F. F. VEGA & R. ABARCA.

CONDENSER.

APPLICATION FILED DEC. 29, 1915.

1,195,752. Patented Aug. 22, 1916.

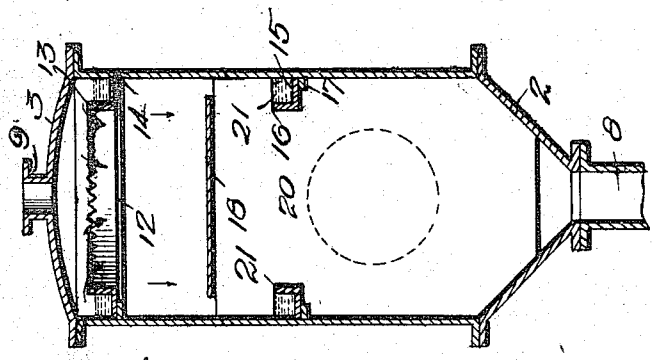

FIG. 2.

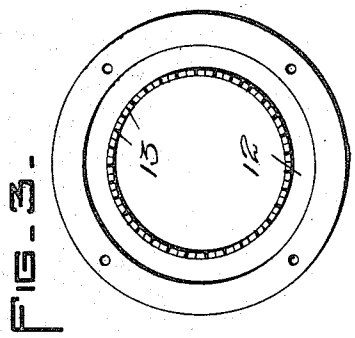

FIG. 3.

