

R. P. BARNSTEAD.  
STERILIZER.  
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927,764.

Patented July 13, 1909.

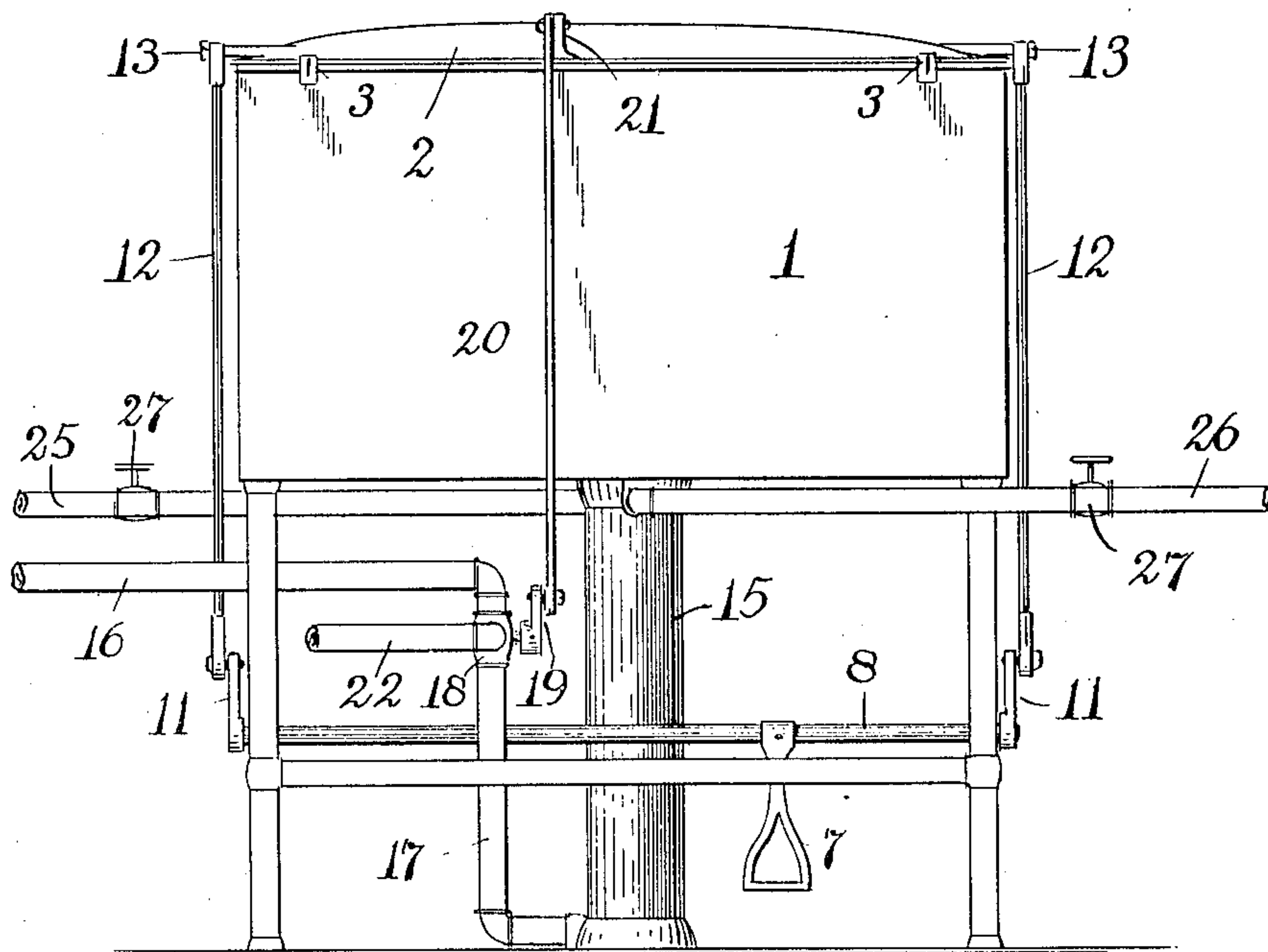


Fig. 1

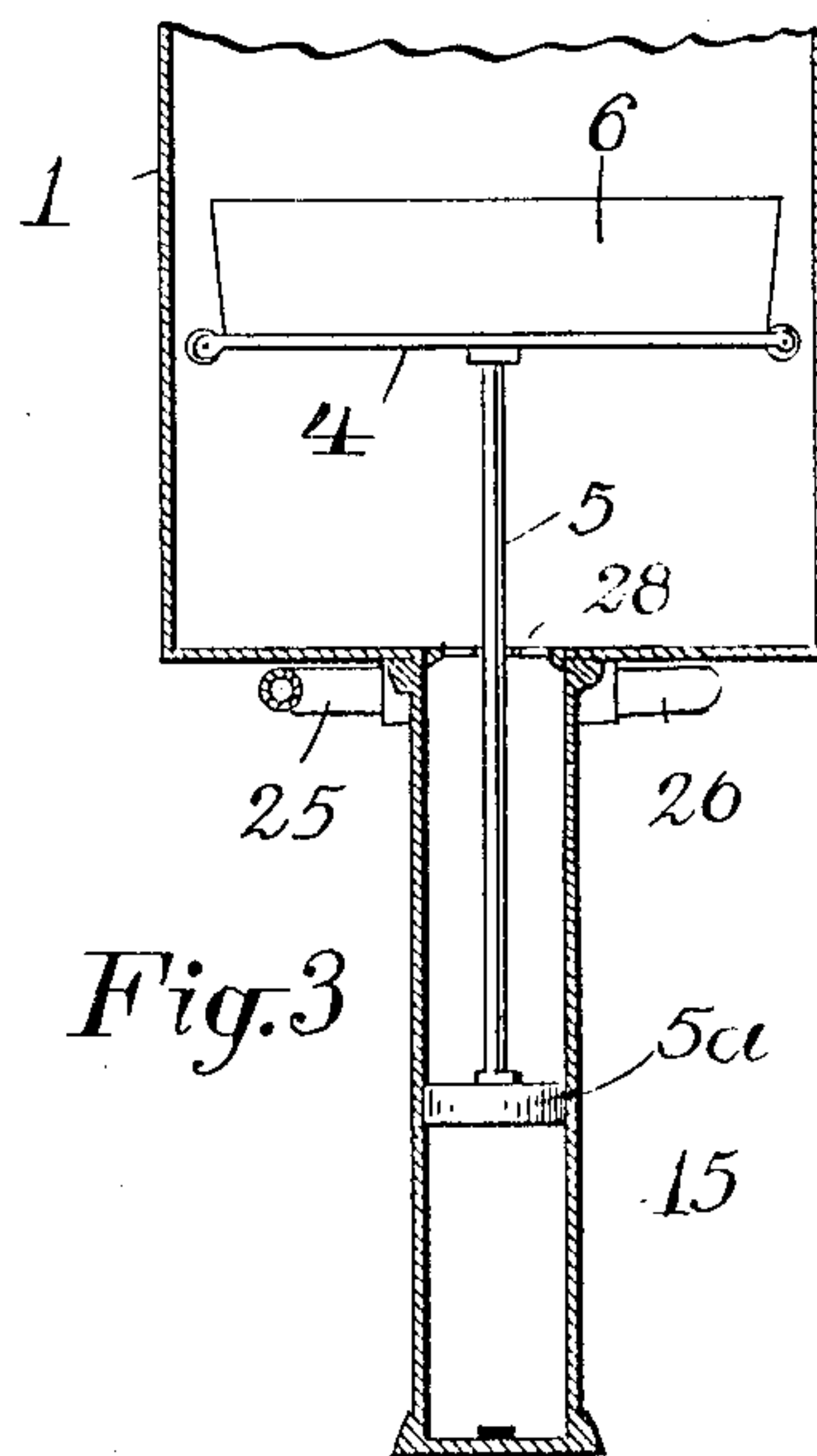


Fig. 3

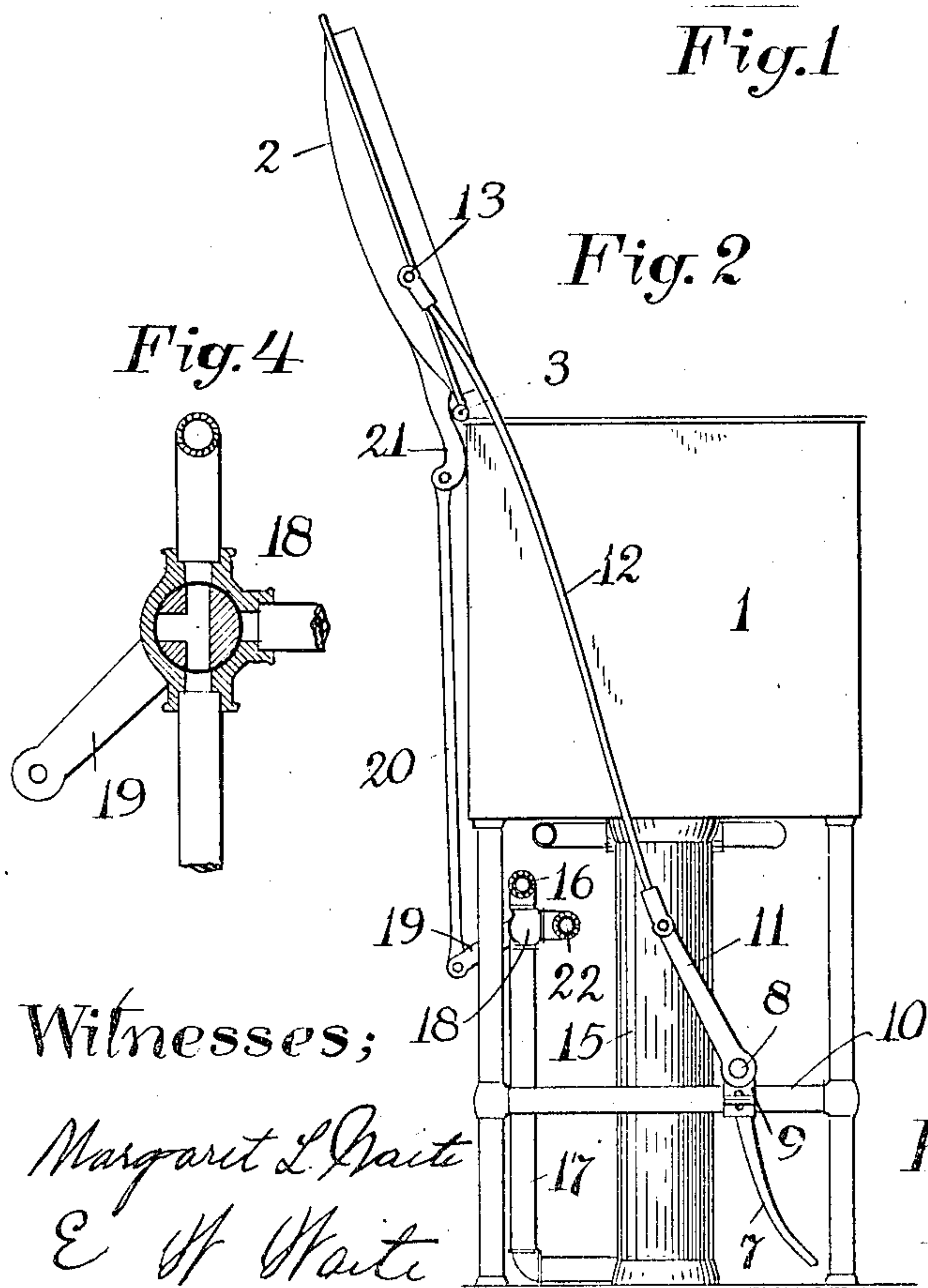


Fig. 2

Fig. 4

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# UNITED STATES PATENT OFFICE.

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## STERILIZER.

No. 927,764.

Specification of Letters Patent.

Patented July 13, 1909.

Application filed September 21, 1908. Serial No. 454,034.

*To all whom it may concern:*

Be it known that I, ROBERT P. BARNSTEAD, a citizen of the United States, and residing at the city of Boston, in the county of Suffolk and Commonwealth of Massachusetts, have invented certain new and useful Improvements in Sterilizers, of which the following is a specification.

The object of this invention is the construction of improved means for raising the covers of sterilizers, and for elevating the trays upon which are placed