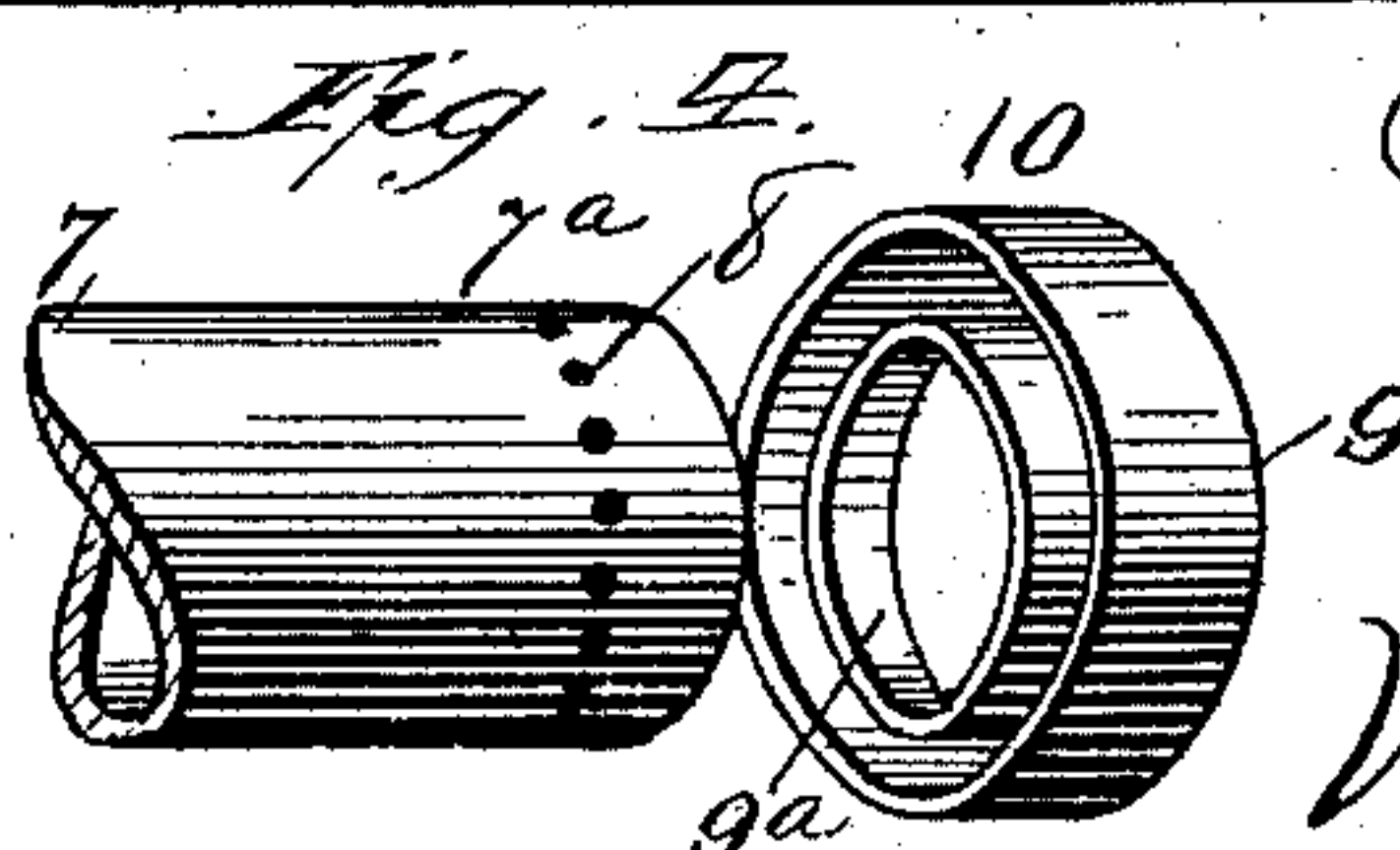
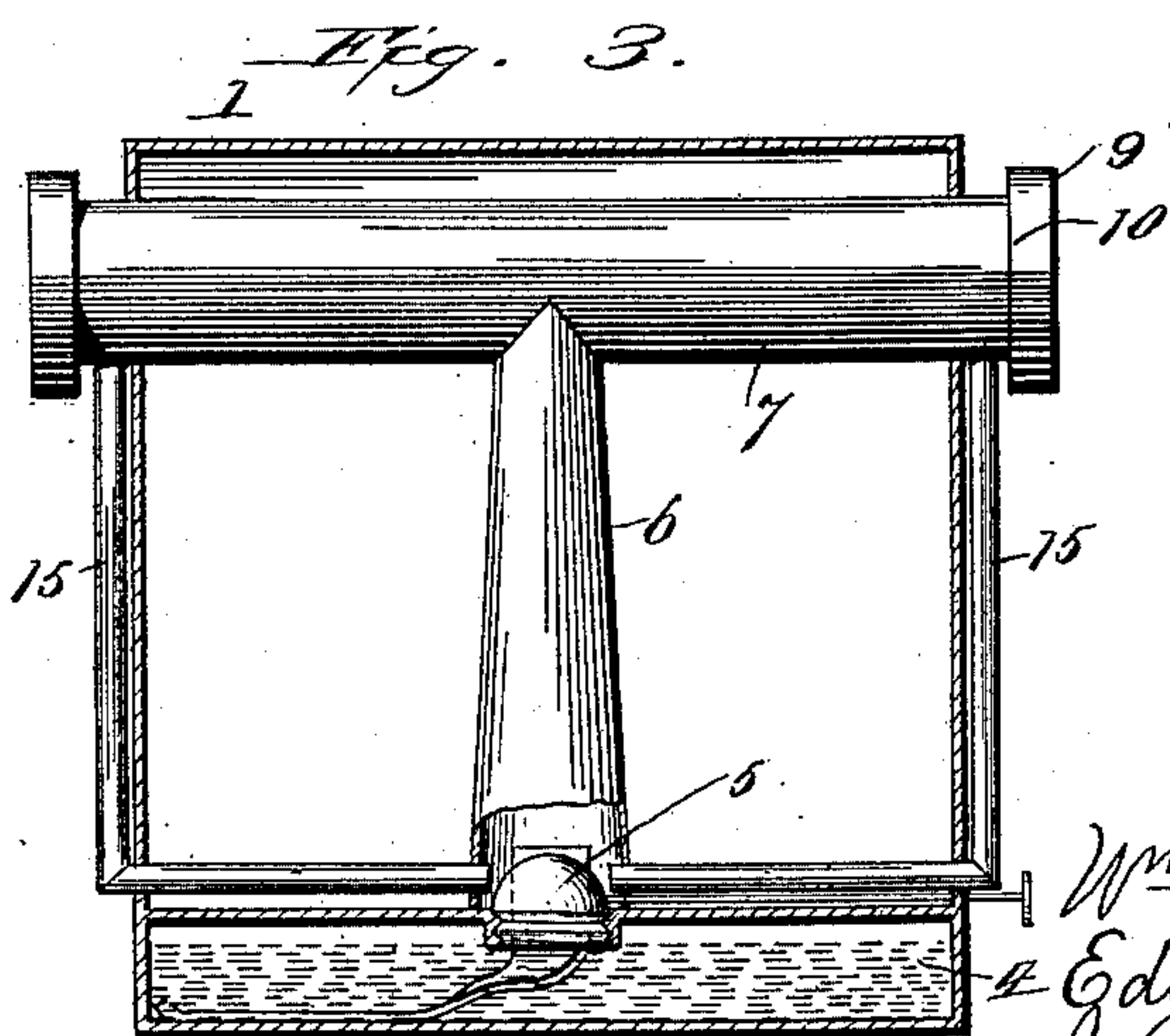
