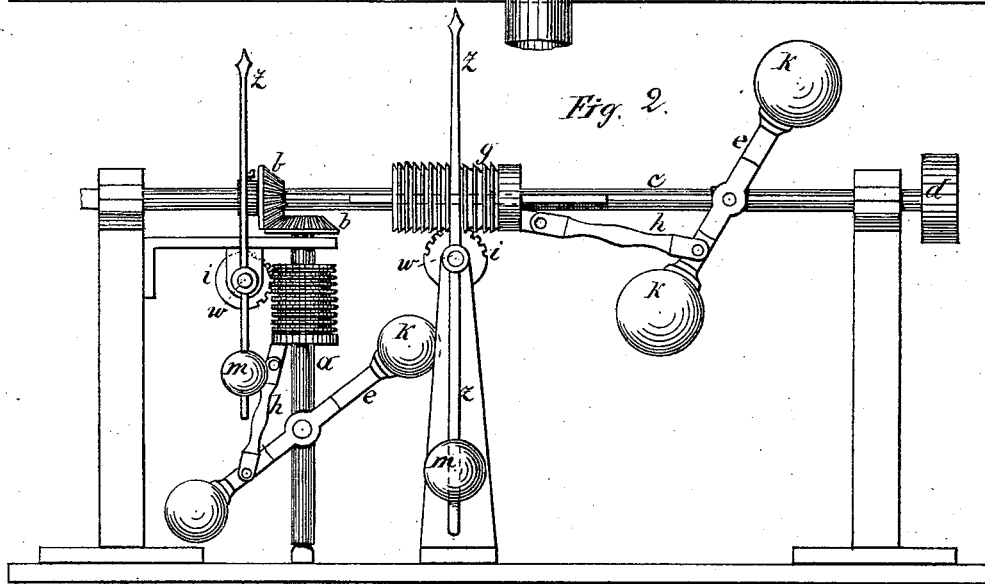
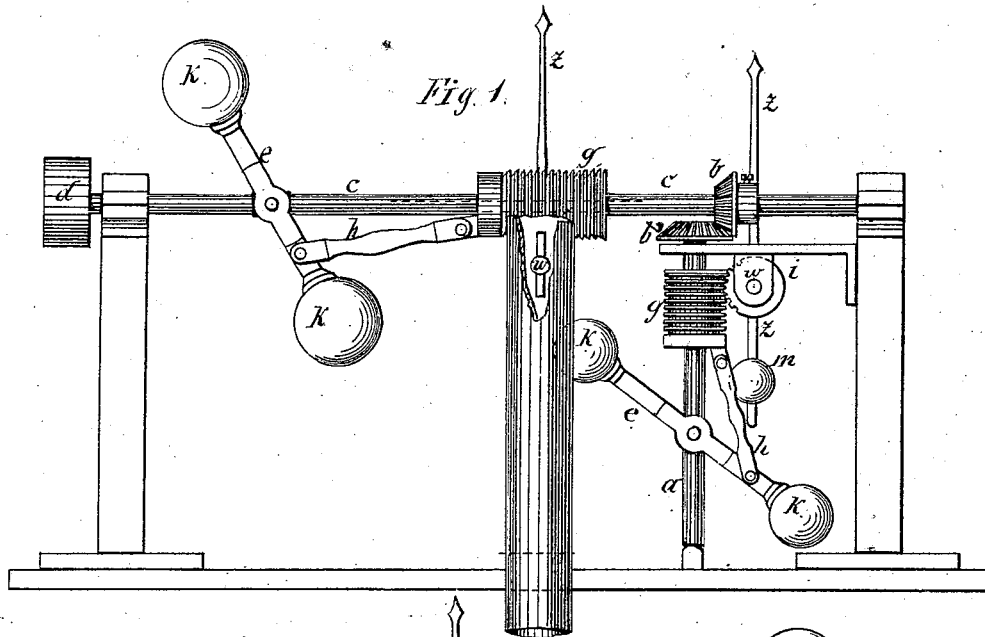


M. MUCHIN.
Steam-Governor.

No. 159,955.

Patented Feb. 16, 1875.



Witnesses.
L. M. D. Guillaume
Wm. Beale & Co.