the articles to be treated. To this end, I have devised a pedal operated mechanism by means of which the pressure of the attendant's foot swings up the cover of the sterilizer, and provide the tray with a fluid-pressure operated means for its elevation and depression; so connecting the cover with the cock controlling the fluid admission that the opening of the cover opens said cock to admit the fluid, and the closing of the cover changes the cock to permit the fluid in the fluid pressure operating means to discharge to the waste.

Referring to the drawings forming part of this specification, Figure 1 is a rear elevation of a sterilizer made in accordance with my invention. Fig. 2 is a side elevation of the same. Fig. 3 is a side sectional elevation of the same. Fig. 4 is a sectional view on a larger scale of the three-way cock controlling the fluid admission and discharge.

The sterilizer chamber 1 is provided with a cover 2 preferably hinged at 3 thereto, as shown in Fig. 2, and a tray-supporting shelf 4 supported upon the plunger rod 5, as shown in Fig. 3; the tray 6 being removable from said shelf.

To raise the cover by foot-power, I provide the pedal 7 fixed upon the rock-shaft 8 which is supported in suitable bearings 9 held by the framework 10. Fixed to the extremities of this shaft are arms 11 from the ends of which pass the connecting rods 12 to the pivot pins 13 projecting from the lateral edges of the cover. When the cover is closed, the pedal is more nearly horizontal than when the cover is raised; and hence when said pedal is pressed upon by the attendant's foot, the same swings down to the position illustrated in Fig. 2, and the cover is thrown open. In this position of the arms 11, they constitute toggles in connection with the rods 12, and so brace the cover against accidentally closing. They also serve the same purpose through any chance

hit against the pedal by the feet. Consequently there is no danger of the cover's accidentally closing and injuring any hand which might be resting upon the edge of the sterilizer chamber.

