

(No Model.)

W. R. PARK.  
FLUID STRAINER.

No. 551,044.

Patented Dec. 10, 1895.

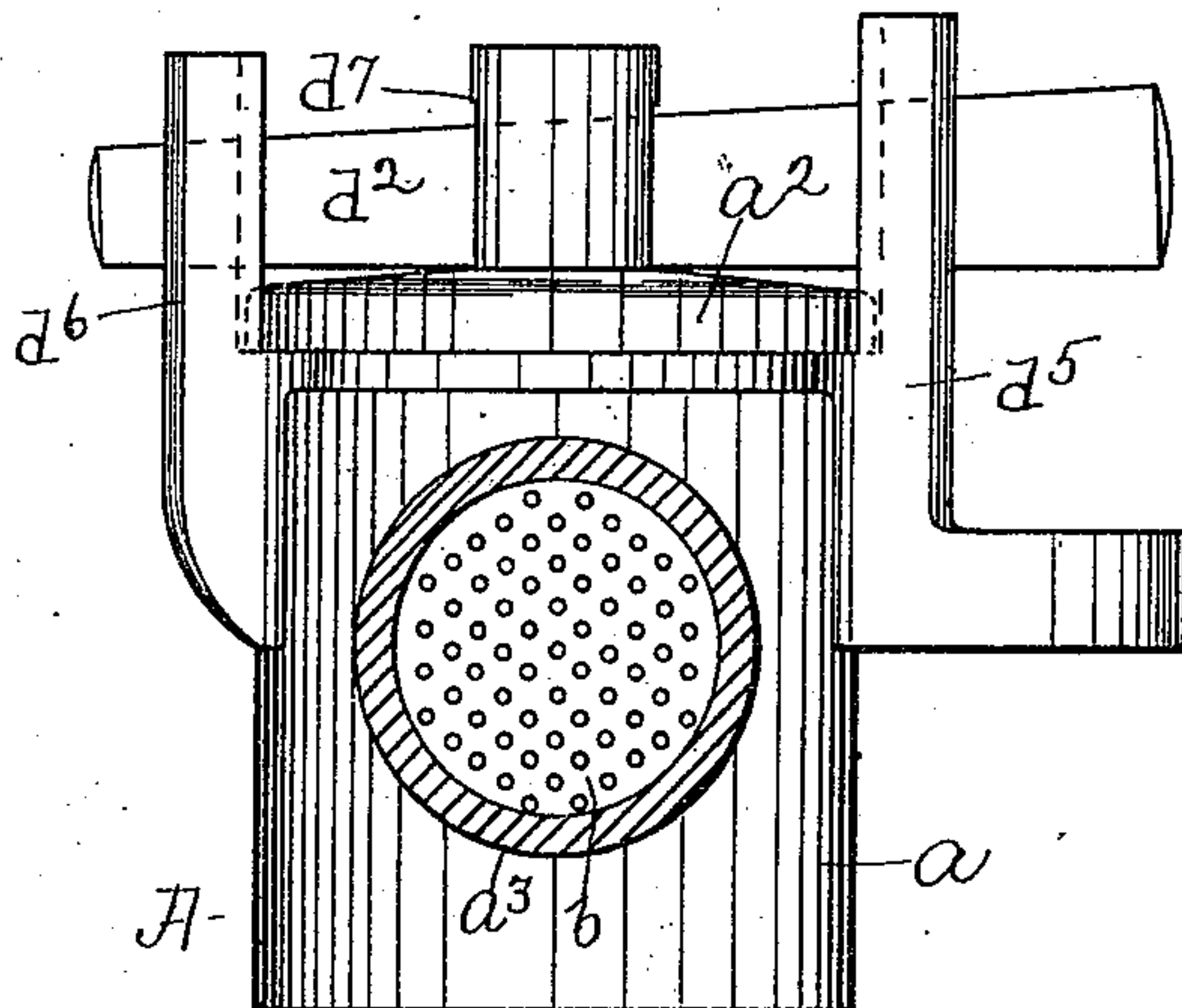


Fig. 1.

