(No Model.)

2 Sheets—Sheet 1.

J. WILSON.

APPARATUS FOR DISTILLING WOOD.

No. 375,908. Patented Jan. 3, 1888.

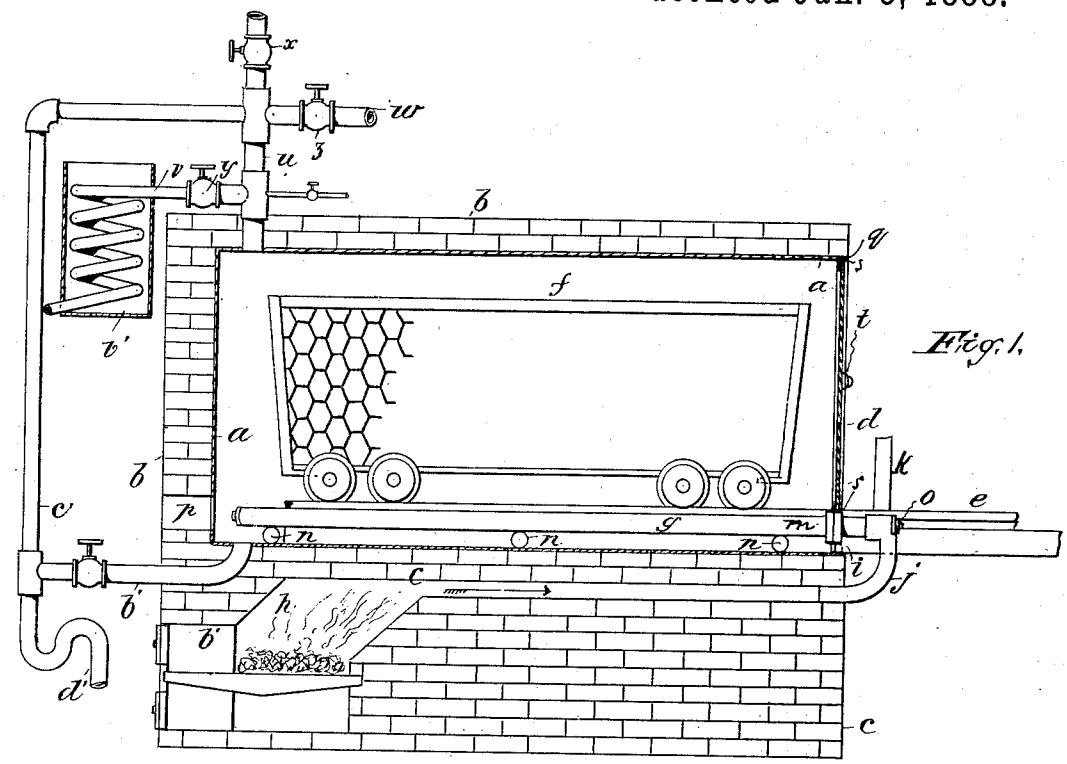


Fig. 1.

