(No Model.)

W. A. HERRING.

EVAPORATOR.

No. 287,026. Patented Oct. 23. 1883.

Fig. 1.

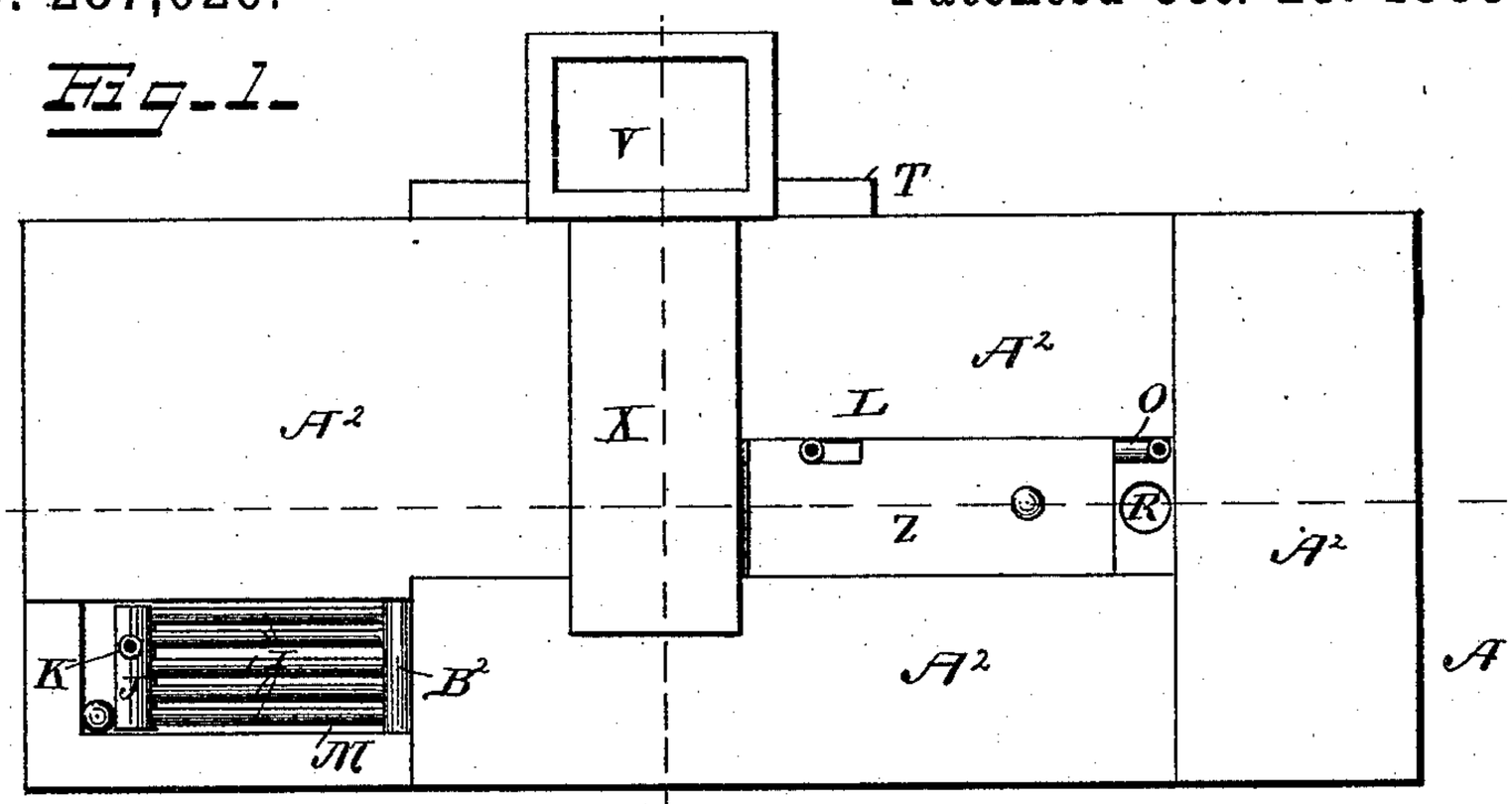


Fig. 2.

