

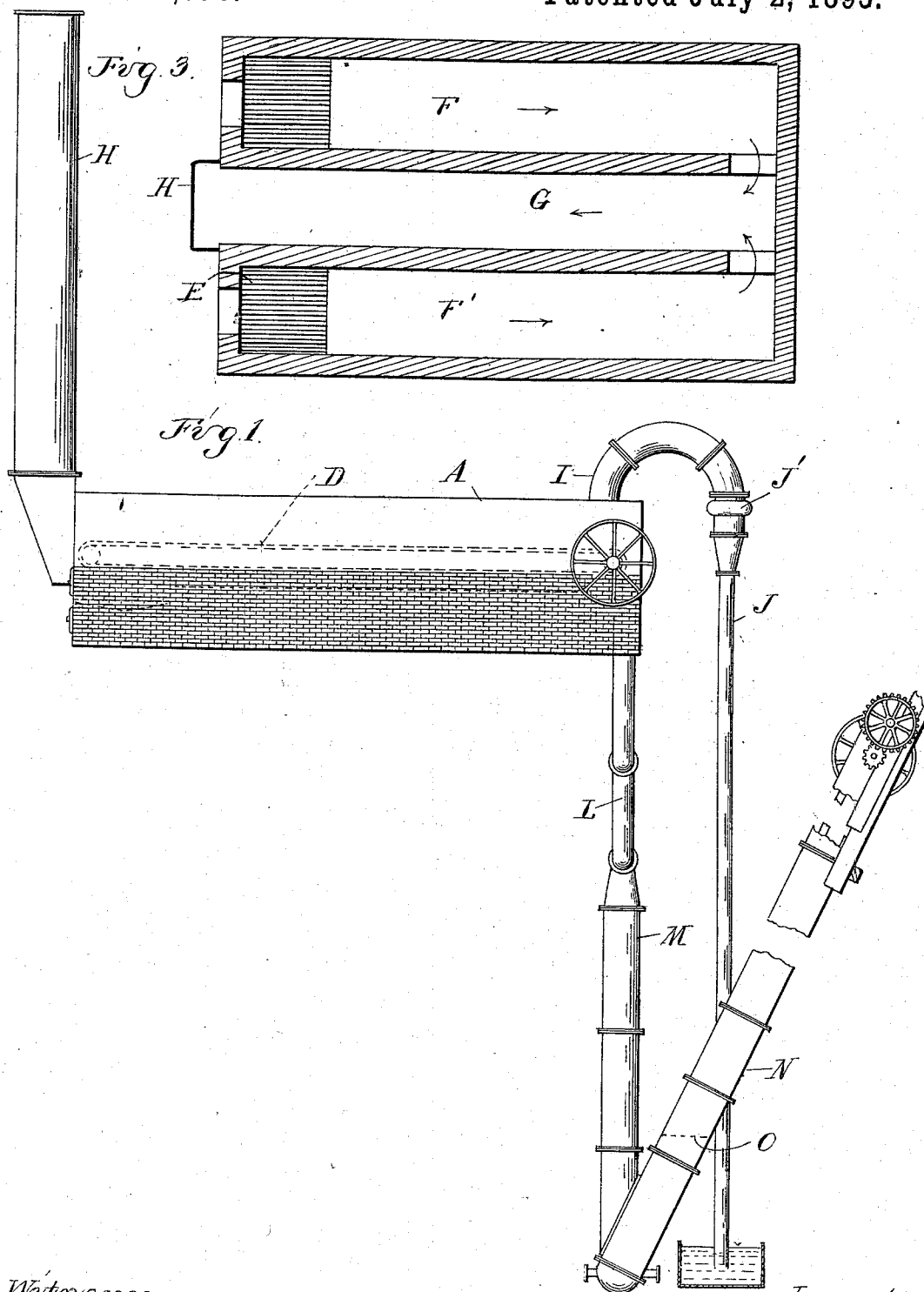
(No Model.)

2 Sheets—Sheet 1.

T. CRANEY.
EVAPORATING APPARATUS.

No. 542,078.

Patented July 2, 1895.



