

A. INGALLS.
Evaporating Pan.

No. 35,238.

Patented May 13, 1862.

Fig. 2.

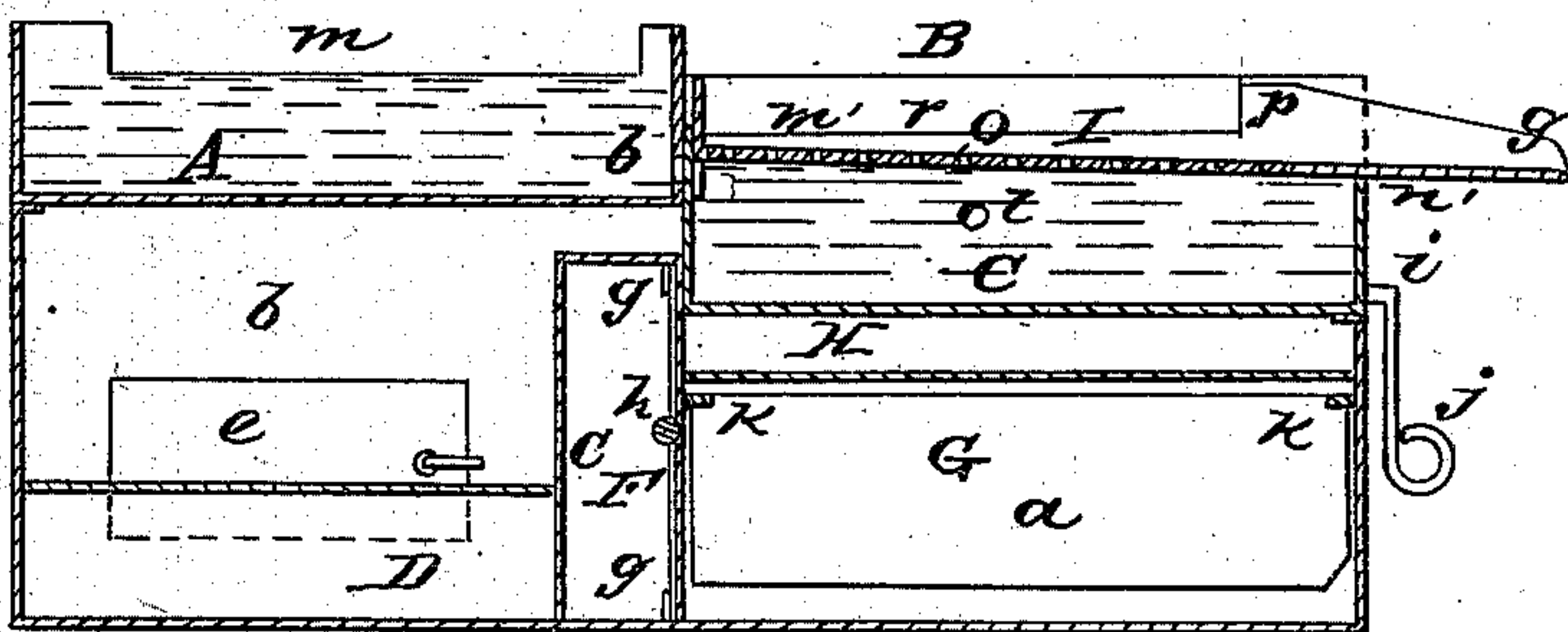


Fig. 2.