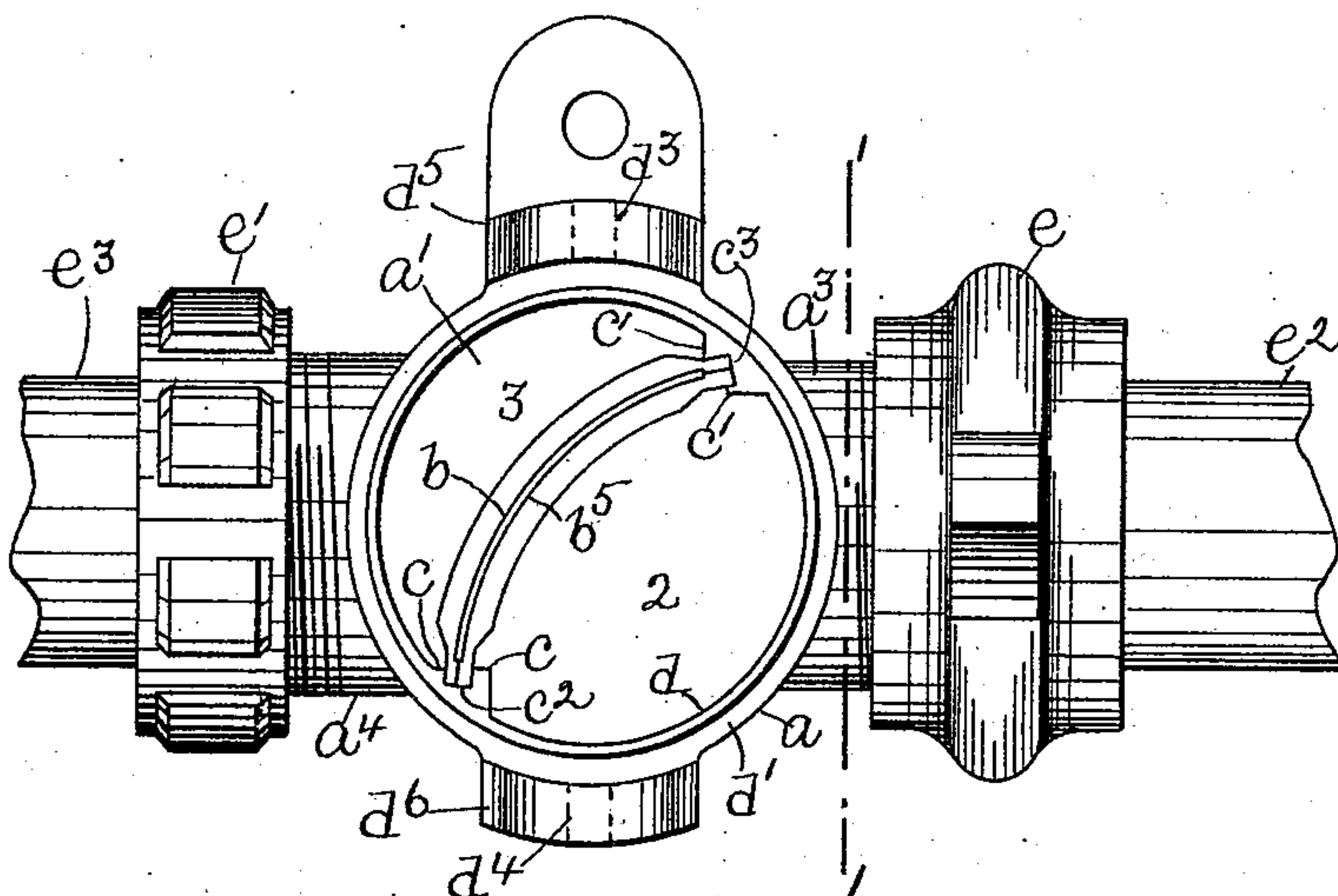


Fig. 2.