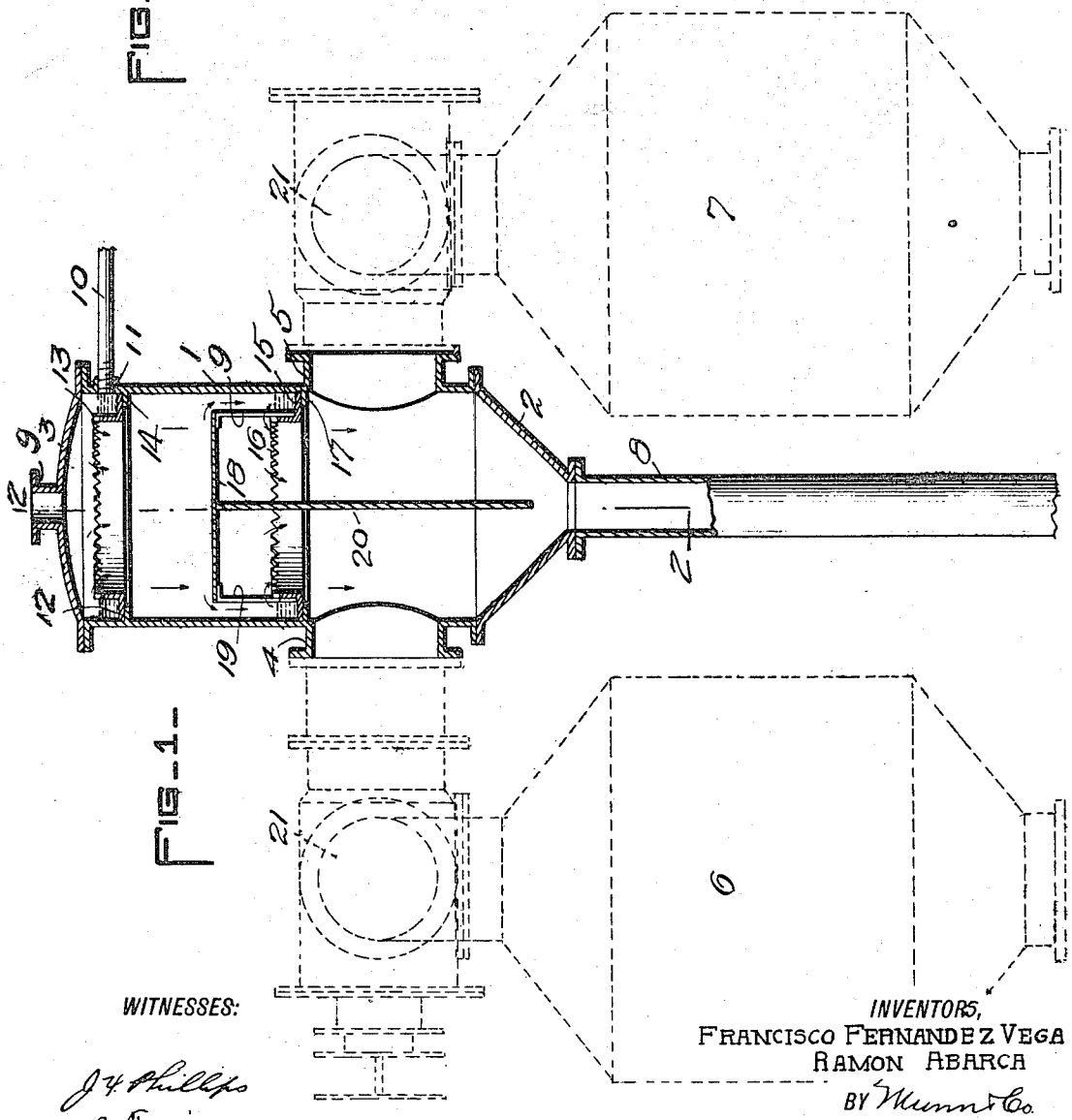

FIG. 1.

WITNESSES:

J. F. Phillips

C. E. Trainer

INVENTORS,

FRANCISCO FERNANDEZ VEGA

RAMON ABARCA

BY Munn & Co.

ATTORNEYS

UNITED STATES PATENT OFFICE.

FRANCISCO FERNANDEZ VEGA AND RAMON ABARCA, OF SAN JUAN, PORTO RICO.

CONDENSER.

1,195,752. Specification of Letters Patent. Patented Aug. 22, 1916.

Application filed December 29, 1915. Serial No. 69,185.

To all whom it may concern:

Be it known that we, FRANCISCO FERNANDEZ VEGA, a subject of the King of Spain, and RAMON ABARCA, a citizen of Porto Rico, residents of San Juan, in the Department of Bayamon, Porto Rico, have invented a new and useful Improvement in Condensers, of which the following is a specification.

Our invention is an improvement in condensers, and the invention has for its object to provide mechanism in connection with the central condenser used in dry systems of vacuum pans for granulating sugar for preventing the vapors from interfering with the independent action of the several pans.

In the drawings:—Figure 1 is a side view of the system with the condenser in section, Fig. 2 is a section on the line 2—2 of Fig. 1, and Fig. 3 is a top plan view of the condenser with the cover removed.

In the present embodiment of the invention, the condenser comprises a shell 1 of substantially cylindrical form having a hopper bottom 2 and a cover 3, and the shell is provided with oppositely arranged inlet nipples 4 and 5, respectively, for connection with the pans 6 and 7. The discharge pipe 8 is connected with the lower end of the hopper bottom, the said bottom having an outlet as shown, communicating with the discharge pipe.

The cover 3 is provided with a nipple 9 at its center for connection with an air or vacuum pump of the usual construction, and the shell is provided at its top and near the cover with an inlet pipe 10, the said pipe being threaded into a nipple 11 in the wall of the shell.

The pipe 10 leads from a suitable source of water supply for supplying water to the trough 12, which is arranged at the level of the pipe, and encircles the shell within the same. The inner wall 13 of this trough is toothed or jagged as shown at its upper end, and the trough is supported by an internal rib 14 on the shell wall, the said rib extending inwardly below the bottom of the trough.

A second distributing trough is arranged at the level of the tops of the inlet nipples 4 and 5, the said trough comprising a bottom 15 and an inner toothed wall 16, and the trough rests upon an internal annular rib 17 on the shell wall.