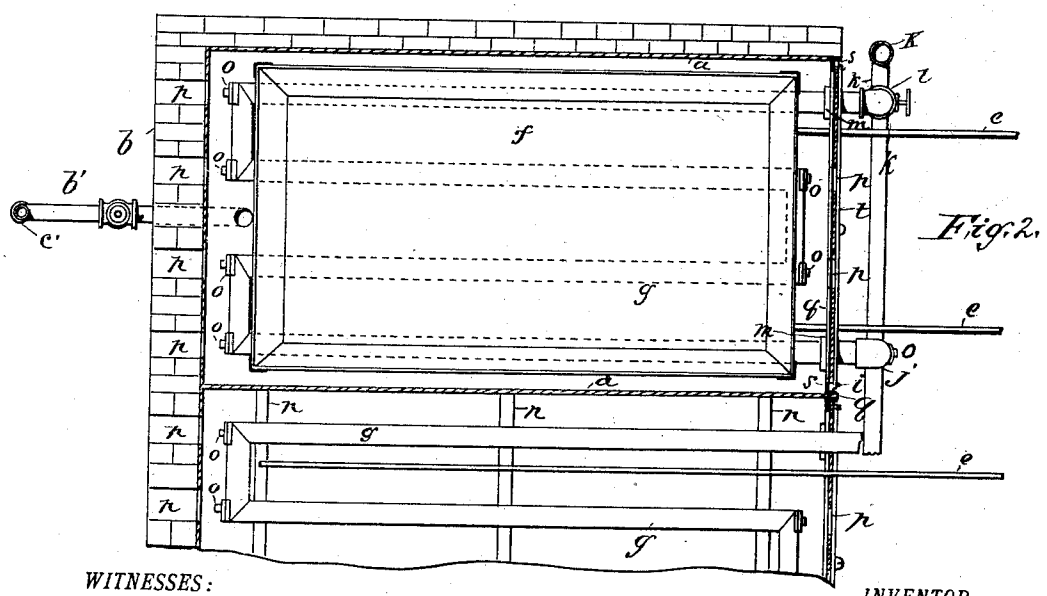


Fig. 2.

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(No Model.) 2 Sheets—Sheet 2.

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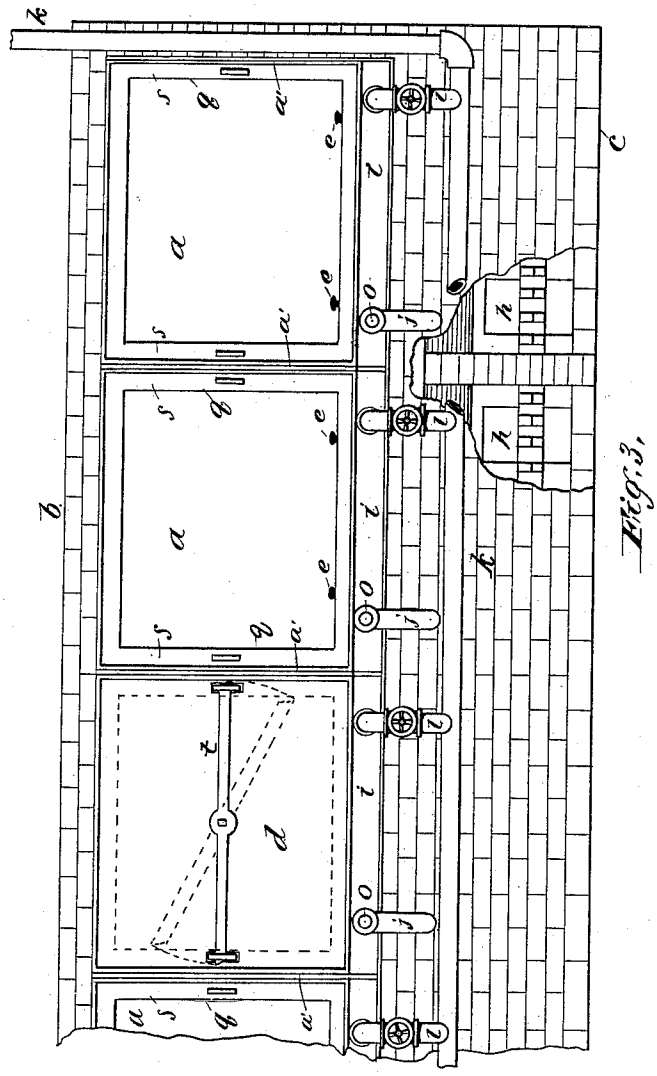


Fig. 3.

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UNITED STATES PATENT OFFICE.

JOHN WILSON, OF NEW YORK, N. Y., ASSIGNOR TO THE AMERICAN ACETIC ACID COMPANY, OF JERSEY CITY, NEW JERSEY.

APPARATUS FOR DISTILLING WOOD.

SPECIFICATION forming part of Letters Patent No. 375,908, dated January 3, 1888.

Application filed June 30, 1887. Serial No. 243,026. (No model.)

To all whom it may concern:

Be it known that I, JOHN WILSON, a citizen of the United States, residing at New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Ovens or Retorts for the Manufacture of Acid from Wood; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention consists, essentially, in improved contrivances of the wrought-iron ovens employed for the distillation of wood, and in the means for applying the heat, as hereinafter fully described, reference being made to the accompanying drawings, in which—

Figure 1 is a longitudinal sectional elevation through a still contrived according to my invention. Fig. 2 is a horizontal section of the same. Fig. 3 is an end elevation, with a part broken out, showing an arrangement of a series of ovens in an economical plan of construction, together with an independent furnace for each oven.

