

No. 750,909.

PATENTED FEB. 2, 1904.

J. W. TALLMAN.

BOILER.

APPLICATION FILED MAY 18, 1903.

NO MODEL.

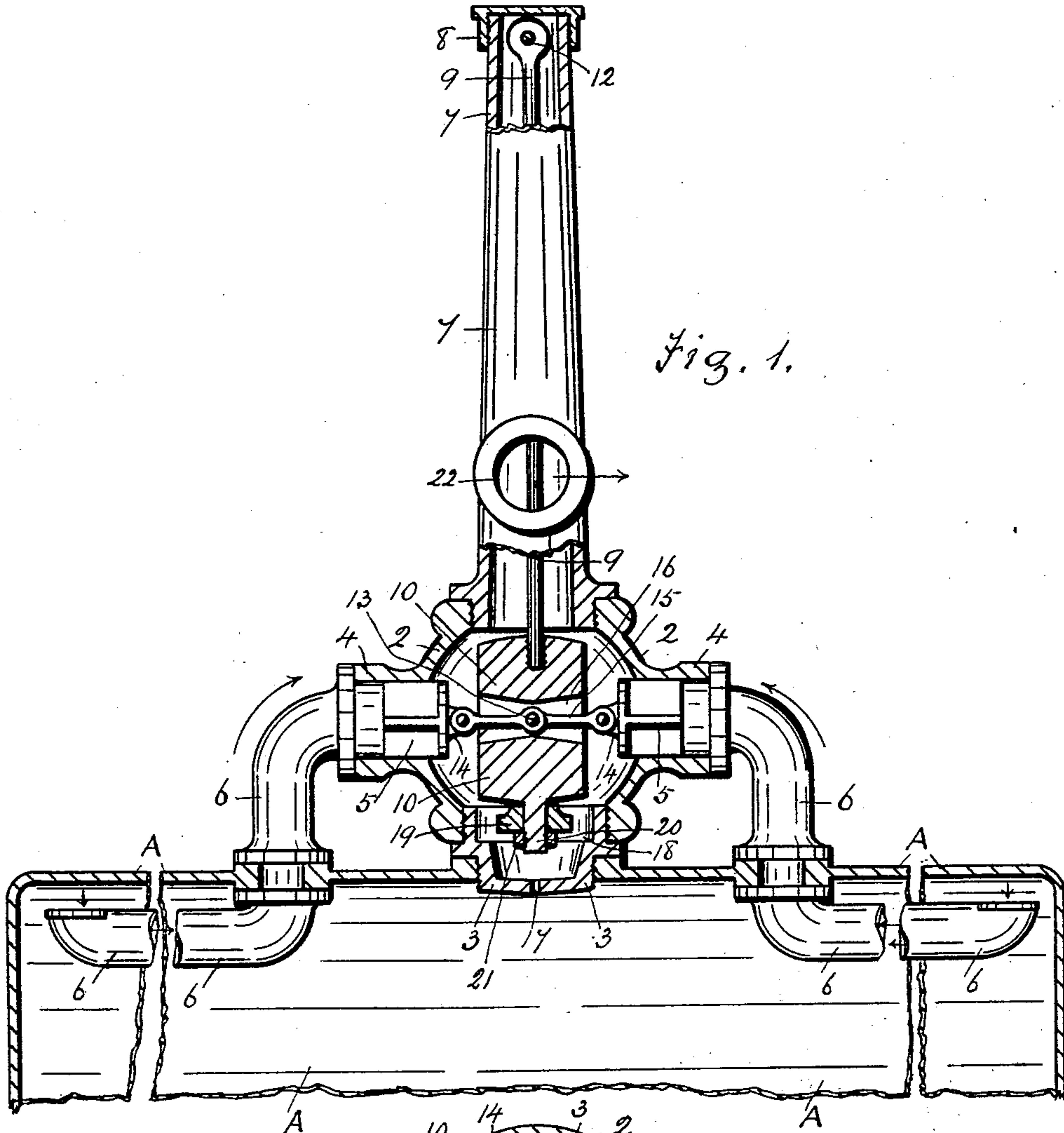


Fig. 1.

