T. Sim,

Extracting Oil.

No. 112,389. Patented Mar. 7. 1871.

FIG. 1

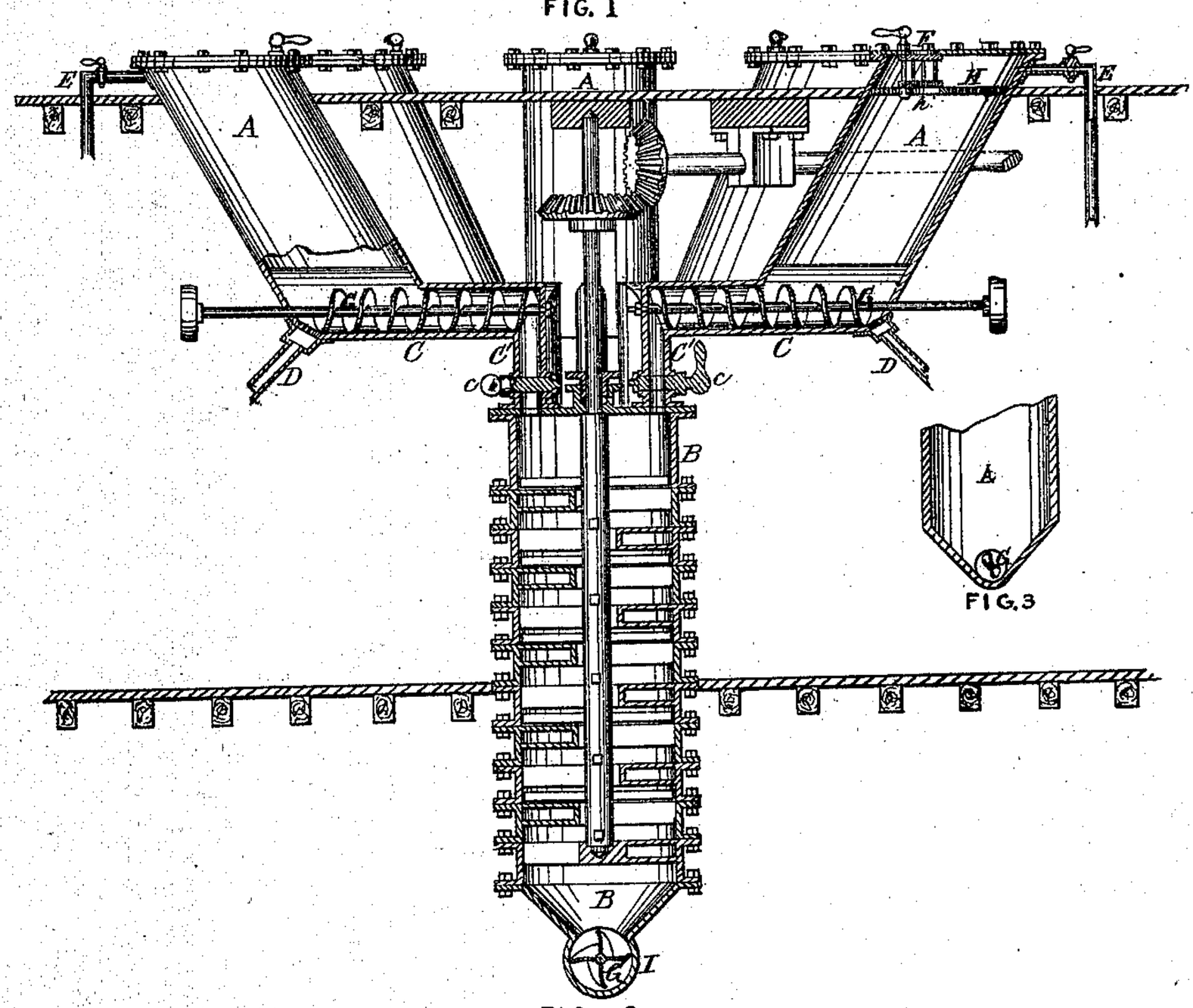
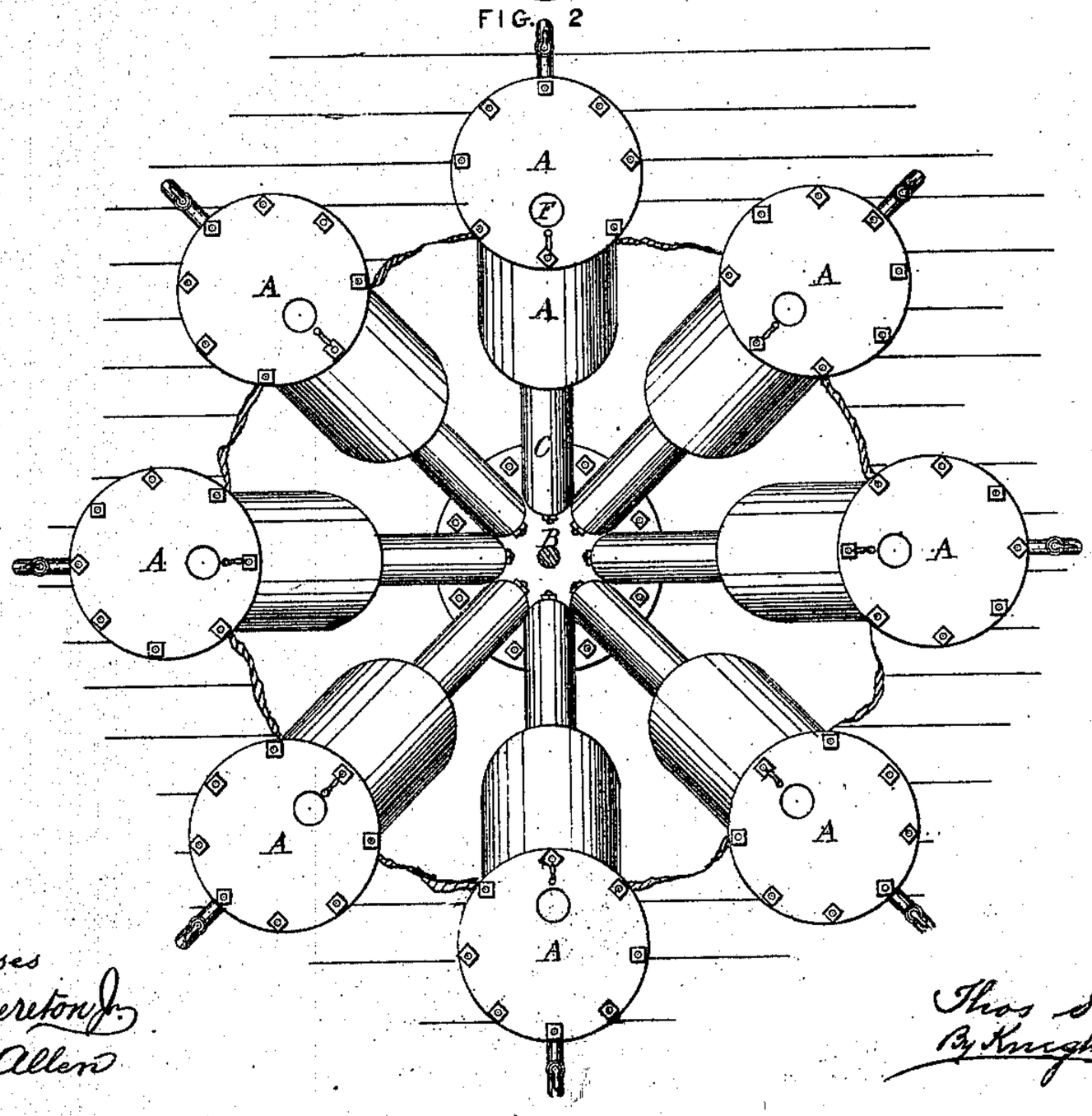


