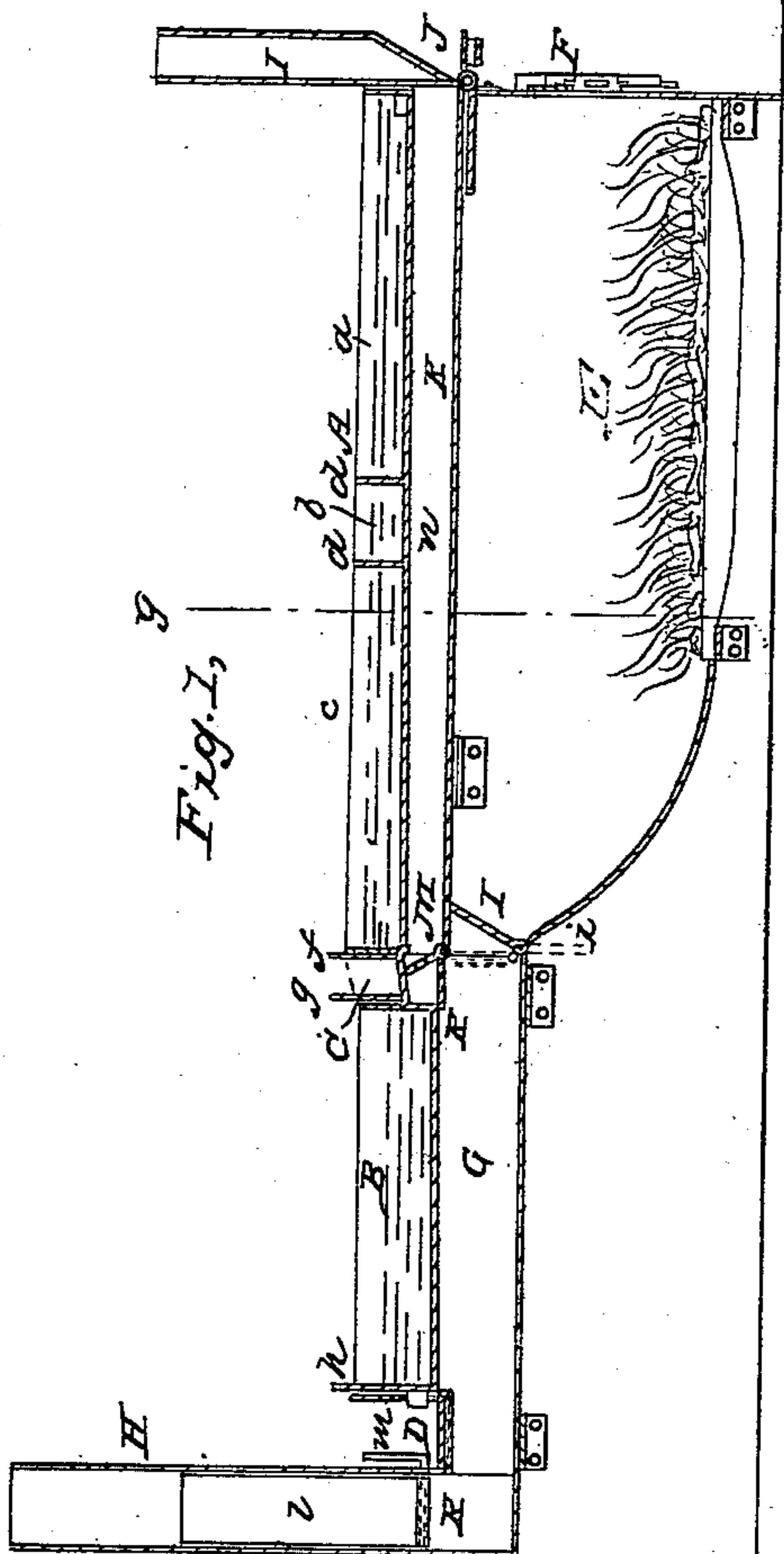
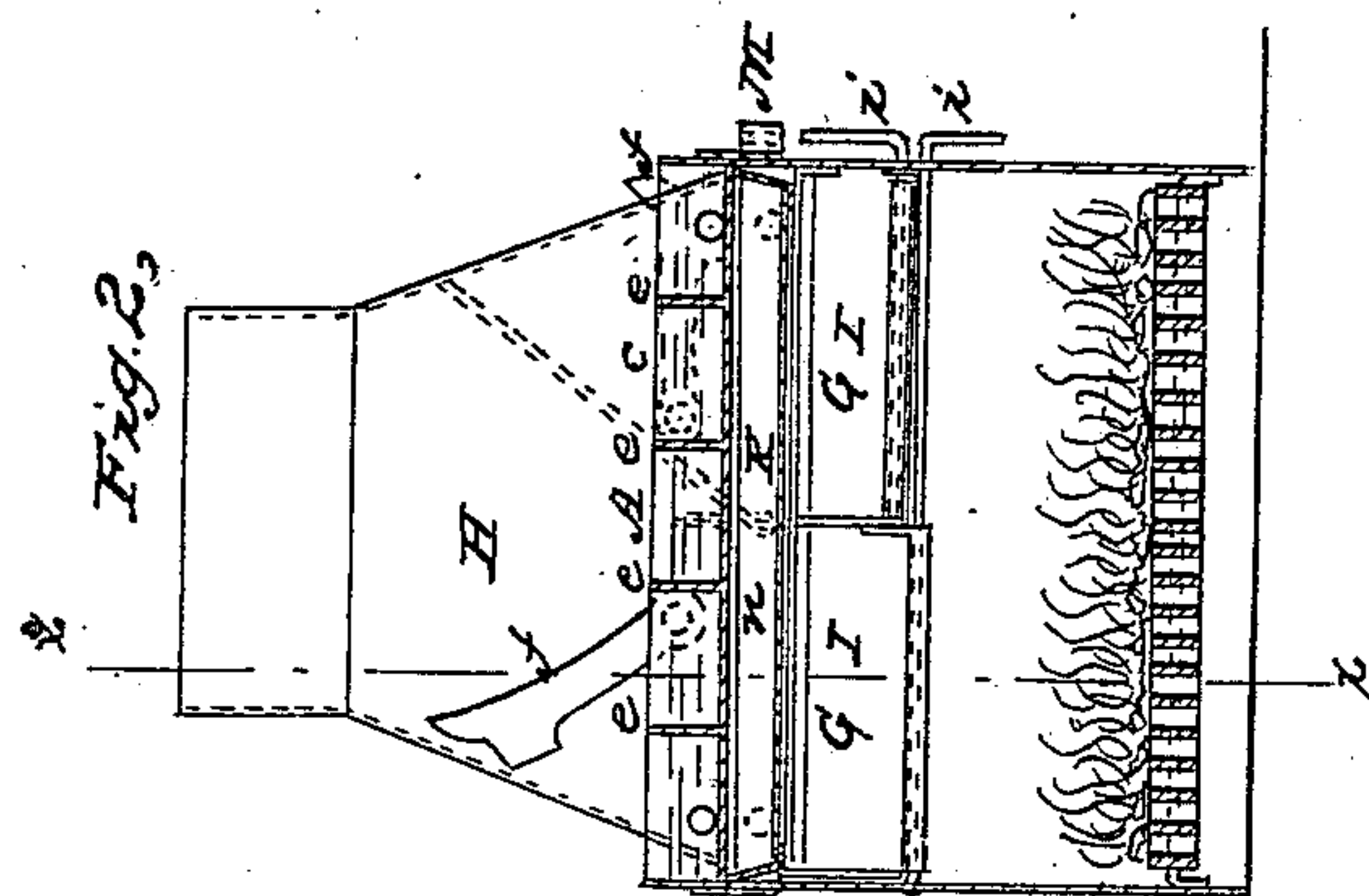
