

[108.]

Francois M. Brignac's
Improved

— PLAN OF AN OPEN KETTLE EQUIPMENT —

FOR SUGAR MAKING WITH COAL FIRES

Patented Oct. 3, 1871.

No. 119,501.

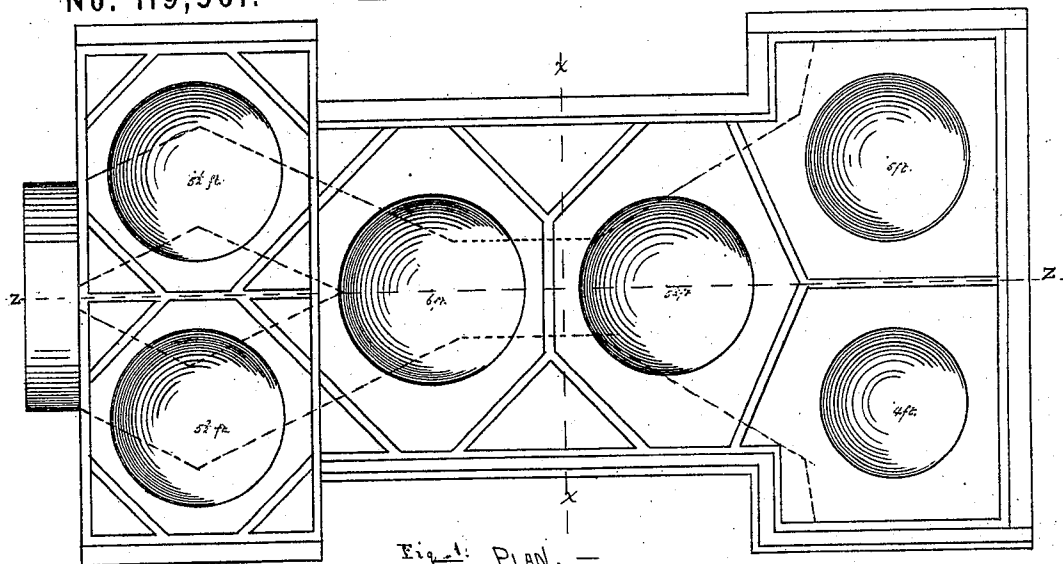


Fig. 1. PLAN. —

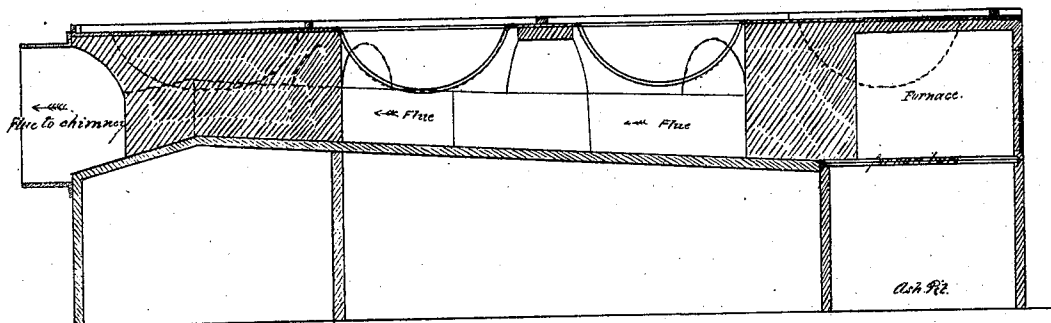


Fig. 2. SECTION THRU Z. Z. —

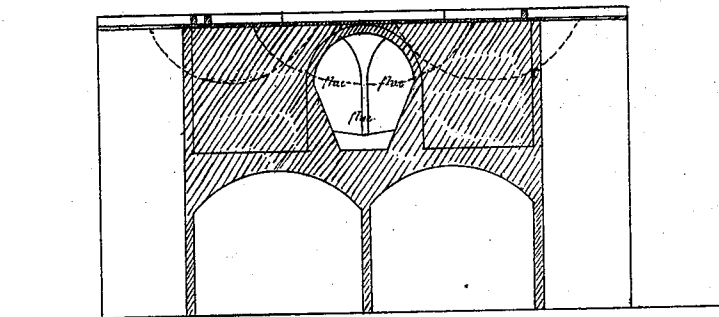


Fig. 3. SECTION THRU X. X. —

— Witnesses —

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UNITED STATES PATENT OFFICE.

FRANCOIS M. BRIGNAC, OF ST. JAMES PARISH, LOUISIANA.

IMPROVEMENT IN SETTING KETTLES FOR EVAPORATING CANE-JUICE, &c.

