

No. 701,793.

Patented June 3, 1902.

E. C. BATES.  
PRESSURE GAGE.

(Application filed July 8, 1899.)

(No Model.)

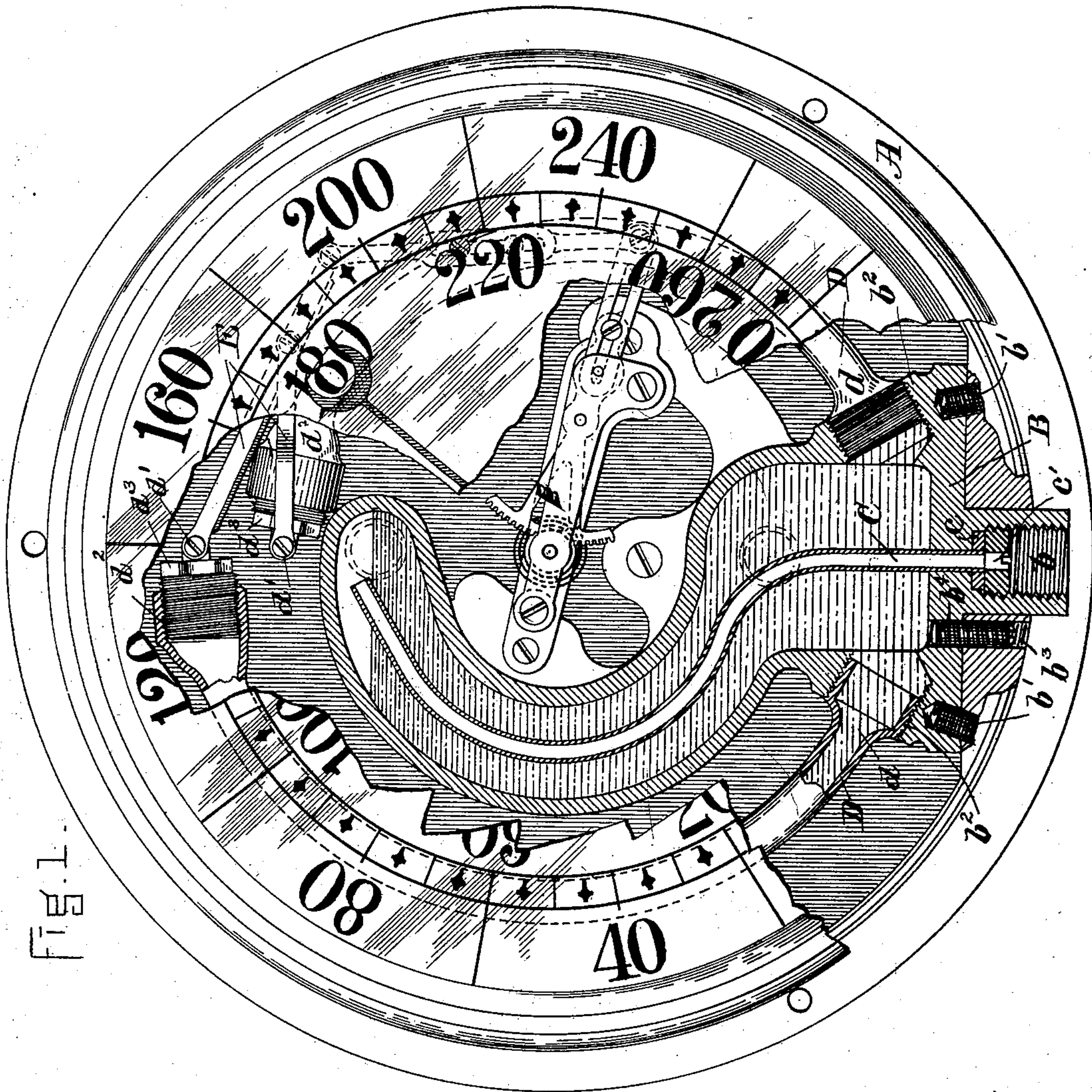
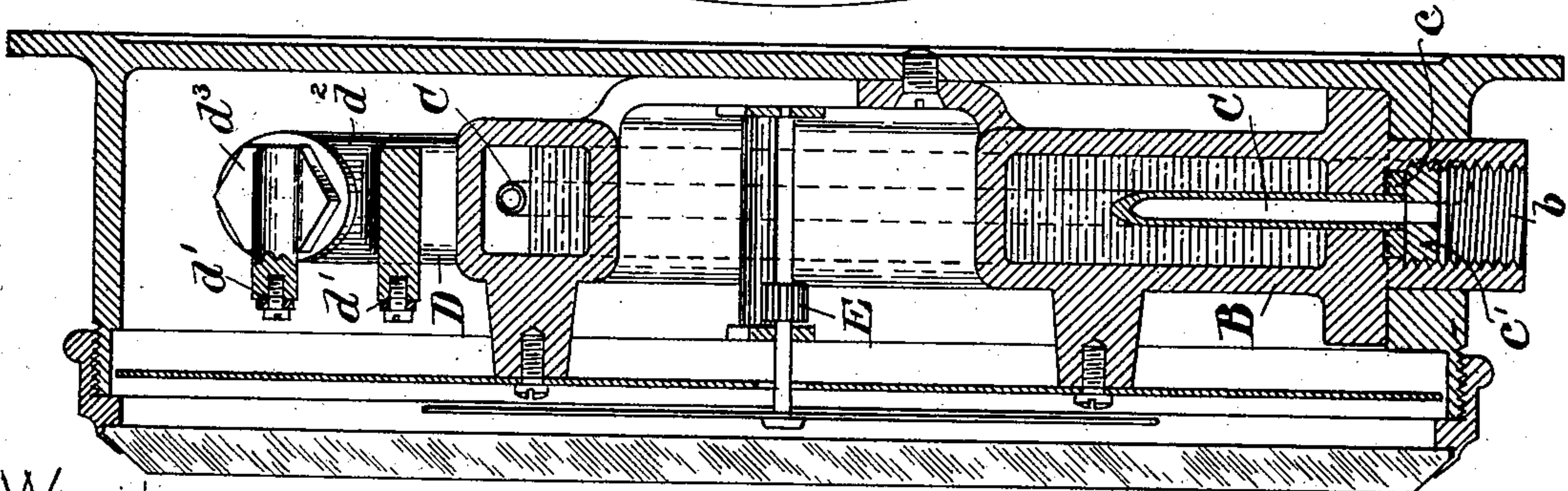


