

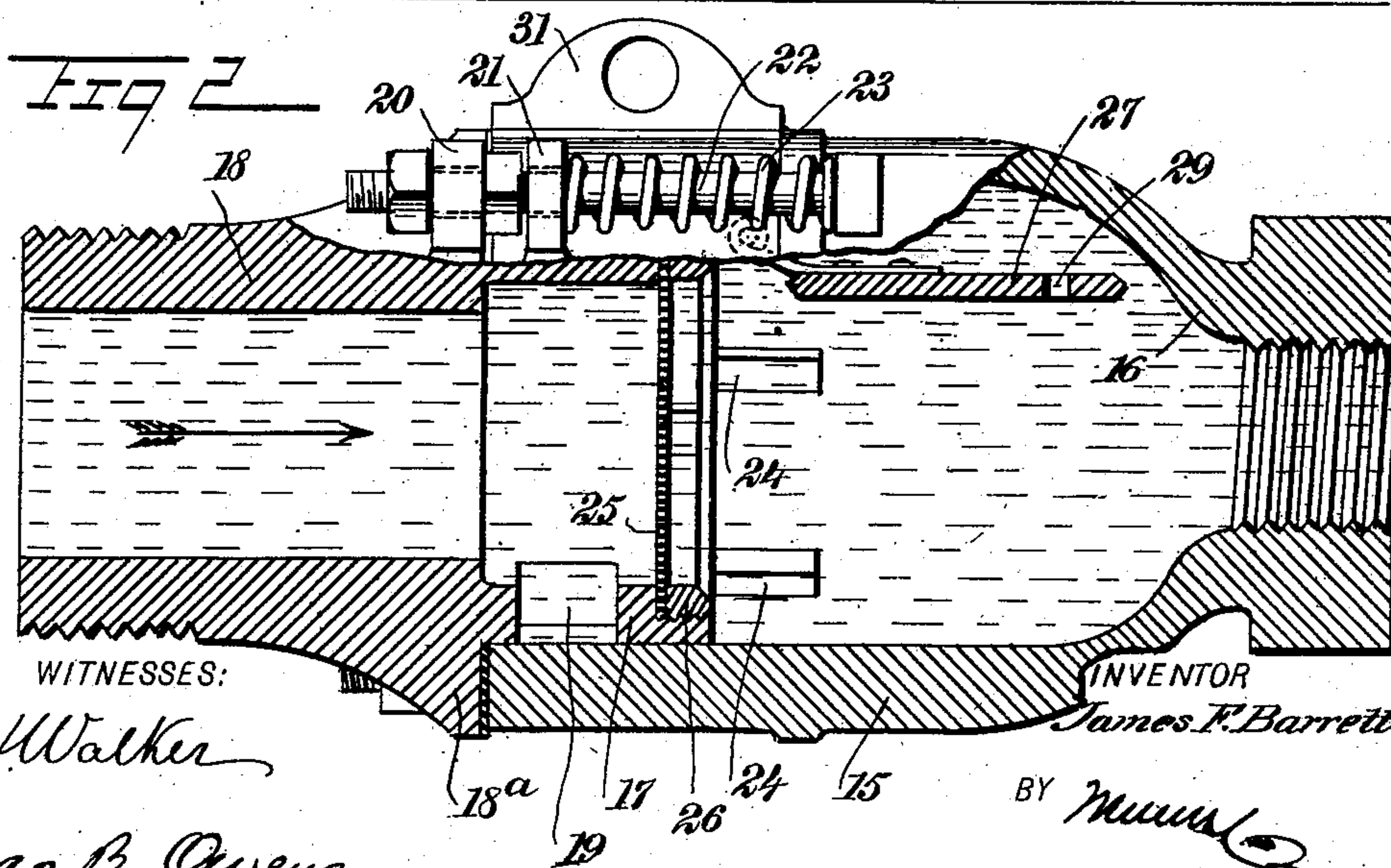