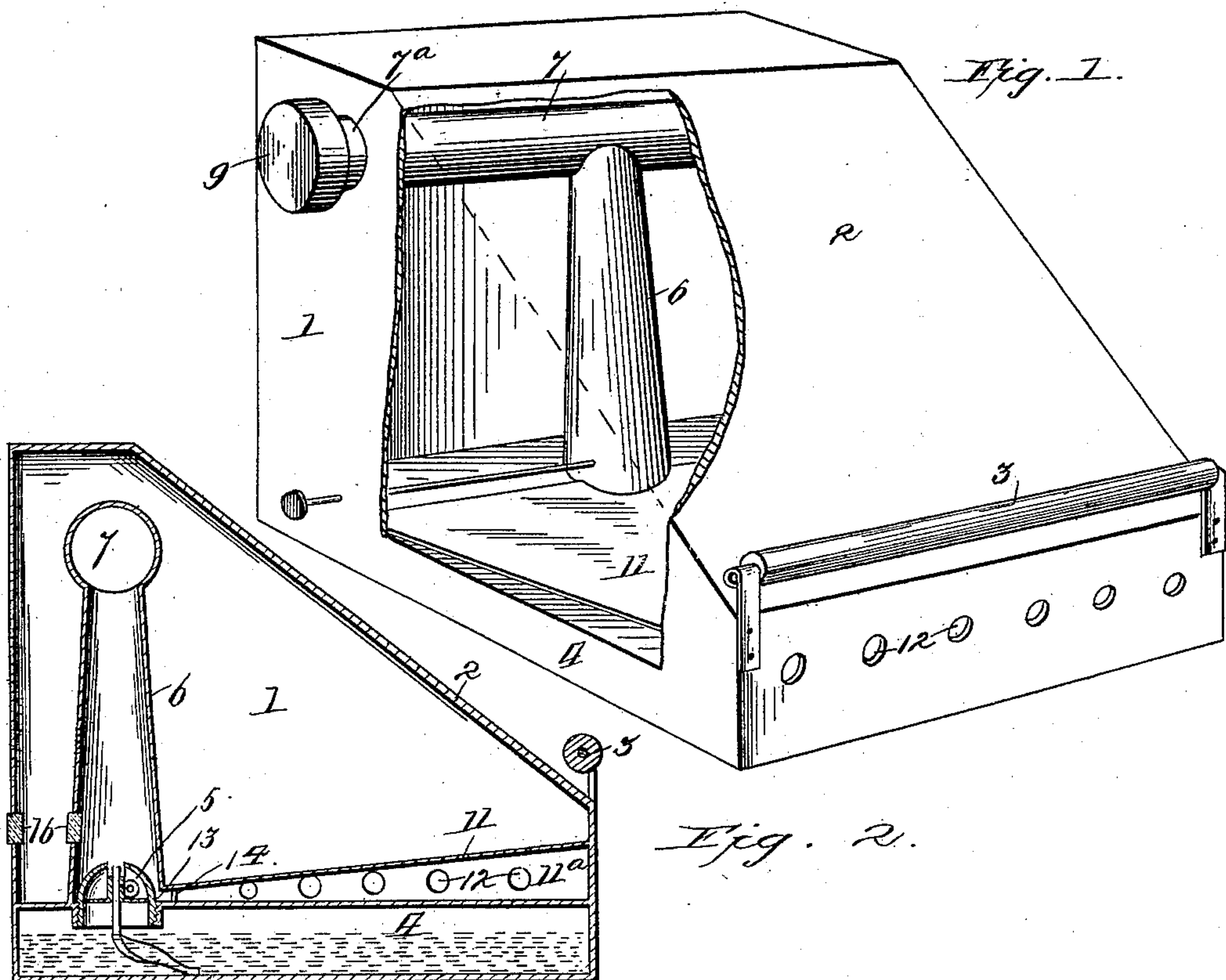


