

(No Model.)

G. W. RODGERS.  
TRY GAGE FOR BOILERS.

No. 412,416.

Patented Oct. 8, 1889.

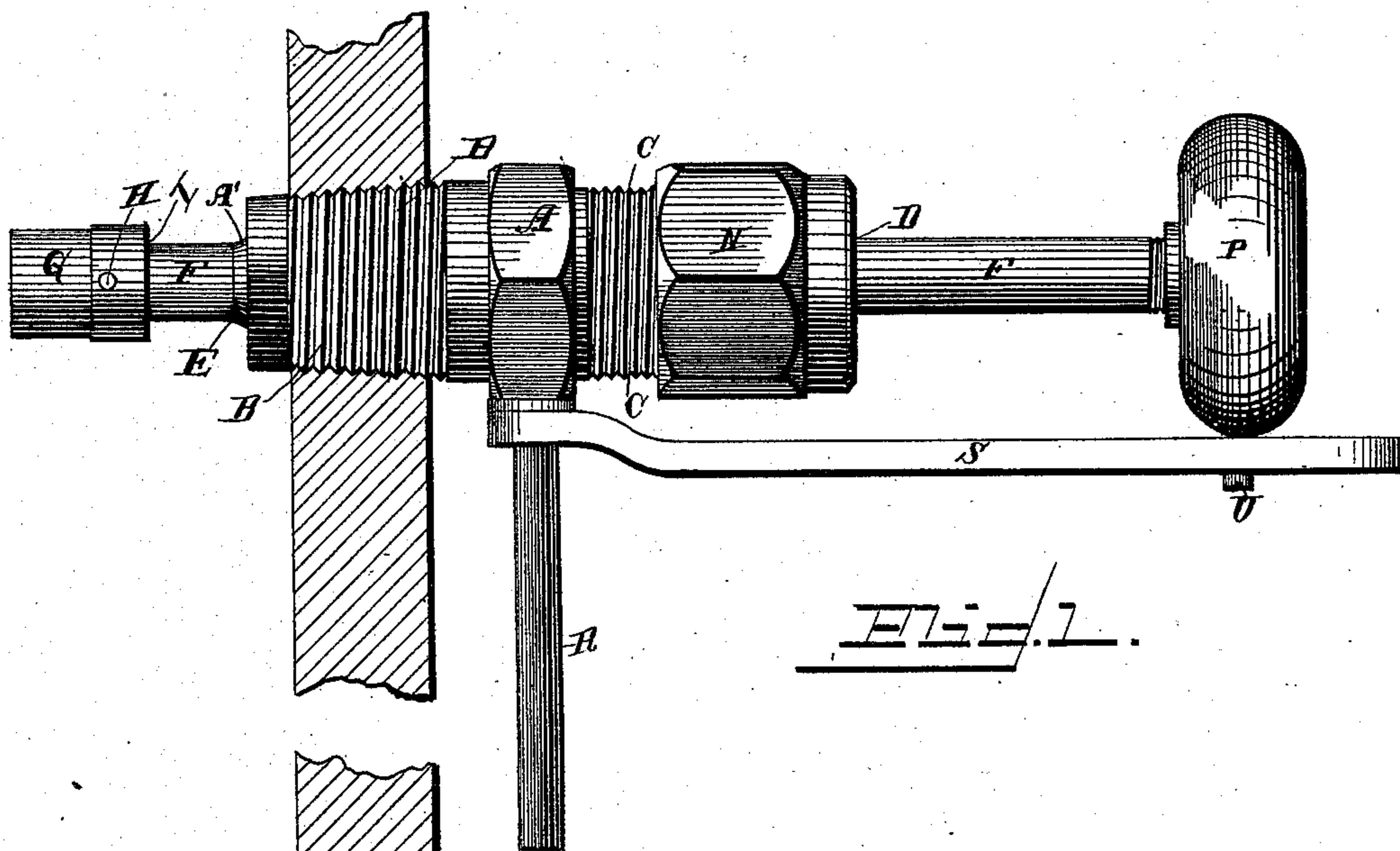


Fig. 1.