Witnesses
A. L. Kabbey
L. J. Whittaker

Inventor
Thomas Craney
By Mr. J. S. Maguire
Attys.

(No Model.)

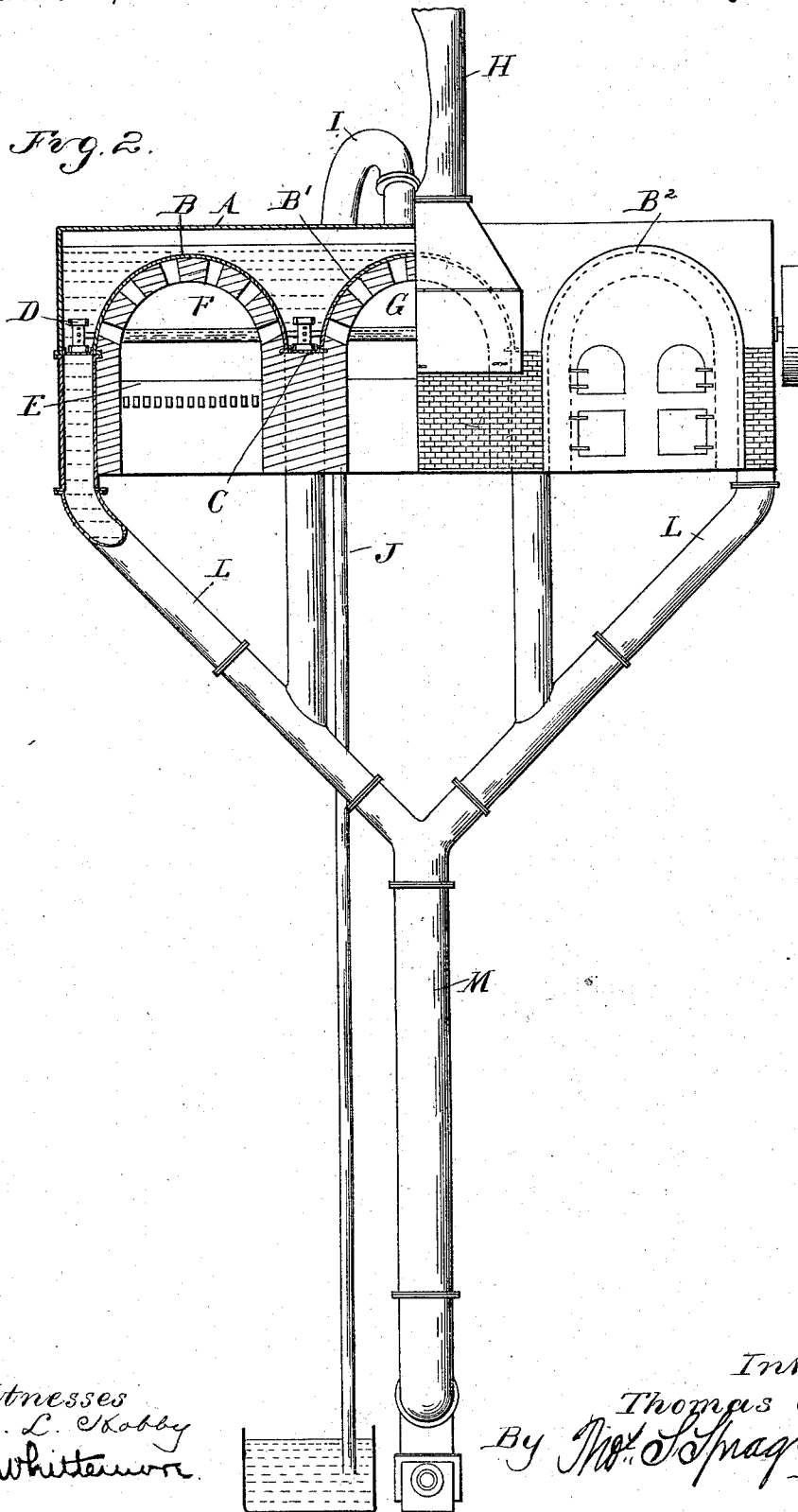
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Fig. 2.



