(No Model.)

G. M. GITHENS.

STEAM DAMPER REGULATOR.

No. 285,478. Patented Sept. 25, 1883.

Fig. 2.

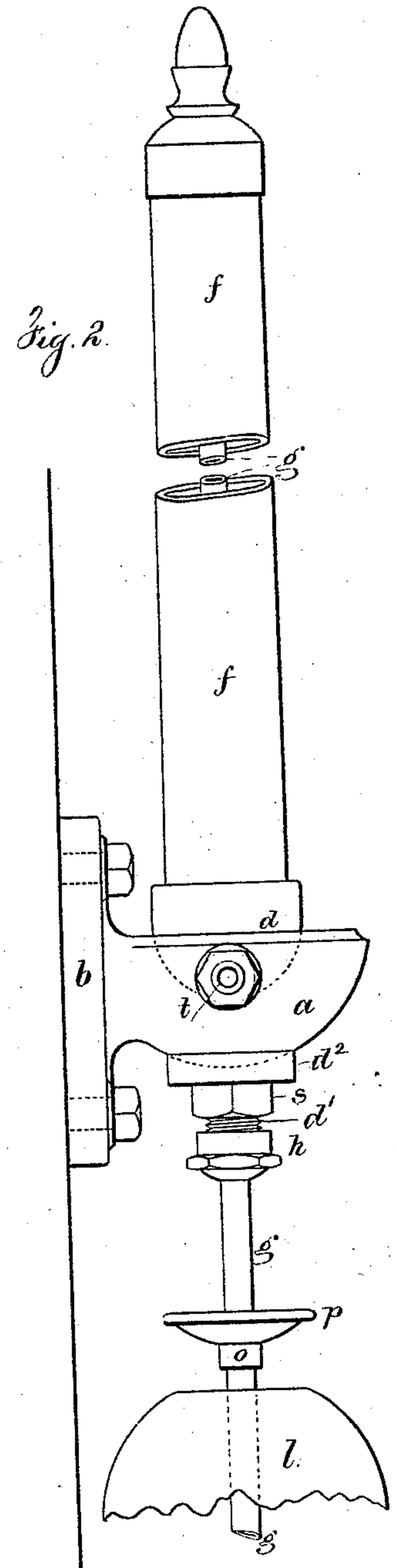
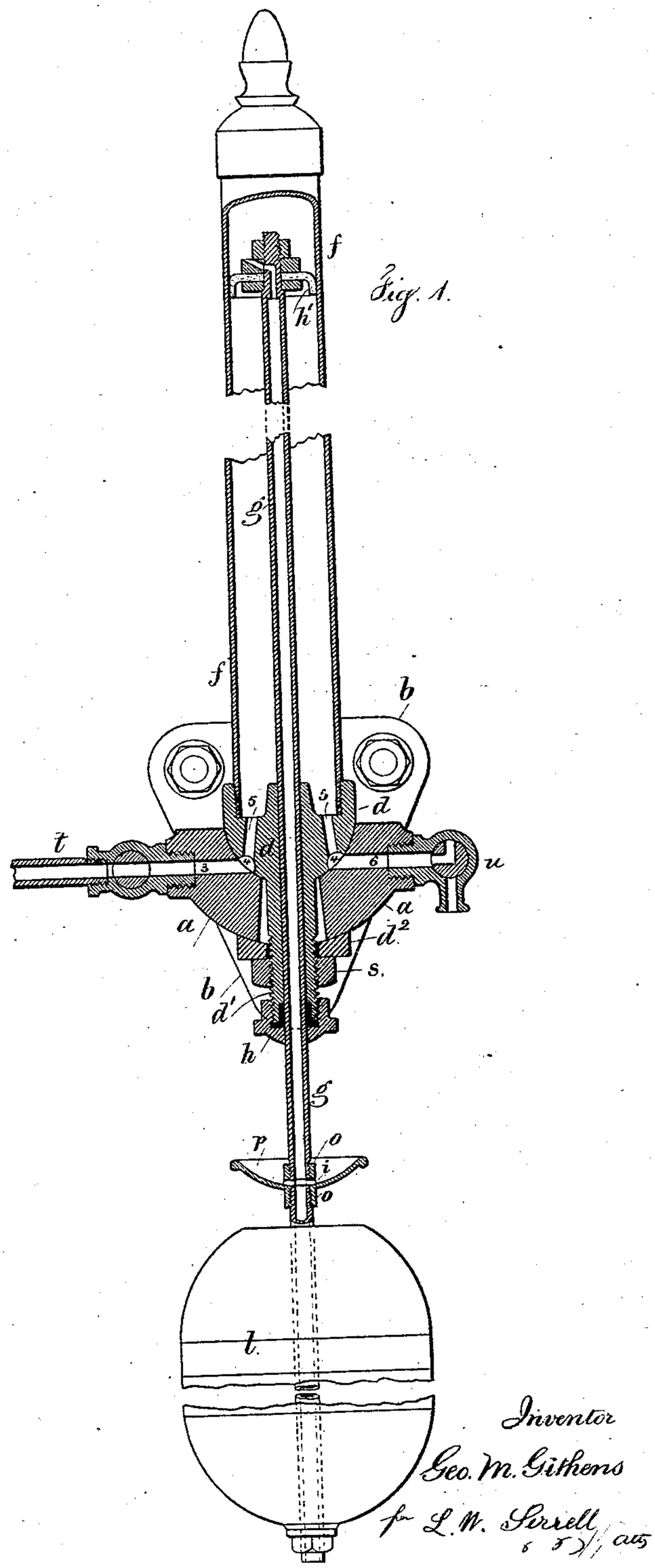


Fig. 1.