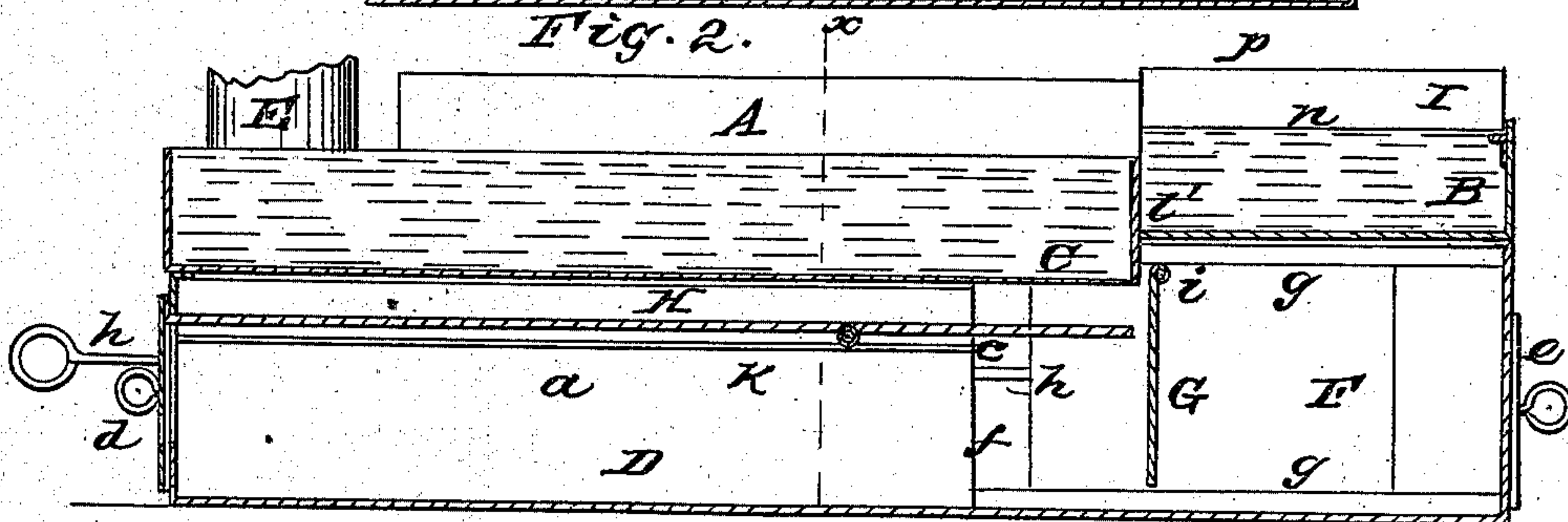
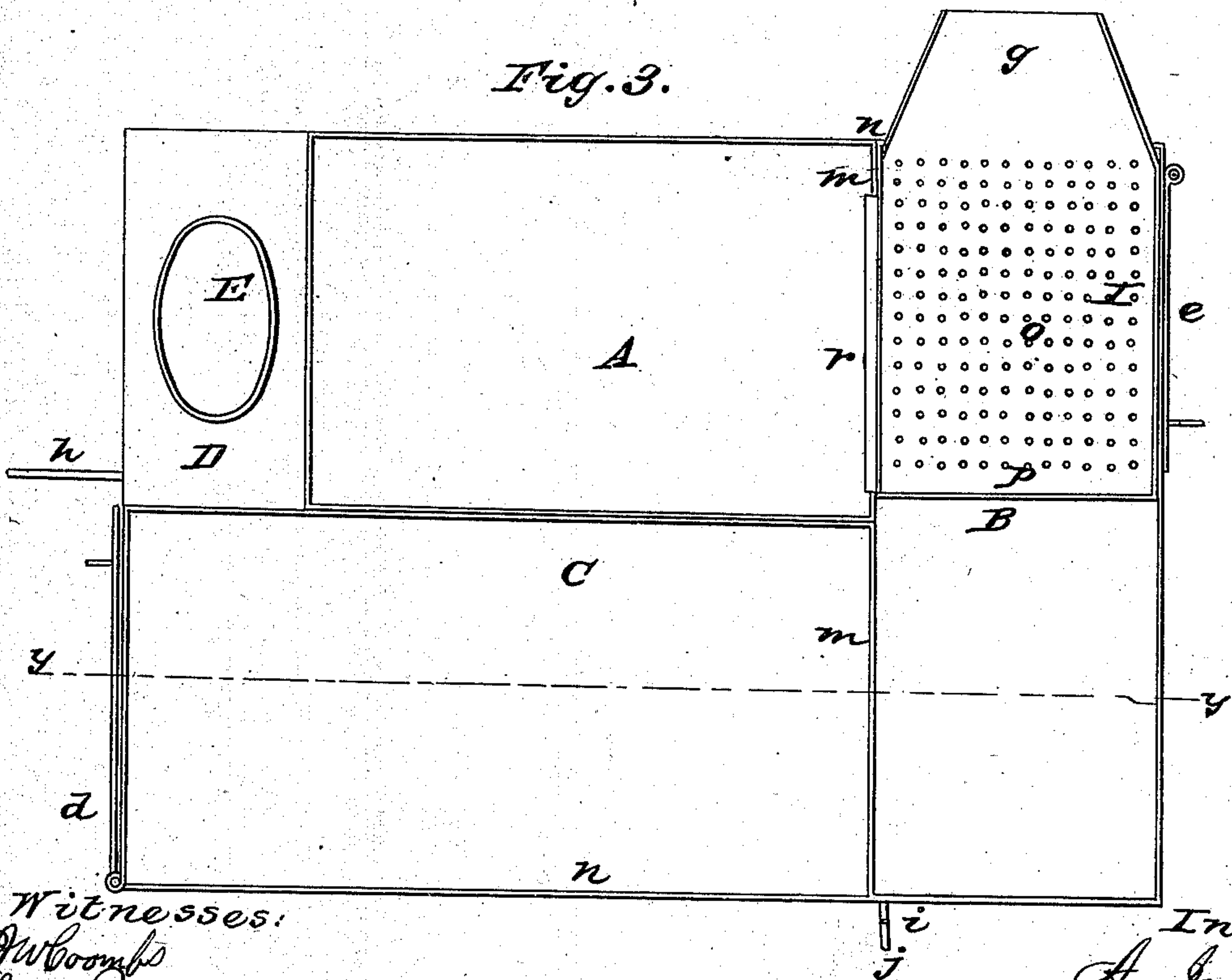


Fig. 3.



