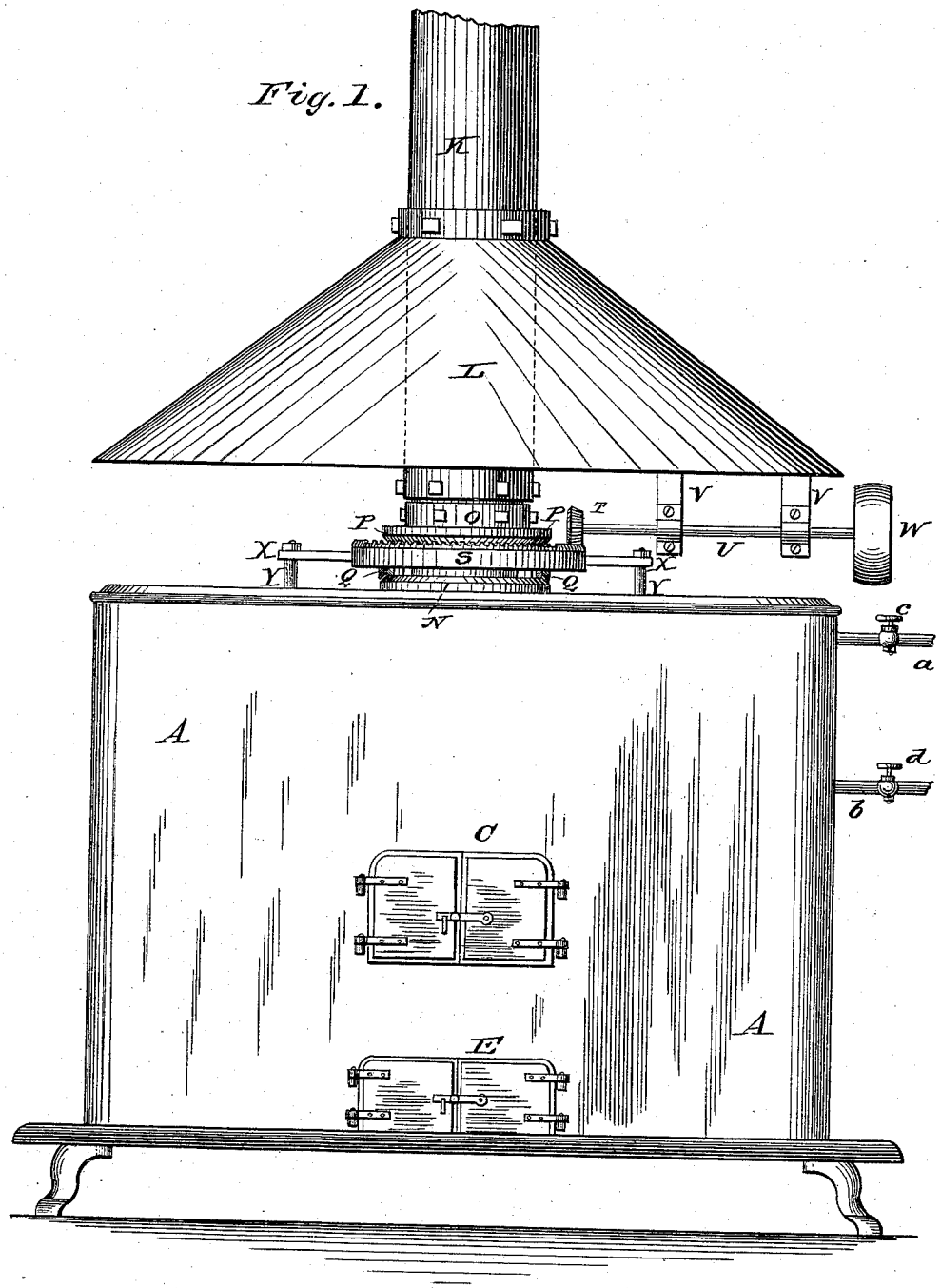
(No Model.) 2 Sheets—Sheet 1.

J. J. JOHNSTON.

APPARATUS FOR THE MANUFACTURE OF SOAP.

No. 265,095. Patented Sept. 26, 1882.

Fig. 1.



WITNESSES:

Fred. L. Dieterich

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(No Model.) 2 Sheets—Sheet 2.