The plunger rod 5 has its head 5<sup>a</sup> slidable water-tight within the cylinder 15 located beneath the center of the chamber's bottom, and fluid under pressure is admitted within the cylinder under the plunger head, for the purpose of elevating the shelf 4 together with the tray and its contents, in the following manner: Opening into said cylinder close to its lower end is a short section of piping 17 joined to the pipe 16 which is connected with any suitable source of fluid under pressure, as a water-main. At the juncture of these two pipes, and also of a discharge pipe 22, is a three-way cock or valve 18 whose stem has a rigid arm 19 joined by a connecting rod 20 to an arm 21 with which the cover is provided. The parts being properly disposed, the three-way valve or cock is opened by the raising of the cover, and water under pressure admitted to the cylinder; thereby elevating the shelf and its load. When the cover is closed, the three-way cock or valve is turned to open the section 17 into the pipe 22 communicating with the waste, so that the weight of the tray and contents causes the plunger to descend and force the water beneath it out through said pipe to the waste.

For filling and emptying the sterilizer chamber, two pipes 25 and 26 are provided, one communicating with the main or other source of supply, and the other with the waste. Each pipe being provided with a suitable cock 27, either pipe can be opened according to whether the chamber is to be filled or emptied. Both these pipes enter the cylinder 15 close to its upper extremity, and communicate with the chamber 1 through the apertured head 28. In this manner there is needed but a single opening into the chamber, that provided for the cylinder, and consequently there is only one joint which requires to be assured against leakage.

By having the cover 2 capable of being thrown open either by hand or foot, ability to inspect or remove the tray and its contents is provided even in case some accident has occurred by which the water has temporarily been shut off from the main. Where a moment's delay may mean the loss of the patient, as in many surgical operations, this is a most important feature. Moreover, by



having the cover able to be thrown open by hand or foot and in a second's time, where fractions of seconds are important, the attendant can reach and remove from the tray  
5 any quickly required article without waiting for the slowly moving plunger to raise the tray to the chamber's top.

By having the pedal 7 in the stirrup form illustrated in Fig. 1, the operator's foot is  
10 given a better hold thereupon, especially when it has swung to a position shown in Fig. 2. As the pedal descends, the toe of the operator's foot enters the opening in the same and is not only kept from slipping laterally off therefrom, but is given a better  
15 purchase upon the pedal. Moreover, the operator can rest the heel of her foot upon the floor while depressing the pedal.

What I claim as my invention and for  
20 which I desire Letters Patent is as follows, to wit;—

1. A sterilizer comprising a chamber, a fluid-pressure actuated shelf therein, a cover for the chamber, a valve controlling the fluid  
25 under pressure, and connections between said valve and cover whereby the opening or closing of the cover operates said valve.

2. A sterilizer comprising a chamber, a cover therefor, a movable shelf within the  
30 chamber, fluid pressure actuated means for raising the shelf, a pipe for supplying the fluid under pressure, a discharge pipe communicating with the first-named pipe, a valve for putting either the supply or the dis-  
35 charge into communication with said fluid pressure actuated means, and a connection between said valve and cover whereby the

opening of the cover actuates the valve to admit the fluid, and the closing of the cover actuates the valve to communicate with the  
40 discharge.

3. A sterilizer comprising a chamber, a cover therefor, a pedal operated means for opening the cover, a fluid pressure actuated shelf within the chamber, a valve controlling  
45 the same, and a connection between said valve and cover for actuating the valve by the movement of the cover.

4. A sterilizer comprising a chamber, a hinged cover therefor, a movable shelf within  
50 the chamber, a plunger and cylinder for raising the shelf, a fluid supply pipe and a discharge pipe connected by a single section of piping to the cylinder, a valve at the juncture of said pipes, an arm rigid with the cover, and  
55 a connection between said arm and valve for the actuation of the latter.

5. A sterilizer comprising a chamber, a hinged cover therefor, a rock shaft, crank-  
60 arms fixed to the ends of said shaft, connecting rods between said arms and cover, and a pedal rigid with the rock-shaft said pedal being formed substantially triangular in order for the foot to rest upon the cross-bar thereof and be kept from slipping off there-  
65 from by the other two parts thereof.

In testimony that I claim the foregoing invention, I have hereunto set my hand this 15th day of September, 1908.

ROBERT P. BARNSTEAD.

Witnesses:

JOHN C. BULLARD,  
A. B. UPHAM.