

No. 670,909.

Patented Mar. 26, 1901.

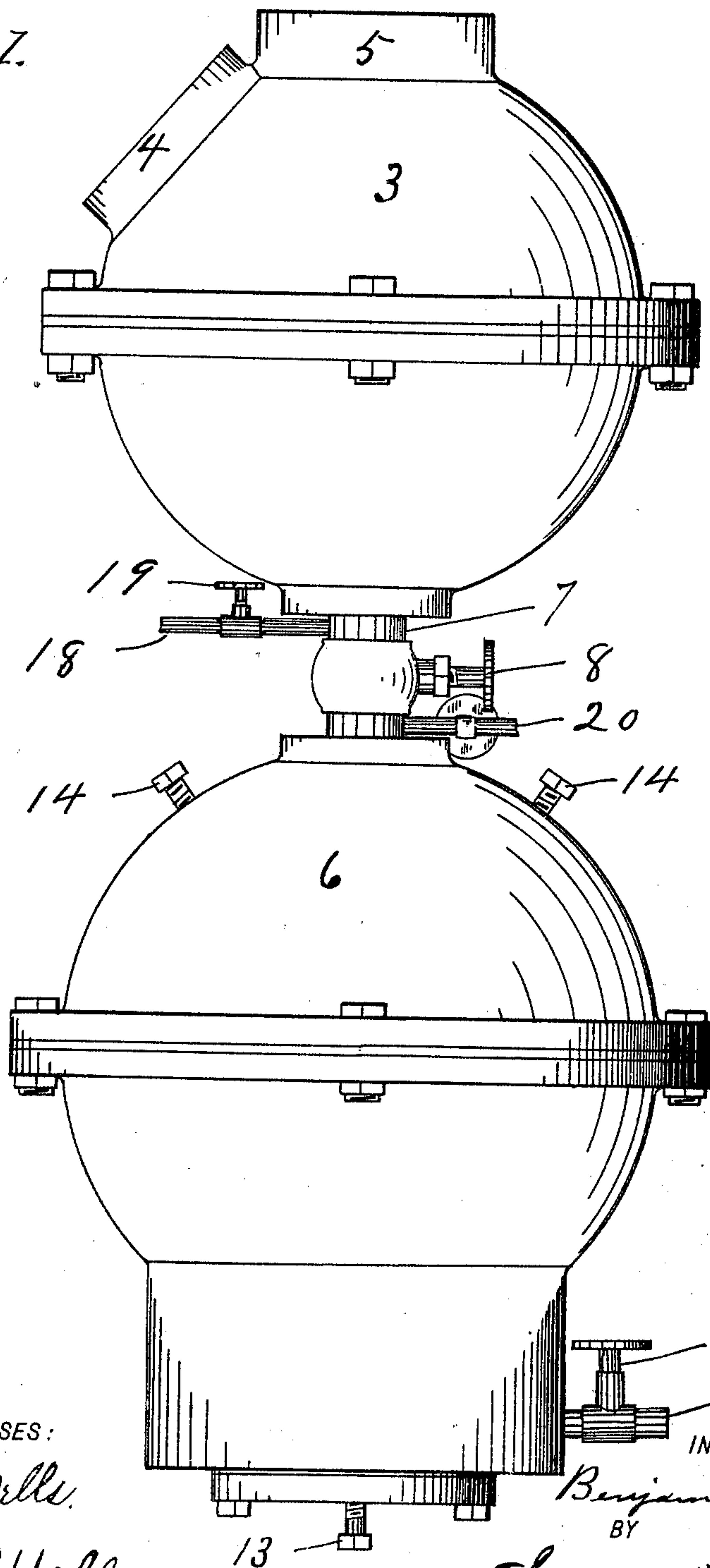
B. F. ALLEN.  
STEAM TRAP.

(No Model.)

(Application filed Oct. 31, 1900.)

