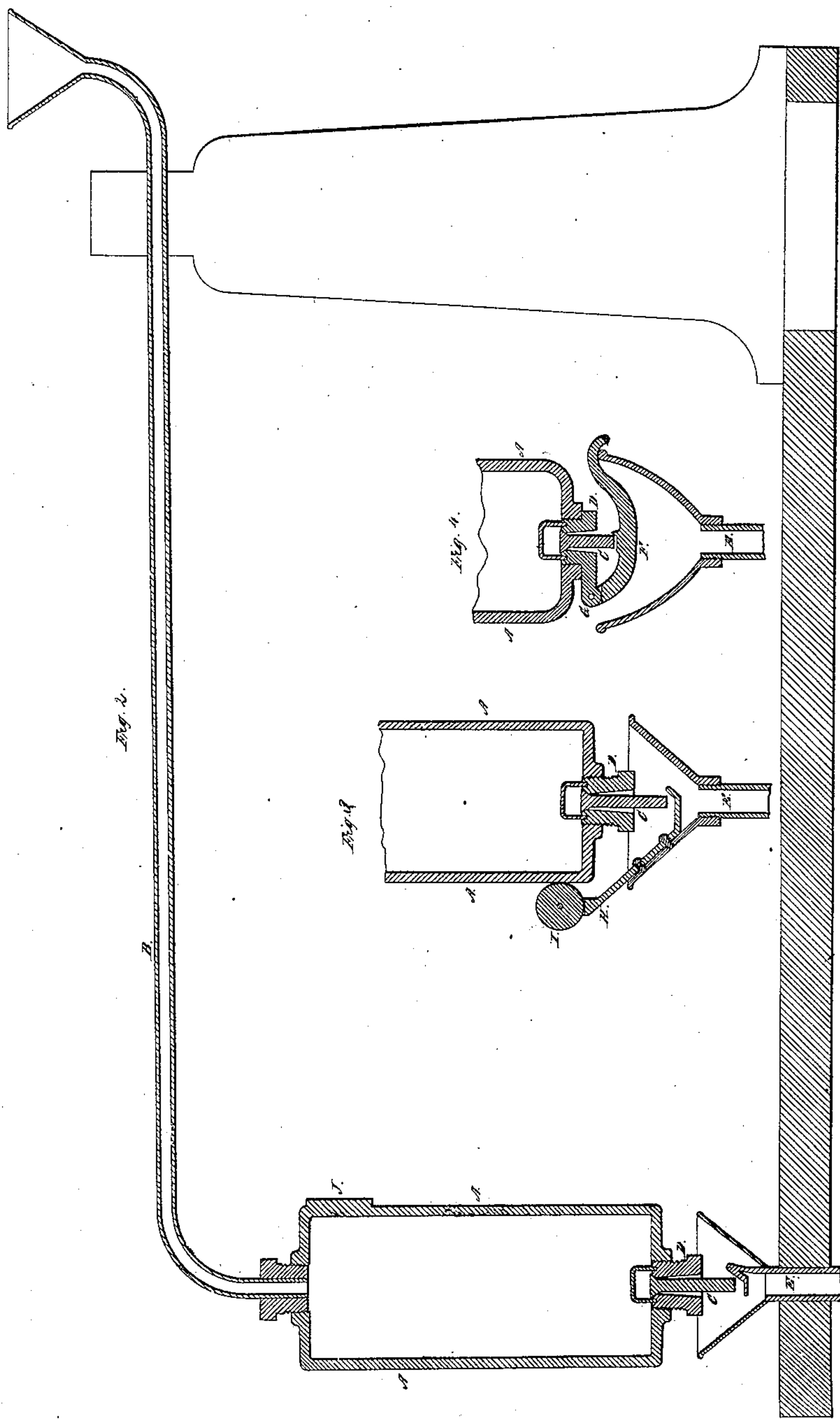


S. W. Brown,

Steam Trap,

No. 12,089,

Patented Dec. 19, 1854.

