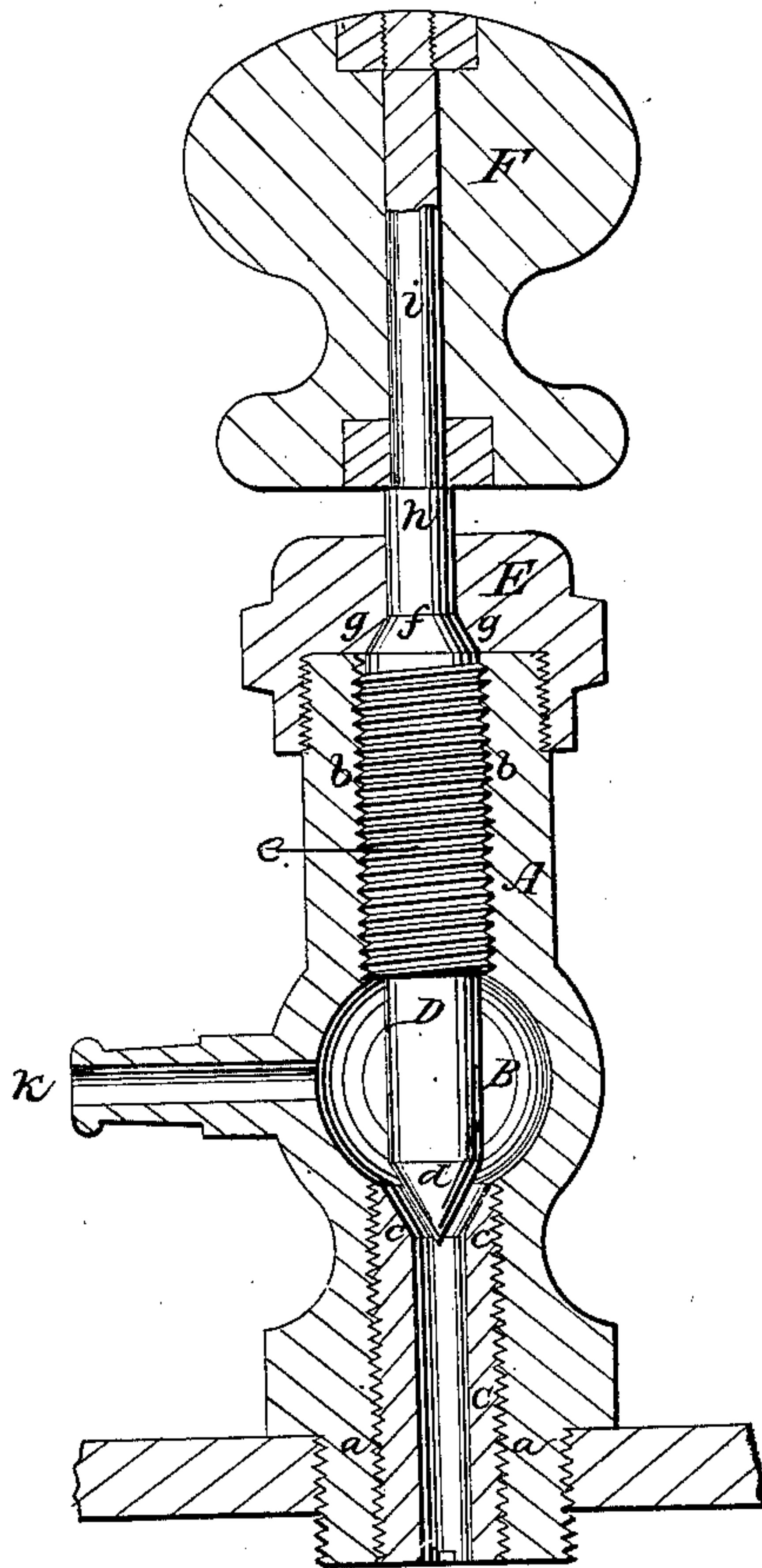


R. L. Mills,
Gage Cock,
No 22,189, *Patented Nov. 30, 1858.*



UNITED STATES PATENT OFFICE.

R. L. MILLS, OF LANCASTER, OHIO.

GAGE-COCK.

Specification of Letters Patent No. 22,189, dated November 30, 1858.

To all whom it may concern:

Be it known that I, R. L. MILLS, of Lancaster, in the county of Fairfield and State of Ohio, have invented a new and useful
5 Improvement in Gage-Cocks for Steam-Boilers, which may be also applied to other steam cocks; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had
10 to the accompanying drawings making part of this specification, said drawing being a longitudinal central section of a gage cock with my improvement.

This invention consists in a certain arrangement of two conical valves on a
15 screwed stem in combination with a female screw and a certain arrangement of two conical seats within the cock, whereby all packing for the stem is dispensed with, and
20 yet the escape of steam around the stem when the cock is open is effectually prevented.

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

A, is the shell of the cock, made of brass or other metal with a globular chamber B, near the middle of its length, and having female screw threads *a*, and *b*, cut in its interior from said chamber to each end. The
30 first mentioned screw thread *a*, which runs to the end which screws into the boiler being to receive an externally screwed lining tube C, of hardened steel in the front of
35 which is a conical valve seat *c*. The other screw thread *b*, which runs to the outer end of the shell, is to receive a screw thread *e*, cut on the exterior of the valve stem D, said
40 screw thread *e*, being the largest portion of the stem. At the inner extremity of the valve stem, which is of steel and hardened, there is a conical valve *d*, which is ground to fit the seat *c*; and in front of the screw
45 thread *e*, the other conical valve *f*, is formed to fit to a seat *g*, in the cap E, which screws tightly on the outer end of the shell A, and said valve is ground into said seat. The part *h*, of the stem in front of the valve *f*, is made cylindrical and smaller than the
50 said valve and fits into the cap E, and the portion *i*, of the stem in front of *h*, is squared to receive a wooden knob F, which serves as a handle to turn the stem. The

valves and seats may be relatively so arranged that about half a turn of the stem
55 will draw the valve *d*, from its seats *c*, and bring the valve *f*, to its own seat *g*, and *vice versa*. From the chamber B, a nozzle *k*, extends downward for the escape of steam
60 or water.

This cock is opened by turning the handle to the left till the valve *f*, stops against the seat *g*, which is the condition represented in the drawing. This leaves a passage open from the boiler between the valve *c*, and
65 seat *d*, to the nozzle *k*, but any escape round the front of the valve stem is prevented by the valve *f*, which dispenses with packing of all kinds and is much more durable. The cock is closed by turning the handle
70 back till the valve *d*, stops in its seat *c*.

By the use of the hardened steel valve *d*, and seat *c*, the cock is not likely to be injured very soon by the action of the steam or of any mineral impurities in the water
75 which are so destructive to brass and composition metals.

It will be observed that both of the valve seat holders C and E are adjustable, so that the seats (*c*, *g*) may be set up, as fast as
80 they wear and thus form tight joints, at all times.

I am not limited in the application of my improvement to gage cocks. It may be employed in connection with steam whistles,
85 oil cups, double valves, etc., with equal advantage, and also in all cases where valves without packing are wanted.

I do not claim broadly the invention of double valved stems so arranged that when
90 one valve is withdrawn from its seat, the other shall be drawn into its seat and thus stop the escape of steam, without packing, for I am aware that such devices are old; but
95

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

The arrangement and combination of the lining tube C and cap E, containing the adjustable seats (*c*, *g*), with the double valved
100 stem D, as and for the purposes herein shown and described.

RICHARD L. MILLS.

Witnesses:

J. C. WEAVER,
P. CARPENTER.