No. 822,794. PATENTED JUNE 5, 1906.

O. O. WHITE.

BOILER FEED REGULATOR.

APPLICATION FILED OCT. 21, 1905.

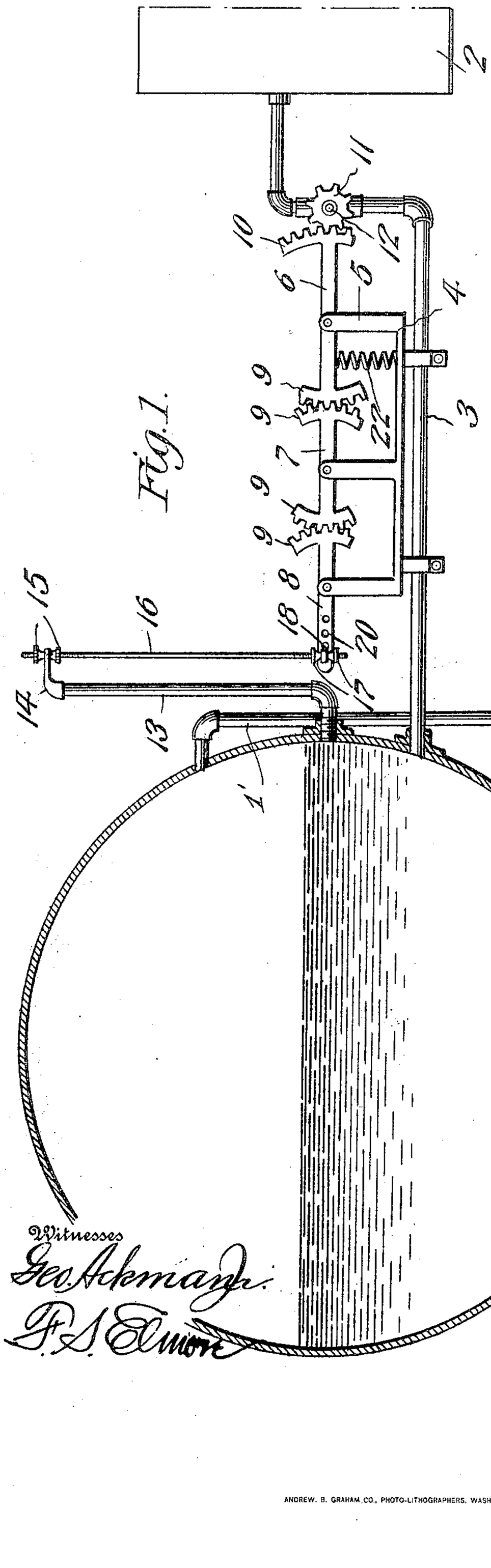

Fig. 1.

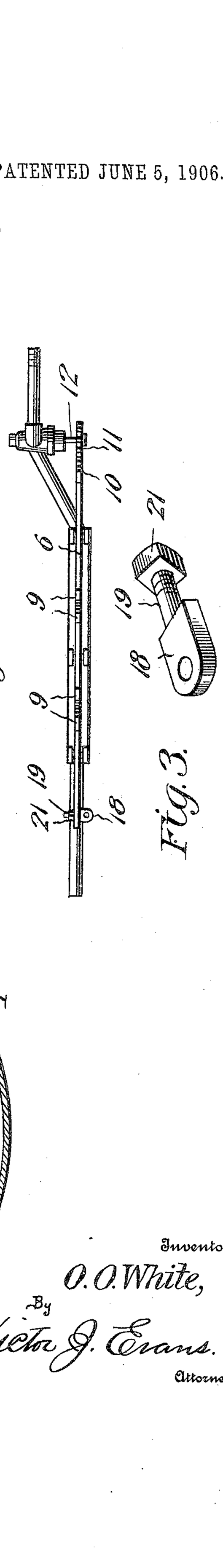

Fig. 2.

Fig. 3.