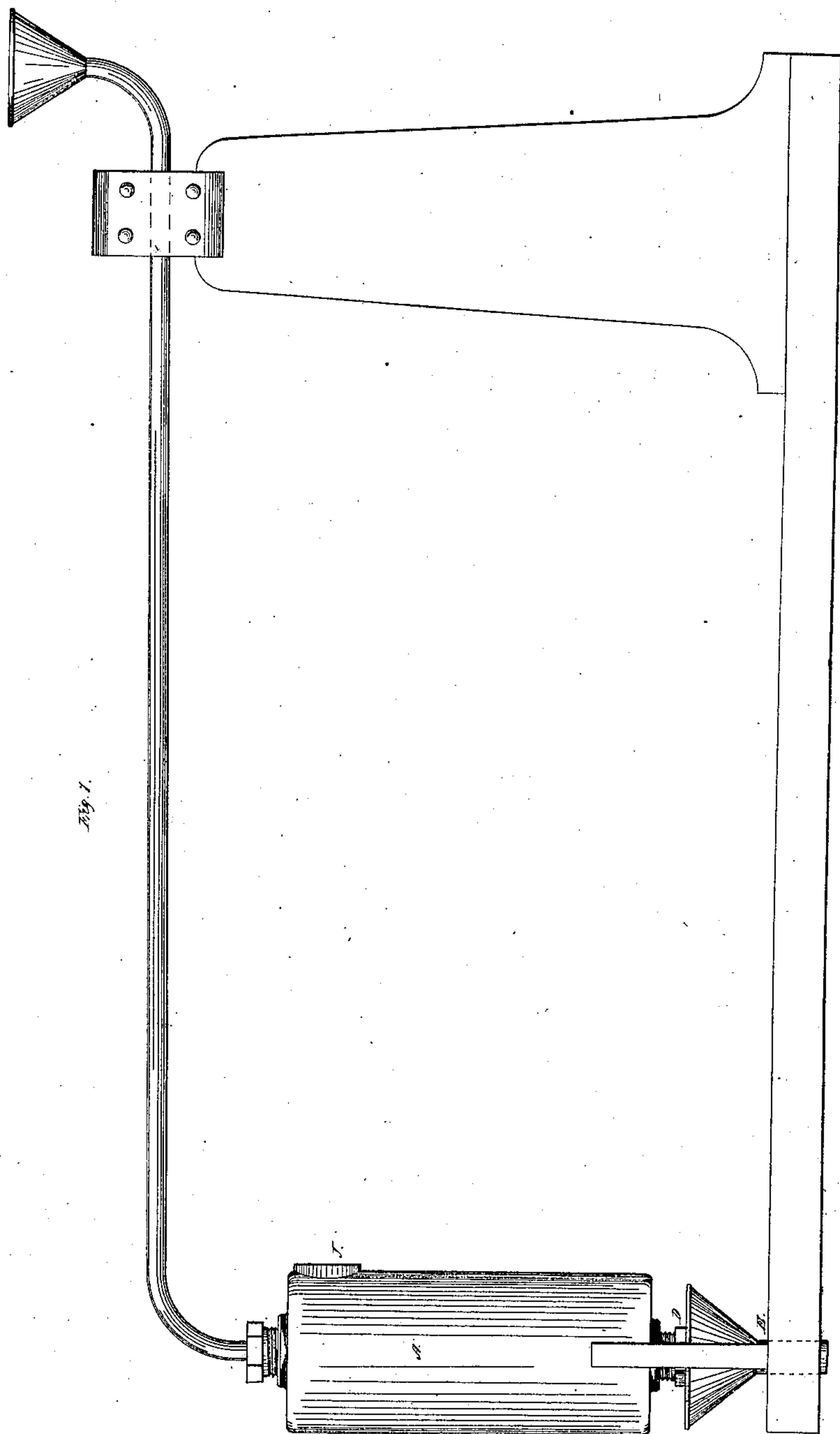


*S. W. Brown,*  
*Steam Trap,*

*Sheet 2-2 Sheets.*

*No. 12,089,*

*Patented Dec. 19, 1854.*





# UNITED STATES PATENT OFFICE.

SAMUEL W. BROWN, OF LOWELL, MASSACHUSETTS.

## CONDENSER.

Specification of Letters Patent No. 12,089, dated December 19, 1854.

*To all whom it may concern:*

Be it known that I, SAMUEL W. BROWN, of Lowell, in the county of Middlesex and Commonwealth of Massachusetts, have invented a new and useful Condenser; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1, is an elevation and Fig. 2 a vertical section of the same. Fig. 3, is a vertical section of a device differing from Figs. 1 and 2, and Fig. 4, is also a part vertical section of a device differing from either of the other figures, and which I believe to be the most simple in construction and the best of either of the other devices hereafter specified.

The letters refer to like parts as far as the said parts are similar, in all of the views of the said drawings.