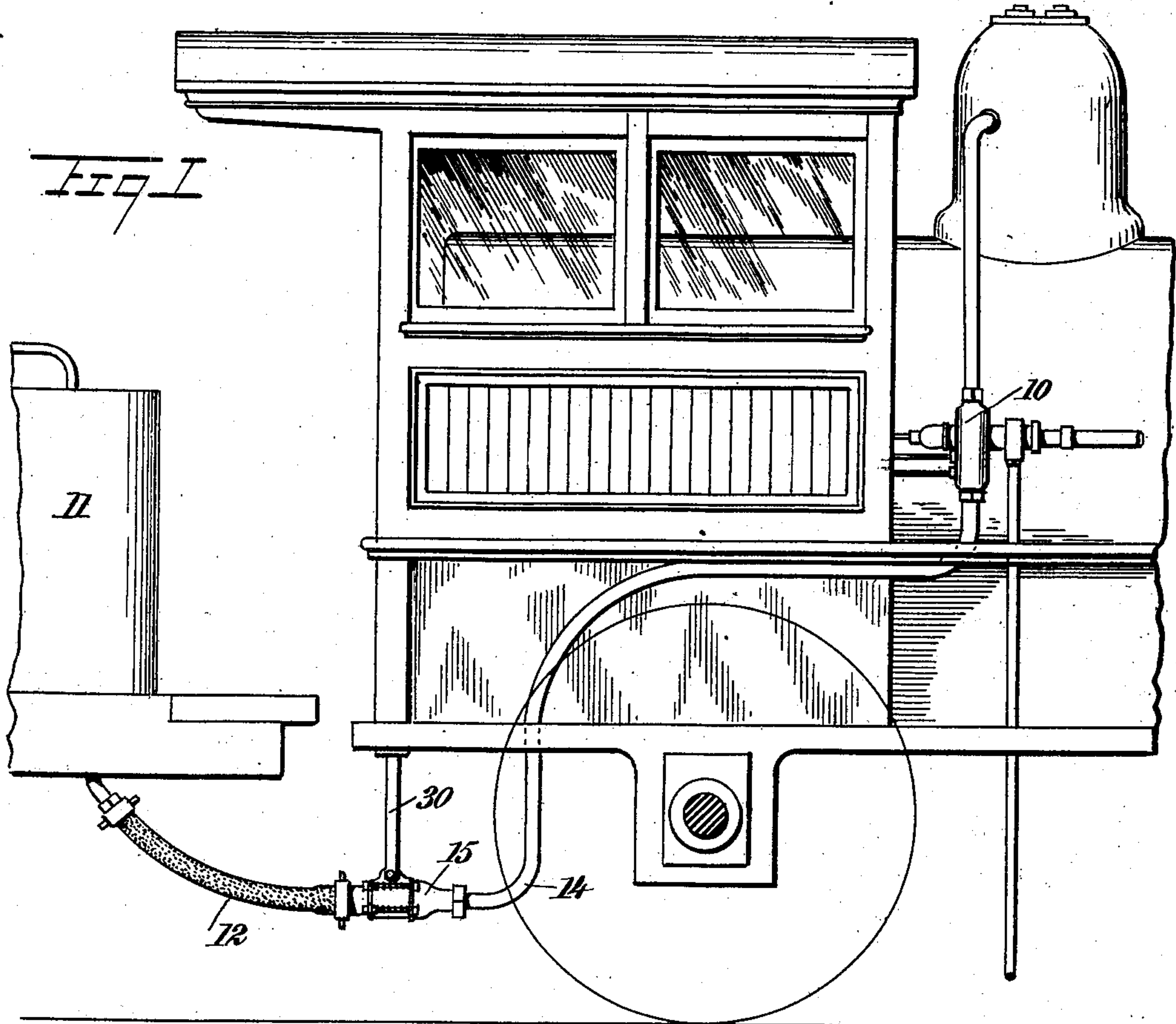
No. 744,459.