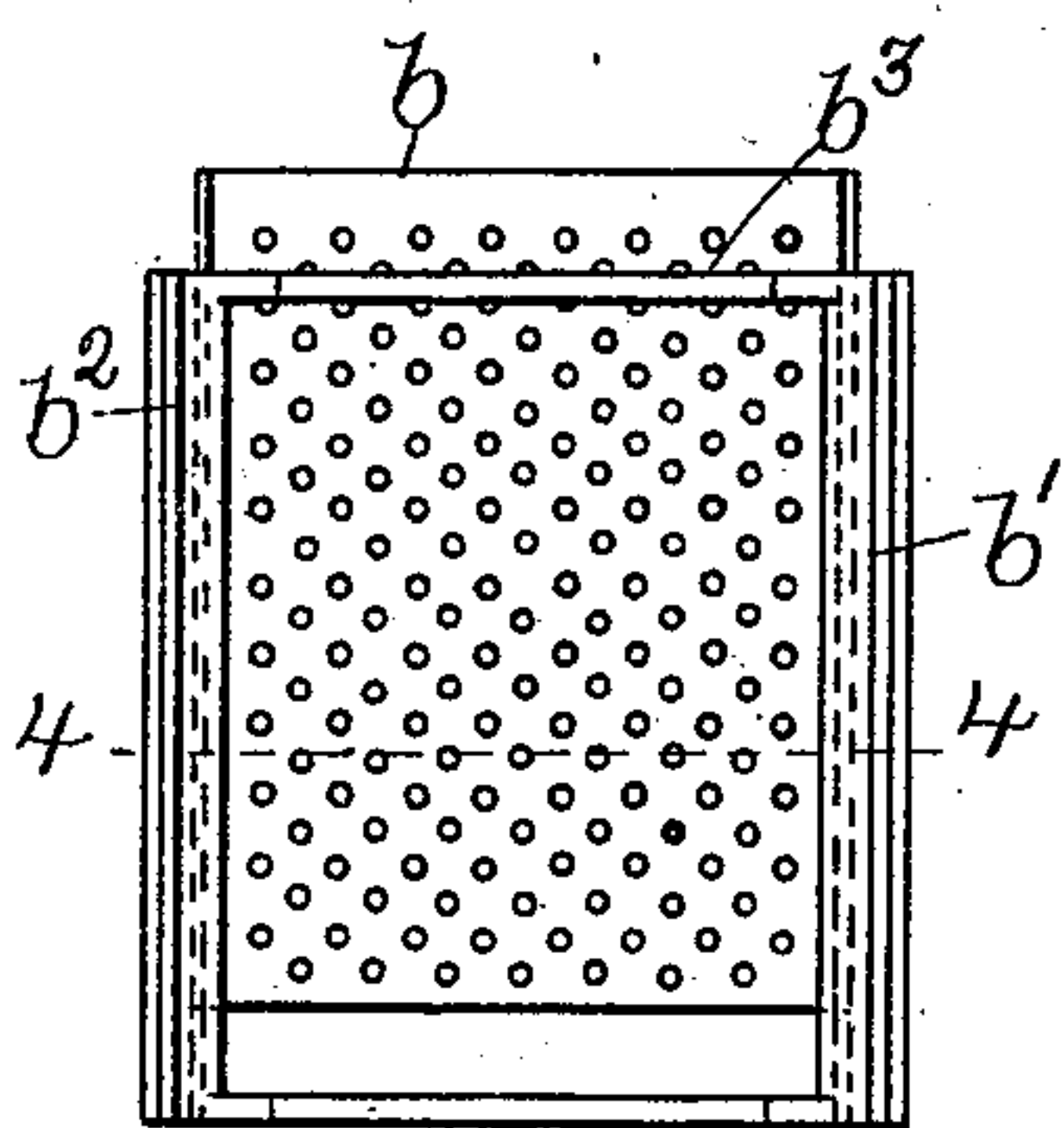


Fig. 3.

