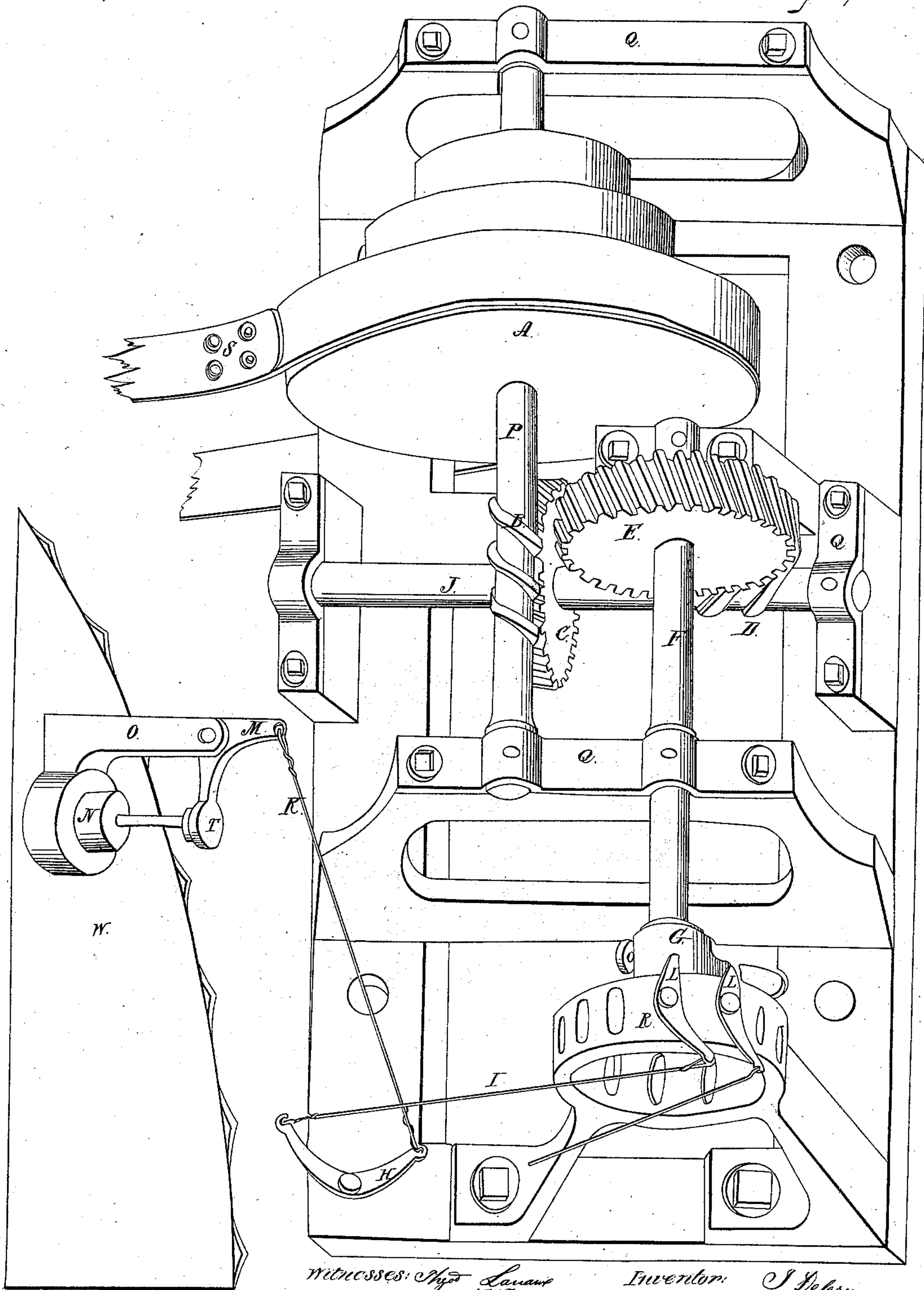


## Steam-Boiler Indicator.

*N<sup>o</sup> 56,017.*

*Patented July 3, 1866.*



Witnesses: Mrs. Leland  
John W. Smith

*Inventor: J Delery*



# UNITED STATES PATENT OFFICE.

JULES DELERY, OF ST. BERNARD PARISH, LOUISIANA.