(No Model.)

W. M. CARR, E. B. HAHN & J. B. JACKSON.  
FOOT WARMER.

No. 463,094.

Patented Nov. 10, 1891.



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# UNITED STATES PATENT OFFICE.

WILLIAM M. CARR, EDWARD B. HAHN, AND JOSEPH B. JACKSON, OF  
TYRONE, KENTUCKY.

## FOOT-WARMER.

SPECIFICATION forming part of Letters Patent No. 463,094, dated November 10, 1891.

Application filed February 18, 1891. Serial No. 381,868. (No model.)

*To all whom it may concern:*

Be it known that we, WILLIAM M. CARR, EDWARD B. HAHN, and JOSEPH B. JACKSON, citizens of the United States, residing at Tyrone, in the county of Anderson and State of Kentucky, have invented certain new and useful Improvements in Foot-Warmers; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention consists in a new and improved foot-warmer which is comparatively simple and inexpensive in its construction and is very effective and satisfactory in its operation, and our invention will be herein-after fully described and claimed.

Referring to the accompanying drawings, Figure 1 is a perspective view of our invention with a part of the outer case or box broken away. Fig. 2 is a transverse central sectional view of the same. Fig. 3 is a rear elevation with the rear wall of the casing broken away. Fig. 4 illustrates in detail one end of the horizontal heating-cylinder with its removable flanged cap.

The same numerals of reference indicate corresponding parts in all the figures.

Referring to the several parts by their designating-numerals, 1 indicates an air-tight sheet-metal box or air-chamber of any suitable or desired size. The rear side of this box is much higher than its front side, and the top 2 of the box inclines down from the rear to the front side thereof, forming a convenient foot-rest, upon which the feet of the user are placed. At the lower end of the inclined foot-rest 2 is arranged a longitudinal raised heel-bar 3.