PATENTED NOV. 17, 1903.

J. F. BARRETT.
FEED WATER FILTER.
APPLICATION FILED NOV. 24, 1902.

NO MODEL.

2 SHEETS—SHEET 1.



WITNESSES:

H. Walker

Isaac B. Owens

INVENTOR

James F. Barrett

BY

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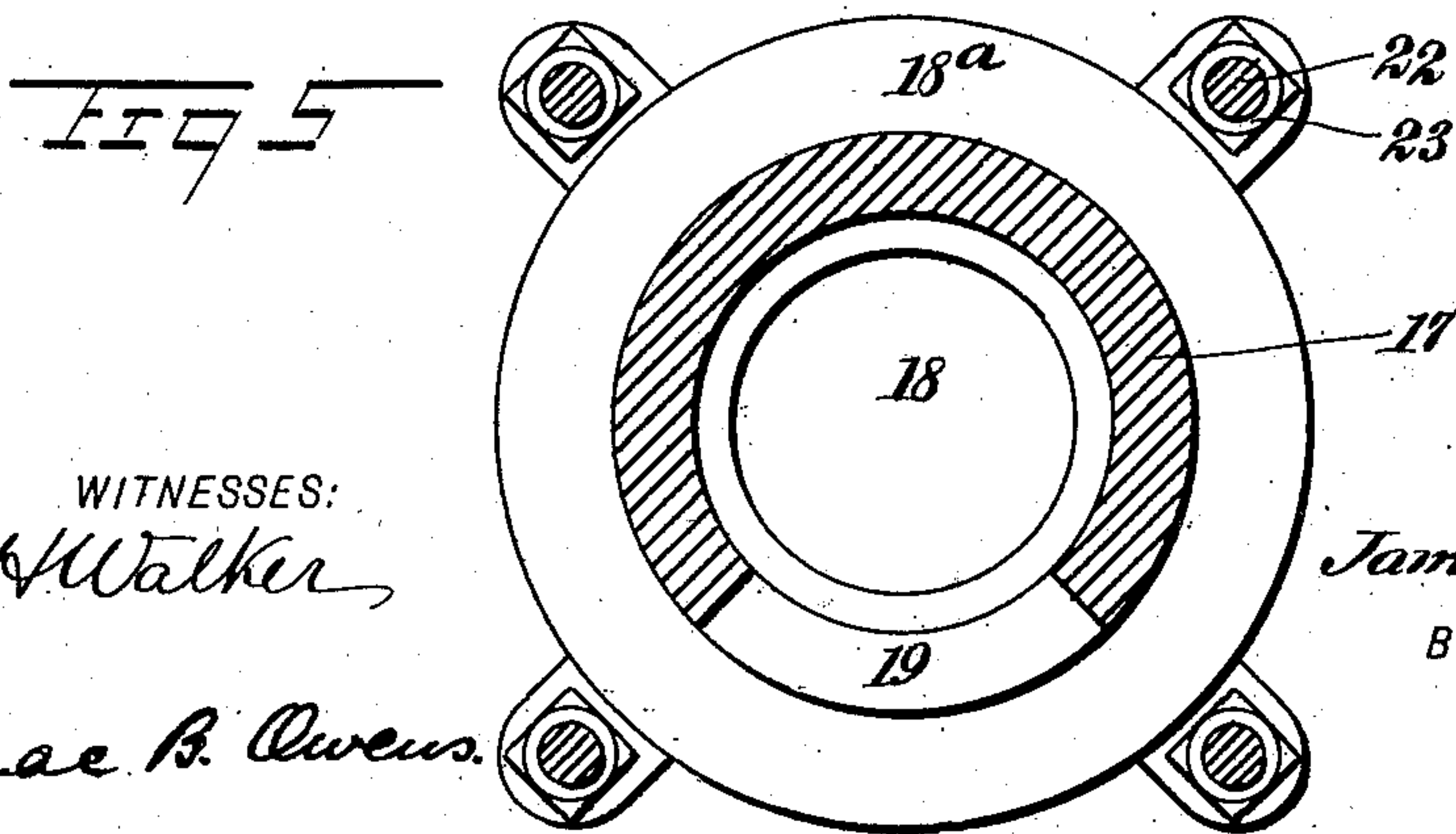