I make wrought-iron ovens *a*, with suitable enveloping brick-work, *b*, and foundation *c* for support, and for economy of heat, with a door, *d*, at one end, and rails *e*, suitable for the introduction and removal of the wood in cars *f*, as is commonly done in other stills for the production of wood acids.

One of the distinctive features of my improved oven is a contrivance for the better and more economical disposition of the heavy liquid products than as in the present stills, by the use of cars having open racks for the escape of said products to the bottom of the ovens, and conductors *b'*, applied to the ovens for the discharge of the same into other stills or receptacles, as required, with a branch, *c'*, connected to the upper outlet for the escape of any vapors, and a trap, *d'*, for the liquid products, whereby these products, commonly allowed to deposit on the bottom of the oven and requiring to be scraped off, may be taken off with much less labor and trouble, and at once turned to account by further treatment.

Another of the features of my invention consists of the contrivance of the horizontal coil *g* of heat-flues for the application of the heat from a furnace, *h*, below or in any approved location, to which said coil is connected, preferably through the front plate, *i*, below the door *d*; or it may be through the back plate by the inlet-pipe *j*; and the coil is provided with a discharge-pipe, *k*, for the escape of the waste heat, with a regulating-valve, *l*, to regulate the draft, which also connects with the coil through the front plate, *i*, below the door, and the inlet and discharge pipes are connected with said plate by check nuts or collars *m*, that screw on the pipes, one each side of the plate, and clamp it in substantial connection therewith, and the coil rests on rollers *n*, so that being stayed by the front plate only, and also being free to shift on said rollers by expansion and contraction, the coil is relieved of all strains tending to open the joints or other places, or to strain the front plate out of place.

The coil is made with plugged openings *o* to the longitudinal members, and the front and back plates are made with coincident openings *p*, and will have suitable covers therefor for convenience in cleaning the coil from time to time.

The door may be fitted on hinges or not, as preferred. It closes in a recess, *s*, of an angle-bar frame, *q*, with any suitable latches, *t*, for fastening it, the recess forming a receptacle for luting the joint air-tight when the door is closed.

I make the pipe *u* leading to the main condenser (not shown) with a branch, *v*, connected with an alcohol-column, *v'*, and another branch, *w*, to a chamber for the manufacture of acetates, and with suitable cocks, *x y z*, for causing the vapors to flow into one or the other of said receptacles, as required.

The object of the alcohol-column is to condense the vapors of the wood-alcohol, which are the first to come over. The alcohol-column is to be shut off when the acetic vapors come over, and they are to be turned into the main condenser.

In the construction of my improved still I make a series of ovens, *a*, in one still, with one inclosure of brick, and economize in the quan-

tity of metal employed for the ovens by so building them together that a single partition, a', serves for the side of two adjoining ovens. This construction will also apply in case it may be desired to arrange two series connected back to back. I reserve the open car in wood-distilling apparatus for a separate application for a patent. For each oven I provide a separate furnace, h, to enable the ovens to be fired separately, so that one or more may be firing while others are being emptied and refilled.

What I claim, and desire to secure by Letters Patent, is—

1. The combination, in a wood still, of the brick-inclosed metallic oven a, car-track e to and within the oven, the open or rack box wood-holding car, conductor b' for the discharge of the heavy products, the alcohol-column, and the gas conducting pipe u to the main condenser, said pipe having branch v, connected with the alcohol-column, and also having the branch w, and regulating cocks x y z, substantially as described.

2. The combination, with the metallic oven for distilling wood, of the horizontal coil-heating flue connected through the front plate of the oven with the inlet-pipe from the furnace, and with the waste-heat flue, the check-nuts clamping said coils to the front plate, and the rollers supporting the coils, substantially as described.

3. The combination, in a wood-still, of the metallic oven having perforated end plates, and the horizontal heating-coil having plugged openings to the horizontal members coincident with said perforations, substantially as described.

4. The combination, in a wood-still, of the metallic oven having a permanent front plate below the door, the horizontal coil-heating flue connected with inlet and waste-heat flues through said plate, the angle-bar door frame above said heat-flues, and the car-rails entering through the doorway over the heat-flues, substantially as described.

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

JOHN WILSON.

Witnesses:
W. J. MORGAN,
S. H. MORGAN.