2 Sheets—Sheet 1.

*Fig. 1.*



WITNESSES:

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*Ellen H. Wells.*

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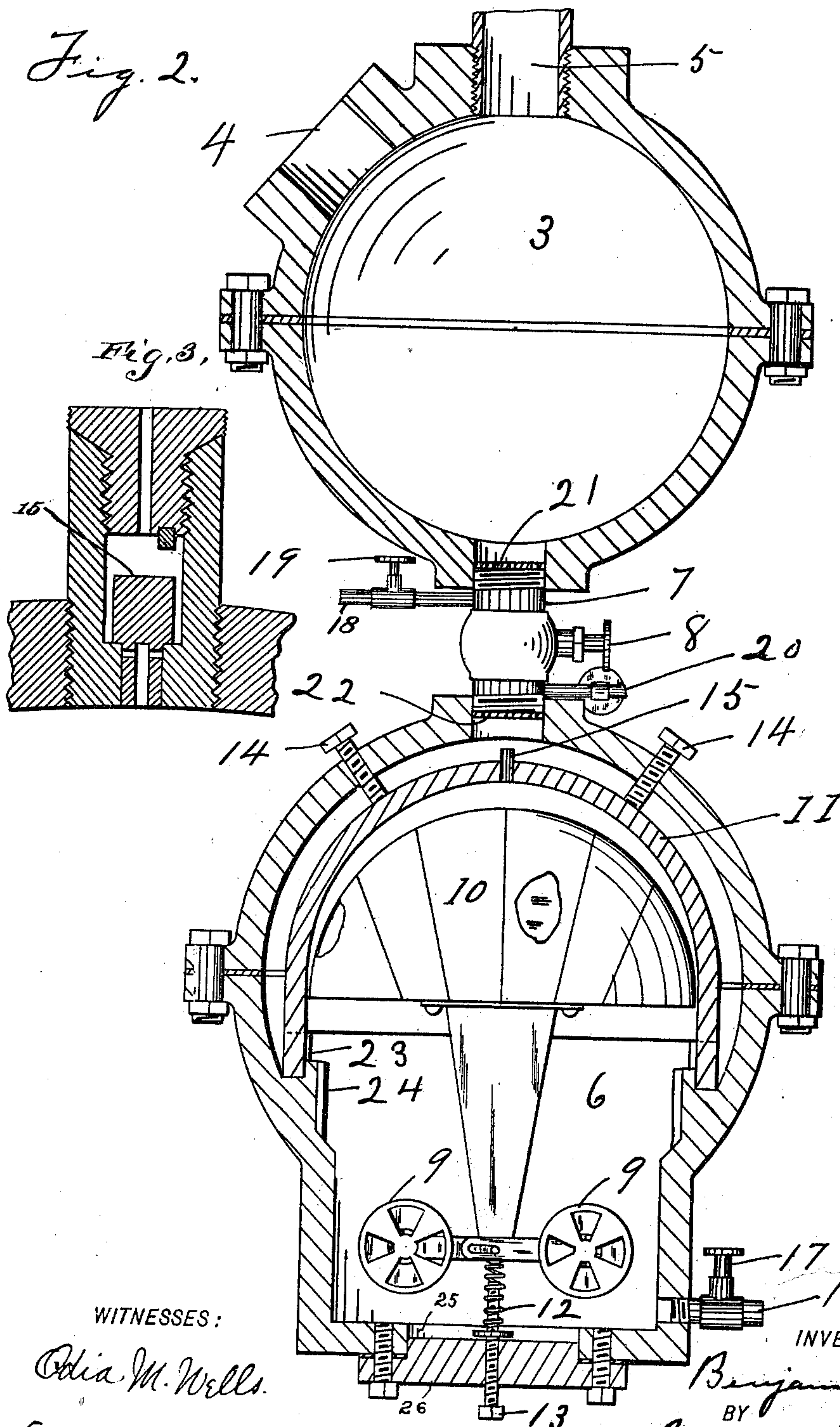
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# UNITED STATES PATENT OFFICE.

BENJAMIN F. ALLEN, OF ST. LOUIS, MISSOURI, ASSIGNOR OF ONE-HALF TO  
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## STEAM-TRAP.