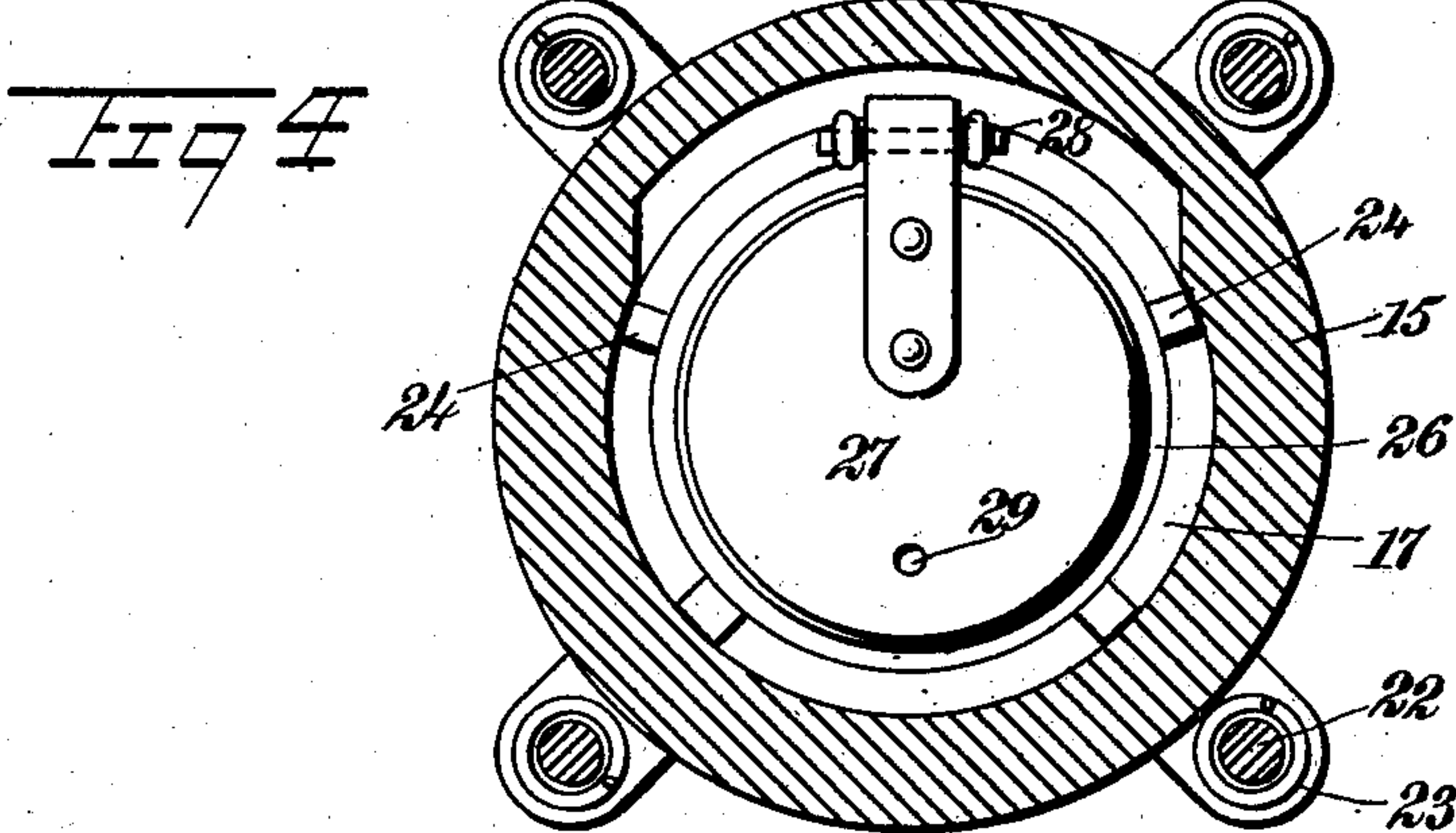
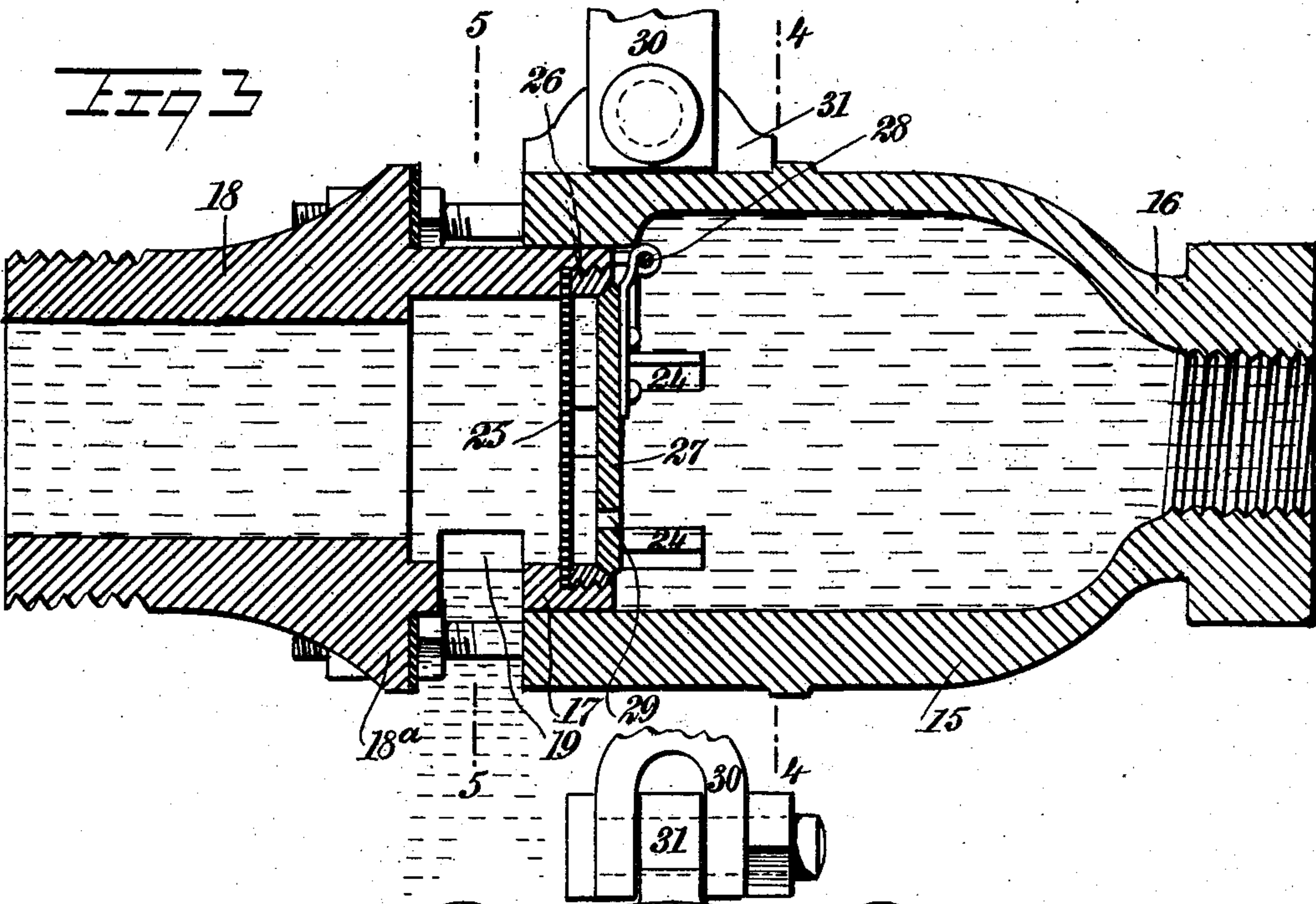
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UNITED STATES PATENT OFFICE.