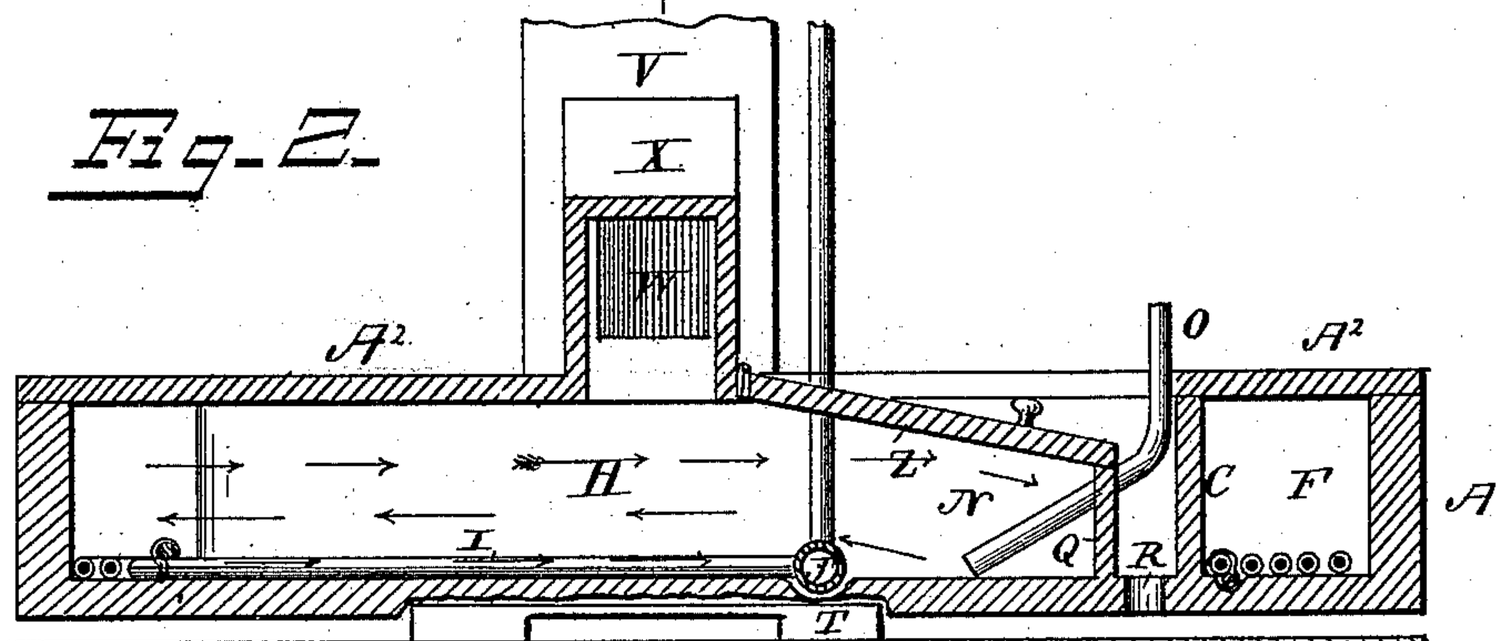


Fig. 4.

