

R. M. RICE & F. M. GORTNER.  
FEED-STEAMER.

No. 192,010.

Patented June 12, 1877.

Fig. 1.

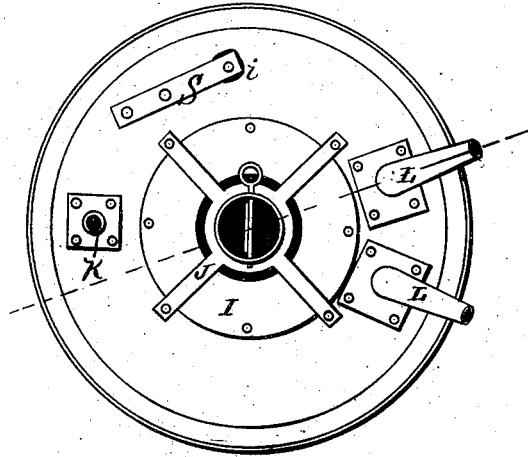
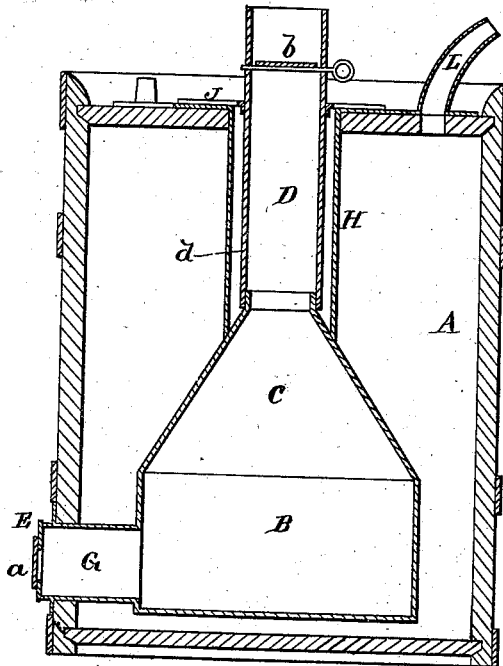


Fig. 2.



WITNESSES

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# UNITED STATES PATENT OFFICE

ROBERT M. RICE AND FRANCIS M. GORTNER, OF KEOTA, IOWA.

## IMPROVEMENT IN FEED-STEAMERS.

Specification forming part of Letters Patent No. 192,010, dated June 12, 1877; application filed May 3, 1877.

*To all whom it may concern:*

Be it known that we, ROBT. M. RICE and FRANCIS M. GORTNER, of Keota, in the county of Keokuk, and in the State of Iowa, have invented certain new and useful Improvements in Feed-Steamers; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon, making a part of this specification.

The nature of our invention consists in the construction and arrangement of a feed-steamer, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which our invention appertains to make and use the same, we will now proceed to describe its construction and operation, referring to the annexed drawing, in which—

Figure 1 is a plan view of our feed-steamer, and Fig. 2 is a vertical section of the same.

A represents an ordinary water-tight barrel, or similar vessel, within which the furnace is placed.

The furnace B is circular in form, and has a conical top, C, from the apex of which the smoke-pipe D extends up through the top of the barrel. From one side of the furnace extends a flue, G, through the side of the barrel, and in the end of said flue is a hinged door, E, with damper *a* for regulating the draft.

In connection with this we also use a damper, *b*, in the smoke-pipe D, by the use of which the heat may be retained in the furnace.

The smoke-pipe D is surrounded by a sleeve or larger pipe, H, the lower end of which reaches down to the conical top C of the furnace, and forms a cold-air chamber, *d*, around the smoke-pipe. The upper end of the sleeve H is attached to the inner edge of an annular plate, I, secured to the top of the barrel, and the smoke-pipe D passes up through the central orifice in the same, and is attached to a

flanged four-armed spider, J, the arms of which lie on top of the plate I and are fastened to the top of the barrel, as shown.

The cold-air chamber *d*, formed by the sleeve H around the smoke-pipe, prevents the melting of the solder, which is often liable to occur otherwise.

The parts I and J are so arranged that, with the flue G, they will support the furnace a short distance, say two inches (more or less) above the bottom of the barrel, so that the water will have free access to every part of the surface of the furnace; and the top of the furnace being conical, as shown, increases the heating-surface.

A grate for burning coal may be arranged in the furnace B.

In the top of the barrel is the water-inlet K; also two nozzles, L L, for the attachment of hose to conduct the steam to any point desired; and, further, there is a safety-valve, consisting of a spring, S, with pad *i*, covering a vent or escape-hole in the top of the barrel.

Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination, with a barrel, A, of the furnace B with flue G, having damper *a* and conical top C, the smoke-pipe D, having damper *b*, surrounding sleeve H, and cold-air chamber *d* between the sleeve and smoke-pipe, substantially as and for the purposes herein set forth.

2. The combination, with the furnace B C, of the sleeve H, annular plate I, smoke-pipe D, and flanged four-armed spider J, substantially as and for the purposes herein set forth.

In testimony that we claim the foregoing we have hereunto set our hands this 17th day of April, 1877.

ROBERT M. RICE.  
FRANCIS M. GORTNER.

Witnesses:

W. P. DAVIS,  
S. W. GOULDIN.