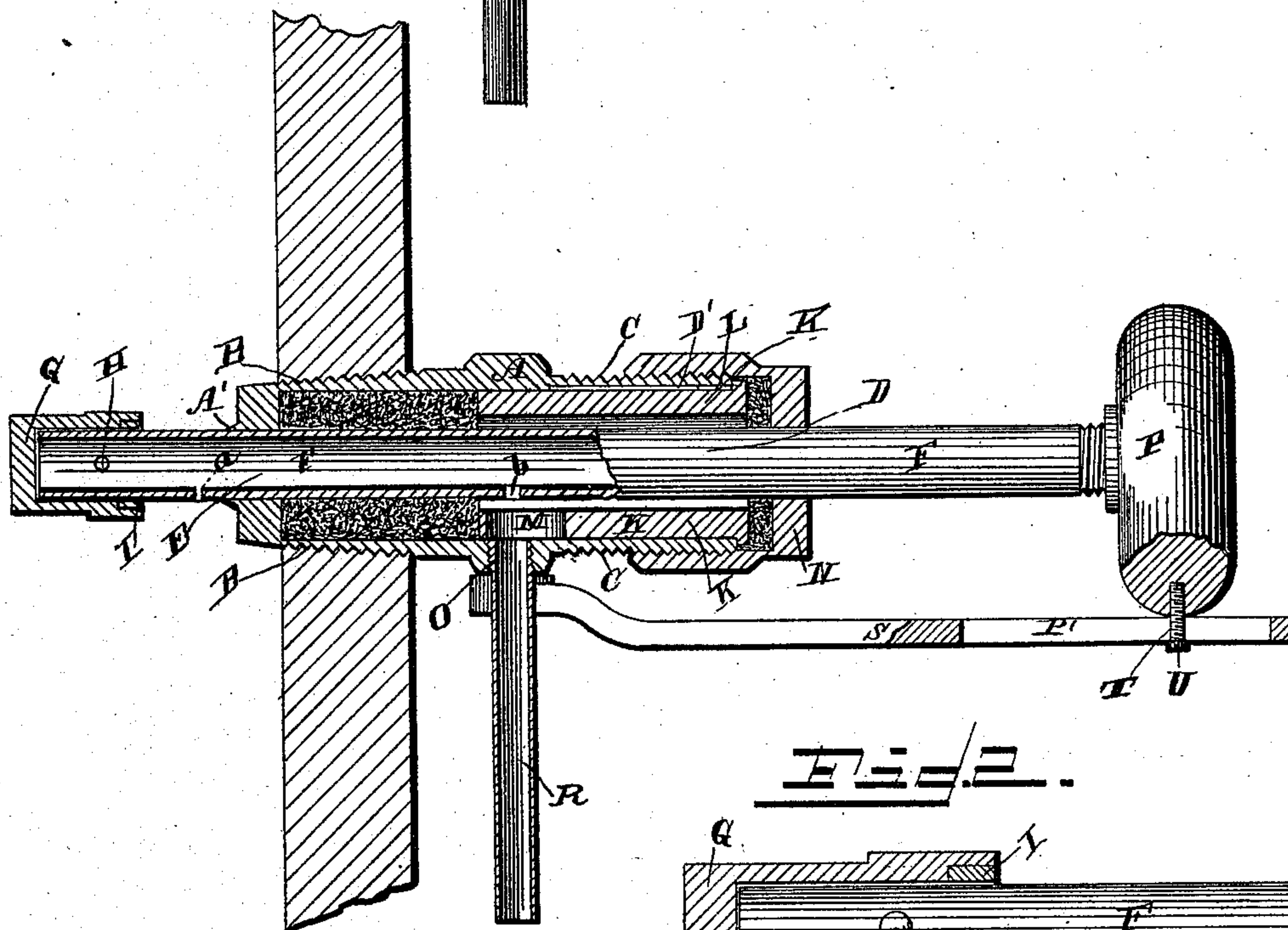


Fig. 2.

