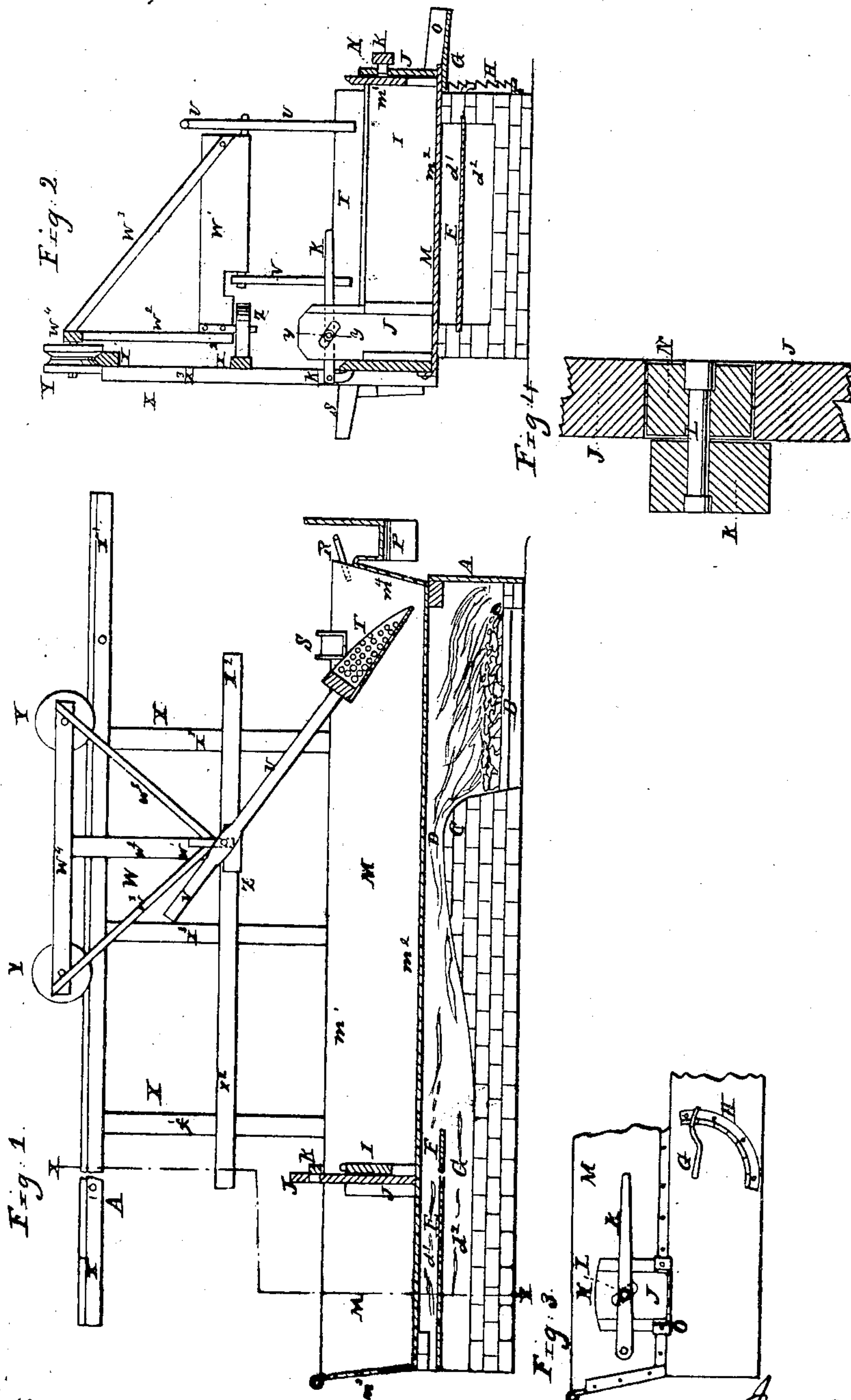


J. A. McKINNEY.
EVAPORATOR.

No. 61,081.

Patented Jan. 8, 1867



Witnesses:

J. A. Seina
J. W. B. Conington

Inventor

J. A. McKinney
Per Munn & Co.
Attorneys

United States Patent Office.

J. A. McKINNEY, OF GRIGGSVILLE, ILLINOIS.

Letters Patent No. 61,081, dated January 8, 1867.

IMPROVED EVAPORATOR.

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

TO ALL WHOM IT MAY CONCERN:

Be it known that I, J. A. McKINNEY, of Griggsville, in the county of Pike, and State of Illinois, have invented a new and useful Improvement in Evaporator; 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 make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a vertical longitudinal section of my improved evaporator.

Figure 2 is a cross-section of the same, taken through the line *x x*, fig. 1.

Figure 3 is a detail side view of a portion of the rear end of the same.

Figure 4 is an enlarged detail sectional view of the same, taken through the line *y y*, fig. 2.

Similar letters of reference indicate like parts.

