# W. M. DIXON.

## EVAPORATING-PANS.

No. 193,934. Patented Aug. 7, 1877.

*Fig. 1.*

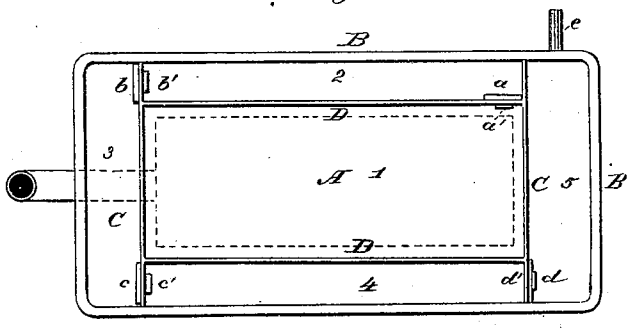



*Fig. 2.*

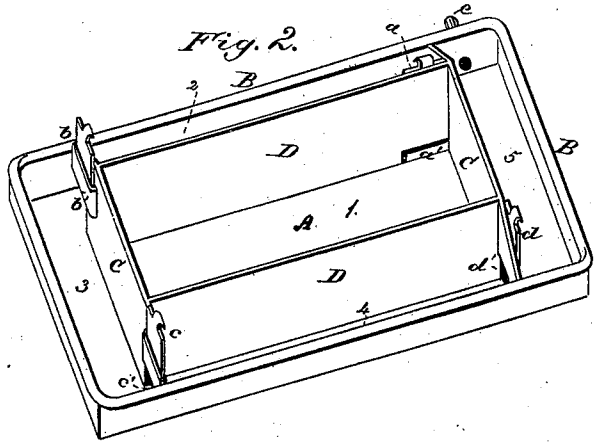
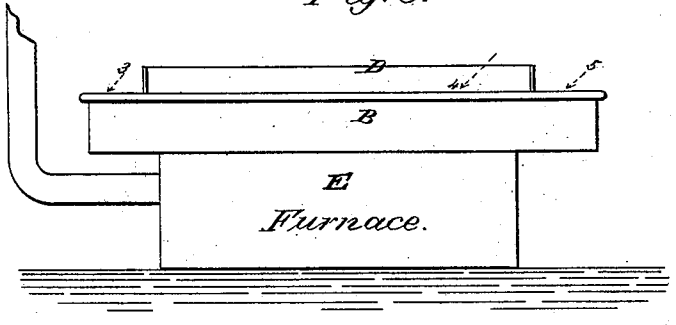



*Fig. 3.*




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by

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# UNITED STATES PATENT OFFICE.

WILLIAM M. DIXON, OF RICEVILLE, TENNESSEE, ASSIGNOR TO PARKISON, LONG, & McKINNEY, OF SAME PLACE.

## IMPROVEMENT IN EVAPORATING-PANS.

Specification forming part of Letters Patent No. **193,934**, dated August 7, 1877; application filed September 30, 1876.

*To all whom it may concern:*

Be it known that I, WILLIAM M. DIXON, of Riceville, in the county of McMinn and State of Tennessee, have invented certain new and useful Improvements in Evaporators; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a plan view of my improved evaporating-pan. Fig. 2 is a perspective view, and Fig. 3 is a side elevation of the pan placed upon a furnace.

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

This invention relates to that class of evaporating-pans that are used for concentrating the juice of sugar-cane, sorghum, &c.; and it consists in the construction of such a pan with separate cooling-chambers, opening up into each other and overlapping, when the pan is in use, the furnace or fire-bed, for the purpose of sequestering the juice into separate bodies or portions, and so arranged that the sirup, while undergoing the process of cooling, may be transferred from the chambers on one side of the pan to those situated on the opposite side thereof without having to cross the line of heat, and thereby be subjected to a temporary and partial reheating, substantially as hereinafter more fully described, and pointed out in the claim.

In the drawings, A is the bottom, made of metal, of my improved pan. This is preferably, but not necessarily, rectangular in shape. B B are the sides, which I prefer to make of wood. C C D D are partitions, made preferably of wood; but they may be made of metal, or of wood and metal combined. Thus the lower part of each partition, where it is secured to the bottom of the pan, may be made of metal, so as to prevent burning or charring of the wood, and the upper portion thereof may be made of wood. Partitions C C run transversely across the ends of the pan from side to side, and partitions D D intersect the former without crossing them, thereby forming five chambers or compartments—viz., the central chamber 1 and the surrounding chambers 2, 3, 4, and 5. The partitions C C D D, I prefer to make higher than the walls B, as, during the early part of the operation of boiling the juice, the sirup will stand higher there than in the surrounding compartments. *a b c d* are gates, covering corresponding openings *a' b' c' d'*, which are made in the partitions C C D D, in such a manner that the first opening, *a'*, leads from the central chamber 1 into chamber 2; from here opening *b'* leads into chamber 3, which again, by opening *c'*, leads into chamber 4, which in its turn communicates with chamber 5 through the opening *d'*. The last-named chamber is provided with a spout or outlet, *e*, through which the clarified sirup may escape.

From the foregoing description the manner of using my improved evaporator-pan will be readily understood. The juice to be converted into sirup is poured into the central compartment 1, and subjected to the action of heat by placing the pan over a furnace or fire-place. The direct heat from the fire should be confined to, or concentrated upon, that part of the bottom of the pan that answers to compartment 1, as represented in Fig. 3, so that the surrounding chambers on all sides may be subjected to a considerably less degree of heat. This is essential to the successful operation of my improved pan.

As the boiling proceeds in chamber 1 the scum and impurities rise to the surface and are skimmed off. By degrees, as the sirup is getting done, it is let into chamber 2 by opening gate *a* a short distance from the bottom, where it is subjected to further skimming. By degrees, more sirup is let from chamber 1 into chamber 2, and from chamber 2 into chamber 3, the skimming being continued. In this manner, and by degrees, all the surrounding chambers 2, 3, 4, and 5 are successively filled, the last chamber containing the clarified juice, free from scum and impurities.

In sirup-making it is desirable to have the boiling performed in the shortest possible time, and also not to subject the sirup, after it has been boiled, to any further action of the heat; but in pans as ordinarily constructed the

sirup is partially cooled off, and then again heated a number of times successively, which not only causes a loss of time in production, but impairs the quality of the finished article.

The advantages in having the cooling-chambers arranged on all sides of the central chamber, instead of on two or three sides of this only, consist in, first, that the sirup may make the entire circuit of the pan, being successively skimmed and clarified in each chamber, without being subjected to the renewed action of the heat in passing from side to side; second, this arrangement facilitates the process of skimming the detached bodies of sirup; and, third, the partitions C C D D, arranged according to my plan, brace and strengthen the pan laterally and longitudinally, so that it will stand the wear and tear of rough usage, to which pans of this kind, used in rural districts, are often subjected, much better than pans that do not possess this advantage.

Having thus described my invention, I claim and desire to secure by Letters Patent of the United States—

In combination with the furnace E, the evaporator-pan herein described, consisting of the central boiling-chamber 1, corresponding in area to the area of the furnace or fire-bed, and overlapping communicating cooling-chambers 2 3 4 5, substantially as and for the purpose herein shown and specified.

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

WILLIAM M. DIXON.

Witnesses:

JNO. L. MCKINNEY,

JNO. C. PARKISON.