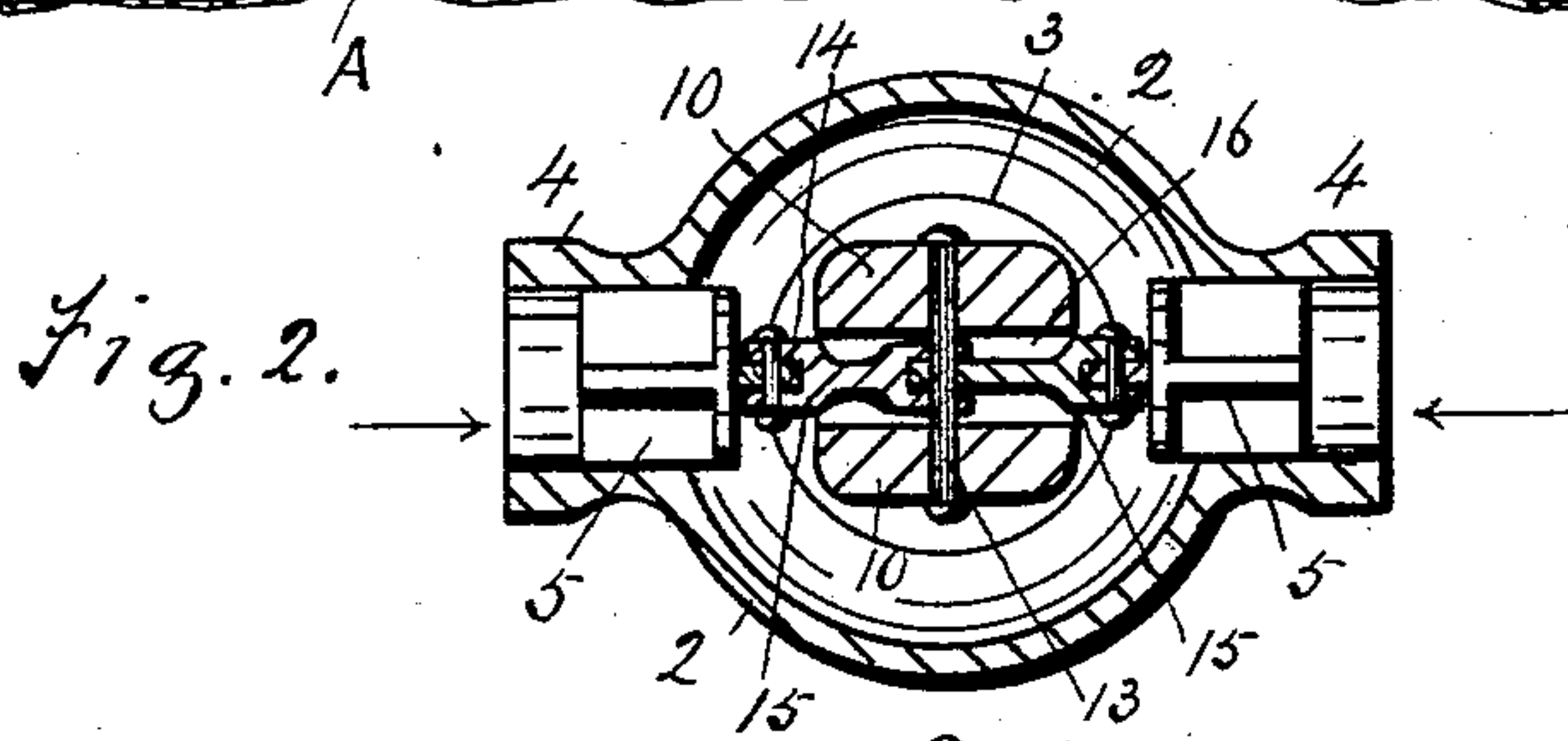


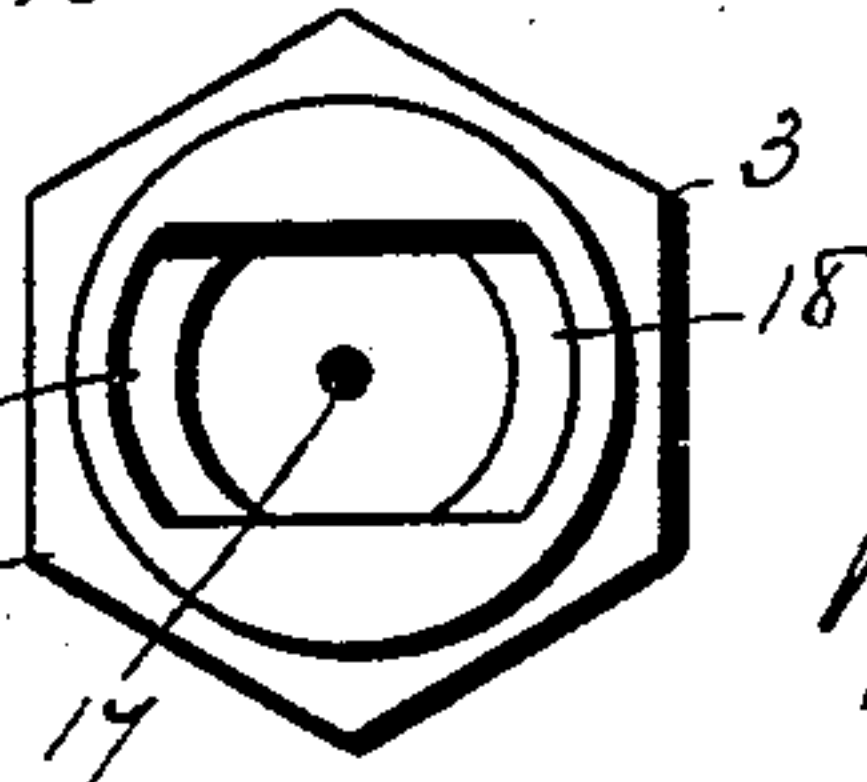
Fig. 2.

Witnesses.

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Fig. 3.



Inventor

James Wallace Tallman
By John H. Hendry, Atty.

UNITED STATES PATENT OFFICE.

JAMES WALLACE TALLMAN, OF BEAMSVILLE, CANADA.

BOILER.

SPECIFICATION forming part of Letters Patent No. 750,909, dated February 2, 1904.

Application filed May 18, 1903. Serial No. 157,516. (No model.)

To all whom it may concern:

Be it known that I, JAMES WALLACE TALLMAN, a citizen of Canada, residing at Beamsville, in the county of Lincoln and Province of Ontario, Canada, have invented new and useful Improvements in Steam-Boilers, of which the following is a specification.

My invention relates to improvements in marine and portable steam-engine boilers in which a steam-valve chamber provided with an automatic steam-valve-regulating pendulum is connected to the upper and central part of a steam-boiler and steam-pipes connecting the said chamber with the upper and end parts of the boiler.

The objects of my invention are, first, to provide means for preventing steam-boilers of the marine and portable class of boilers from priming; second, to provide means for delivering dry steam from the boiler to the engine at various steam-pressure and under all conditions and circumstances of the engine and boiler, and, third, to afford facilities for delivering steam from the highest part of the boiler to the engine under all conditions to which the boiler may be subjected while on the sea or in portable or inclined position on land. