

(No Model.)

J. L. COOK.
STEAM SEPARATOR.

No. 422,733.

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Fig. 1.

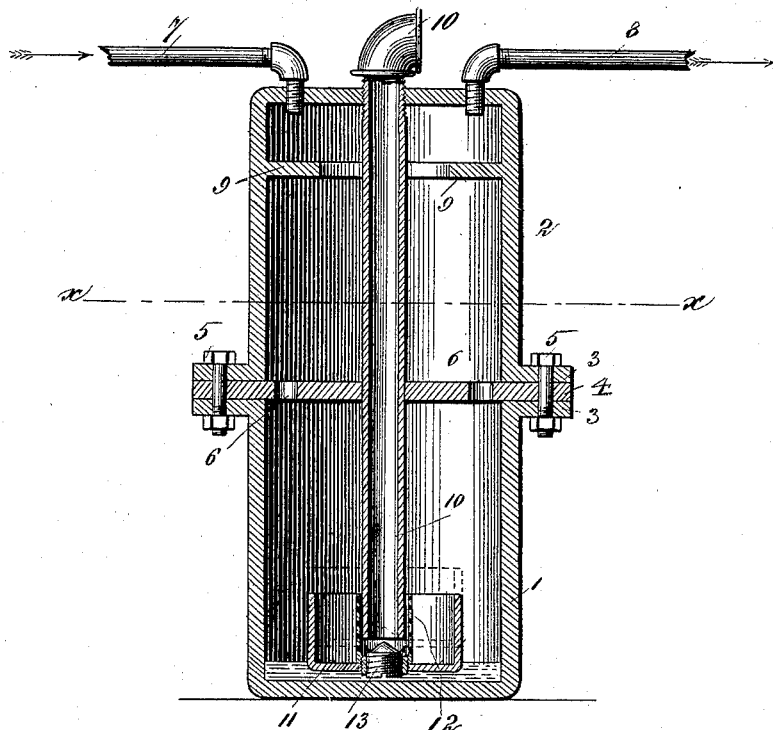
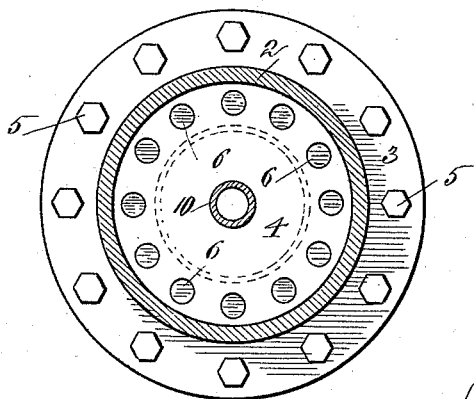


Fig. 2.



Witnesses

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Inventor

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JAMES L. COOK, OF CHICAGO, ILLINOIS.

STEAM-SEPARATOR.

SPECIFICATION forming part of Letters Patent No. 422,733, dated March 4, 1890.

Application filed December 19, 1889. Serial No. 334,276. (No model.)

To all whom it may concern:

Be it known that I, JAMES L. COOK, of Chicago, Illinois, have invented certain new and useful Improvements in Steam-Separators, of which the following is a specification.

My invention is more particularly valuable on long steam-pipes—as, for example, where a steam engine or pump is located at a mine, the boiler being at a distance therefrom. In such case I apply my invention to the pipe at a point near the engine, its object being to relieve the steam from the entrained and condensed water and deliver comparatively dry steam to the engine.

To this end the invention consists in certain combinations recited in the claim at the end hereof. It may be best explained in connection with the accompanying drawings, which show an embodiment of it in the best form as yet devised by me.

In the drawings, Figure 1 is a central vertical section of the device, and Fig. 2 is a cross-section on line *xx* of Fig. 1.

In these figures, 1 is the lower part of the casing. 2 is the upper part of the casing. 3 are flanges, by which the two parts of the casing are bolted together. 4 is a diaphragm separating the upper and lower casings and secured by the same bolts 5. 6 are perforations in diaphragm 4 near the walls of the casing, forming the communication between the upper and lower parts thereof. 7 is the inlet steam-pipe from the boiler. 8 is the outlet steam-pipe to the engine. 9 is a shelf against which the steam impinges as it enters the device from pipe 7, and which prevents the steam from blowing through holes 6. 10 is the waste-pipe through which the collected water is discharged. 11 is a cup-shaped float at the bottom of casing 1. 12 is a perforated

sleeve secured to float 11 and embracing waste-pipe 10, so as to guide the float in its movement and prevent sediment reaching the end of pipe 10 and interfering with the valve. 13 is a valve secured to the float inside the perforated sleeve and adapted to close the end of pipe 10 when the float is raised by the accumulated water.

In operation steam enters through pipe 7 and passes on out through pipe 8, while within the casing a large part of the entrained and condensed water will separate from the steam and fall through the holes 6 in diaphragm 4 into the lower casing 1. As the water accumulates in the latter the floating cup 11 will be held up against the end of waste-pipe 10 until the water reaches the top of the cup and flows over, filling it and causing it to sink. This opens pipe 10 and the water is forced out by the pressure of steam within the device, thus restoring the buoyancy of cup 11 so that it floats again and again closes pipe 10. Holes 6 being near the walls of the casings, the water dripping through them does not fall into cup 11, but outside of it, thus insuring its perfect operation. Diaphragm 4 also serves to prevent undue condensation of the steam passing through the device by preventing its free contact with the accumulated water.

I claim—

The combination, substantially as set forth, of the casing 1, the waste-pipe 10, the float and its valve, and the perforated sleeve within the float and attached thereto for guiding the float and protecting the valve.

JAMES L. COOK.

Witnesses:

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A. C. CALKINS.