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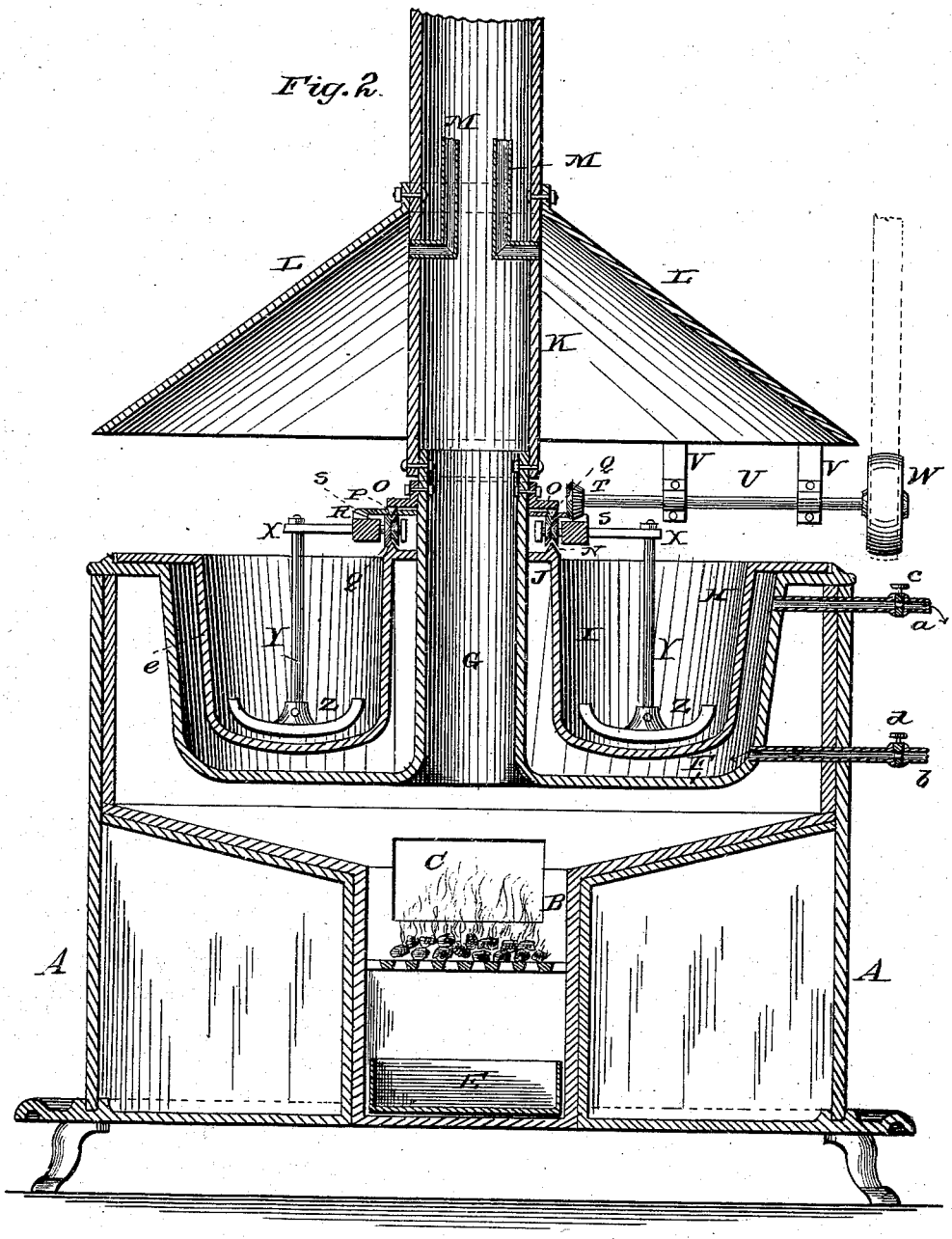
Fig. 2.



WITNESSES:

Fred. L. Dieterich.

P. C. Dieterich.

INVENTOR.

James J. Johnston

UNITED STATES PATENT OFFICE.

JAMES J. JOHNSTON, OF COLUMBIANA, OHIO, ASSIGNOR TO THE UNITED STATES IMPROVEMENT COMPANY, (LIMITED,) OF SAME PLACE.

APPARATUS FOR THE MANUFACTURE OF SOAP.

SPECIFICATION forming part of Letters Patent No. 265,095, dated September 26, 1882.

Application filed February 25, 1882. (No model.)