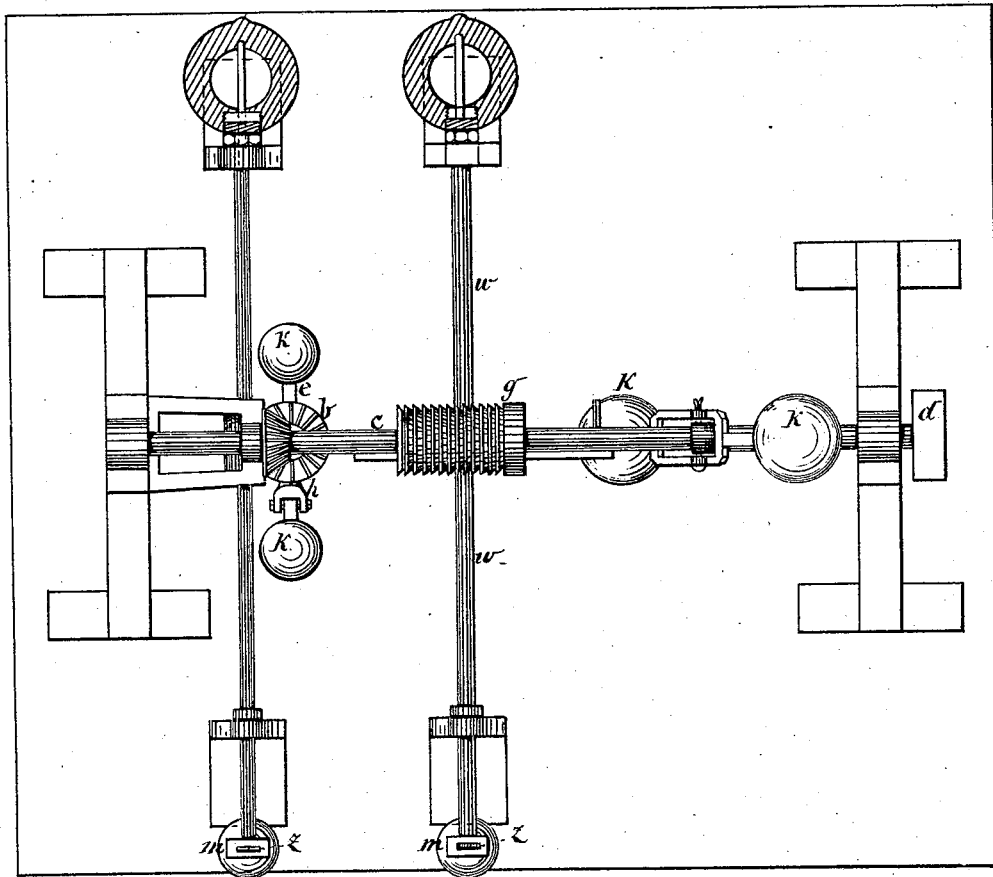
Inventor
Matthew Muchin
per Henry Orth
att'y

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Fig. 3.



Witnesses
L. M. D. Guillaume
Wm. Boatsdale

Inventor
Matthew Muchin
per *Henry Cuth*
att'y

UNITED STATES PATENT OFFICE.

MATTHEW MUCHIN, OF RIGA, RUSSIA.

IMPROVEMENT IN STEAM-GOVERNORS.

Specification forming part of Letters Patent No. **159,955**, dated February 16, 1875; application filed December 24, 1874.

To all whom it may concern:

Be it known that I, MATTHEW MUCHIN, of the city of Riga, in the Empire of Russia, have invented an Improved Governor for Steam-Engines, of which the following is a specification:

The governor for steam-engines shown in the drawings hereto annexed is acting by centrifugal power.

Figures 1 and 2 are side elevations, showing the governor applied in a vertical as well as a horizontal position. Fig. 3 is a plan of the same.

The vertical governor-shaft *a* is put in motion by the bevel-gear *b*, which is driven by the horizontal shaft *c*. The latter receives its motion through the crank-shaft of the engine by means of the pulley *d*. The bevel-gear *b* may also be affixed directly to the crank-shaft of the engine, and the shaft *c* in that case is dispensed with. The shaft *a* is held in its vertical position by any suitable bearings, and carries the lever *e*, having a ball, *k*, affixed to each end, and is pivoted to the shaft *a* in such a manner that it will, during the rotation of said shaft *a* by the centrifugal force of the balls *k*, have a tendency to assume a normal position in relation to the shaft *a*. The small rod *h* connects the lever *e* with the sleeve *g*, which is only sliding but not turning on the shaft *a*, so that, when the lever *e* is turning around its horizontal pin the sleeve *g* is sliding. On the external surface of this sleeve *g* are grooves acting as teeth, and gearing with the toothed segment *i*, which, being placed on the axle *w* of the throttle-valve, acts on the latter. The weight *m*, applied to the lower part of the hand *z*, always tends to restore this hand to its vertical position so soon as it leaves the same, and thus pushes the lever *e* back to its original oblique position. When the lever *e* is put in a certain oblique position for the normal number of rotations, and the apparatus adjusted, the centrifugal power of

the balls *k* turning rapidly will tend to put the lever *e* in a horizontal position. Thereby the sleeve *g* is raised, and the throttle-valve more closed.

As soon as the rapidity of the turning decreases, the weight *m*, affixed to the lower end of the hand *z*, which was in an oblique position, will push down the sleeve *g*, and, by means of the rod *h*, restore the lever *e*, with the balls *k*, to the former position, whereby the throttle-valve is more opened.

The horizontal governor contains substantially the same parts of construction as the vertical. They are marked with the same letters of reference.

The difference between the two consists in the position of the governor-shaft *a*, which, instead of vertically, is placed horizontally; in consequence whereof the hand *z* is not parallel with the shaft *a*; and, under these circumstances, the shaft *a* can receive its motion directly from the crank-shaft of the steam-engine by means of gearing or belts, rendering thus the shaft *c* superfluous.

The shaft *a* may be placed in cushions or between centers.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

In a governor for steam-engines, the combination of the shaft *a*, toothed sleeve *g*, mounted on said shaft *a*, with capability of sliding to and fro, the lever *h*, and the lever *e*, provided with a ball at both ends, with the toothed segment *i*, shaft *w*, index-hand *z*, the weight *m*, and a valve, substantially as and for the purposes shown and described.

In testimony that I claim the foregoing I have hereunto set my hand this 23d day of September, 1874.

MATTHEW MUCHIN.

Witnesses:

E. WOLLEYDT,
F. HAUSMANN.