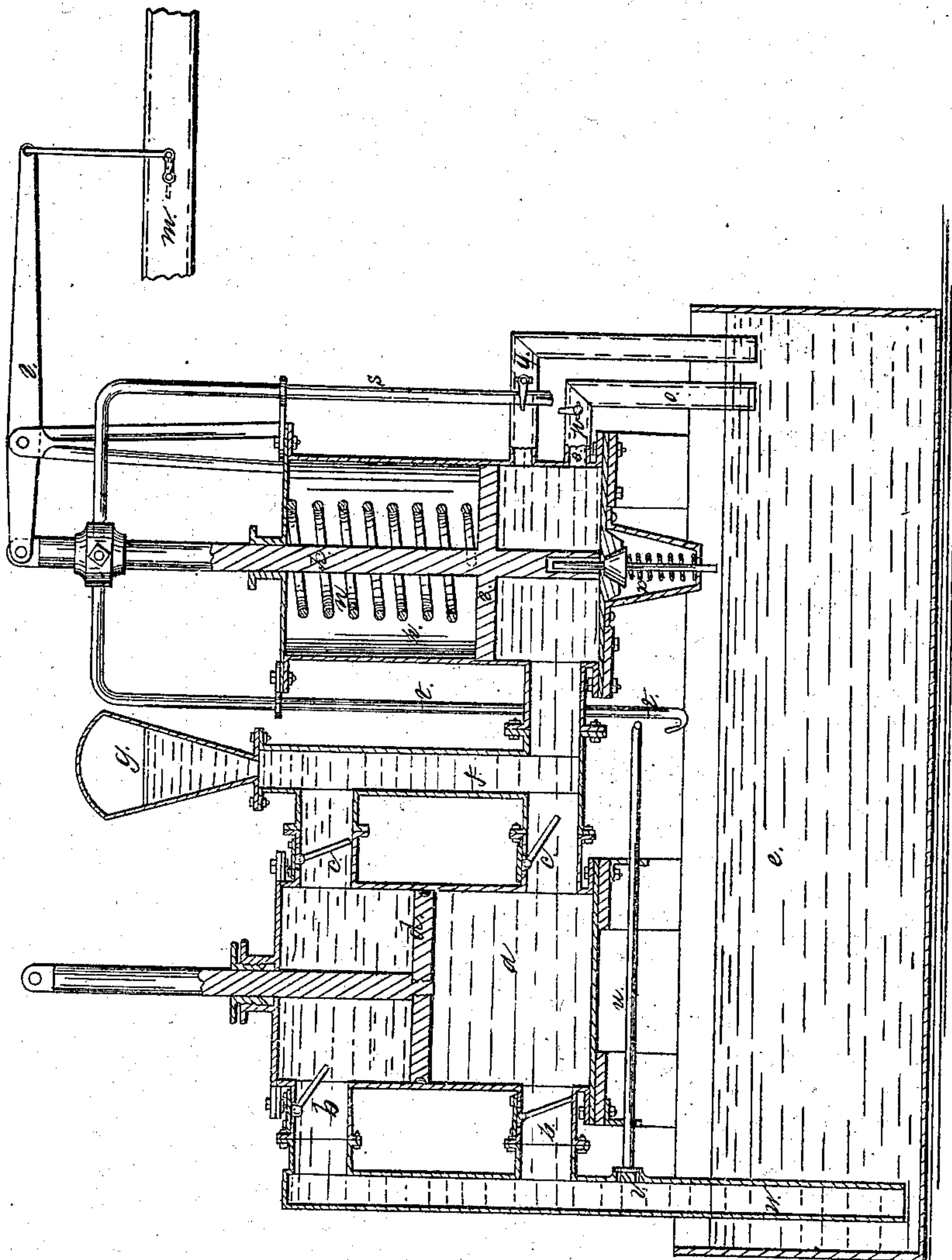


J. WOOD.
STEAM ENGINE GOVERNOR.

No. 63,976.

Patented Apr. 16, 1867.



Witnesses:
Chas. H. Smith
Geo. D. Maister

Inventor:
John Wood

United States Patent Office.

JOHN WOOD, OF BROOKLYN, NEW YORK.

Letters Patent No. 63,976, dated April 16, 1867.

IMPROVEMENT IN STEAM-ENGINE GOVERNORS.

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, JOHN WOOD, of Brooklyn, in the county of Kings, and State of New York, have invented and made a certain new and useful Improvement in Hydraulic Regulators for Engines; and I do hereby declare the following to be a full, clear, and exact description of the said invention, reference being had to the annexed drawing making part of this specification, wherein I have represented a vertical section of the said regulator illustrative of its mode of operation.

In governors for engines difficulty arises in regulating the relative action of the governor and the throttle-valve or cut-off so that the said valve shall not be moved until a certain speed is attained. The nature of my said invention consists in a regulating apparatus combined with a pump that supplies liquid constantly to said regulating apparatus in such a manner that the throttle-valve or cut-off is not acted upon until a certain speed is attained, and the extent of speed can be regulated by the opening for the escape of liquid from the apparatus.

In the drawing, *a* represents a pump with inlet valves *b b* and outlet valves *c c*; the piston *d* of said pump being worked by any suitable connection to the engine to be regulated. The pump *a* may be placed above the vessel *e* containing liquid, or it may be immersed in said liquid, and any desired character of liquid may be employed, but I prefer oil or petroleum. The liquid passes from the pipe *f* (provided with an air vessel, *g*), into the regulating cylinder *h*, in which is a piston, *i*, and rod, *k*, from which a lever, *l*, or other connection, extends to the throttle-valve *m* or cut-off. The piston *i* is kept down by a spring, *n*. *o* is an outlet for the liquid, regulated by the cock *p*, the amount of the opening being such that the engine will attain its maximum velocity before the liquid will be pumped into the cylinder *h* sufficient to accumulate and raise the piston *i*. When this accumulation takes place the valve *m* is instantly acted upon, and the piston *i* can move sufficiently to close, or nearly so, the throttle or cut-off. When the accumulation of pressure and liquid in the cylinder *h* is sufficient to raise the piston *i* considerably, I make use of the motion of the piston-rod to open a second escape-valve, *q*, through the agency of the yoke and hooked arm *s* acting below the handle of said cock to turn the same more or less according to the height the piston *i* rises, and this will prevent injury to the apparatus by a sudden increased speed of the engine. If desired the same object can be attained by the yoke *t* acting upon the lever arm *u* of a rod that extends to a valve, *v*, in the pump inlet pipe *w* to open the same and allow air to enter the pump, said valve being formed of a perforated disk turning over a hole in the said pipe, or in any other form. A safety-valve is provided at *x* to take off surplus liquid from the regulator-cylinder in case of the cocks being improperly adjusted.

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

The piston *i*, spring *n*, and connections *k l* to the throttle-valve, in combination with the pump *a* and valve *q*, operated by a connection, *s*, to the piston *i*, as and for the purposes specified.

In witness whereof I have hereunto set my signature this twenty-fifth day of September, A. D. 1866.

JOHN WOOD.

Witnesses:

GEO. D. WALKER,
CHAS. H. SMITH.