W. H. ALLARD.
Feed-Steamer.

No. 208,135. Patented Sept. 17, 1878.

Fig. 1.

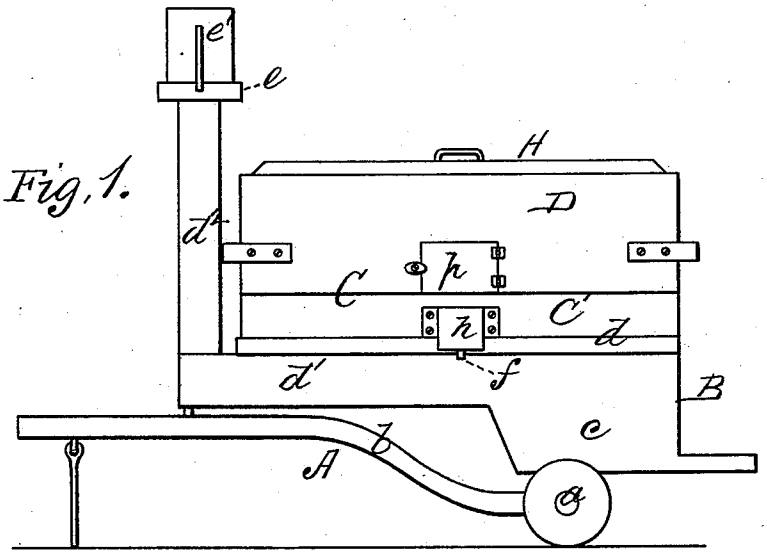


Fig. 2.

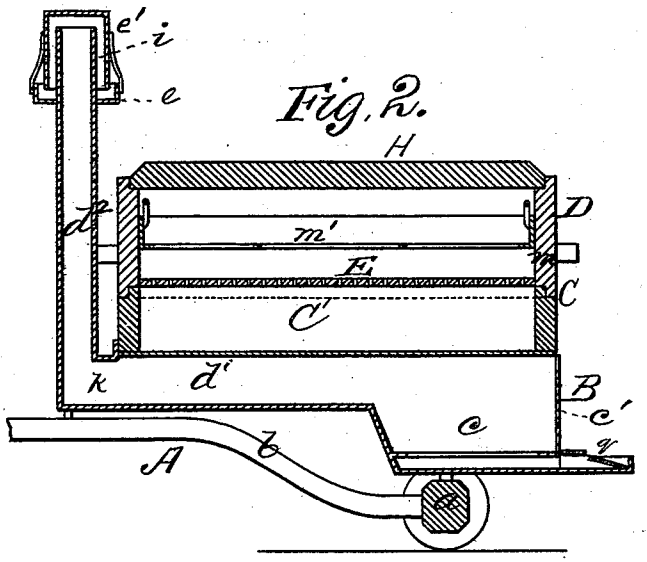


Fig. 3.

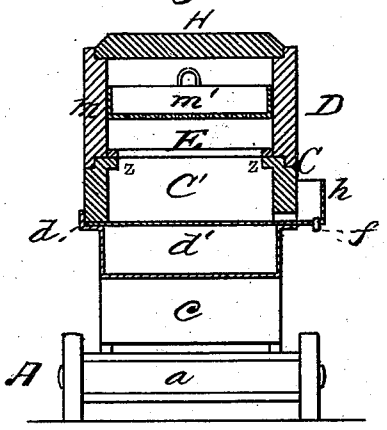
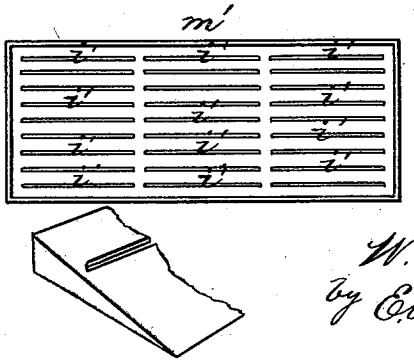


Fig. 4.



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UNITED STATES PATENT OFFICE.

WILLIAM H. ALLARD, OF WASHINGTON COUNTY, OHIO.

IMPROVEMENT IN FEED-STEAMERS.

Specification forming part of Letters Patent No. **208,135**, dated September 17, 1878; application filed February 16, 1878.

To all whom it may concern:

Be it known that I, WILLIAM H. ALLARD, of the county of Washington and State of Ohio, have invented a new and valuable Improvement in Feed-Steamers; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a side view of my improved feed-steamer. Fig. 2 is a longitudinal vertical section thereof. Fig. 3 is a vertical cross-section of the same; and Fig. 4 is a top view of the tray, showing the slits in the bottom.

This invention has relation to improvements in feed-steamers.