SPECIFICATION forming part of Letters Patent No. 670,909, dated March 26, 1901.

Application filed October 31, 1900. Serial No. 34,979. (No model.)

*To all whom it may concern:*

Be it known that I, BENJAMIN F. ALLEN, a citizen of the United States, residing at St. Louis, Missouri, have invented a new and useful Improvement in Steam-Traps, of which the following is a specification.

My object is to construct a steam-trap to be incorporated into a steam apparatus, so that the steam will pass freely through the trap, leaving in the trap the water from condensation to be automatically discharged to the drain without allowing any steam to escape to the drain.

My invention consists of a steam-chamber forming a part of the steam-passage, a water-chamber below the steam-chamber, a connection between the two chambers, perforated plates in the passage between the two chambers, a valve controlling the passage from the water-chamber to the drains, a float connected to the valve for operating the same and a shield around the float to protect it from the impact of the steam, and the other novel features herein shown, described, and claimed.

Figure 1 is a side elevation, Fig. 2 is a sectional elevation, and Fig. 3 is a sectional detail, of the check-valve.

Referring to the drawings in detail, the steam-chamber 3 has openings 4 and 5, to which the steam-pipes are connected—one for the inlet and the other for the outlet. The water-chamber 6 is placed below the steam-chamber and connected thereto by the pipe 7, the passage through the pipe being controlled by the valve 8. The valves 9 control the passage from the lower part of the water-chamber to the drain. The float 10 is attached to the valves for operating the same, and the shield 11 is placed around the float to protect it from the steam-pressure. The valves 9 are held yieldingly in position by means of the spring 12, the tension of which is adjusted by the set-screw 13. The lower edge of the casing 11 is below the lower side of the float 10, said float being in the form of a hemisphere, and its flat side is at the bottom. The set-screws 14 hold the shield 11 in position. The

check-valve 15 lets the air out of the shield when the float rises. The drain-pipe 16, controlled by the manually-operated valve 17, leads from the lower part of the water-chamber 6. The drain-pipe 18, controlled by the valve 19, is connected to the pipe 7 above the valve 8, and the valve 20 is connected to said pipe 7 below the valve 8. The perforated plate 21 is placed against the upper end of the pipe 7, and a similar perforated plate 22 is placed against the lower end of said pipe. The hand-hole 25 in the bottom of the water-chamber is closed by the removable plate 26, thus providing access to the interior of the water-chamber, and especially to the automatic valves. The shield 11 has legs 23, which engage lugs 24, extending inwardly from the main casing.

When steam is passed through the steam-chamber, the water from condensation will pass by gravity downwardly through the pipe 7 into the water-chamber and then downwardly around the casing 11 until the water rises against the bottom of the float 10, thus raising the float and opening the valves 9 and allowing the water to drain out until the float is lowered and closes the valves. When the float rises, the air inside of the shield passes through the check-valve 15. The shield 11 keeps the steam-pressure from pressing downwardly on the float. The perforated plates 21 and 22 prevent siphonic action from drawing the water out of the water-chamber into the steam-chamber. If the automatic valves 9 are out of order, the water may be manually discharged through the pipe 16. If the water-chamber is out of order, the valve 8 may be closed and the water may be drawn from the steam-chamber through the pipe 18 and air may be admitted to the water-chamber through the valve 20.

I claim—

1. In a steam-trap, an automatic drain-valve, a float connected to, and operating the drain-valve, a shield around the float to protect it from the steam-pressure, and a check-valve to let the pressure out of the casing, substantially as specified.

2. In a steam-trap, a steam-chamber, a wa-  
ter-chamber below the steam-chamber, a pipe  
connecting the two chambers so that water  
will run from the steam-chamber into the  
5 water-chamber, an automatic drain-valve  
leading from the water-chamber, and a float  
connected to and operating the drain-valve,

and a shield around the float, and a check-  
valve in the shield to let the pressure out,  
substantially as specified.

BENJAMIN F. ALLEN.

Witnesses:

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