Specification forming part of Letters Patent No. 119,501, dated October 3, 1871.

To all whom it may concern:

Be it known that I, FRANCOIS M. BRIGNAC, of the parish of St. James and State of Louisiana, have invented certain Improvements in the Mode of Setting Sugar-Kettles for the Evaporation of Cane-Juice by the use of Coal instead of Wood, of which the following is a specification, reference being had to the drawing annexed constituting a part thereof, and in which—

Figure 1 represents a plan view of the arrangement of a set of kettles in accordance with my device. Fig. 2 is a longitudinal vertical section through line *a b*, showing also the peculiar formation of the flues for the conveyance or transmission of the flame or heat generated in the furnaces. Fig. 3 is a transverse vertical section through the line *c d*.

It is a well-known fact to all sugar-planters and those engaged in the production of sugar from cane that wood or dried bagasse is the usual fuel employed to generate the heat required to evaporate cane-juice, and that consequently a peculiar arrangement of the kettles in which the juice is to be boiled is required in order to be suitable for this class of fuel. The usual arrangement of the kettles for the accomplishment of the end in view is so well and so familiarly known that it is unnecessary for my purpose in this connection to describe this arrangement. The special object which I have in view in my invention is, as above stated, to devise a plan of convenient arrangement of the kettles employed in the process of making sugar from cane, by which coal, either bituminous or anthracite, may be economically, effectually, and advantageously used for this purpose. Owing to the scarcity and inefficiency of the labor at present existing in the sugar-producing countries, the cost of procuring wood from the forests and inaccessible swamps, and its transportation to the place of consumption, has become an item of considerable and serious magnitude to the planter engaged in the production of sugar. The difficulties of procuring wood at almost any reasonable price in many of the sugar-producing districts of country have become almost insurmountable; hence the importance not only to the sugar-planter, but to the public generally, of providing a substitute for this class of fuel for cane-juice evaporating purposes; and likewise an arrangement of the kettles in a manner suitable to the adaptation of

this substitute. In nearly all parts of Louisiana where sugar is produced coal is easily and cheaply attainable at all seasons of the year, by reason of the immense facilities afforded for its transportation by water communication from the coal-producing countries lying contiguous to the Mississippi or its tributaries. The same condition with reference to the scarcity of wood, the great difficulties of providing the labor for its supply, or for the preparation of bagasse as a substitute, is likewise equally applicable to the island of Cuba and to most of the West Indies, where sugar is produced; but in nearly all these countries coal is cheap and abundantly attainable, being brought from abroad in the vessels as ballast which visit those countries for sugar freights.

The arrangement of the kettles adapted to the use of coal as a fuel, which constitutes the principal features of my invention, and which distinguishes it from all others with which I am familiar, will be more clearly understood by reference to the drawing annexed, wherein the letters refer to the several and separate parts thereof.

On Fig. 1, *a, b, c, d, e*, and *f* indicate the several kettles constituting a train or equipage, as it is technically called, complete for making sugar by the open-kettle or open-pan process, *a* and *b* being the "grandes," *c*, the "prope," *d*, the "flambeau," *e*, the "syrup," and *f* the "battery" or granulating kettle. *M* and *N* indicate the furnaces, and the dotted lines on the drawing show the location and direction of the flues for the transmission of the heat under the several kettles named above in the order in which they are used in practice. On Fig. 2 will be seen the peculiar outline or form of the flues used in my equipage, the bottom of the flue being quite narrow, and the top widening or flaring to correspond to almost the entire width of the kettles, so that the heat will rise to their under surface and be brought into contact therewith throughout the whole or at least a greater part of the said surface, an advantage of the greatest importance in the economical use of the fuel employed in my device.

It will be perceived, by reference to the peculiar arrangement of the kettles or pans employed in my equipage, that there will be a gradual diminution of the heat from the battery to the

grandes, which is essential in all cases to give the largest yield and the best quality of sugar. It will likewise be perceived that my arrangement of the kettles or pans, and the location of the furnaces at one end of the train or equipage, is well and suitably adapted to the employment of coal as the fuel for the generation of the heat required for the evaporation of the liquor through all its conditions in the sugar-manufacturing process.

Having described my invention, what I desire to secure by Letters Patent is the following:

1. The arrangement of a set of kettles or pans for evaporating cane-juice or any other saccharine liquid in the manner herein described, and for the purpose set forth.

2. The location of furnaces and formation of flues, in combination with the arrangement of kettles, substantially as specified.

F. M. BRIGNAC.

Witnesses:

L. I. OLMSTEAD,
E. H. LEVY.