JAMES FRANCIS BARRETT, OF CARBONDALE, PENNSYLVANIA.

FEED-WATER FILTER.

SPECIFICATION forming part of Letters Patent No. 744,459, dated November 17, 1903.

Application filed November 24, 1902. Serial No. 132,555. (No model.)

To all whom it may concern:

Be it known that I, JAMES FRANCIS BARRETT, a citizen of the United States, and a resident of Carbondale, in the county of Lack-

awanna and State of Pennsylvania, have invented a new and Improved Feed-Water Filter, of which the following is a full, clear, and exact description.

This invention relates to a filter useful in many connections, as will be apparent to skilled mechanics, but especially applicable to the feed-water pipe of locomotives.

The prime object of the invention is to provide means by which sediment and other foreign matter will be prevented from entering the boiler and also by which this sediment and foreign matter may be ejected from the hose without requiring manipulation of the coupling. In attaining this end I provide a casing with a strainer therein, the casing being constructed in two parts which move relatively to open a vent through which the sediment may be discharged. This opening action is automatically brought about by steam-pressure from the injector or other source, so that by simply manipulating the injector the hose from the tank may be cleared of obstructions and the feed-water drawn steadily through the pipe.

This specification is an exact description of one example of my invention, while the claims define the actual scope thereof.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation of a locomotive-cab and adjacent parts, illustrating the application of my invention. Fig. 2 is an enlarged section of the invention, showing it in closed position. Fig. 3 is a similar view showing the invention open to discharge the sediment. Fig. 4 is a section on the line 4 4 of Fig. 3, and Fig. 5 is a section on the line 5 5 of Fig. 3.

In Fig. 1, 10 indicates the injector for forcing the feed-water into the locomotive-boiler, 11 indicates the tender which carries a water-tank, and 12 and 14 respectively indicate the sections of the hose connecting the water-tank and the injector.

My invention consists in a coupling which is placed between the hose-section 12 and

feed-pipe 14 and which embodies a strainer and also is capable of automatically opening under the action of steam-pressure, so that the foreign matter collected at the strainer may be blown out of the hose and filter.

The invention comprises a main or body section 15, which as here shown is connected to the feed-pipe 14 at its end 16. (See Figs. 2 and 3.) This main or body section 15 of the casing is hollow, as shown, and has the reduced portion 17 of the coupling-section 18 fitted to slide therein, said section 18 having an annular shoulder 18^a, normally engaging the inner end of the section 15, so as to form a water-tight connection. The reduced end 17 of the casing-section 18 has an opening 19 formed therein, and when the parts are in the position shown in Fig. 2 this opening is covered by the section 15. When, however, the sections 15 and 18 are separated, as in Fig. 3, the port or opening 19 is uncovered and the material in the casing-section 18 is free to pass out. The sections 15 and 18 may be held yieldingly in closed position, as in Fig. 2, by any desired spring devices. I prefer to employ the construction shown in Fig. 2, which is to say lugs 20 and 21 are formed, respectively, on the sections 15 and 18, and to the lug 20 is fastened a headed rod or bolt 22, carrying a spring 23, which bears between the head of the bolt and lug 21. These springs hold the parts 15 and 18 in closed position; but when the pressure of the springs is overcome said parts or sections may be moved apart to uncover the opening 19. As here shown, four of the springs 23 and their appurtenant parts are provided. This insures an equal pressure holding the sections of the casing engaged.

Projected inward of the reduced portion 17 of the casing-section 18 are a number (preferably four) of fingers 24, which slide on the inner surface of the section 15 and guide the two sections in their relative movement, preventing said sections from wobbling the one on the other when they are drawn out, as in Fig. 3. Fastened in the end of the reduced portion 17 of the casing-section 18 is a sieve 25, this sieve being held in place by a screw-ring 26, fitted in said reduced portion 17 and forming also a seat for the clack-valve 27, which is hung on a transversely-extending

pin 28 to assume the closed position shown in Fig. 3 or the open position illustrated in Fig. 2. Said clack-valve 27 is provided with a steam-vent orifice 29.