Fig. 1.



WITNESSES,

Walterman L. Williams,  
Charles Reed

Fig. 2.

INVENTOR,

Edward C. Bates,  
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# UNITED STATES PATENT OFFICE.

EDWARD CARRINGTON BATES, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO  
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## PRESSURE-GAGE.

SPECIFICATION forming part of Letters Patent No. 701,793, dated June 3, 1902.

Application filed July 8, 1899. Serial No. 723,202. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD CARRINGTON BATES, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain  
5 new and useful Improvements in Pressure-Gages, of which the following is a specification.

This invention relates to an improvement in pressure-gages provided with a Bourdon tube-spring, and more particularly to the wa-  
10 ter-chamber employed in combination with such spring, being in the main an improvement on the device described in Letters Patent No. 596,674.

The object of the invention is to provide  
15 means for easily and effectively filling the springs with water or other liquid and keeping the water or other liquid in the springs. It is necessary to keep the springs filled with water to prevent their undue heating and con-  
20 sequent errors, as more fully explained in the Letters Patent above referred to.

Another feature of the invention is the at-  
25 tachment of the springs directly to the water-chamber, which arrangement is made practicable by the employment of tube C. This tube C is employed to conduct the steam from the boiler and discharge it into the water-chamber at a point above the level of the wa-  
30 ter in said chamber. Preferably the tube C extends to the upper part of the chamber, and the water in said chamber is kept at a high level, thus reducing the space into which the steam is discharged and in which it is contained and practically surrounding this space,  
35 as well as the tube C itself, with water, so that the danger of overheating the gage and its parts is reduced to a minimum. Being so located, the tube C permits the largest body of water to remain in the water-chamber and  
40 prevents its flowing therefrom when the steam is shut off. It is essential that there should be a body of water always interposed between the steam-pipe of the gage and the Bourdon springs thereof to protect them.

45 The invention is illustrated by the accompanying drawings, which form a part of this specification, and in which similar letters refer to similar parts throughout.

50 Figure 1 represents a gage having the glass face, dial, and index broken away to show the interior mechanism of the gage. Fig. 2 is a

vertical section through the diameter of the gage.

A is the gage-case.

B is the water-chamber attached to the gage-  
55 case by the screws  $b'b'$ , furnished with screw-threaded openings  $b^2 b^2$  to receive the cylindrical screw-threaded ends  $d d$  of the Bourdon tube-springs DD, furnished also with the screw-threaded opening  $b$  to receive and en-  
60 gage the washer  $c'$  and a pipe (not shown) adapted to attach the gage to the boiler and to admit of the passage of the tube C. The water-chamber is furnished also with a pas-  
65 sage  $b^3$ , leading to the open air and closed by a screw  $b^4$ .

DD are Bourdon tube-springs having the cylindrical screw-threaded ends  $d d$  and the cylindrical screw-threaded ends  $d^2 d^2$  to re-  
70 ceive and engage the screw-threaded plugs  $d^3 d^3$ , to which is fastened the registering mechanism E by the pivotal screws  $d' d'$ . The tube C is furnished with the flange  $c$  and leads from the opening  $b$  to the top of the water-  
75 chamber.

$c'$  is a screw-threaded washer adapted to  
hold the flange  $c$  against the upper part of the opening  $b$ .

The water-chamber and springs are filled  
80 with water by inverting the gage and pouring the water through the passage  $b$  into the chamber and thence into the spring, the screw  $b^4$  being first removed to provide for the escape of air through the passage  $b^3$ .

Having described my invention, what I  
85 claim is—

In a pressure-gage the combination of a Bourdon tube-spring with an elongated wa-  
ter-chamber entirely within the curve of the spring; said water-chamber having located  
90 within it a tube isolated from the lateral walls; the upper end of said tube communicating with the upper portion of said chamber, and the lower end of said tube being connected with the steam-passage of the gage; substan-  
95 tially as described.

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

EDWARD CARRINGTON BATES.

Witnesses:

WATERMAN L. WILLIAMS,  
CHAS. M. REED.