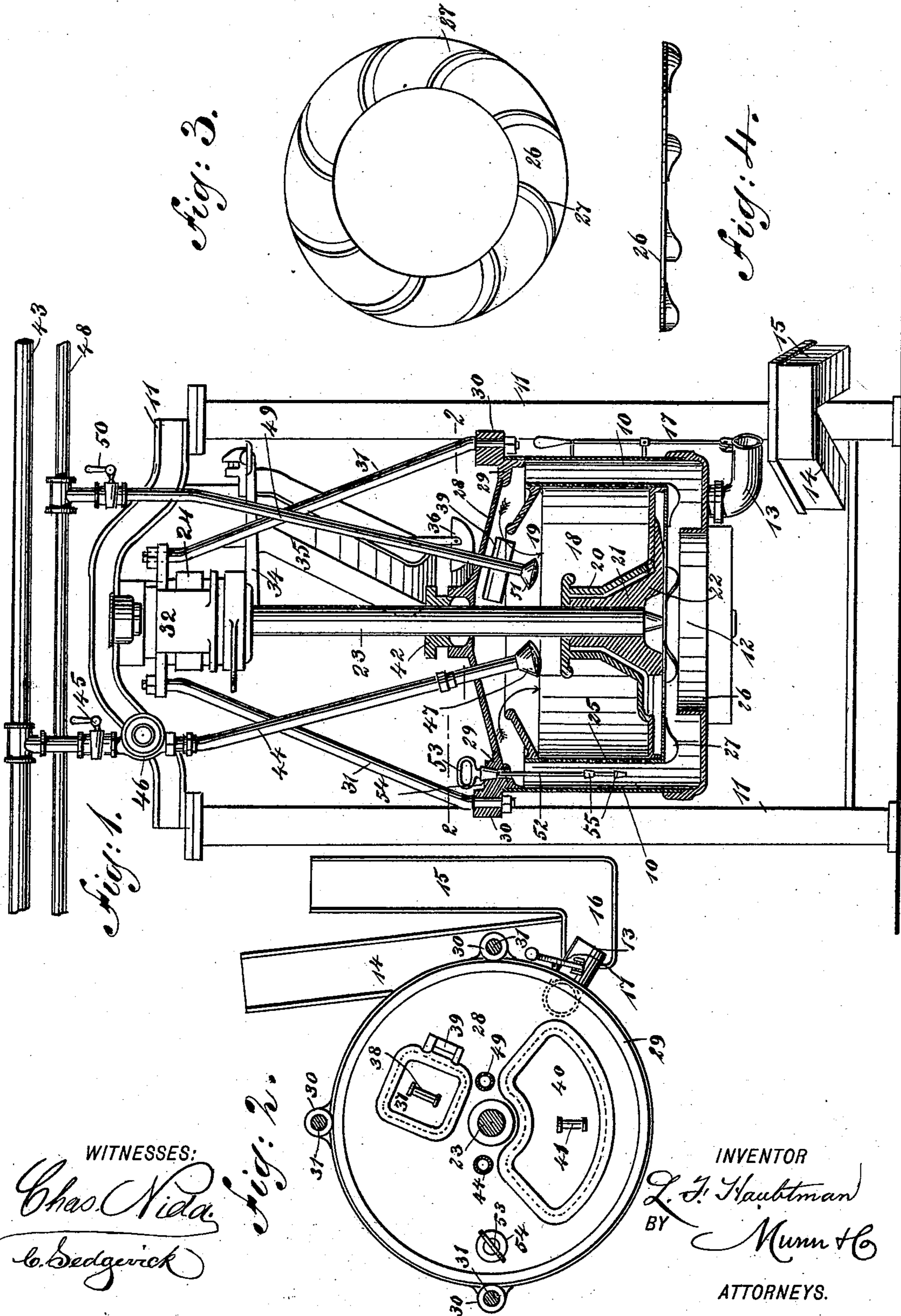


(No Model.)

L. F. HAUBTMAN.
CENTRIFUGAL MACHINE.

No. 506,230.

Patented Oct. 10, 1893.



WITNESSES:

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INVENTOR

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UNITED STATES PATENT OFFICE.

LEON F. HAUBTMAN, OF NEW ORLEANS, ASSIGNOR TO HIMSELF, AND JAMES P. KOCK, OF DONALDSONVILLE, LOUISIANA.