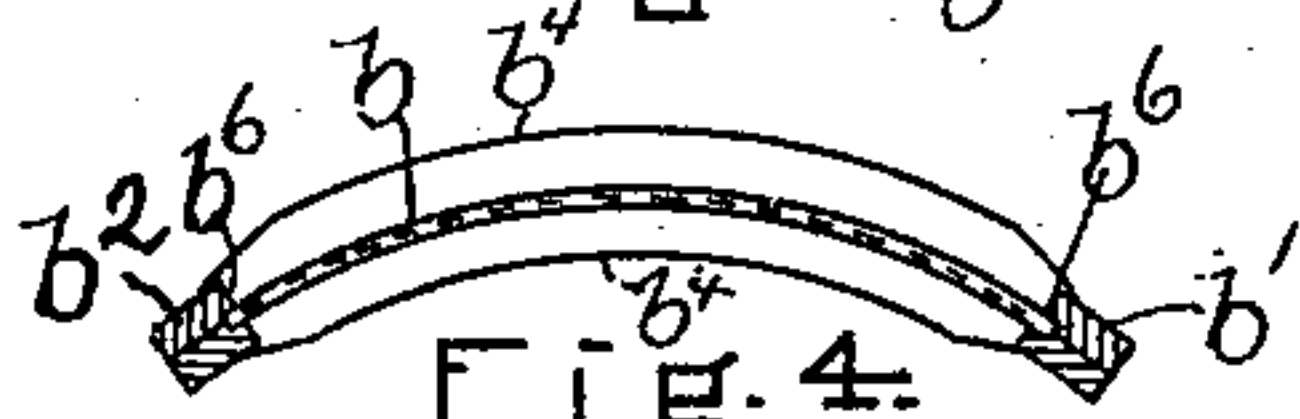


Fig. 4.

WITNESSES.

Matthew M. Blunt.  
Mc F. Crowley.

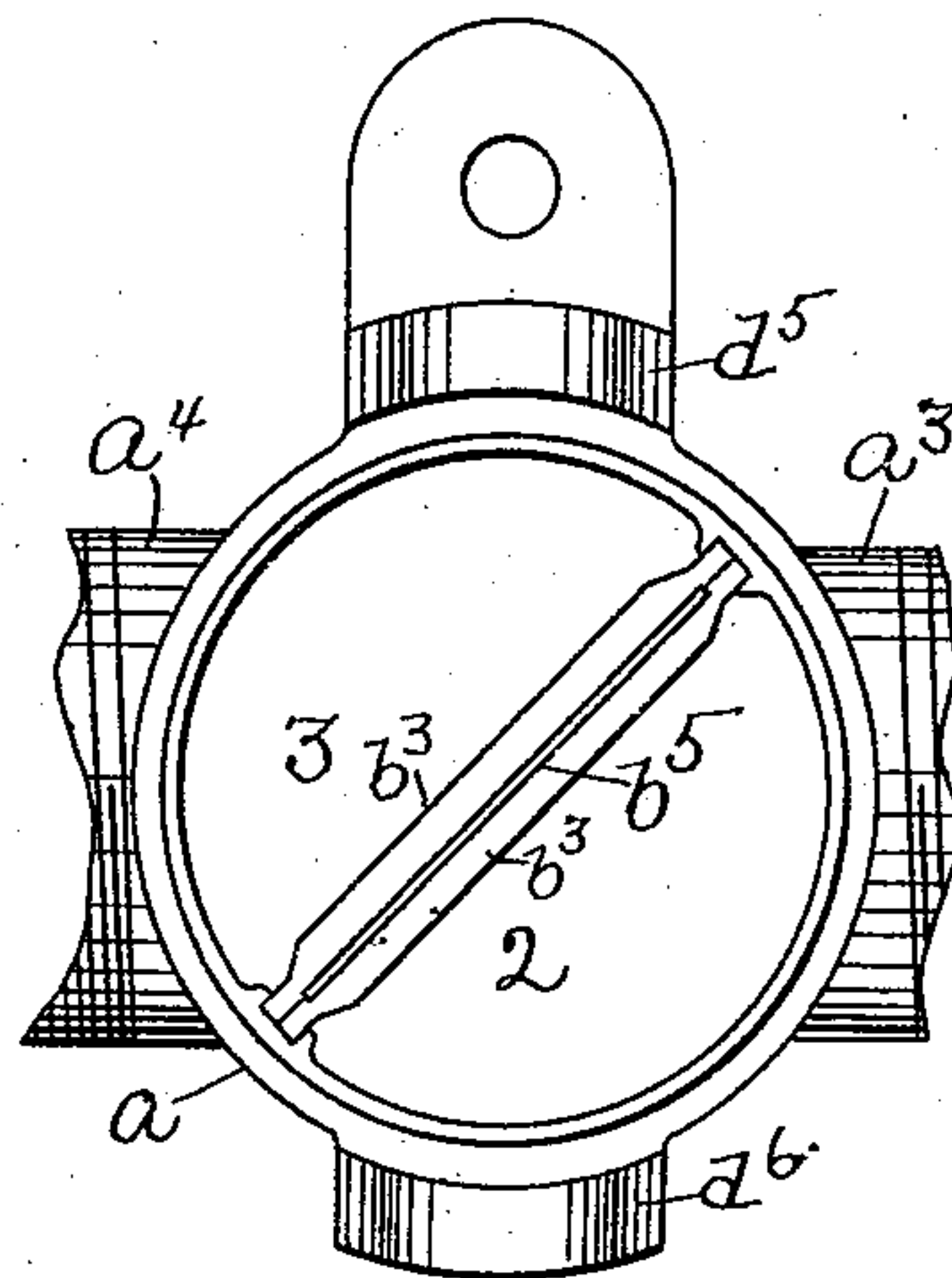


FIG. 5. INVENTOR.