## IMPROVEMENT IN LOW-WATER DETECTERS.

Specification forming part of Letters Patent No. 56,017, dated July 3, 1866.

*To all whom it may concern:*

Be it known that I, JULES DELERY, of the parish of St. Bernard, in the State of Louisiana, have invented a new and useful Machine or Appendage to Steam-Boilers for Preventing Explosions thereof, which I entitle the "Steam-Boiler's Warden;" and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The nature of my invention consists of a machine or apparatus connected with the gage-cock of the boiler on which it is intended to operate so as to not only inform, but notify, the engineer and all competent persons within hearing distance around of the relative condition of the water and steam contained in the boiler and all changes which may take place therein, thus enabling the engineer to remedy in time any approaching danger.

To enable others skilled in the art to make use of my invention, I will proceed to describe its construction.

The parts colored black or dark are cast-iron, the blue wrought-iron, and the yellow brass, the difference of material being used principally for convenience of manufacturing.

I attach to the boiler's head a lever, M, of any form; but the bell-crank form being the most convenient, I use it in preference. One end of it is flat and circular, so as to rest with more security on the stem of the gage-cock N. The other end carries a hole, in which is fastened a wire, *k*, which is worked as will be explained.

The machine is bolted to any part of the engine-room, either to the sides, the ceiling, or the floor, or to the engine or boiler, so it be convenient to connect it by a band to a drum on the shaft of a small engine used exclusively for that purpose, and whose steam-pipe should be in constant opened communication with the boiler, so that it should be set in motion as soon as there is a sufficiency of pressure of steam generated in the boiler to run it.

The cone-drum A being worked by the band S, the screw B on pivot P working in the cogs of wheel C, every revolution of drum A

causes wheel C to revolve the thickness of one tooth. If there be thirty cogs on wheel C, it will make one revolution when drum A makes thirty. The screw D on pivot J, working in wheel E, carrying also thirty teeth, causes it to make one revolution when drum A makes nine hundred. Now, when drum A makes ninety revolutions in one minute the shaft F and clog or catch G, fastened to the end of it by a key or set-screw, will make one revolution in ten minutes. The clog G, encountering in its revolution the end of bell-crank lever L, causes it to move and draw wire I, attached to bell-crank lever H, which pulls wire K and causes bell-crank lever M to bear at T on the stem of gage-cock N, forcing it inward and opens its valve, allowing a jet of water or steam to escape, the shrilling noise of which notifies the engineer and all persons of experience within hearing distance of the condition of the water and steam within the boiler. This operation, being renewed every ten or fifteen minutes for the length of time of each revolution of clogs G, may be regulated according to wishes by the number of revolutions given to cone-drum A by the band S. This works not only as a water gage or guard, but also as a steam-gage for an engineer.

Each one of the levers L L L may be connected to two or more gage-cocks, if desired, and one gage-cock on each boiler, being operated upon in this manner, is sufficient to give all necessary warning.

With this machine it is not the engineer who has to watch the boiler. It is the boiler itself which warns the man of what it needs. It is a mechanical and safe guard, constantly on the lookout, and on whose part there can be no fear of either carelessness, negligence, forgetfulness, or preoccupation, the two last of which may cause accidents to any human being, however attentive, careful, and active one may be, and for this reason I entitle it the "steam-boiler's warden."

It is evident that this apparatus will enable the engineer to prevent those dreadful explosions which so often occur with our high-pressure steam-boilers, even of the best constructions and perfectly sound, which are

caused by insufficiency of water, and which are the most numerous, the effect of which no boiler can be made strong enough to resist, no more than it could be made to stand the force of a mine of gunpowder set on fire.

What I claim is—

The general arrangement of all the different

parts composing my machine, and the combination of the device with the steam-boilers, in the manner and for the purpose described.

J. DELERY.

Witnesses:

JNO. B. VINET,

THEOD. LANAWAY.