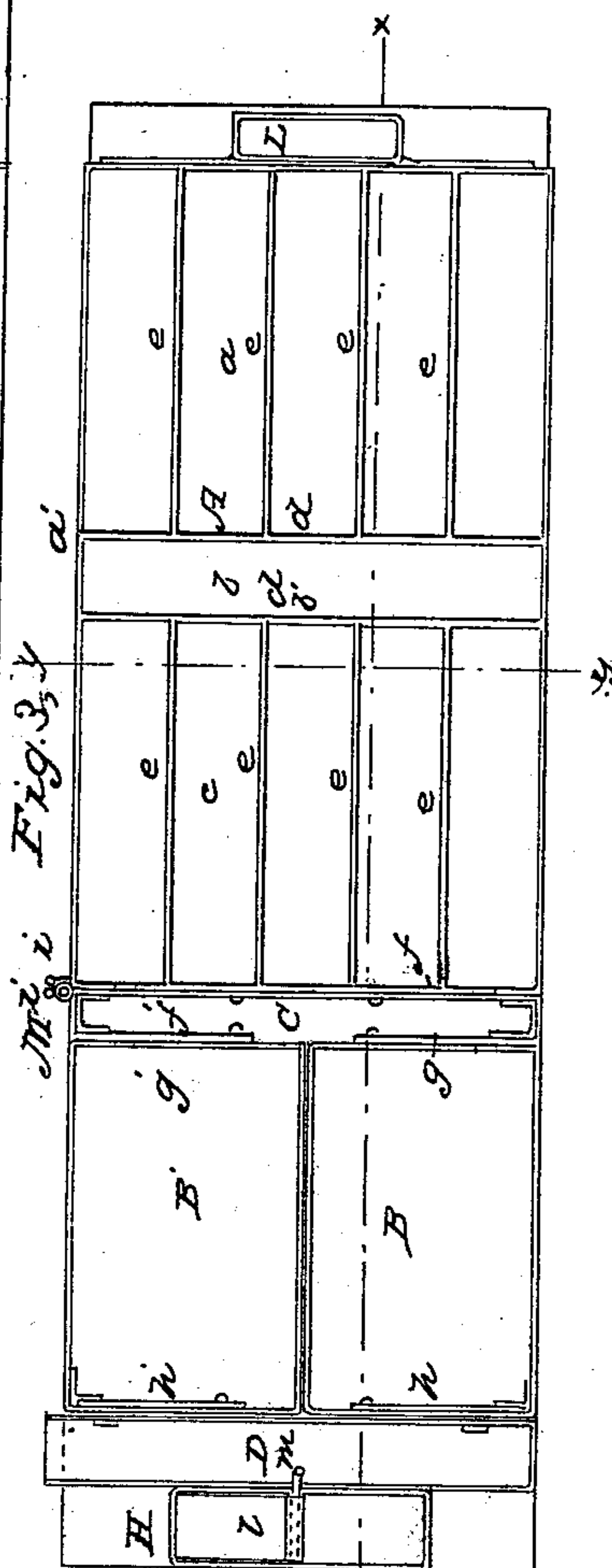