CENTRIFUGAL MACHINE.

SPECIFICATION forming part of Letters Patent No. 506,230, dated October 10, 1893.

Application filed September 26, 1892. Serial No. 446,939. (No model.)

To all whom it may concern:

Be it known that I, LEON F. HAUBTMAN, of New Orleans, in the parish of Orleans and State of Louisiana, have invented a new and Improved Centrifugal Machine, of which the following is a full, clear, and exact description.

My invention relates to improvements in that class of centrifugal machines which are used in the separation of liquids from solids, and especially to such as are used in the manufacture of sugar to separate the liquids from the solids contained in the masse cuite of sugar.

The object of my invention is to improve the construction of centrifugal machines so as to enable them to treat the masse cuite of sugar, coming either direct from the vacuum pan, from sugar wagons, or crystallizing tanks, in a way to separate the moisture in the most approved manner by making use of any saccharine liquid or solution such as glucose, cane juice, sirup or molasses, in connection with dry steam, hot air, or other gaseous bodies, and also to produce an improved apparatus which will do away with the usual defective methods in use for separating the sugar of the masse cuite from the liquor.

To these ends my invention consists in certain features of construction and combinations of parts, as will be hereinafter described and claimed.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar figures of reference indicate corresponding parts in all the views.

Figure 1 is a central vertical section of the centrifugal machine provided with my improved attachments. Fig. 2 is a sectional plan on the line 2—2 in Fig. 1. Fig. 3 is a detail plan of the fan which is attached to the bottom of the revolving basket of the machine; and Fig. 4 is a side elevation of the same.

The machine has the usual outer shell or curb 10, which is stationary and supported in a frame 11, the curb having the usual central annular bottom flange 12 which thus forms an annular channel around the outer bottom portion of the curb. Any usual curb may be used in connection with my improve-

ments, and the curb is provided with a discharge spout 13 forming a feature of my invention, this spout being arranged to deliver into either of the chutes or sluices 14 and 15, and to facilitate this arrangement, the chute 15 has one end bent, as shown at 16, so as to extend beneath the spout or pipe 13. The spout or pipe 13 may be swiveled so as to deliver into either of the chutes, and this is effected by a lever 17 which is fulcrumed on the side of the curb, as shown clearly in Fig. 1, and the lower end of which is pivotally connected with the hose or pipe. By this means molasses may be delivered into one chute and sirup into the other.

Within the shell or curb 10 is the usual revolving basket 18 having the customary top flange 19 and a central hub or sleeve 20, which is carried by the hub 21 of the spider 22, and the latter extends beneath the basket bottom. The hub 21 is secured to a vertically revolving spindle 23 and the latter is suspended in the usual way at the top of the frame 11, and is provided with a driving pulley 24. The basket is perfectly smooth on the outside, so that the free circulation of steam, air, or other gas between the basket and curb is not interfered with. The sides of the basket are perforated, as shown at 25, in the usual way, so as to permit the centrifugal motion of the basket to throw out the gases and liquids through the said perforations.

The basket and its support, as before described, are of common construction, with the exception of the smooth outer sides, and form no part of my invention, but the improvement in the basket which I claim is the bottom fan which is secured to the bottom of the basket, this fan comprising a plate 26 which is cut away in the center and is thus made to turn above the annular channel in the curb bottom, and a plurality of curved blades 27 which are secured to the under side of the plate. When the basket is revolved the fan will blow lightly toward the inside, or inner periphery of the curb, so as not to allow any water, moisture, or steam to escape between the basket and the curb, where it would come in contact with the dry sugar discharging from the basket.

The centrifugal machines of the class described are usually open at the top, but my improved machine has a detachable metallic top 28 which is provided with a flange 29 at its outer edge, this flange being securely fastened to the curb 10 at the top. The top 28 is also provided on the edges with sockets 30 which receive the lower ends of the suspending arms 31, and the latter extend upward and inward in the usual manner and are carried by a yoke or support 32 which is journaled loosely at the top of the spindle 23 in the ordinary way, this support carrying also a supporting arm 34 to which the spout 35 is attached, the latter spout being used when the machine is used in the manufacture of sugar. The arrangement of the sugar spout and support is not shown or described in detail, as it forms no part of my invention. The sugar spout has a delivery bucket 36 at the bottom which is adapted to deliver into the basket as described below.