My invention has for its object to furnish an improved evaporator, by means of which the cane or sorghum juice may be quickly evaporated, conveniently skimmed, and easily transferred from one compartment of the pan to another, as the progress of the evaporation may render necessary, so that the sirup, as it passes through the various stages of evaporation, may always be exposed to the proper amount of heat. And it consists, first, in the skimmer and carriage, constructed as hereinafter described, in combination with each other, and with the supporting frame and pan; second, in the combination with the pan of the spout for carrying off the scum; third, in operating the slide-gates with levers, as hereinafter more fully described.

A is the door, and B the grate of the furnace, the bridge wall C of which is made high, so that the smoke and heat shall pass into the rear part of the furnace through a shallow throat or passage, D. From this point the passage widens as it passes back towards the flue or chimney. In the rear part of the furnace the passage D is divided into two parts, d^1 and d^2 , by the horizontal partition E, as shown in figs. 1 and 2. F is a plate or valve, pivoted at the front end of the partition E by a rod, G, to the side walls of the furnace. One end of the rod G passes out through the wall, and is bent over at right angles, so as to form a lever or handle for operating the valve or plate F. This rod and plate are held in any desired position by the end or handle of the rod catching upon one or the other of the teeth of the rack H, as shown in fig. 3. By turning the valve F the smoke and heat may be made to pass through either of the passages d^1 or d^2 , shutting off the heat from the rear part of the pan or allowing it to come in contact therewith, as may be desired. M is the pan, which is made of such a size as to fit upon the top of the furnace; or, if desired, the pan may be made so long that its rear part may project in the rear of the said furnace. The pan M is divided into compartments by partitions, one of which is shown at I, figs. 1 and 2. Any desired number of these partitions may be used, according to the length of the pan. The pan may be made from sixteen to thirty feet in length, from two to four feet in width, and about ten inches in depth. These dimensions are merely proportional; the absolute size of the pan will depend upon its desired capacity. The sirup is drawn from one compartment to another through holes in the partitions, which holes are closed by slide-gates, J. These gates J are operated by levers, K, pivoted to the side of the pan. To the side of the levers K is securely attached a pin, L, having upon its projecting end a roller, N, which fits into and works in an inclined or curved slot formed in the upper part of the slide-gates J, so that the gates may be raised vertically by the levers. The completed sirup is drawn off through the spout O, through a hole formed through the side of the pan, and closed by a gate, J, in the same manner as the holes through the partitions I. The sides m^1 of the pan may be made of pine or other wood easily saturated with juice, and the bottom m^2 of sheet iron or copper, securely fastened to the sides m^1 of the pan, and having its ends bent up, so as to form the ends m^3 and m^4 of the pan. The upper part of the front end m^4 is bent over, so as to form a trough or spout, P, to receive the skimmings from the skimmer and conduct them away from the pan. R is a wire or bar attached to the forward end of the pan, against which the skimmer may be struck to clear it from adhering scum. S is a spout attached to the forward part of the pan, through which the juice is introduced into the pan. A strainer may be placed in this spout, and the juice strained into the pan in the ordinary manner. The skimming in the larger or boiling compartment of the pan is done by the skimmer T. This skimmer is of a length about equal to the width of the pan, and of such a size as to be easily operated. To the upper side or edge of this skimmer are attached two arms, U and V, by means of which it is pivoted to the carriage W. The arm U is made long, so as to be used as a handle in operating the skimmer T. The inner end of the

cross-bar w^1 , to which the arms U and V of the skimmer are pivoted, is attached to the lower end of the vertical bar w^2 , and its outer end supported by oblique braces w^3 . The upper ends of the vertical bar w^2 , and of the braces w^3 , are attached to the horizontal bar w^4 , as shown in fig. 1. To the outer side of the bar w^4 are pivoted two pulleys, Y, which rest upon the upper edge of the bar x^1 of the frame X upon which the carriage W moves back and forth. The faces of the pulleys Y are grooved, as shown in fig. 2, so that they may keep their places upon the said rail or bar x^1 . The carriage W is kept in the proper relative position, while moving back and forth, by the roller Z, pivoted at the lower end of the vertical bar w^2 , as shown in fig. 2, and which rolls along the side bar x^2 of the frame X as the carriage is moved back and forth. The uprights x^3 , to which the horizontal bars x^1 and x^2 are attached, may be attached to the side of the pan M or secured in any other manner. In using the skimmer, the carriage W is run back until stopped by the stop A'. The skimmer T is then lowered until its lower edge passes below the scum; the carriage W is then pushed forward, the skimmer being held and kept in position by means of the arm U. On reaching the forward end of the pan M, the forward edge of the skimmer is raised, depositing the scum in the spout P, from which it escapes at the side of the pan.

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

1. The skimmer T and carriage W, constructed and arranged as herein described, in combination with each other, with the pan M and with the supporting frame X, substantially as herein described and for the purpose set forth.
2. Operating the slide-gates J with levers K, constructed and arranged, substantially as herein described and for the purpose set forth.

J. A. McKINNEY.

Witnesses:

J. E. KENNEDY,
WM. H. LAIRD.