A plate 18 is supported between the troughs, the plate having a diameter a little greater than the internal opening within the troughs. That is, the plate 18 is of such size that when supported at the axis of the shell, the edge of the plate will extend a little beyond the walls 13 and 16 of the troughs, and will prevent the water flowing over the inner wall 13 of the trough 12—13 from falling directly downward through the shell, and will deflect this water radially outward, so that it will fall into the trough 15—16. This plate 18 is supported by bracket arms 19, extending upwardly from the inner wall 16 of the lower trough. The water flowing from the inlet pipe will enter the trough 12—13 and will pass over the toothed or jagged edge of the inner wall of the trough and will fall in a cylindrical formation on to the upper surface of the plate 18. The water will be deflected outwardly and will fall into the trough 15—16. From this trough the water will pass inward over the toothed or jagged upper edge of the inner wall 16 of the lower trough, and will fall in cylindrical formation through the lower part of the shell past the inlet nipples 4 and 5, and will strike the hopper bottom and will be deflected inwardly to flow downward through the discharge pipe 8.

A baffle plate 20 is arranged diametrically of the shell below the plate 18, the said plate 20 extending the full diameter of the opening of the shell 1, and from the under surface of the plate 18 to near the lower end of the hopper bottom. The plate thus extends between the nipples 4 and 5, so that the vapors flowing in the condenser from either pan 6 or 7, cannot pass to the other pan to delay the formation of the grain, that is, to delay granulation in the said other pan.

As the vapor arises from either pan it will pass upward through the valve 21, which connects the pan with the nipple 4 or 5, as the case may be, and will pass through the nipple into the condenser. This vapor will strike the baffle plate, and will be deflected downwardly through the discharge pipe. The water falling from the troughs 12—13 and 15—16 will condense the vapor, and will drive it down with the falling water through the discharge pipe.

By arranging the baffle plate 20 as shown, the time required in granulating a charge of syrup is much reduced, thereby greatly increasing the capacity of the pan. The im-

provement also eliminates the necessity for stopping the mills, because of the excessive quantity of juice for which sufficient storage has not been provided.

The improvement also increases the capacity of the triple effects by permitting the pans to receive the syrup at a lower degree of density. It also increases the yield by permitting a larger quantity of water to be used in the mills to wash or macerate the bagasse, because of the greater capacity of the evaporating apparatus.

It will be evident that while the invention is more especially adapted for the vacuum pans used in the sugar industry, it is also applicable to any system, using two or more vacuum pans for boiling under pressure below atmospheric.

It will be evident from an inspection of Fig. 2 of the drawing, that the baffle plate 20 extends the full diameter of the condenser casing, and the edges of the baffle plate are notched as indicated at 21, to receive the troughs 15—16. The lower end of the baffle plate is beveled at each corner to fit the hopper bottom 2 and the baffle plate terminates just above the opening of the bottom.

We claim:—

1. In a vacuum evaporating system and in combination, a plurality of vacuum pans, a condenser having a body portion provided with inlets near its bottom and on opposite sides to which the vacuum pans are connected, a discharge outlet at its lower end, an outlet nipple at its top for connection with the vacuum pump and having a plurality of water troughs one near the top and one above the inlet nipples, and a baffle plate supported above the lowermost trough and between the same and the uppermost trough for deflecting the falling water from the upper trough into the lower trough, and a second baffle plate depending from the first-named plate between the inlets for preventing the vapor from either pan passing directly into the other pan.

2. In a vacuum evaporating system and in combination, a plurality of vacuum pans, a condenser having inlets near its bottom to which the pans are connected, and a baffle plate supported between the inlets for preventing the passage of the vapor from either pan directly to the other pan.

3. In a vacuum evaporating system and in combination, a plurality of vacuum pans, a condenser having inlets to which the pans are connected, and a baffle plate within the condenser and between the inlets to prevent the vapor from either pan passing directly into the other pan.

FRACO. FERNANDEZ VEGA.
RAMON ABARCA.

Witnesses:
VICTOR R. BALL,
GERÓNIMO CARRCRAS.