William R. Park  
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ATT'Y.



# UNITED STATES PATENT OFFICE.

WILLIAM R. PARK, OF TAUNTON, ASSIGNOR TO THE HANCOCK INSPIRATOR COMPANY, OF BOSTON, MASSACHUSETTS.

## FLUID-STRAINER.

SPECIFICATION forming part of Letters Patent No. 551,044, dated December 10, 1895.

Application filed November 17, 1894. Serial No. 529,132. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM R. PARK, of Taunton, county of Bristol, and State of Massachusetts, have invented an Improvement in Fluid-Strainers, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

10 This invention relates to a novel construction of strainer especially adapted, among other things, for use with inspirators or injectors on locomotives to free the water supplied to the boiler from foreign matter.

15 My present invention has for its object to provide a simple, cheap, and efficient apparatus for the purpose specified and one in which the strainer proper may be quickly and easily removed, as will be described.

20 The strainer proper is made as a plate of foraminous or reticulated metal fitted into a suitable frame or holder and preferably removable therefrom, and the said frame is adapted to be inserted into suitable guide-ways in a chamber or casing provided with an inlet and outlet pipe. The strainer-plate and its frame may in some instances be advantageously made curved and placed within the casing or chamber, so that its concave side will be opposite the water-inlet, for a purpose as will be described. The casing or chamber is provided with a cap or bonnet, which is preferably secured to the said casing by means of a suitable key, as will be described. These and other features of this invention will be pointed out in the claims at the end of this specification.

40 Figure 1 is a sectional elevation of a straining apparatus embodying this invention, the section being taken on the line 1 1, Fig. 2, and the apparatus being shown in Fig. 1 in a position substantially at right angles to that shown in Fig. 2. Fig. 2 is a front elevation of the apparatus in its operative position, with the bonnet or cap removed and showing sections of pipes coupled to the apparatus; Fig. 3, a detail in elevation of the strainer-plate and its frame or holder shown in Fig. 1, the strainer-plate being partially withdrawn from its frame or holder; Fig. 4, a transverse section of the strainer-plate and

its frame or holder shown in Fig. 3, the section being taken on the line 4 4, and Fig. 5 a front elevation of the apparatus with the bonnet removed and showing a straight form of strainer-plate and holder.

The apparatus herein shown as embodying this invention consists of a casing A, composed of a preferably cylindrical body  $a$  and a bottom or end wall  $a'$ , integral with the said body, the latter being open at its opposite end and normally closed by a bonnet or cap  $a^2$ . The casing A is provided with an inlet-pipe  $a^3$  and with an outlet-pipe  $a^4$ , preferably diametrically opposite, and the said casing contains within it a strainer  $b$ , preferably a plate of foraminous or reticulated metal, which is for the best results removably supported by a frame or holder.

The frame or holder referred to is preferably made in two parts or halves, each comprising side bars  $b^1 b^2$  and end bars  $b^3 b^4$ , suitably shaped to form a slot or opening  $b^5$  (see Figs. 2 to 5) between the said end bars when the two parts or halves are secured together by rivets or otherwise, and to also form guide-ways  $b^6$  between the side bars  $b^1 b^2$  of the two halves when secured together as shown in Fig. 4.

The strainer-plate  $b$  is adapted to be inserted into its holder or frame through the slot  $b^5$  between either pair of end bars  $b^3 b^4$  and is removable from said holder or frame to enable it to be cleaned or subjected to flame to burn out any combustible material adhering there- to, such as vegetable or other fiber.