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UNITED STATES PATENT OFFICE.

THOMAS CRANEY, OF BAY CITY, MICHIGAN.

EVAPORATING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 542,078, dated July 2, 1895.

Application filed January 22, 1895. Serial No. 535,794. (No model.)

To all whom it may concern:

Be it known that I, THOMAS CRANEY, a citizen of the United States, residing at Bay City, in the county of Bay and State of Michigan, have invented certain new and useful Improvements in Evaporating Apparatus, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention consists in the peculiar construction of horizontal furnace evaporating-pans especially designed to be placed in the upper part of a building where the floor-space is of not so much importance, and having depending settling-legs therefrom of sufficient length to enable me to maintain a vacuum on the pans and obtain the best efficiency in economy, all as more fully hereinafter described.

In the drawings, Figure 1 is a side elevation of my apparatus. Fig. 2 is a front elevation thereof, partly in section. Fig. 3 is a horizontal section through the furnaces.

As above stated, horizontal evaporating-pans such as I have herein shown are desirable for many reasons—economy of construction, simplicity, ease of repairs, &c. As heretofore constructed, however, they have not been adapted for vacuum-pans, they having usually been built as open pans with steam-coils therein. By my invention I am enabled to use them as vacuum-pans and yet collect the salt as it is formed and remove it, thus making a continuous operation of it with the best kind of economy.

A is an evaporating-pan, the bottom of which comprises the arches B B' B² and the intermediate horizontal portions C, at each side of each arch. On these horizontal sections are the conveyers D for carrying the salt as it forms and settles in the spaces between the arches to the rear end of the pan. At the forward end of the two outside arches are furnaces E, and beneath the arches B and B² are formed the flues F F', which at the rear end connect into the rear end of the central flue G, which is beneath the central arch, the central flue at its forward end being provided with a smoke-stack H, so that the products of

combustion pass down the two side flues and return through the middle flue, heating the brine in the tank above to effect evaporation. This construction, substantially as herein described, I have made the subject of a concurrently-pending application, Serial No. 532,167, and I do not herein claim the same.

I is a vapor-exit pipe from the pan A. This connects into the vertical discharge-pipe J, in the top of which is a condenser J', the water from which passing down through the pipe J, which is sealed at the bottom in a suitable tank, produces the necessary vacuum in the pan.

At the rear end of the pan, at the discharge end of the conveyers D, are the settling-legs L. These legs L, I have shown, and prefer to construct, as in Fig. 2, connected together into a common leg M. At the bottom of the leg M is a closed elevator-tank N, which extends up above the height of the fluid in the tank. The length of these settling-legs is sufficient to enable me to produce the necessary vacuum in the pan without drawing the water down to the bottom of the elevator-casing N, so as to seal the lower end of the leg M, the water-level being, say, at the dotted line shown at O in Fig. 1.

If desired, each of the legs L may extend down the desired distance and have an elevator at the foot; but the construction I prefer is that shown in the drawings, in which the legs L connect into a common leg M.

What I claim as my invention is—

1. In an evaporating apparatus, the combination with a furnace and the evaporating pan, of depending settling legs from the pan, a foot common to all the legs, a conveyer at the lower end of the foot, a casing for the conveyer, and means for conveying the crystalline deposit from the pan to the legs, substantially as described.

2. In an evaporating apparatus, the combination of the horizontal furnace evaporating pan, conveyers adapted to deliver the precipitate at one end thereof, a depending settling leg into which the conveyer discharges, a conveyer casing at the foot of the leg and a conveyer therein, substantially as described.

3. In an evaporating apparatus, the combination of an evaporating pan, a series of arches in the bottom thereof, horizontal troughs between the arches, a series of conveyers in the
5 troughs delivering to the rear of the pan, a depending settling leg at the end of each conveyer, a common foot for all the settling legs, a conveyer casing leading above the level in

the pan and a conveyer in the casing, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

THOMAS CRANEY.

Witnesses:

M. B. O'DOGHERTY,
JAMES WHITEMORE.