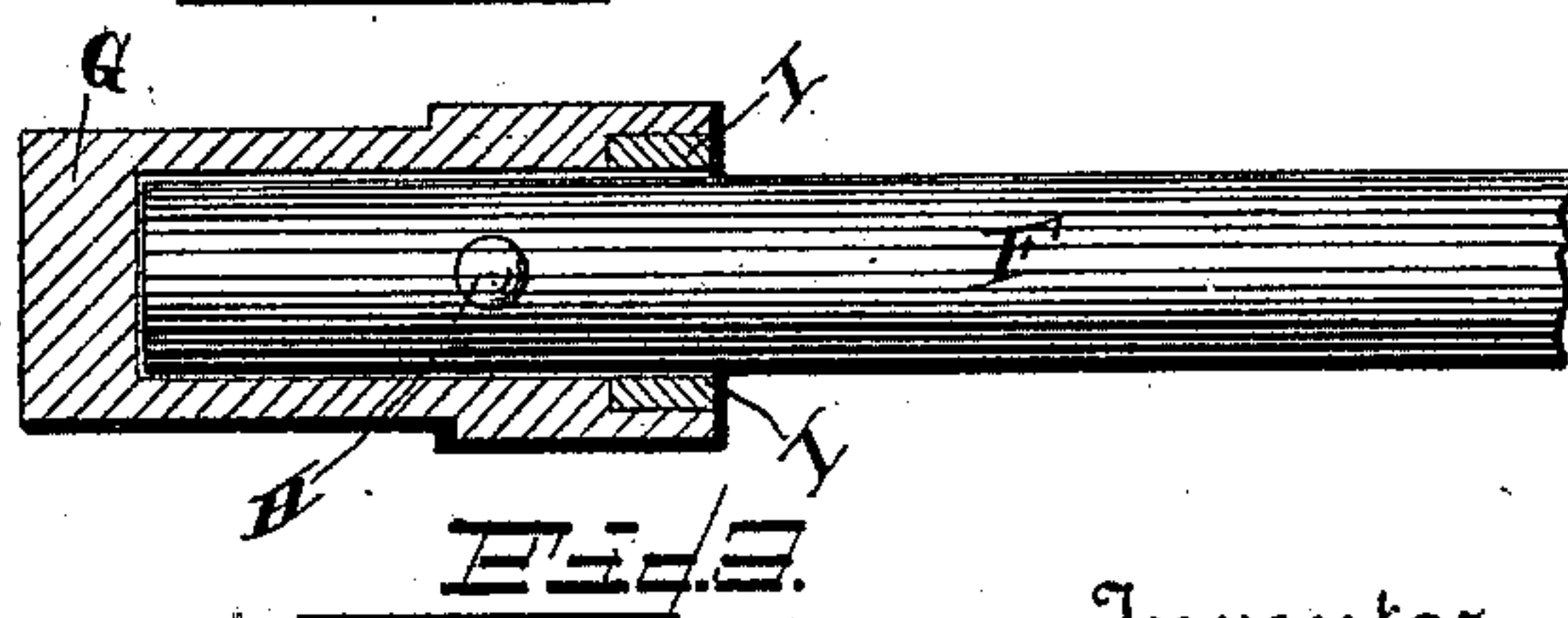


Fig. 3.

Witnesses

W. H. Pumphrey.  
J. W. Garner

Inventor

George W. Rodgers

By his Attorneys

C. A. Snow & Co.



# UNITED STATES PATENT OFFICE.

GEORGE W. RODGERS, OF BELLEFONTE, PENNSYLVANIA.

## TRY-GAGE FOR BOILERS.

SPECIFICATION forming part of Letters Patent No. 412,416, dated October 8, 1889.

Application filed June 3, 1887. Renewed September 13, 1889. Serial No. 323,816. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE W. RODGERS, a citizen of the United States, residing at Bellefonte, in the county of Centre and State of Pennsylvania, have invented a new and useful Improvement in Try-Gages for Steam-Boilers, of which the following is a specification.

My invention relates to an improvement in try-gages for steam-boilers; and it consists in the peculiar construction and combination of devices that will be more fully set forth hereinafter, and particularly pointed out in the claims.

In the drawings, Figure 1 is an elevation of a try-gage embodying my improvements. Fig. 2 is a vertical longitudinal sectional view of the same. Fig. 3 is an enlarged sectional view of valve G.

A represents the body or barrel of the gage, which is cylindrical and is provided at one end with screw-threads B. The end provided with the threads B is reduced in diameter and enters a threaded opening made in the boiler below the water-line. The outer end of the body of the gage is provided with screw-threads C. In the interior of the gage is a cylindrical opening D, which extends to the outer or front end of the gage-body and is open at its front side, and through the reduced inner or rear portion of the gage-body is a similar opening E, which is of less diameter and communicates with the opening D. In the upper side of the opening D is a longitudinal groove D'.

The rear or inner end of the gage-body is provided with an annular offset or shoulder A', which surrounds the inner end of the opening E and is beveled on its outer side to a sharp edge, thereby forming a seat for a valve, to be hereinafter described.

F represents a hollow tube or stem, which passes through the openings D and E. The inner end of this tube is closed.

G represents a hollow cylindrical valve, which has its front side open and adapted to receive the rear or inner end of the tube F. The bore of the said cylindrical valve is somewhat larger than the diameter of the tube F, and the said valve is secured to the inner end of the tube by means of a pivotal transverse pin H. This pin permits the cylindrical valve

to move laterally or swing slightly upon the end of the tube, for the purpose to be hereinafter explained. The inner side of the opening in the cylindrical valve, at the front end thereof, is provided with an annular packing-collar I, which is made of Babbitt metal or other suitable ductile material.

K represents a gland, which fits in the opening D, and through which passes the tube or stem F. This gland is provided on its upper side with a stud L, that enters the groove D' in the gage-body and prevents the gland from turning in the said opening. In the under side of the gland, near the inner end thereof, is a longitudinal slot M' of suitable length. This slot registers with an opening O, made in the lower side of the gage-body. The said opening is screw-threaded.