- 5 When the injector is working and a current of water is drawn through the hose in the direction of the arrow shown in Fig. 2, the strainer 25 will stop foreign matter passing through the pipe, and the valve 27 will be
10 thrown into the position shown, which allows the unobstructed passage of the water. However, should the sieve become clogged the injector may be manipulated to cause a pressure of steam to pass through the main hose-section 14 and into the casing-section 15. This
15 will instantly seat the valve 27, and the steam-pressure acting on the face of this valve will then overcome the action of the springs 23 and force the section 18 of the casing out into
20 the position shown in Fig. 3, thus uncovering the opening 19. Simultaneously a relatively small volume of steam will find its way through the port 29 and spread through the sieve 25, thus blowing the sediment off from
25 the sieve and causing it to run with the water out through the opening 19, as indicated in Fig. 3. When this operation has been allowed to go on for a sufficient length of time, the steam-pressure should be cut off from the
30 pipe-section 14, and then the springs 23 will act automatically to return the parts to the closed position, whereupon by operating the injector the water will flow unobstructedly through the strainer and into the injector.
35 In order to support the filter in proper position, I prefer to employ a hanger-rod 30, which is supported from the frame or cross-tie of the engine and is joined to slug 31, formed on top of the section 15 of the casing.
40 Various changes in the form, proportions, and minor details of the invention may be resorted to at will without departing from the spirit and scope thereof. Hence I consider myself entitled to all such variations as may
45 lie within the intent of my claims.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A filter comprising two relatively movable sections, and means for yieldingly holding them in closed position, said sections being movable against said yielding means to open the filter to allow the sediment to pass out.
50 2. A filter comprising two sections having limited movement relatively to each other to open and close the filter, and means yieldingly holding said sections in closed position.
3. A filter comprising two relatively movable sections, means for yieldingly holding them in closed position, said sections being movable against said yielding means to open the filter, and a strainer placed in the filter.
60 4. A filter, comprising two sections having limited movement relatively to each other to open and close the filter, means yieldingly

holding said sections in closed position, and a strainer placed in the filter.

5. In a filter, the combination of two sections relatively movable for the purpose specified, means for yieldingly holding said sections in closed position, and a strainer carried by the filter. 70

6. In a filter, the combination of two sections relatively movable for the purpose specified, means for yieldingly holding said sections in closed position, a strainer carried by the filter, and a valve commanding the filter, said valve having a vent therein. 75

7. In a filter, the combination of two sections relatively slidable for the purpose specified, means for yieldingly holding the sections in closed position, a sieve carried by one section, and a valve carried by said section and having a vent therein. 80

8. In a filter, the combination of two relatively slidable sections fitted one within the other, one of said sections having a discharge-orifice therein, and said orifice being normally closed by the other section, means for yieldingly holding the filter in closed position, and a valve mounted on one section and opening in one direction only. 85

9. In a filter, the combination of two relatively slidable sections fitted one within the other, one of said sections having a discharge-orifice therein and said orifice being normally closed by the other section, means for yieldingly holding the filter in closed position, a valve mounted on one section and opening in one direction only, the valve having a vent therein, and a sieve carried by the section carrying the valve. 90

10. In a filter, the combination of two relatively slidable sections fitted one within the other, one of said sections having a discharge-orifice therein and said orifice being normally closed by the other section, means for yieldingly holding the filter in closed position, a valve mounted on one section and opening in one direction only, and a sieve or strainer placed in the filter. 95

11. A filter, comprising two members relatively movable to open and close the filter, and a sieve carried within the filter. 100

12. A filter, comprising two members relatively movable to open and close the filter, a sieve carried within the filter, and a valve also carried within the filter and having a vent therein, said sieve and valve being carried by the same member of the filter. 105

13. In a filter, two relatively movable sections yieldingly held in a closed position and adapted to be opened by fluid-pressure to permit of the discharge of sediment therefrom. 110

14. In a filter, two relatively movable and yieldingly-held sections, and a valve carried by one of the sections and adapted to be acted upon by fluid-pressure to open the sections to permit the discharge of sediment. 115

15. In a filter, a fixed section, a slidable

section, means for yieldingly holding the sections in a closed position, and a valve carried by the movable section and adapted to be acted upon by fluid-pressure to move the
5 movable section outward to permit the discharge of sediment.

In testimony whereof I have signed my

name to this specification in the presence of two subscribing witnesses.

JAMES FRANCIS BARRETT.

Witnesses:

B. B. GODWIN,

W. H. BRONSON.