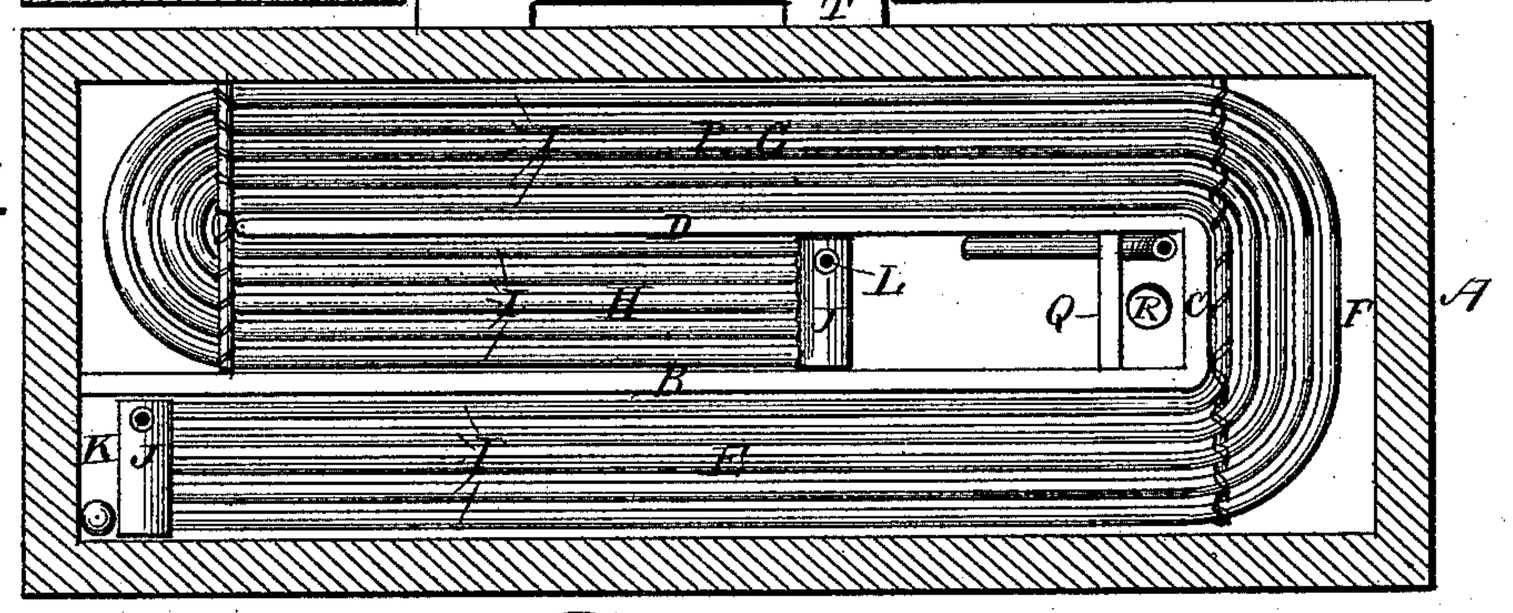
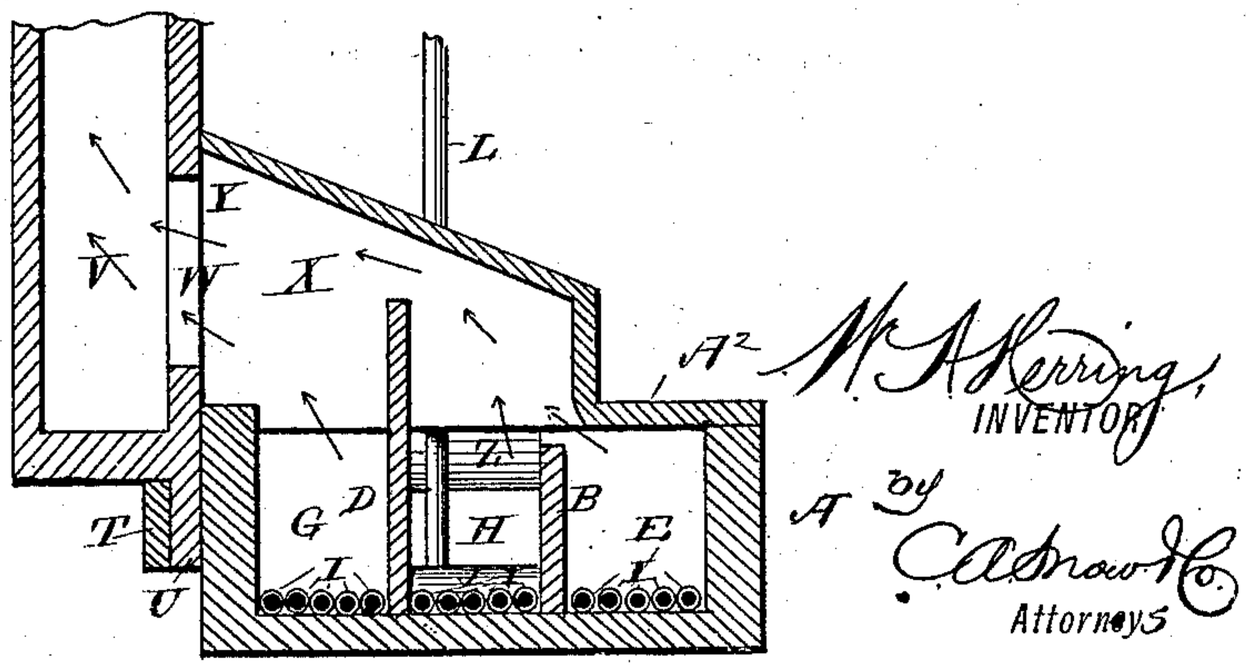


Fig. 3.



WITNESSES
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WILLIAM A. HERRING, OF ALLEN, MICHIGAN.

EVAPORATOR.

SPECIFICATION forming part of Letters Patent No. 287,026, dated October 23, 1883.

Application filed July 23, 1883. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM A. HERRING, a citizen of the United States, residing at Allen, in the county of Hillsdale and State of Michigan, have invented a new and useful Evaporator, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to evaporators, and is especially adapted for making jelly from pomace and the like. Its object is to provide an evaporator possessing superior advantages in point of simplicity, inexpensiveness, and general efficiency, whereby a continuous flow of the juice and perfect skim is automatically secured and the steam and hot air are carried off out of the building.