At a suitable distance from the rear end of the tube F is an opening a.

b represents a similar opening made in the tube at a suitable distance in front of the opening a. The distance between the said openings is such that when the opening a is beyond the inner end of the gage-body the opening b will register with the slot in the gland K, and thereby communication will be opened from the interior of the boiler to the outer air.

N represents a sleeve, which is interiorly threaded and is screwed onto the threaded end C of the gage-body and forces the gland inward against the packing O, so as to firmly pack the latter in the inner end of the opening D around the hollow tube or stem, and thus prevent leakage. The outer end of the hollow stem or tube is closed by means of a knob or handle P, which is screwed thereon.

R represents a vertical discharge-pipe, which is screwed in the opening O. Near the upper end of this discharge-tube is secured a horizontal arm S, which extends forward under the knob on the front end of the hollow tube or stem, and the said arm is provided at its outer end with a longitudinal slot P', the length of which is equal to the distance between the openings a and b.

U represents a screw or pin, which passes through the opening T and enters the under side of the knob. The screw or pin moves longitudinally in the slot when the knob is



pushed in or pulled out, and thereby serves to limit the movement of the knob.

The operation of my invention is as follows:

When the knob is drawn out, the opening *a* moves into the gage-body, and thereby cuts off communication with the interior of the boiler, and the valve *G* fits snugly against the projecting annular beveled collar or valve-seat *A'* on the inner end of the gage-body. The pressure of steam in the boiler forces the valve snugly against the rear end of the gage-body and causes the annular valve-seat *A'* to be embedded in the soft material of which the packing-collar in the valve is composed, thereby making the valve absolutely steam-tight. By pivoting or loosely securing the valve on the inner end of the tube or stem the valve is enabled to move slightly, and is thereby caused to bear snugly against all parts of the annular valve-seat *A'*, thus insuring a tight joint even in the event that the tube *F* should become somewhat crooked. When the knob is pressed in, the opening *a* is just beyond the inner end of the gage-body, and the opening *b* registers with the slot in the gland and with the opening *O*, and thereby permits steam or water to be blown from the boiler through the discharge-pipe *R*.

The knob may be unscrewed from the outer end of the tube *F*, in order to permit access to be obtained to the interior thereof to clean the same when it becomes fouled or obstructed.

Having thus described my invention, I claim—

1. In a try-gage, the combination of the gage-body *A*, having the valve-seat *A'* at its inner end, and the tube or stem *F*, movable longitudinally in the gage-body, and the valve *G*, loosely fitted on the said tube and adapted to move thereon, for the purpose set forth, substantially as described.

2. The combination, in a try-gage, of the gage-body *A*, having the projecting valve-seat *A'* on its inner end, the longitudinally-movable tube *F* in the gage-body, and the valve *G*, secured to the inner end of the said tube and provided with the packing-ring of soft metal adapted to be compressed against the valve-seat *A'*, for the purpose set forth, substantially as described.

3. The combination, in a try-gage, of the

gage-body *A*, having the annular beveled or sharpened valve-seat *A'* at its inner end, the tube *F*, movable longitudinally in the gage-body, for the purpose set forth, and the valve *G*, pivoted or loosely secured to the inner end of the tube *F*, the said valve having the annular packing-ring *I*, of soft metal, for the purpose set forth, substantially as described.

4. The combination, in a try-gage, of the gage-body *A*, having the discharge-opening *O*, the gland fitting in the gage-body and having the opening *M*, communicating with the opening *O*, and the longitudinally-movable tube or stem *F*, closed at its inner and outer ends and provided with the openings *a* and *b*, the said tube or stem having the pivoted valve at its inner end adapted to bear against the inner end of the gage-body, for the purpose set forth, substantially as described.

5. The combination of the gage-body having the openings *E* and *D*, the latter being provided with the grooves *D'*, and the opening *O*, extending through one side of the gage-body, the stem or tube *F*, fitting in the opening *E* and extending through the opening *D*, the said tube having the openings *a* and *b*, the gland surrounding the tube and fitting in the opening *D* and provided with the stud to enter the groove *D'* and the slot registering with the opening *O*, the sleeves screwed to the front end of the gage-body and bearing against the gland, the valve secured to the inner end of the stem or tube, and the discharge-pipe *R*, communicating with the opening *I*, substantially as described.

6. The combination, in a try-gage, of the gage-body having the projecting arm *S*, provided with the slot *P*, the longitudinally-movable tube or stem fitting in the gage-body and having the openings *a* and *b*, for the purpose set forth, and the knobs secured to the front end of the tube and having the pin working in the slot *T* to limit the movement of the tube and knob, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

GEO. W. RODGERS.

Witnesses:

J. M. BUCK,

E. M. BLANCHARD.