### Evaporating Pan.

Patented Sept. 23, 1862.



WITNESSES  
J. W. Coombs  
J. W. Reed



INVENTOR  
K. L. Potter  
per Minna Co  
attorneys



# UNITED STATES PATENT OFFICE.

N. Z. POTTER, OF UNIONTOWN, ILLINOIS.

## IMPROVED SUGAR-EVAPORATOR.

Specification forming part of Letters Patent No. 36,527, dated September 23, 1862.

*To all whom it may concern:*

Be it known that I, N. Z. POTTER, of Uniontown, in the county of Knox and State of Illinois, have invented a new and Improved Evaporator of Saccharine Liquids, &c.; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 represents a longitudinal vertical section of my invention, the plane of section being indicated by the lines *xx*, Figs. 2 and 3. Fig. 2 is a transverse vertical section of my invention, taken in the plane indicated by the lines *yy*, Figs. 1 and 3. Fig. 3 is a plan or top view of the same.

Similar letters of reference in the three views indicate corresponding parts.

The object of this invention is to produce an apparatus for evaporating saccharine liquids which will admit of carrying on the operation of evaporating with a comparatively small quantity of fuel, with no danger of burning or scorching, and without interruption.

The invention consists in the arrangement of two flues—one under each of the finishing-pans—in combination with three dampers, two in front of the flues and one in the chimney, in such a manner that by adjusting said dampers the heat can be made to pass through either flue at pleasure.

It consists, finally, in the arrangement of a shelf under the first part, for the purpose of facilitating the operation of the skimming.