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a sectional elevation of a steam-valve chamber with automatic coacting valves and gravitation pendulum connected to said valves and steam-pipe connection with said valves and with the upper part of a boiler, the boiler and the said connecting-pipes being broken. Fig. 2 is a sectional plan of the same through the central part of the steam-valve chamber. Fig. 3 is a detail plan of the detached base part of the said chamber, showing recess for guiding and also for stopping the pendulum.

Similar letters refer to similar parts throughout the several views.

In the drawings, A represents the upper part of a steam-boiler of the marine or portable class.

The steam-valve chamber is indicated by 2, which has a base part 3 secured to the upper and central part of a steam-boiler A in approved manner.

The steam-valve chamber 2 has diametrically opposite horizontal steam-inlet branches 4, in which the coacting valves 5 are adapted to slide and operate therein. The steam elbow-pipes 6 connect the branches 4 with the upper part of the boiler A at a suitable distance from the ends of the boiler, allowing free passage for the live steam from the boiler to the valves 5. A hollow column 7 is secured to the upper and central part of the chamber 2 in an approved manner, and a cap 8 is secured to the top of said column. The pendulum-rod 9 of the pendulum 10 is pivotally connected to a pin 12 through the upper part of the column 7 and is adapted to swing on said pin by the action of the boiler—that is, when the boiler is subjected to uneven sea, or unlevel land when the boiler is raised higher at one end than the other end thereof.

It is intended that the steam-pipes 6 shall extend almost to the end of the boiler, and preferably so, in order to take dry steam from the highest part of the boiler when the same is unlevel.