At the bottom of the foot-warmer is arranged a large fluid-reservoir 4, which practically forms the lamp-body. At the center or near one end, if preferred, of the rear part of this body or reservoir is arranged a burner 5, and a tin or sheet-metal chimney 6 surrounds this burner and leads up to the heating-cylinder 7.

Within the upper part of the box 1, about one inch below the top, is arranged the longitudinal heating-cylinder 7, the ends of which

extend through the ends of the box 1 for a distance of about one inch and have formed in their outer ends a series of perforations 8. The outer perforated ends 7<sup>a</sup> of the heating-cylinder 7 are closed by the removable caps 9. These caps are formed each with an inner flange 9<sup>a</sup> of such diameter that it will fit snugly within the outer end of the heating-pipe 8, and around the outer edge of the cap is formed a wider flange 10, which, when the cap is placed in position on the end of the pipe, will extend around the series of perforations 8, but will not be in contact with the outer surface of the pipe end.

The chamber 1 is formed with an inclined bottom 11, extending from the burner to the forward end thereof, thus forming a draft-chamber, the ends 11<sup>a</sup> of which are formed with perforations 12, and the lower end of the perforated burner-casing 13 extends into and communicates with the rear end of this chamber. This construction furnishes the necessary supply of air for the lamp-flame, as will be readily understood. It will now be seen that the heat of the lamp-flame, together with the smoke and other products of combustion, will pass up through the lamp-chimney 6 into the heating-cylinder 7. The hot air will pass along through the cylinder to each end thereof and make its escape through the perforations 8 of the outer ends 7<sup>a</sup> of the cylinder 7. The current thus produced will draw the outer air through the perforations 12 to the burner, thus greatly assisting the draft and combustion.

By forming the double flanged end caps 9, as set forth, when the lamp is first started, the caps can be removed to assist the draft until the circulation of air is well established, and when a good draft has been secured the caps 9 are replaced, when the hot air, &c., will pass out through the perforations 8, as before described. The wide outer flanges 10 prevent the air from blowing directly into the perforations 8 and thus interfering with the draft and the escape of hot air outward through the said perforations. A damper 14 is arranged at the point shown to regulate the supply of air to the burner and thus control the draft.



The body of the heating-cylinder 8 may be either straight, as shown, or formed in a coil, if preferred.

5 If desired, the ends of the cylinder 8 may be connected by return-tubes 15 15 with the burner, as shown in Fig. 3, which will have the effect of increasing the draft and preventing the possible escape of smoke into the apartment. It is obvious that one or more burners  
10 may be employed, according to the size of the foot-warmer and the amount of heat required. It is also obvious that the reservoir 4 may be dispensed with and an ordinary lamp be employed in its place. Small openings 16 16, in  
15 which mica is set, are formed opposite each other in the back of the box 1 and the rear of the lamp-chimney, through which the flame of the lamp can be observed to see that it is turned to the desired height.

20 Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

1. The combination of a metal box, the heating-cylinder 7, having the open ends, which  
25 extend through the walls of the box and which are formed at a certain distance from their open extremities with the annular series of perforations 7<sup>a</sup>, a lamp having a chimney communicating at its upper end with the heating-  
30 cylinder, and the removable end caps 9, formed with the narrow inner flanges 9<sup>a</sup>, which hold them in position, and the wide outer protecting flanges 10, which extend over and outside

of, but not in contact with, the apertured ends of said heating-cylinder, substantially as set forth. 35

2. The combination of the metal box 1, formed with the inclined top 2, constituting a foot-rest, and the inclined bottom 11, and having the end perforations 12, the lamp-reservoir 4, the burner 5, a heating-cylinder arranged horizontally in the upper part of the box 1 and having its open ends extending through the walls of said box, and the chimney connecting the burner with the heating-  
45 cylinder, substantially as set forth.

3. The combination of the metal box 1, formed with the inclined top 2, constituting a foot-rest, and the inclined bottom 11, and having the end perforations 12, the fluid-reservoir 4, the burner 5, the heating-cylinder 7, formed with the perforated ends 7<sup>a</sup>, which project through the walls of the box 1, the removable end caps 9, formed with the inner  
55 flanges 9<sup>a</sup> and the wide outer flanges 10, the chimney connecting the burner with the heating-cylinder, and the return-tubes 15, arranged as specified, substantially as set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

WILLIAM M. CARR.  
EDWARD B. HAHN.  
JOSEPH B. JACKSON.

Witnesses:

W. H. MORGAN,  
W. H. MCKEE.