FIG. 3

FIG. 2



Witnesses
Wm. H. Brereton Jr.
Walter Allen

Thos Sims M.D.
By Knight Bros Attys

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

THOMAS SIM, OF BALTIMORE, MARYLAND.

IMPROVEMENT IN APPARATUS FOR REMOVING OIL FROM VEGETABLE AND OTHER MATTERS.

Specification forming part of Letters Patent No. **112,389,** dated March 7, 1871.

I, THOMAS SIM, of the city and county of Baltimore, Maryland, have invented an Improved Apparatus for Removing Oil from Vegetable and other Matter, of which the following is a specification:

Nature and Objects of the Invention.

My invention relates to an apparatus in which a series of inclined vats is employed in connection with a single evaporating apparatus.

It is found by experiment that bisulphide of carbon penetrates the meal, and that the combined chemical and oil flow off with greater freedom in inclined vats than in vertical ones. By inclining the vats the meal is also caused to descend freely to their bottoms in the act of discharging without liability of caking or adhering on their sides.

A third advantage of this arrangement is that it affords greater room around the tops of the vats for feeding the same, while their lower ends are brought in closer proximity to the separator.

The vats are arranged around the upper surface of the evaporating-tank and supported in any suitable manner, so that their charges, after being freed from oil, may be successively introduced into said evaporating-tank and the vat refilled with meal.

Description of the Accompanying Drawing.

Figure 1 is a central vertical section (partly in elevation) of the apparatus, the screw-conveyer, as shown, being larger than is employed in practice. Fig. 2 is a top view, a portion of the upper floor for sustaining the vats being removed. Fig. 3 is a vertical section of a vat on a line transverse to Fig. 1.

General Description.

A A, &c., are a series of vats, having their front and rear sides inclined downwardly toward the evaporating-tank B, and having cylindrical discharge-pipes C, provided with valves or faucets *c*, which empty into the tank B through orifices in the head thereof.

I prefer to employ eight of these vats of equal size, having a total interior capacity equal to about three times that of the tank B—that is, in case the tank be twelve feet high and four feet in diameter, each vat would be about eight feet high and three feet in diameter, though these relative proportions are not essential. Each of the vats A has a pipe, D, near its base, for the admission and withdrawal of the liquid bisulphide, the orifice being provided with a diaphragm and a pipe, E, near the top, for the discharge of the mingled oil and chemical, the exit of the meal therewith being prevented by a diaphragm, H, near the top of the vat, but below the discharge-pipe E. This diaphragm is supported in position in any proper manner, and has an aperture, *h*, covered with a meshed cover, so arranged as to be opened and closed simultaneously with the disk which closes the feed-aperture F in the top of the vat, through which meal is introduced. Each vat has also at bottom, extending through the tube C, and nearly corresponding thereto in diameter, so as to revolve freely, a widely-flanged endless screw, G, journaled and rotated in any convenient manner.

A screw of three inches in diameter will suffice to discharge a vat of the dimensions named above.

The descending branch C′ of the tube C is provided with a faucet, *c*, by turning which the meal is permitted to pass into the tank under the impulsion of the screw G.

The evaporating-tank B may be similar to that described in patent to E. S. Hutchinson of July 26, 1870, in which steam is introduced, through pipes on one side of the tank, within a series of hollow shelves or ledges, and discharged, after condensation, at the other side, while the meal is passed between the shelves and gradually forced downward by a series of arms rotated by a geared shaft.

I do not claim this form of vaporizing-tank as my invention, nor do I confine myself thereto in practice, as my vats may be adapted to other descriptions of tanks.

Operation.

The vats A are successively filled with meal, and the liquid bisulphide of carbon, or equivalent, admitted thereto, permeating it, and finally flowing off at top through the pipe E. When it is found, by the bisulphide flowing off clear, that the oil is thoroughly extracted from the meal in the vat where the operation

was first commenced, the supply of liquid is cut off and the meal drained. The faucet *c* of the tube C is then turned and the screw G revolved, so as to rapidly withdraw the partially-dry meal from the vat, allowing it to fall into the heated tank B, where, during its downward passage to the discharge-aperture I, the bisulphide is vaporized, escaping through a pipe near the top of the tank and being conducted to a chamber, where it is recondensed for future use.

It may be proper to remark that the whole of the meal is not withdrawn from each vat at each operation. That part which was at the top of the charge having become clotted or caked is allowed to remain, and is disintegrated by the ascending current of liquid which is admitted when the vat is charged anew. It is then withdrawn with this next charge, a new cake being formed on top, as before.

Claims.

I claim as my invention—

1. The inclined vats A A, &c., constructed, arranged, and operating substantially as and for the purpose specified.

2. The combination and arrangement of a series of inclined vats, as herein described, with an evaporating-cylinder, substantially as and for the purposes set forth.

THOS. SIM.

Witnesses:

OCTAVIUS KNIGHT,

WM. H. BRERETON, Jr.