

B. J. HOBSON.

Devices for Separating Water from Steam.

No. 151,664.

Patented June 2, 1874.

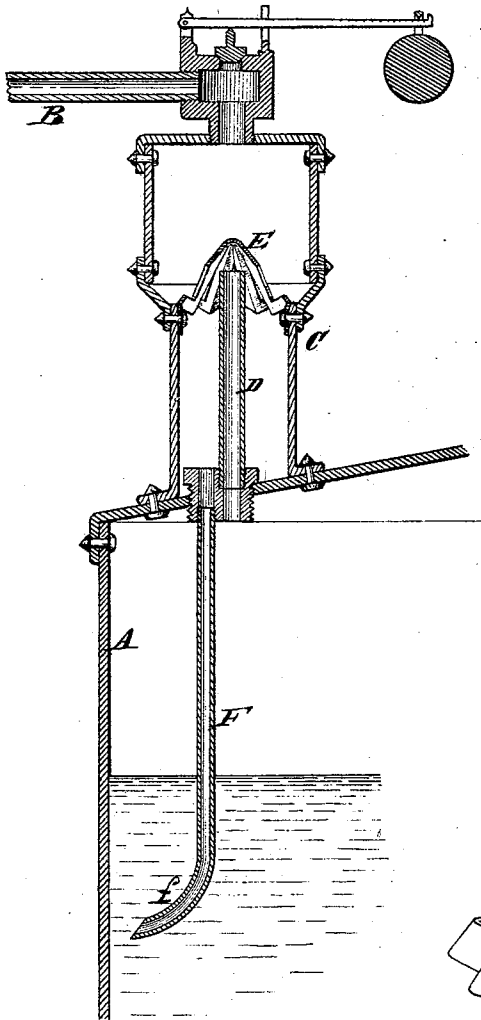


Fig. 1

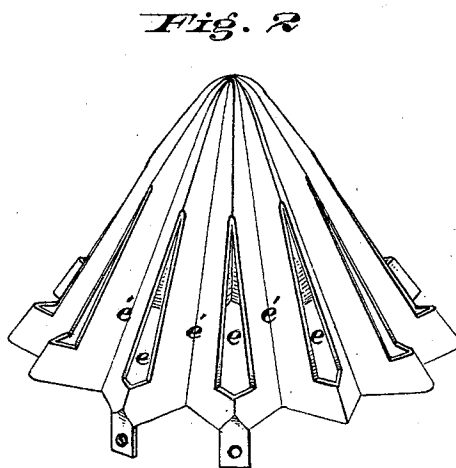


Fig. 2

Attest

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UNITED STATES PATENT OFFICE.

BEN JAMES HOBSON, OF HUTCHINSON, KANSAS, ASSIGNOR TO HIMSELF
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IMPROVEMENT IN DEVICES FOR SEPARATING WATER FROM STEAM.

Specification forming part of Letters Patent No. **151,664**, dated June 2, 1874; application filed
May 1, 1874.

To all whom it may concern:

Be it known that I, BEN JAMES HOBSON, of Hutchinson, Reno county, State of Kansas, have invented a certain new and useful Improvement in Devices for Separating Water from Steam in Steam-Flow Pipes from Steam-Boilers, of which the following is a specification:

My invention relates to the class of devices used in steam-pipes or steam-connections from a steam-boiler to a steam-engine or other apparatus, by which water conveyed with the steam from a "priming" or rapidly evaporating steam-boiler may be separated from the steam, so that dry steam is supplied to the engine; and my invention consists, in connection with the discharging-aperture from the boiler, of a conical perforated cap, located over the aperture, which acts to permit the escape of dry steam and prevent the escape of water, the water being caused, by the peculiar construction and operation of the cap, to collect between the aperture and run back toward to the boiler. My invention consists, in connection with the separating device, of a pipe communicating from the separator with the steam-boiler at a point below the water-line, so that the water may be discharged from the separator back into the boiler without having to come in conflict with a discharging flow of steam.

Figure 1 is a vertical section of my device connected with a steam-boiler, and Fig. 2 is a perspective view of my conical and perforated cap.

A is a portion of the steam-boiler, and B the steam-discharge pipe of the same, communicating with the boiler through the medium of the steam-drum C. D is the steam-discharge pipe from the steam-boiler, over the upper end of which and to the steam-drum, or otherwise, my conical cap E is secured at an elevation slightly above the upper end of the pipe D. This conical cap has a number of perforations, *e*, cut through it in the manner shown, starting from a point near the base of the cone and approaching the apex thereof,

and between these perforations I prefer to form corrugations or gutters *e'*, for the better discharge of the water collected upon the edges of the perforations as the steam passes through. In the passage of the steam through pipe D it (with whatever water it may contain) is forcibly projected against the upper interior surface of the cone, and owing to the momentum acquired by the water the steam secures the most rapid escape, and passes through the apertures, the water either running down the interior of the cone to the base thereof, or as it clings to the metal of the cap is forced over into the quiet spaces *e'*, from which it is permitted undisturbed to flow toward the base of the cone, at which it escapes into the lower part of the drum C. The water so collected in this drum C is discharged through a pipe, F, provided for that purpose, the lower end of the pipe being located below the water-line of the steam-boiler, so that as the water is discharged thereby it will not be opposed by any opposite current of steam. In order to prevent rising bubbles of steam from the boiler from entering this pipe F, the lower end of it is curved and beveled off so as to afford no opening for the entry of such steam.

I claim—

1. In combination with the discharge-aperture or pipe D of the steam-boiler, the conical perforated separator E *e*, combined and operating substantially as and for the purpose specified.

2. In combination with the pipe D and separator E, the water-discharge pipe F, operating substantially as and for the purpose specified.

3. The discharge-pipe F, having the curved end *f*, operating substantially as and for the purpose specified.

In testimony of which invention I hereunto set my hand.

B. J. HOBSON.

Witnesses:

FRANK MILLWARD,
R. M. HUNTER.