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ALFRED INGALLS, OF INDEPENDENCE, IOWA.

IMPROVED EVAPORATOR FOR SACCHARINE JUICES.

Specification forming part of Letters Patent No. 35,238, dated May 13, 1862.

To all whom it may concern:

Be it known that I, ALFRED INGALLS, of Independence, in the county of Buchanan and State of Iowa, have invented a new and Improved Apparatus for Evaporating Saccharine Juices, &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, taken in the plane indicated by the line *yy*, Fig. 3. Fig. 2 is a transverse vertical section of the same, the plane of section being indicated by the line *xx*, Fig. 1. Fig. 3 is a plan or top view of the same.

Similar letters of reference indicate corresponding parts in the several figures.

This invention consists in the arrangement of three pans placed at different levels on the same furnace, in combination with three dampers and two fire-doors, in such a manner that the heat under each of the pans can be regulated at pleasure, and that each pan can be emptied whenever it is desired without interrupting the operation of the others.

It consists, also, in the arrangement of a movable skimming device fitting on the edges of the first two pans, in combination with seats or recesses cut into said edges, in such a manner that the scum, as it rises on the surface of the juice, can be swept off in an easy and expeditious manner.

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.

The pans A B C are arranged on the furnace D, which consists of two main flues, *a b*, and the central flue, *c*. The flue *a* extends from the fire-door *d* under the lowest pan, C, to the second or middle pan, B, and under this pan to the flue *b*, which extends under the whole length of the upper or first pan, A, and which communicates with the chimney E. An additional fire-door, *e*, leads to that end of the flue *b* opposite the chimney. The flue *a* communicates by an aperture, *f*, with the central flue, *c*, and said aperture can be opened or closed at pleasure by means of a damper, F, which slides between suitable guides, *g*, and the position of which is

regulated by a handle, *h*. The same damper also serves to regulate the communication between the flues *a* and *b*. A second damper, G, which is suspended from a rock-shaft, *i*, and to which the desired position is given by a handle, *j*, on the side of the furnace, serves to cut off the heat from the second pan, and a horizontally-sliding damper, H, which is supported by brackets *k* on the sides of the flue *a*, regulates the heat under the pan A. The pans A B C communicate with each other by suitable gates, *ll'*, and their edges are provided with recesses or seats *m n m' n'*, to receive the skimming device I. This device consists of a perforated bottom, *o*, provided with a rim, *p*, and narrowing down toward one end, so as to form a spout, *q*. On one side a portion of the rim *p* is turned over, so as to form a hook, *r*, which catches over the edge of the pan to which the skimming device is to be attached. The recesses *m m'* in the edge of pans A B receive the hook *r* of the skimming device, and the spout *q* of said device, when the same is attached to the pan A, rests in the recess *n* in the end of the pan B, and when the skimming device is attached to the pan B said spout rests in the recess *n'* in the side of the pan C.

The operation is as follows: The skimming device is placed into the seats or recesses *m n'*, and the pan A is filled with raw juice as full as it will hold, and brought near to the boiling-point, the temperature being so regulated by means of the dampers F G that the juice is not allowed to boil fully. By this operation the scum is caused to rise, and when fully raised to the surface it is floated off into the skimming device I by means of a flat piece of wood or any other suitable instrument. The scum is thereby floated off in a compact mass, and it is not broken up and permitted to mingle again with the juice, which is the great objection to the ordinary method of skimming; and, furthermore, the skimming can be effected in less time by my method than it can in the ordinary way. After the scum is all swept off from the pan A the gate *l* is to be opened and the juice drawn off into pan B, while a second batch is let into pan A. The skimming device is now placed in its seat *m' n'*, between the pans B C, and the temperature is raised to the desired degree without, however, allowing the

juice to boil, and when the scum has all risen it is swept off as before. Then the gate *l* is opened, and the juice is drawn into the pan C and evaporated as rapidly as may be practicable, the more rapidly the better; and when the article is finished the door *d* is opened and the damper H is inserted, thereby allowing the sirup to be drawn off without being scorched. Whenever one of the pans is emptied, it is immediately filled with another batch, which has followed it round and is waiting in the next preceding pan. When the operation is commenced, or whenever the pans B C may be empty, a fire may be built under the pan A by opening the additional fire-door *e*, or the pans B C may be filled with water to protect them until the first batch of juice in the pan A is fully cleansed, and the fire may now be built in the usual place. The pans and furnace can all be made of metal, if it is desired to have them portable; but if stationary the furnace can be

made of brick or stone and the sides of the pans of wood and their bottoms of metal, thereby enabling any one to get it up at a trifling cost.

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

1. The arrangement of three pans, A B C, placed at different levels on the furnace D, in combination with dampers F G H and fire-doors *d e*, constructed and operating as and for the purpose shown and described.

2. The arrangement of the skimming device I, in combination with seats *m n m' n'* on the edges of the pans A B C, constructed and operating substantially as and for the purpose herein set forth.

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Witnesses:

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