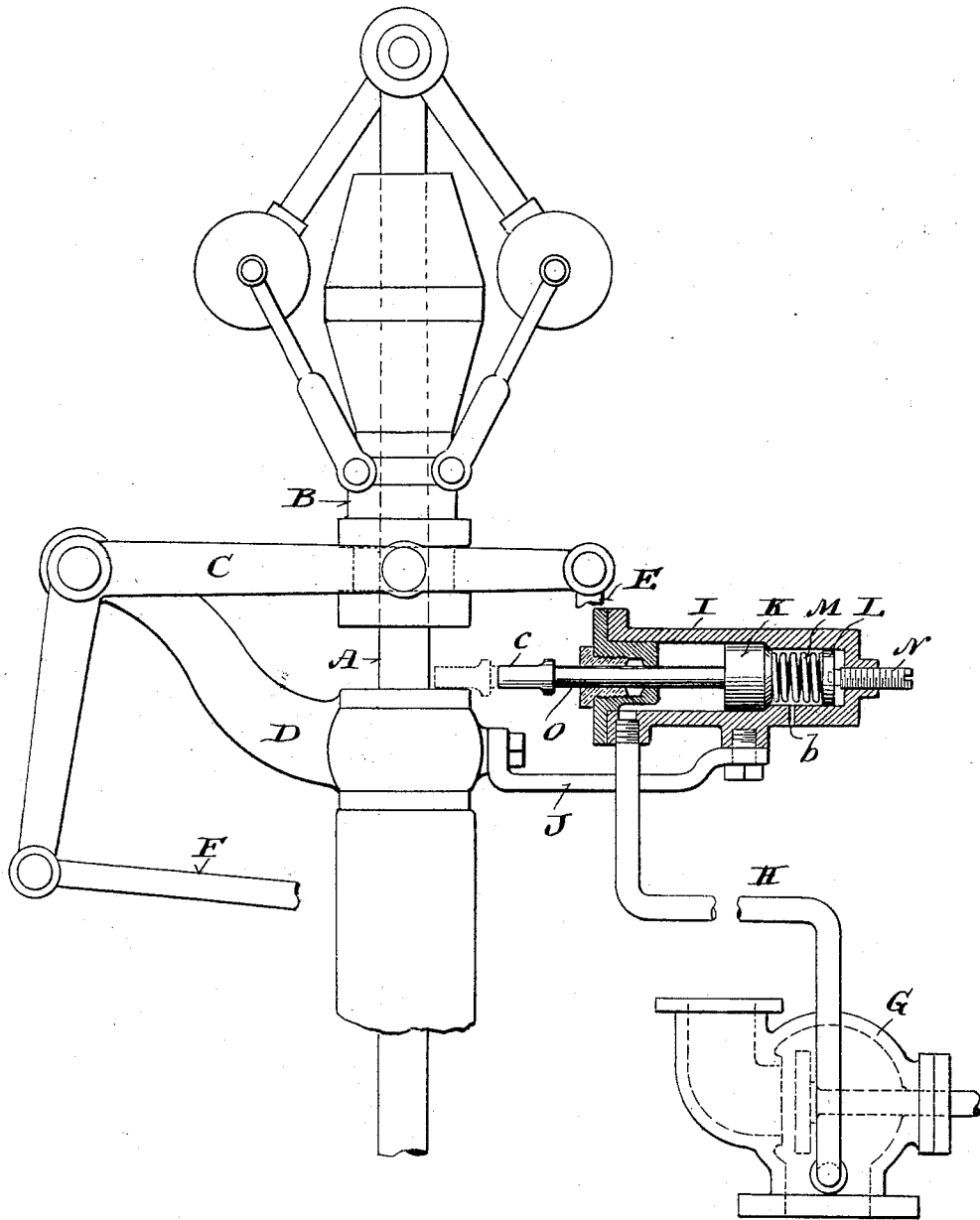


No. 796,654.

PATENTED AUG. 8, 1905.

J. H. HOYER.
STEAM ENGINE.
APPLICATION FILED MAR. 30, 1905.



Witnesses
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UNITED STATES PATENT OFFICE.

JOHN H. HOYER, OF CORLISS, WISCONSIN.

STEAM-ENGINE.

No. 796,654

Specification of Letters Patent.

Patented Aug. 8, 1905.

Application filed March 30, 1905. Serial No. 252,794.

To all whom it may concern:

Be it known that I, JOHN H. HOYER, a citizen of the United States, and a resident of Corliss, in the county of Racine and State of Wisconsin, have invented certain new and useful Improvements in Steam-Engines; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention consists in certain peculiarities of construction and combination of parts hereinafter particularly set forth with reference to the accompanying drawings and subsequently claimed, its object being to provide for automatic shut-down of a steam-engine in case of any accident that results in stoppage of the governor and a descent of its counterpoise.