The nature of my invention consists in an arrangement of a condenser, attached to the end of a steam pipe, with an orifice at each end of the same, and in the lower orifice is fitted the lever valve seat and to the said seat is fitted a valve, so that as the said condenser which is attached to the pipe, which forms a spring for the same, descends by the weight of the water of condensation which has accumulated, until the valve lever strikes against the top of the discharge pipe as seen in Fig. 2 or on the stand H Fig. 3, or the lever F Fig. 4, which opens the said valve in the bottom of the condenser and permits the condensed steam or water to discharge itself below and still prevent the steam from escaping.

To enable persons skilled in the art of making steam condensers to make, construct, and use my invention, I will describe the same as follows.

First I construct a condenser the cylinder of which is seen at, A, A Figs. 1 and 2, and in sections at Figs. 2, 3, and 4, of the drawing. At B Figs. 1, and 2, can be seen the steam pipe the end of which is attached to the said cylinder. At C Figs. 2, 3, and 4 can be seen the lever valve which I design to place where it necessary to operate as a valve simply, that is to move upward and downward nearly vertically by the stop coming directly in contact with the same,

when the condenser is depressed instead of coming in contact with the inclined surfaces as seen in the three devices of the drawing. And at D Figs. 1 and 2, can be seen the lever valve seat, at E Figs. 1, 2, 3, and 4, is shown the discharge pipes by which the surplus water escapes.

The condensers can be made of cast iron, but for the valve lever and seat, bronze would be preferable for durability. The object of hanging the aforesaid condenser to the steam pipe is for the purpose of making the said pipe answer the purpose of a spring and at the same time for the water to pass through and of dispensing with a float in the condenser so that as the water accumulates as before mentioned that the said condenser will descend until the lever valve comes in contact with the projection from the top of the discharge pipe as seen at Fig. 2, or with the stand H, Fig. 3, or the lever F, Fig. 4, of the drawings, then the said valve will commence opening and discharge the water below until it is nearly exhausted, then the said condenser being properly adjusted as to weight will rise by the spring of the pipe which will shut the valve and so remain until the water again accumulates sufficiently to depress the condenser as before described and referred to in the drawings.

I do not confine myself to any particular form in carrying out my invention, but the form and manner of constructing them as shown in the three separate devices of the drawing are all perfectly effectual. The device as shown at Fig. 3, consists of a stand H, screwed to the discharge pipe and guide pulley I to guide the condenser as it moves up and down. But the device shown in Fig. 4, is the cheapest, simplest and best way of making them, and also perfectly effectual for the purposes for which it is designed.

It consists of the lever F, and projecting ear G, as seen at Fig. 4, and the out end of the lever F, resting on the discharge pipe E, Fig. 4, so that as the condenser descends the valve will be opened with much less weight of water than it could be by the devices shown in Figs. 2 and 3, so that the condensers made in this way can be much less in size than either of the other devices.

For ordinary purposes the cylinder may be the full size as indicated in the drawing,



and cast whole except an orifice or hole at each end for the purpose of resting the core in casting them and also for screwing in the valve seat D, and steam pipe B, the opposite  
5 hole from where the valve seat is placed can be used for admitting the pipe, or otherwise it is stopped with a cast iron plug, and the steam pipe can be attached to the cylinder at the bosh J, Figs. 1 and 2, of the drawing.  
10 It will be most convenient to attach the condensers to the pipe, letting them, the pipes, be secured into the bosh J, instead of curving the pipe as shown in the drawing, the operation being simply by letting the  
15 steam into the pipe, and therefore I do not deem it necessary to explain farther on that point as it has been alluded to in the drawing and in describing the construction of them.  
20 Having thus described my invention I hereby disclaim a valve as such the end of which comes directly in contact with a flat stationary projection which hoists the whole surface of the valve at once as is operated  
25 by excess feed water apparatus designed to be used in steam boilers.

What I claim as my invention, and desire to secure by Letters Patent is—

1. The lever valve C, in combination with the incline plane on the top of the movable  
30 lever F, or with a stationary incline plane, for the purpose of opening this lever valve C with an increased power, when the condenser descends by the yielding of the tube to which it is attached, this yielding being  
35 caused by the weight of the water of condensation, the valves and surfaces to open them being constructed and operated essentially in the manner and for the purposes set forth. 40

2. I claim suspending the condenser by a tube of metal or other substance so remote from the bearing on which this tube rests that it will yield or spring downward by the weight of the water of condensation suf-  
45 ficiently to open a valve or its equivalent which allows of the escape of this water and retains the steam.

SAML. W. BROWN.

Witnesses:

W. S. GARDNER,  
P. NAGGERTY.