The body  $a$  of the casing is provided on its interior with longitudinal ribs  $c c'$ , substantially diametrically opposite and forming longitudinal guideways  $c^2 c^3$  for the reception of the side bars  $b^1 b^2$  of the holder or frame, by which means the latter and the strainer-plate are maintained in position against lateral movement, and the said holder and strainer-plate are maintained against longitudinal movement in one direction by the end plate or wall  $a'$  of the body  $a$  and in the opposite direction by the cap or bonnet  $a^2$ .

I prefer to make the strainer-plate curved, as shown in Figs. 2 and 4, and to place it within the casing or chamber with its concave side toward the water-inlet and its convex



side toward the outlet-pipe. It is the practice in locomotives to occasionally blow back steam from the boiler to the tender, and at such times the strainer is subject to considerable pressure, enough at times to rupture it, especially if it happens to be partially clogged at the time. By making the strainer-plate curved and by presenting its convex side toward the outlet-pipe I have found that it is less liable to be ruptured or blown out than if the flat strainer-plate is used.

The strainer-plate and its holder, when in operative position within the casing A, divide the same into the compartments 2 3. When the strainer-plate and its holder are made straight, after the manner shown in Fig. 5, these two compartments are of substantially the same area. When they are made curved and are arranged as shown in Figs. 2 and 4, the compartment 2 will be larger than the compartment 3, so that a substantially large amount of foreign matter may accumulate in the compartment 2 without interfering with the working of the apparatus, and at the same time the effective area of the strainer-plate is not diminished. The cap or bonnet  $a^2$  is preferably fitted with a ground joint, and the open end of the body  $a$  is provided with a flange  $d$  and a seat  $d'$ , which co-operates with the cap or bonnet to form a liquid joint. The bonnet or cap  $a^3$  may and preferably will be secured to the casing A by a taper-key  $d^2$ , extended through slots  $d^3 d^4$  in lugs or projecting arms  $d^5 d^6$ , secured to or forming part of the casing A and through a slot in a projection  $d^7$  on the cap. The water-inlet pipe  $a^3$  and the outlet-pipe  $a^4$  may be provided with screw-threads to adapt them to be connected by couplings  $c c'$  with pipes  $c^2 c^3$ , leading to the water supply and to the boiler, respectively.

In practice the strainer apparatus will preferably be coupled up in the position shown in Fig. 2, so that the heavier foreign matter or sediment may fall or settle in the compartment 2 below the strainer-plate.

The apparatus is simple, easy of access for repair or other purpose, and can be easily and quickly reached by removing the key  $d^2$  and cap  $a^2$ .

In order to increase the efficiency of the apparatus, I prefer to place the strainer-plate obliquely with relation to the water-inlet pipe  $a^3$ , so that the water admitted into the compartment 2 of the casing will strike the strainer-plate at an angle, or, as it may be termed, "tangentially," whereby the incom-

ing water has a scouring action on the strainer-plate and acts to detach foreign matter from the same, thereby keeping the pores or openings of the plate open and in effective condition.

I claim—

1. In a strainer, the combination with a casing closed at one end and provided with an inlet and an outlet pipe, and a cover to close the open end of the casing, of a removable strainer plate, and a holder for said plate separate from the said cover and located within the said casing and removable therefrom independent of the cover to permit the said casing to be uncovered without removing the strainer plate and its holder, substantially as described.

2. In a strainer, the combination with a casing consisting of the body  $a$  closed at one end and normally open at its opposite end, the said body having an inlet and an outlet pipe, and a removable cover secured to the said casing to close its normally open end, of a removable strainer plate, and a holder therefor separate from the cover, and means within the body  $a$  to secure the strainer plate and its holder against lateral or rotary movement, substantially as described.

3. In a strainer, the combination with a casing closed at one end and provided with an inlet and with an outlet pipe, of a removable curved strainer plate, and a holder therefor inserted into the said casing, and a cap or cover for the open end of the casing separate from the strainer plate and its holder to permit the casing to be uncovered without removing the strainer plate and its holder, substantially as described.

4. In a strainer, the combination with a casing closed at one end and provided with an inlet and an outlet pipe, of a removable perforated metallic strainer plate, and a holder therefor consisting of two halves or parts secured together at their sides and open at the top and bottom for the reception between the said parts or halves of the said strainer plate, guides attached to the inner side of the casing for the reception of said holder, and a cover for the casing, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM R. PARK.

Witnesses:

HARTLEY F. ATWOOD,  
ALBERT J. HOSLER.