A. Talles',

Evaporator.

No. 98,816. Patented Jan. 11. 1870.

Fig. 1.

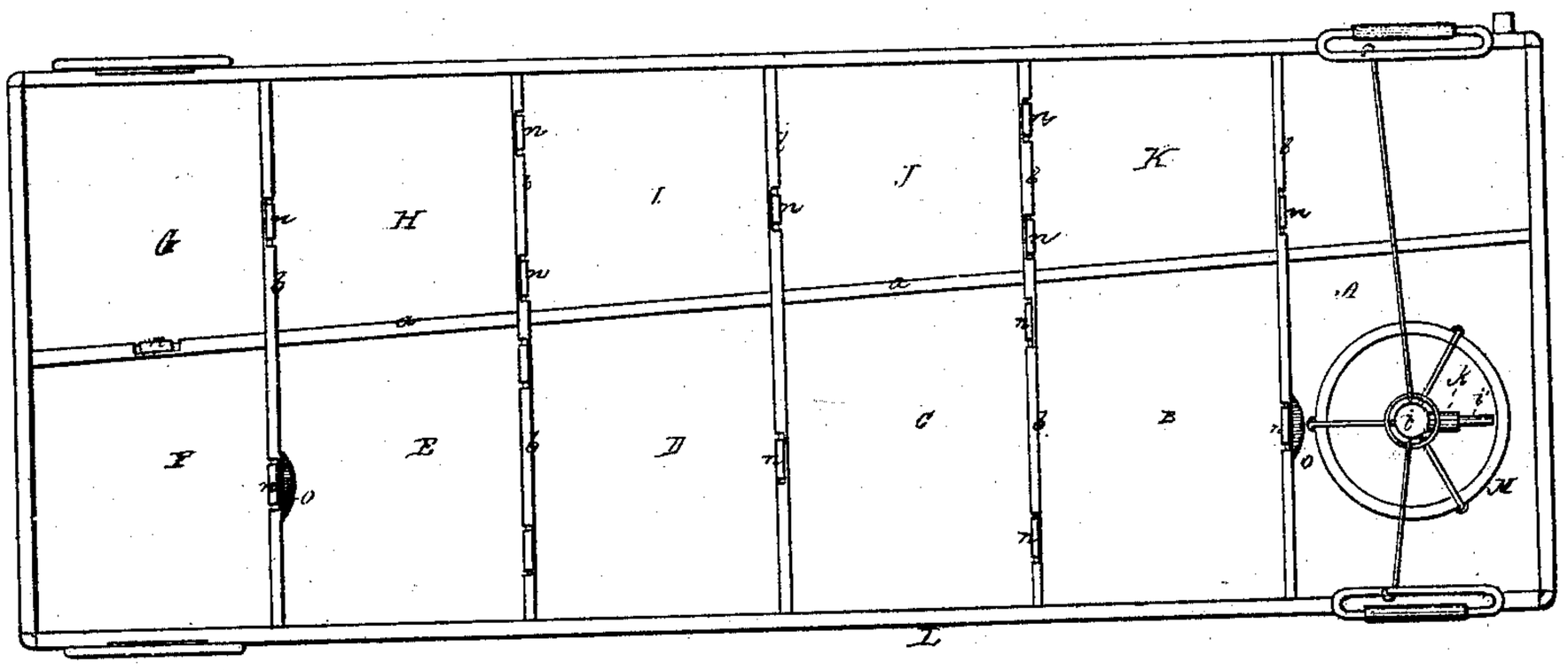
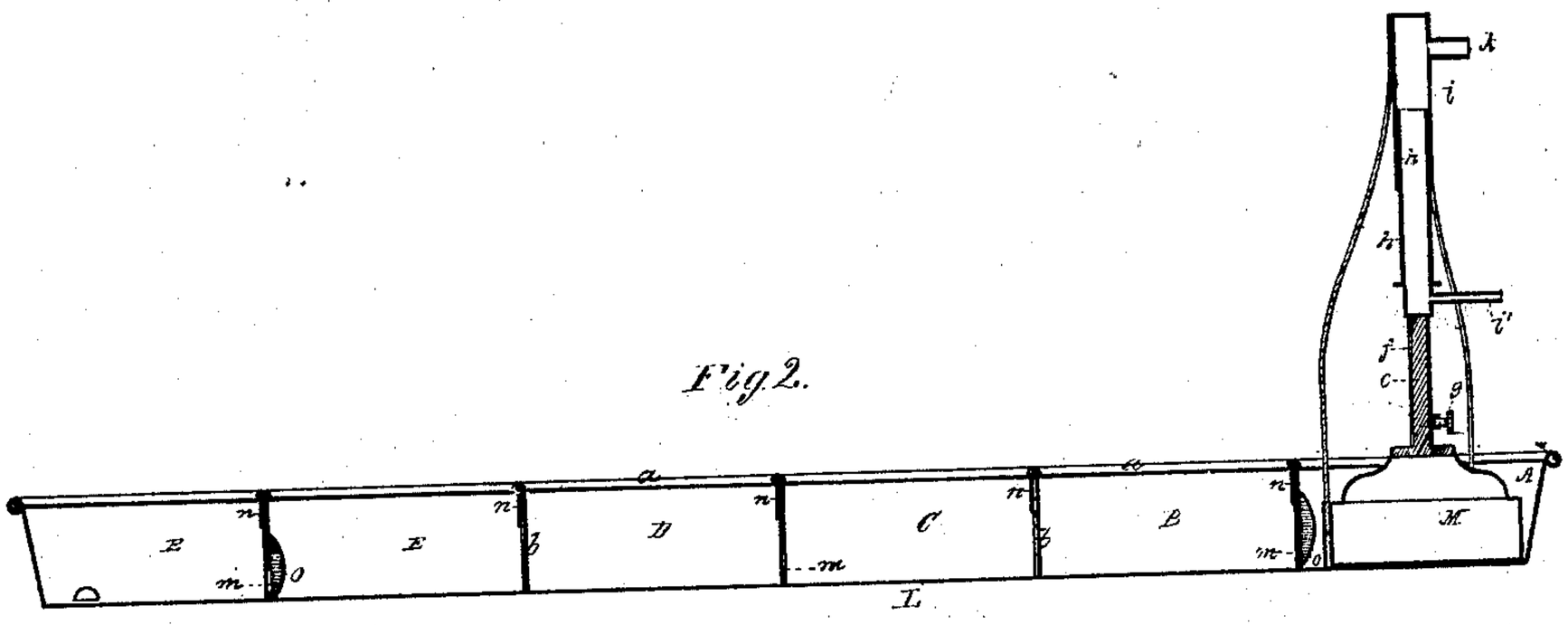