The top 28 has on one side an opening closed by a removable cover 37 which has a handle 38 to facilitate its removal; and in this opening is an apron or spout 39 which delivers into the basket 18 and is adapted to receive sugar from the bucket 36. On the opposite side of the top 28 is another larger opening closed by a detachable cover 40 having a handle 41, and this enables the operator to see the charge in the machine and also enables him to open the bottom discharge valve to discharge the sugar after the same has been freed from moisture. The discharge valve is of the usual kind, and is operated in the usual manner by turning the sleeve 20 and false bottom of the basket until the holes in said false bottom register with the holes in the true bottom. This construction is not shown in detail, as it forms no part of my invention.

The top 28 has a stuffing box 42 in the center in which the spindle or shaft 23 turns, and this enables the top to be made steam and air tight.

The machines are usually constructed in series and a sirup pipe 43 extends above the machine, this pipe having, at a point above each machine, a branch pipe 44, (see Fig. 1,) which is controlled by a cock 45 and provided with a meter 46. The meter enables the operator to ascertain just how much liquid is being delivered to the machine.

The pipe 44 extends through the top 28 and delivers into the basket 18 through a spreading nozzle 47. A pipe 48 adapted to convey steam, hot air, or other suitable gas under pressure, also extends above the machine and this connects by a branch pipe 49 with the machine, the latter pipe extending through the top 28 and having a controlling cock 50 and a spreading nozzle 51, which delivers into the basket. The spreading nozzles 47 and 51 cause the steam or air and the sirup to be

finely divided and intermingled so that separation takes place rapidly. The nozzles also serve to strain the liquid and steam and prevent any impurities from being forced into the basket.

Near one edge of the top 28 and extending downward through it, is a proving stick 52, which has a handle 53 at the top and which has a ground joint 54 which enables it to fit air tight on the top. This stick has cups 55 upon it, and while the machine is in operation the operator may occasionally examine the stick carrying the cups 55 so as to determine what class of liquor is coming out of the masse cuite.

When the machine is operated, the steam, or other gas, and the sirup are delivered into the basket through their respective nozzles, and the revolution of the basket causes the liquid to be thrown out through the perforations of the basket, and the dry sugar is retained. The liquid is drawn off through the swivel pipe 13, and the lighter liquid may be turned into one spout and the heavier in another, by means of the lever 17.

When the machine is used in sugar manufacture, the sugar is introduced through the spouts 35 and 39 to the revolving basket, and when the basket has its suitable charge, both the openings in the top of the machine are closed by the covers 37 and 40. The liquid contained in the masse cuite proper is discharged by the swivel spout or pipe 13 as described, into either one of the chutes 14 or 15 and can thus be kept separated from the balance of the liquids resulting from the washing of the masse cuite.

The operation for separating the liquids from the masse cuite by either using cane juice, sirup, glucose, molasses, steam or air, or any gas, can be carefully watched and controlled by the proving stick 52, and by its use the operator can easily determine in what condition are the solids operated upon, according to the liquors and quantity of moisture resulting during the operation.

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

In a sugar-drying apparatus, the combination, with a fixed curb having a central opening in the bottom, which opening is surrounded by a receiving trough, of the basket suspended within said curve and adapted to revolve on its support as specified, and having a series of curved fan blades applied to its bottom as shown and described, whereby when the basket revolves an air current is created which prevents access of moisture to the dry sugar, as set forth.

LEON F. HAUBTMAN.

Witnesses:

EDGAR THOMAS, Jr.,
E. A. DECKBAR.

Correction in Letters Patent No. 506,230.

It is hereby certified that in Letters Patent No. 506,230, granted October 10, 1893, upon the application of Leon F. Hauptman, of New Orleans, Louisiana, for an improvement in "Centrifugal Machines," an error appears in the printed specification requiring the following correction, viz: In line 118, page 2, the word "curve" should read *curb*; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed, countersigned, and sealed this 3d day of July, A. D. 1894.

[SEAL.]

JNO. M. REYNOLDS,
Assistant Secretary of the Interior.

Countersigned:

JOHN S. SEYMOUR,
Commissioner of Patents.