To enable those skilled in the art to make and use my invention, I will proceed to describe its construction and operation, with reference to the drawings.

My apparatus consists of three pans, A B B', which are made with their sides of wood or metal, as may be most convenient. The first pan, A, has a level bottom, and it is divided into three compartments, *abc*, by two transverse partitions, *dd'*. The compartments *a* and *c* are divided into several chambers, each by means of longitudinal partitions *e*, and these chambers communicate with each other through suitable apertures, which in the compartment *a* form a serpentine channel communicating in one end and extending to the opposite corner of the compartment, and which in the compartment *c* form two similar chan-

nels extending from the center toward both sides. The compartment *a* communicates with the compartment *b* through an opening, *a'*, in one corner of the partition *d*, and the compartment *b* communicates with the compartment *c* through an opening, *b'*, in the center of the partition *d'*. These openings are always open, so that the juice has free access from one compartment to the other. The pans B B' are situated lower than the pan A, the tops of said pans being about level with the bottom of pan A, and they are separated from the same by a narrow chamber, C, which communicates with the pan A through gates *ff'* and with the pans B B' through gates *gg'*, and the bottom of which is inclined from the pan A down toward the pans B B', so that the juice from the former passes readily through the chamber C into the latter. Each of the pans B B' communicates through a gate, *hh'*, with a trough, D, that is intended to discharge the molasses when done over the sides of the apparatus into a suitable receiver. This trough is made with a double bottom, to prevent burning the molasses while passing through the same.

E is the furnace, to which access is had through the fire-door F, and which is situated directly under the pan A. A double flue, G G', extends from this furnace under the pans B B' to the chimney H. Each flue G G' is provided with a damper, I I', and these dampers are operated by handles *ii'* on the side of the furnace. They swing up and down and serve to open and close the flues at pleasure. The two flues are separated from each other by a partition, *k*, which extends up into the chimney, where it forms a damper, *l*, that swings laterally by the action of a handle, *m*. A shelf, *n*, under the pan A protects a portion of the same against the fire and causes the scum to accumulate all on one end of the pan, so that it can easily be removed. A small door or valve, J, in front of the furnace and over the fire-door serves to admit a slide, K, which, when pushed in as far as it goes, extends under the entire length of the pan A. The channel *n*, between this slide and the bottom of the pans, connects on one end with an upright tube, L, and on its other end it is closed by a valve, M, which, when open, admits cold air into the channel L.



The operation is as follows: The gates are all closed, and some water is poured into the pan B. A proper quantity of juice is put into the first or upper pan, where it remains until it commences boiling. The damper I is then turned down, and the damper *l* in the chimney is turned over, so as to open the draft under the pan B. After the juice begins to boil a small stream of juice from the tank is admitted, and when it has been boiled and been skimmed properly the two gates *ff'* are thrown open, and also the gate *g'*, to allow the thin sirup to flow into the pan B'. When this pan is filled to the depth of about two inches, the damper I is closed, and the damper I' is opened, and the damper *l* in the chimney is turned to the opposite side. The water is let out of the pan B, and the current of thin sirup is changed from the pan B' into the pan B, and it is allowed to fill while the contents of the other pan is being reduced to molasses. The dampers I I' are then again reversed, the damper *l* in the chimney is turned to the opposite side of the chimney, and the molasses is let off through trough D. When the pan is empty, the current of thin sirup is again changed, and so on, while one pan is filling the contents of the other are reduced

to molasses, and vice versa. By the action of these dampers the operator has entire control over the heat under the pans B B'. The scum is removed from the juice in its passage through the pan A; and by the action of the shelf *r* the skimming is facilitated, as previously stated. In its passage through the pan A the juice is more and more reduced.

When it is desired to stop work, the valves J and M are both turned down, and the slide K is pushed under the large pan, which facilitates the process of cooling down.

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

1. The arrangement of the double flues G G', pans B B', and dampers I I', in combination with the oscillating damper *l* in the chimney, constructed and operating as and for the purposes set forth.

2. The shelves *r*, between the fire and the bottom of the pan A, as and for the purpose specified.

N. Z. POTTER.

Witnesses:

CHARLES L. ROBERTS,  
JOS. LINTON.