The drawing represents a side elevation, partly in section, of mechanism in accordance with my invention applied to a steam-engine.

Referring by letter to the drawing, A indicates the governor-spindle of a steam-engine; B, the governor-counterpoise, movable longitudinally on said spindle, with which it revolves; C, the yoke-lever in connection with said counterpoise, and D the bracket to which said yoke-lever is fulcrumed. The yoke-lever is connected at one end to a counterweight-stem E, and a link F connects the other end of said lever with the gear of the engine-valve, the construction thus far described being common in the art.

The throttle-valve casing G of the engine is connected by a pipe H with a cylinder I, supported on an arm J of the bracket D and containing a piston K back of its steam-inlet. A ground-joint seat is provided in the cylinder for the tapered rear end of the piston. Between the rear end of the piston and a disk L in the cylinder is a spiral spring M, and adjustable in the adjacent head of said cylinder is screw N, engaged with the disk, adjustment of said screw and disk serving to regulate the tension of the spring. An air-port *b* is provided in the cylinder back of the piston-seat, and should any steam or water of condensation find its way in rear of the piston it will have outlet through said port. The other head of the cylinder has a stuffing-box for the rod O of the piston, and the flattened forward end *c* of this rod rests on the bracket D, as shown by dotted lines, when the throttle-valve of the engine is closed, it being then a stop limiting descent of the counterpoise B of the governor.

When the throttle-valve of the engine is

opened, steam finds its way into the cylinder I to exert pressure on the piston K against resistance of the spring M, and the engine being started up lift of the governor-counterpoise B from the opposing end *c* of the piston-rod O will result in an automatic retraction of said piston to bring said end of its rod clear of said counterpoise. The end *c* of the piston-rod is now held out of the downward path of the governor-counterpoise B as long as the throttle-valve remains open, and in case of any accident that results in a stoppage of revolution on the part of the governor said counterpoise will descend until it comes to rest on the bracket D, the result being a sufficient tilt of the yoke-lever C to automatically disarrange the gear of the engine-valve, so that said valve will close and remain so regardless of the position of said throttle-valve. The throttle-valve being closed under ordinary circumstances, the outer end *c* of the piston-rod O is shot forward by expansive force of the spring M over the bracket D in the downward path of the governor-counterpoise B, and the engine may be again started at any time in the usual manner; but if there has been an accident resulting in the descent of said counterpoise as far as said bracket it will be necessary to again elevate the aforesaid counterpoise a distance equal to the thickness of said end of the piston-rod before the engine can be started.

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

1. In a steam-engine, a cylinder in connection with the throttle-valve casing, a piston in the cylinder back of the steam-inlet thereto, a spring arranged in said cylinder to resist steam-pressure on the piston, and a piston-rod the outer end of which is normally a stop in the descending path of the governor-counterpoise but which is retracted out of said path subsequent to starting of the engine.

2. In a steam-engine, a cylinder in connection with the throttle-valve casing, a piston in the cylinder back of the steam-inlet thereto and having a tapered rear end for which said cylinder is provided with a ground-joint seat, a spring arranged in said cylinder to resist steam-pressure on the piston, and a piston-rod the outer end of which is normally a stop in the descending path of the governor-counterpoise but which is retractive out of said path subsequent to starting of the engine.

3. In a steam-engine, a cylinder in connec-

tion with the throttle-valve casing, a piston in the cylinder back of the steam-inlet thereto, a spring arranged in said cylinder back of the piston, a spring-opposing rear disk, an adjusting-screw in connection with the disk, and a piston-rod the outer end of which is normally a stop in the descending path of the governor-counterpoise but which is retractive out of said path subsequent to starting of the engine.

4. In a steam-engine, a sliding governor-counterpoise, and a steam and spring controlled stop normally in the descending path of said counterpoise, but which automatically clears said path subsequent to starting of the engine and remains out of the same as long as the throttle-valve of said engine is open.

5. In a steam-engine, a sliding governor-counterpoise and a sliding stop automatically adjustable in one direction to be in the descending path of said counterpoise and likewise adjustable in the opposite direction to clear said path subsequent to starting of the engine and remain out of the same as long as the throttle-valve is open.

In testimony that I claim the foregoing I have hereunto set my hand, at Milwaukee, in the county of Milwaukee and State of Wisconsin, in the presence of two witnesses.

JOHN H. HOYER.

Witnesses:

N. E. OLIPHANT,
GEORGE FELBER.