The present invention consists in the construction and novel arrangement of the metallic fire-box and flue, forming the body of the steamer, carrying the spark-arresting smoke-stack in front, and flanged to receive the removable water-trough, forming the top of the body, said trough being rabbeted to receive the lipped edge of the removable side wall of the steaming-compartment, which extends entirely around said water-trough, its bottom being formed by detachable grate-sections independent of the side wall, and laid upon the inner margin of the water-trough, a lid serving to close its top, and the ash-pan guard and draft-regulator in the hearth, all as hereinafter shown and described.

In the annexed drawings, the letter A designates the truck of my improved steamer, consisting of an axle, *a*, carrying small transporting-wheels, and of a bent pole, *b*. Upon this truck is permanently placed a metallic furnace, B, having at its front end a depressed fire-box, *c*, into which fuel is placed through the medium of the hinged doors *c'*. The lower portion of the pole *b* is attached to the axle, which extends transversely under the fire-box and supports the main weight of the steamer, and the forward portion of said pole is bent upward and forward, and is attached to the body under the front end, as shown in Fig. 2 of the drawings. The upper edge of the furnace is provided with an L-shaped flange, *d*, the horizontal branch of which serves as a bearing for the sectional steaming-box or boiler C, and extends out beyond the sides and ends of the furnace, and the vertical portion as a stop for preventing the said box from lateral or endwise displacement. The L-shaped flange *d* is the seat upon which the steam-box rests. This box has a metallic bottom and wooden sides and ends, the latter being protected from fire by the vertical branch of the flange *d*. This steam-box consists of two sections, the lower section being the water trough or box C', formed with a rabbeted edge, *z*, projecting inward, as shown in Fig. 3, and serving to support upon its inner portion the detachable grate-sections, and in its rabbet the lip of the upper section, *m*, which is in form of a rectangular encircling wall, extending above the grate-sections, and forming the wall of the steaming-compartment D, in which the feed is placed on said grate-sections. Under the steam-box, extending from the furnace to the rear, is a flue, d^1, through which the products of combustion pass on their way to a stack, d^2. The top of this flue is formed by the bottom of the water-box C', except at the front end, when a flue-recess, *k*, is extended in front for the attachment of the smoke-stack. This latter has near its upper end an annular water-receptacle, *e*, and it terminates in an inverted cap, *e'*, which forms, with the end of the stack, a plunging flue, *i*, down which the products of combustion pass before escaping from the stack. On issuing from the lower edge of the cap the unextinguished sparks drop into the receptacle *e* and are put out. The water-box has at one side a small trough, *h*, communicating with it, and provided with a faucet or other equivalent device, *f*. Water poured into this trough flows into the water-box, and the latter may be drained by opening the faucet aforesaid, as the bottom of the little trough *h* is on the same level with the bottom of the water-box. The height of the water in this trough necessarily is the same as that in the water-box, and it consequently serves as a water-gage. The upper edge of the water-box C' is rabbeted, and upon this rabbet is placed the rectangular frame *m*, open at top and bottom, having a metallic tray, *m'*, fitting snugly in said frame, but readily removable therefrom. The bottom of the tray is pro-

vided with numerous narrow slits, *i'*, punched obliquely through the metal without punching out any portions thereof, so as to have little or no horizontal width, but sufficient vertical aperture, through which steam generated in the water-box C′ passes to the feed in the tray. This tray is designed to hold the finer qualities of feed, as meal and the like ground substances, and the coarser materials are below it upon a metallic grating, E, of sheet metal, which is formed, like the bottom of the pan, by cutting numerous narrow slits, *i'*, in it. This grating is preferably made up of several sections, and is entirely loose from the frame *m*, so that the latter may be lifted off, leaving the said grating on the water-box C′, from which the prepared food may then be removed with great ease and expedition.

In the side of the frame *m*, on a level with the grating, is formed an aperture, *p*, closed by a door, by means of which access may be had to the feed on the grating without removing the frame aforesaid.

The steam-chest is closed at its top by a lid, H, the effect of which is to condense the steam and cause the water thus produced to flow back into the water-pan aforesaid.

In the hearth or front of the furnace is placed the detachable spark and fire guard *q*, whereby the steamer is designed to be protected in front as well as at the end of the smoke-stack, and thereby rendered safe for introduction into barns and farm-yards.

The slits *i'*, having no horizontal width, will serve as a guard to prevent in great measure the escape of the finer particles of the feed, which are regarded as the most valuable, while their vertical aperture is quite sufficient for the passage of the steam.

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

1. The sectional feed-steamer consisting of the fire-box *c* and flue-body d^1, the water-box C′, resting thereon and having the rabbeted and internally-projecting margin *z*, the steam-section wall *m*, resting in the rabbet of the water-box, and the detachable grate-sections E, resting on the inner margin of the same, substantially as specified.

2. A feed-steamer consisting of a furnace, B, provided with a sectional steaming-boiler, C, having grating E and steam-compartment D, and having its smoke-stack d^2 provided with a water-trough, *e'*, at its upper end, and its hearth provided with spark and fire guard *q*, substantially as specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

W. H. ALLARD.

Witnesses:
J. G. MURDOCK,
JAS. BRANNON, Jr.