Fig 2.



Witnesses

S. N. Pipin.

J. R. Snow.

Abner Talles.

by his attorney.

R. H. Eddy

United States Patent Office.

ABNER TOLLES, OF WEATHERSFIELD, ASSIGNOR TO HIMSELF AND ALMON DURKEE TOLLES, OF ROYALTON, VERMONT.

Letters Patent No. 98,816, *dated January* 11, 1870.

IMPROVED APPARATUS FOR EVAPORATING SACCHARINE AND OTHER SOLUTIONS.

The Schedule referred to in these Letters Patent and making part of the same.

To all persons to whom these presents may come:

Be it known that I, ABNER TOLLES, of Weathersfield, in the county of Windsor, and State of Vermont, have invented a new and useful or Improved Apparatus for Evaporating Saccharine or other Solutions; and do hereby declare the same to be fully described in the following specification, and represented in the accompanying drawings, of which—

Figure 1 is a top view, and

Figure 2, a longitudinal section of the apparatus.

The said apparatus is specially designed for the reduction of sugar-maple sap, and may be employed for evaporating or condensing various other liquids.

In such drawings—

A, B, C, D, E, F, G, H, I, J, and K, represent a gang or series of evaporating-chambers, formed by dividing a rectangular vessel, L, by longitudinal and transverse partitions *a b b*, arranged in it in manner as represented.

The vessel L, when in use, is to be arranged over a furnace or means of heating its bottom, so that the several compartments of such vessel may be heated as occasion may require.

The first compartment, A, is intended to first receive the liquid to be evaporated.

In this compartment is a float, M, whose stem *c* extends up into a tube, *f*, provided with a screw, *g*, for clamping the stem to the tube, such being to enable the float to be adjusted in its altitude with reference to the tube and parts connected therewith.

The said tube extends downward from a tubular conduit-valve, *h*, provided with a discharging-nose, *i'*.

The valve *h* extends up into a receiving-tube, *i*, which is closed at top, and has an induct, *k*, to convey into it the liquid to be discharged into the compartment A. The tube *i* is supported over the compartment A by standards or other proper means.

The inflow of the liquid into the tube *i* will be estopped, when the float may rise so high as to carry the tubular valve *h* above the opening of the induct *k*, into the tube *i*.

There are one or more openings, *m*, through each of the transverse partitions, each of such openings being provided with a swing-valve, *n*, arranged to play on the advance side of the partition, the same being as represented.

A strainer, *o*, may be applied to each or any one of such openings.

The advantage of this evaporating-apparatus is that most, if not all the scum which may be produced when a saccharine or other solution is being reduced by it, will be retained in the first of the compartments, the liquid, as it becomes denser, flowing in succession through the several compartments, but never going back from any one into that in rear of it, the valves operating to prevent such back-flowage.

The apparatus is self-feeding, for as the water of the sap or saccharine liquid may be evaporated from the first compartment, the float will fall, and admit more, or fresh liquid, and thus a continuous evaporation of the liquid, and a passage of it throughout the series of compartments, will be effected, the foreign matters and scum being mostly left in the first compartment.

What I claim, as of my invention, is as follows; that is to say—

The combination of the tube *f* and the clamp-screw *g*, with the float M and its stem *c*, the tubular discharge-valve *h*, and the tubular receiver *i*.

Also, the combination of the tubular receiver *i* and the tubular discharge-valve *h*, arranged substantially as set forth, and for application to, and to operate with the float, as specified.

Also, the combination and arrangement of the series of openings *m* and valves *n*, with the series of evaporating-compartments A, B, C, &c., and the float M, and a conduit valve-apparatus, substantially as described, for supplying liquid to the first evaporating-compartment, and regulating the flowage of such into the same, as set forth.

ABNER TOLLES.

Witnesses:

JOHN M. FADDEN,

S. S. JUDD.