Witnesses
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ORRIS O. WHITE, OF GARLAND, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO VERNE H. SPENCER, OF GARLAND, PENNSYLVANIA.

BOILER-FEED REGULATOR.

No. 822,794. Specification of Letters Patent. Patented June 5, 1906.

Application filed October 21, 1905. Serial No. 283,790.

To all whom it may concern:

Be it known that I, ORRIS O. WHITE, a citizen of the United States, residing at Garland, in the county of Warren and State of Pennsylvania, have invented new and useful Improvements in Boiler-Feed Regulators, of which the following is a specification.

This invention relates to boiler-feed regulators, and has for its objects to produce a comparatively simple inexpensive device of this character which may be readily installed for use, one wherein the amount of water contained in the boiler controls the operation of the mechanism, and one wherein the mechanism will be automatically operated for opening and closing the valve which controls the escape of water from the boiler.

With these and other objects in view the invention comprises the novel features of construction and combination of parts more fully hereinafter described.

In the accompanying drawings, Figure 1 is an elevation of a feed-water mechanism embodying the invention and showing the same applied for use. Fig. 2 is a top plan view of the valve-operating mechanism. Fig. 3 is a detail perspective view of one of the brackets.

Referring to the drawings, 1 designates a boiler, to which water is supplied from any suitable source (not shown) by means of a feed-pipe 1′, and 2 a tank connected with the boiler by means of a pipe or duct 3 and adapted to receive the water flowing from the boiler, these parts being of the usual or any preferred construction and material and adapted in practice to perform their ordinary functions.

Mounted upon the pipe 3 is a frame 4, provided with vertically-uprising arms or standards 5, having pivoted to their upper ends, respectively, a plurality of operating members or levers 6, 7, and 8, provided at their meeting ends with intermeshing segmental gears 9, serving to connect the levers for operation one from another, there being carried at the outer end of lever 6 a segmental gear 10, in mesh with an opening 11, fixed on the stem 12 of a cut-off valve suitably mounted in the pipe 3.

Tapped into the boiler 1 at the low-water line is a pipe 13, composed of highly-expansible material and having at its upper end a horizontally-projecting arm 14, to which is connected, by means of adjusting-nuts 15, one end of a rod or link 16, the other end of which is connected, by means of nuts 17, with a bracket 18, having a stem 19 arranged in any one of a series of openings 20 provided adjacent the outer end of the lever 8, said bracket being secured to the lever by a nut 21.

Connected at one end to the frame 4 and at its other end to the lever 6 is a normally contracted spring 22, tending to hold the lever in normal position with the cut-off valve closed.

In practice the cut-off valve remains normally open, and as the boiler 1 is supplied with water the overflow passes through pipe 3 into tank 2. When, however, the water drops below the low-water point at which the pipe 13 is coupled, the steam passing into said pipe expands the same and serves, through the medium of rod 16, to lift the outer end of lever 8, thereby serving, through the medium of levers 7 and 6 and the pinion 11, to close the valve and cut off the flow of water from the boiler to the tank 2. As soon as the boiler has been properly replenished with water and the steam in the pipe 13 cooled the latter contracts and allows the parts to return to normal position, this movement being facilitated by means of the spring 22 acting on the lever 6.

From the foregoing it is apparent that I produce a simple device admirably adapted for the attainment of the ends in view, it being understood that minor changes in the details herein set forth may be resorted to without departing from the spirit of the invention.

Having thus fully described my invention, what I claim is—

In a device of the class described and in combination with a boiler and tank, of a duct connecting said parts for communication, a frame mounted on the duct and provided with projecting bearing portions, a plurality of levers pivoted to said portions and having intermeshing gear connection, a valve

arranged in the duct and having a stem, a pinion fixed on the stem in gear with one of the levers, an element connected with the boiler and adapted for expansion under the action of heat from the latter, and a connecting-rod adjustably engaged with said element and with one of the operating-levers.

In testimony whereof I affix my signature in presence of two witnesses.

ORRIS O. WHITE.

Witnesses:
D. H. RENO,
J. A. AKINS.