Witnesses

Chas. N. Smith

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per L. W. Serrell

Atty

UNITED STATES PATENT OFFICE.

GEORGE M. GITHENS, OF BROOKLYN, NEW YORK.

STEAM-DAMPER REGULATOR.

SPECIFICATION forming part of Letters Patent No. 285,478, dated September 25, 1883.

Application filed January 29, 1883. (No model.)

To all whom it may concern:

Be it known that I, GEORGE M. GITHENS, of Brooklyn, E. D., in the county of Kings and State of New York, have invented an Improvement in Steam-Damper Regulators, of which the following is a specification.

This device is an improvement upon that for which Letters Patent No. 270,302 have been granted to me January 9, 1883. I make provision for holding the pressure-cylinder vertically, and for carrying off any water that may adhere to the interior surface of the said cylinder in such a manner that the outer surface of the cylinder may not become discolored or rusty.

In the drawings, Figure 1 is a vertical section of the apparatus, and Fig. 2 is a side view of the same.

The bracket or support *a* is provided with a plate, *b*, that is bolted to a wall-partition or other support. There is an opening through it, and the upper part of this opening is made as a concave to receive the spherical segment *d* at the base of the pressure-cylinder *f*. The piston-rod *g* passes up through the gland *h* to the piston *h'* within the cylinder *f*, and the weights *l* are upon this rod, and serve to draw down the piston against the action of the pressure.

The presser-cylinder is slightly smaller at the upper end than it is at the lower end, for the purposes set forth in my said patent, and the piston is a cup, leather or elastic, so as to remain tight as it is moved by the pressure of the steam in the boiler acting upon the water or other liquid contained in the pressure-cylinder. The weights *l* may be movable or variable, so as to suit differences of pressure; or a spring might be substituted for the weights, my invention being available in damper-regulators of various construction.

I make the piston-rod *g* tubular, and the rod that passes through the weight is also tubular. These may be in one piece; but I prefer to make them of separate tubes, screwed into the coupling-sleeve *o*. The object in making the piston-rod tubular is to carry off any water that may accumulate above the piston from leakage, or from the particles of water adhering to the interior of the pressure-cylinder as the piston descends. This water, if it is not carried off through the tubular piston-rod, accumulates and is ejected through the vent-hole at the top of the pressure-cylinder and discolors the outside of the cylinder and the weights. By the use of the tubular rods the water is delivered at the bottom, and may be caught in a movable drip-cup.

The packing-gland *h*, through which the piston-rod passes, is not always perfectly tight. I therefore apply a cup, *p*, that catches any drip, and there is a hole at *i* from the bottom of this cup into the tubular rod, so that the leakage is delivered at the lower end of the weights.

In order to clamp the parts in position after they have been placed vertically, I prefer and use the nut *s*, that is screwed upon the neck *d'* of the globular segment *d* and rests against a washer, d^2, upon the convex bearing at the bottom of the bracket *a*. This clamp does not require to be moved, because when the bracket has been firmly fixed the parts are placed vertically and so remain.

In order to supply the steam, or the water under the steam-pressure, into the cylinder *f*, I make a connection to one side of the bracket *a*, as seen at *t*, and this connection is to be in the form of a pipe with a cock in it, the pipe leading to either the steam or water space of the boiler. The port 3 connects with a peripheral groove, 4, around the globular segment *d*, and from this there are one or more passages, 5, into the pressure-cylinder *f*.

I prefer to employ the blow-off cock *u*, with a port, 6, opening into the groove 4, so that any sediment may be blown out of the cylinder or passages leading to it.

The cord or wire leading off to the damper in the chimney may be connected to either the top or the bottom of the central vertical piston-rod, and the mode of connection, being familiar to engineers, and illustrated in my aforesaid patent, does not require further description. By this construction the damper-regulator can be taken apart for cleaning or repairs without disturbing the connection to the boiler.

I claim as my invention—

1. The combination, in a damper-regulator, of a vertical cylinder, a piston within such cylinder, a tubular piston-rod open at the upper end, a gland at the lower end of the cyl-

inder through which such rod passes, weights or springs applied to the lower end of the piston-rod, and a connection to the damper, substantially as set forth.

2. The combination, with the vertical cylinder, piston, and piston-rod and weights, of a tubular rod passing through the weight, a cup surrounding the same, and an opening into said tubular rod, whereby any leakage from the packing-gland of the piston-rod is delivered below the weight, substantially as set forth.

3. The combination, with the vertical cylinder, piston, and weight, of a vertical tubular rod passing through the weight and the tubular piston-rod, and the cup surrounding such tubular rod, whereby the water escaping at the piston and the packing-gland is delivered below the weight, substantially as set forth.

4. The combination, in a damper-regulator, of a vertical pressure-cylinder, a piston and rod for the same, a globular segment, and a bearing or bracket at the lower end of the cylinder, a neck passing through the bearing, and a clamping-nut, substantially as set forth.

5. The combination, with the vertical pressure-cylinder and its globular segment, of a bearing or bracket receiving such segment, a pipe leading from the boiler, and passage-ways or ports connecting into the pressure-cylinder, substantially as set forth.

Signed by me this 26th day of January, A. D. 1883.

GEO. M. GITHENS.

Witnesses:
GEO. T. PINCKNEY,
WILLIAM G. MOTT.