The pendulum-rod 9 is rigidly and suitably connected to the pendulum 10 and forms a part of the same. The valves 5 have certain lugs 14. One end of the connecting-rods 15 is pivotally connected to said lugs and the other end of the connecting-rods 15 is pivotally connected to the pendulum 10 by means of the pin 13, which extends through the pendulum.

16 is a suitable slot in the pendulum 10 to allow sufficient space or opening in the pendulum for the connecting-rods 15 to operate freely therein when the pendulum swings.

The two valves 5 are shown open to admit steam to the chamber 2 and in normal position—that is, when the boiler A is level—and the pendulum is always perpendicular, as shown, by the laws of gravitation.

For the drainage of condensed steam in the chamber 2 or possible water lifted from the boiler into said chamber a small opening 17 communicates with the lower part of said chamber and the steam-boiler for said drainage purposes. The lower part 3 of the chamber 2 has an oblong guide-recess 18, (shown in Fig. 3 of the drawings,) and the lower end of the pendulum 10 is provided with a guide-

wheel 19, which is adapted to revolve on the stud 20 of the pendulum. 21 is a nut or other retaining device on said stud 20 to retain said wheel 19 in position on the stud. The
 5 wheel 19 in the oblong recess 18 guides the pendulum 10 and retains the same in proper relative position to the chamber by the fact of the width of the recess 18 being about the same in dimension as the diameter of the guide-
 10 wheel. The recess 18 is sufficiently long to allow either one of the valves 5 to close and the opposite valve 5 to open to its full requirement, and no further. The valves 5 coact together by means of their common connection
 15 with the pendulum, and as one said valve opens the opposite said valve correspondingly closes, thereby allowing the same force of steam through the valves into the valve-chamber and into the column 7, thence through the
 20 opening 22 in one side of said column to the steam-engine. The opening 22 is for steam-pipe connection to communicate with the steam-engine.

When the right-hand end of the boiler A is
 25 raised by the action of the sea or the uneven land, as the case may be, the pendulum then swings toward the left-hand, consequently closing more or less the left-hand valve and opening more or less the right-hand valve,
 30 and when the reverse action of the boiler takes place the reverse action of the pendulum takes place. Consequently the valves are reversed. Both said valves coact in perfect unison together. When one said valve is affected, the
 35 opposite said valve is also affected, so sensitive are they to the motion of the pendulum.

In this invention dry steam will be delivered to the steam-engine under all conditions of the boiler when the same is level or other-
 40 wise. This is an important feature in the invention.

By the fact of the pendulum being hung from an eminence in or above the steam-valve chamber the valves in said chamber are more
 45 sensitive to the movement of the connected pendulum than they otherwise would be if the pendulum was hung in a position in proximity to the valves.

Various changes in the form, proportion, and minor details of this invention may be resorted to without departing from the spirit and scope thereof. 50

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

1. In a steam-boiler, a valve-chamber, steam- 55 pipes connected to the opposite sides of the chamber and to the upper end parts of the boiler, valves in the chamber and opposite said pipes, a hollow column secured on the chamber, a pendulum hung in the column and connected to the valves, and a steam-outlet in the column, substantially as set forth. 60

2. In a steam-boiler, a valve-chamber connected to the boiler, pipes connected to the opposite sides of the chamber and to the upper end parts of the boiler, valves in the chamber and opposite said pipes, a column secured on the chamber, a pendulum in the column and connected to said valves and a water-outlet from the chamber into the boiler, substantially as set forth. 65 70

3. In a steam-boiler, a valve-chamber, steam-pipes connected to the opposite sides of the chamber and to the boiler, valves in the chamber and opposite said pipes, a column secured on the chamber, a pendulum adapted to swing in the column and connected to the valves, and a pendulum-guide with stops in the chamber, substantially as set forth. 75

4. In a steam-boiler, a steam-valve chamber, 80 steam-pipes connected to the opposite sides of the chamber and to the boiler, valves, a pendulum swung in the chamber and connected to the valves, substantially as set forth.

5. In a steam-boiler, a steam-valve chamber, 85 steam-pipes communicating with the opposite sides of said chamber and with the boiler, diametrically opposite steam-valves in the chamber and means to operate said valves at the varying disposition of the boiler, substantially as set forth. 90

JAMES WALLACE TALLMAN.

Witnesses:

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