To all whom it may concern:

Be it known that I, JAMES J. JOHNSTON, of Columbiana, in the county of Columbiana and State of Ohio, have invented a certain new and useful Improvement in Apparatus for the Manufacture of Soap; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My invention relates to an improvement in soap and its manufacture; and it consists in making a hard soap for the washing of clothes and for general household purposes by the use of tallow, rosin, lime, soda, ashes, borax, and camphor, treated and combined in the apparatus hereinafter described, my said invention consisting of two parts: first, of the apparatus for boiling, mixing, and combining said ingredients in the making of said soap; and, second, in the soap or compound which constitutes the soap. The said two parts of my invention I make the subject-matter of two applications for Letters Patent, and designate said applications as "Division A" and "Division B."

To enable others skilled in the art with which my invention is most nearly connected to make and use it, I will proceed to describe the construction and operation of the apparatus which forms the first part of my invention.

In the accompanying drawings, which form part of this specification, Figure 1 is a side elevation of the apparatus I employ in the manufacture of my improvement in soap. Fig. 2 is a vertical section of the same.

In the accompanying drawings, A represents the furnace, which is provided with a fire-chamber, B, having fire-door C, grate D, and ash-pan E. Over the fire-chamber B, upon the upper edge of the walls, is suspended a caldron, F, having a flue, G, projecting up through the center thereof. Within this caldron F is suspended another caldron, H, of similar construction, excepting that its tubular center I has an inward projecting flange, J. Above the caldron H, and around the flue or pipe K, (which is a continuation of the flue G,) is a canopy, L, constructed of sheet metal, and secured to the flue or pipe K, and communicates therewith by L-shaped tubes or flues M. On the flange J of the tubular center I is a circular rail, N, and above it, on a flange, *o*, secured to flue G, is another circular rail, P, and between these two rails are grooved carrying-rollers Q, pivoted in a wheel, R, having gear-teeth S, into which mesh the teeth of a wheel, T, on a shaft, U, journaled in hangers V, and on the outer end of said shaft is a driving-pulley, W. From the periphery of the wheel R project arms X, to which are attached mixing and stirring arms Y, having on their lower ends curved arms, Z. The caldron F is provided with a supply-pipe, *a*, for water, and draw-off pipe *b*, said pipes having each a valve, as indicated at *c* and *d*.

The furnace and the several parts connected therewith are constructed of cast-iron, except the canopy L, shaft U, arms Y, and ash-pan E, which are constructed of wrought-iron, the lining of the furnace being fire-brick.

From the foregoing description and reference to the accompanying drawings the skillful mechanic will readily understand the construction of the apparatus. I will therefore proceed to describe its operation, which is as follows: The caldron F being filled with water up to about the dotted line *e*, fire is kindled in the fire-chamber B on grate D. Then the ingredients hereinbefore mentioned, in the quantities prepared and treated as set forth in Division B, are charged in the caldron H in the order therein stated. Power being applied to the driving-pulley W, it will revolve the shaft U and wheel T, which will revolve the wheel R, which will cause the arms Y and Z to sweep around in the caldron H, and thereby thoroughly stir, mix, and combine the ingredients as they are charged into the said caldron. When it becomes necessary to cool the compound in the caldron H the valves *c* and *d* are opened, thereby allowing cold water to flow into the caldron F through pipe *a* and hot water to flow from it through pipe *b*. This charging of cold and drawing off of hot water will gradually cool said caldron H and its contents. By the herein-described arrangement of the caldrons F and H the liability to burn the ingredients charged into the caldron H will be avoided. The vapors evolved from the ingre-

dients in caldron H will be carried off through the medium of the canopy L, tubes or flues M, and pipe or flue K.

The advantages due to the peculiar construction and arrangement of the apparatus, as to economy of fuel, utilization of heat, facility for gradual cooling, carrying off the vapors evolved, the convenience resulting from the arrangement of the caldrons, efficiency of the stirring and mixing mechanism, and the compactness of the apparatus as a whole, will be apparent to the skillful soap-maker without further description.

Having thus described the first part of my invention, what I claim is—

1. The combination of the furnace A, caldrons F H, having tubular centers G I, circular rails N P, wheel R, having carrier-rollers Q and arms X Y Z, and a driving mechanism, substantially as herein described, and for the purpose set forth.

2. The combination of the caldrons F H, having tubular centers G I, flue K, having pipes M, and canopy L, substantially as herein described, and for the purpose set forth.

3. The combination of the caldron F, having center flue, G, pipes *a b*, caldron H, having tubular center I, flue K, having pipes M, and canopy L, substantially as herein described, and for the purpose set forth.

JAMES J. JOHNSTON.

Witnesses:
T. D. D. OURAND,
D. P. COWL.