In the drawings, Figure 1 is a top view of my improved evaporator. Fig. 2 is a vertical transverse sectional view of the same. Fig. 3 is a vertical longitudinal sectional view. Fig. 4 is a top view with the cover and top parts of the device removed.

Referring to the drawings, A designates the body of my improved evaporator, which is divided by an arrangement of partitions into a series of communicating channels. This division is preferably as follows: A partition, B, extends longitudinally from one end of the box to near the other end. Another partition, C, extends from the free end of partition B toward the side of the box, and from the free end of this cross-partition C extends another longitudinal partition, D, to near the end of the box, and the latter is thus divided into a longitudinal side channel, E, a transverse end channel, F, another longitudinal side channel, G, and a middle channel, H.

From the end of channel E extends a series of parallel steam-pipes, I, that pass continuously along the bottoms of the channels to near the end of the middle channel, H. At their terminal points these pipes I enter transverse pipes J, from which extend vertical pipes K and L. The steam is fed into the pipe K at the beginning of the series of pipes I, and passes through the latter to and out of the pipe L, so that the pipes I at the latter end are colder than at the entrance end K. The steam thus has a continuous course through the evaporator, while the juice also has a continuous flow in a direction opposite to the passage of the steam, the juice being fed into the evaporator at the colder end of the steam-pipes and drawn off at the hotter end K, an opening, M, being provided for this purpose. The juice is fed into the compartment N, between the terminal end L of the steam-pipes and the end of the central channel, H, through a feed-pipe, O, extending to the bottom of the compartment, and the feed of the juice will cause an underflow through the channels to the exit end of the evaporator, while this feeding of cold juice to the cold end of the steam-pipes will cause a reverse surface-current from about the point marked P back to the skim-compartment N, from whence the skim can be removed at will over a partition, Q, and through an opening, R, into a suitably-disposed sluice. This reverse skim movement will in no way interfere with the continuous under current that carries the juice to the finishing end of the evaporator.

At one side of the box A is provided a staple, T, which receives a flange, U, on the end of a removable upright tube, V, which has an opening, W, in its side, and is adapted to carry off the steam generated in the channels, and the hot air. A casing, X, rests on top box A, and has its open end Y against the opening W, the said casing being arranged to extend over the two side channels and the middle channel to receive the hot air, &c., direct from each channel.

To one side of the casing X is hinged a door or cover, Z, that closes the skim-compartment N, and has merely to be lifted to inspect or operate the same.

A^2 designates suitable covers, that are disposed to cover the channels and compartments of the evaporator.

B^2 is a partition, which can be placed at will near the finish-chamber of the evaporator to check the flow of jelly or juice, in case it is not finished to the desired point.

The operation and advantages of my invention will be readily understood. It is simple and very efficient. By reason of this arrangement of the continuous steam-passage and the continuous flow of the juice in an opposite direction, and the reverse skim-current, caused by feeding the juice in at the cold ends of the steam-pipes, pomace can be easily utilized to produce a superior jelly.

I am aware that evaporating apparatus has been heretofore adapted to receive the juice at

the finish end of the heating apparatus, and that a reverse skim-current or movement has been automatically effected. I therefore do not broadly claim this, my claims being for my improved arrangement and construction, as herein shown and specified.

I claim as my invention—

1. The combination, in an evaporator, of the series of continuous channels on the same horizontal plane, the series of parallel steam-pipes extending through the said channels, at the bottom of the same, and having a steam-feed pipe at the beginning of the series of channels and an exhaust-pipe at the terminus of the channels, and a juice-feed pipe arranged at the exhaust end of the series of steam-pipes, and extending down to the bottom of the channel, substantially as and for the purpose set forth.

2. The combination of the body having the series of continuous channels, the series of parallel steam-pipes extending through at the bottom of the channels, and having the feed-pipe and exhaust-pipe, the skim-compartment at the exhaust end of the series of steam-pipes, the partition at this skim-compartment, over which the skimmings are adapted to be fed as desired, the juice-feed pipe extending down to the bottom of the channel, and the top chamber extending over the channels to conduct the hot air therefrom, and having the hinged door covering the skim-compartment, substantially as and for the purpose set forth.

3. The combination of the body of the evaporator, divided into channels or compartments and having the loop or staple at its side, the top compartment arranged over these channels and having the open end, and the upright conduct-tube having the opening in its side, and the flange by which it is placed and secured in the said staple, substantially as and for the purpose set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

WILLIAM A. HERRING.

Witnesses:

ELON G. REYNOLDS,

ROBERT A. WEIR.