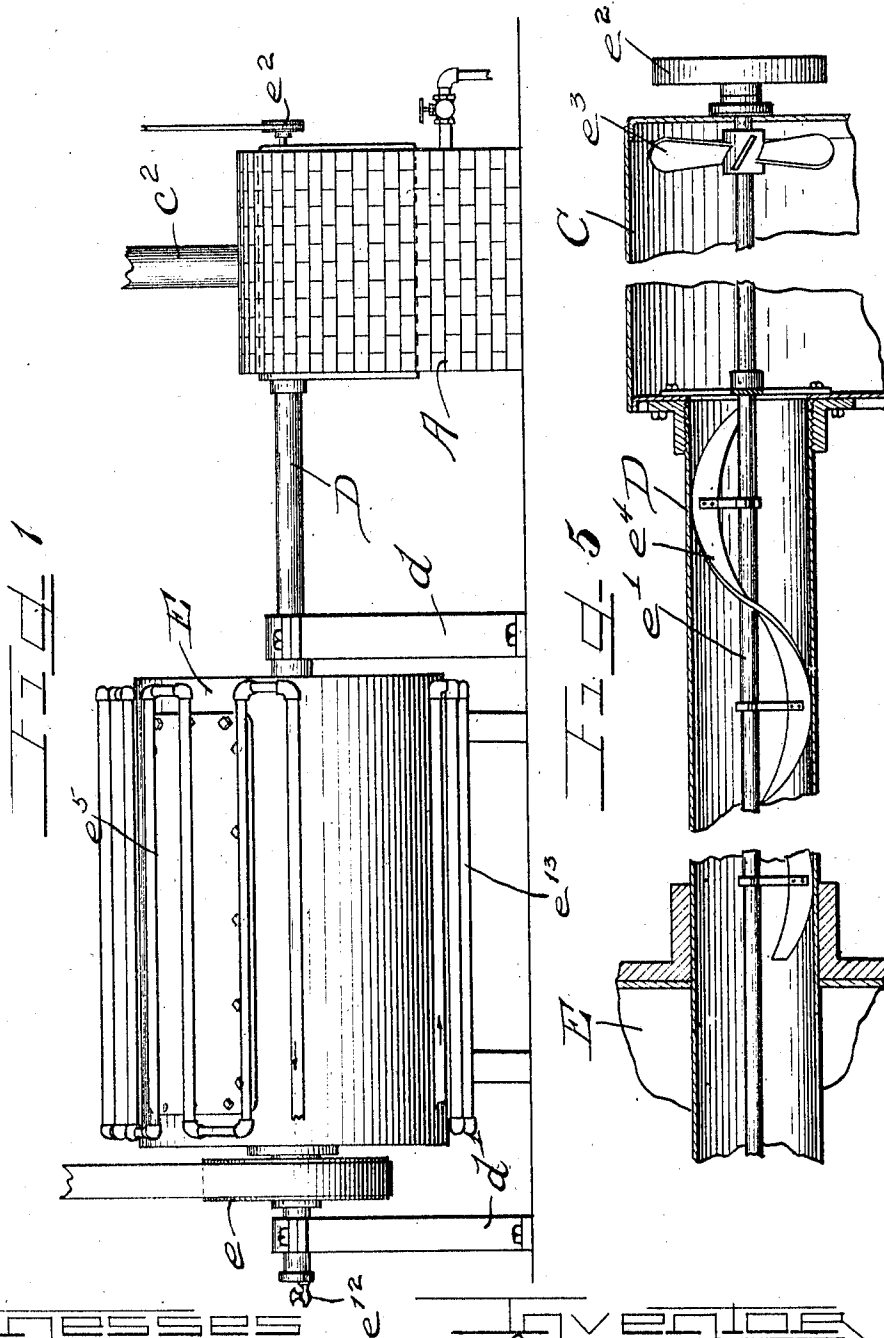


J. T. HALL.
 APPARATUS FOR PREPARING PRESERVATIVES.
 APPLICATION FILED JULY 13, 1908.

1,004,252.

Patented Sept. 26, 1911.

3 SHEETS—SHEET 1.



WITNESSES

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 W. H. Hall.

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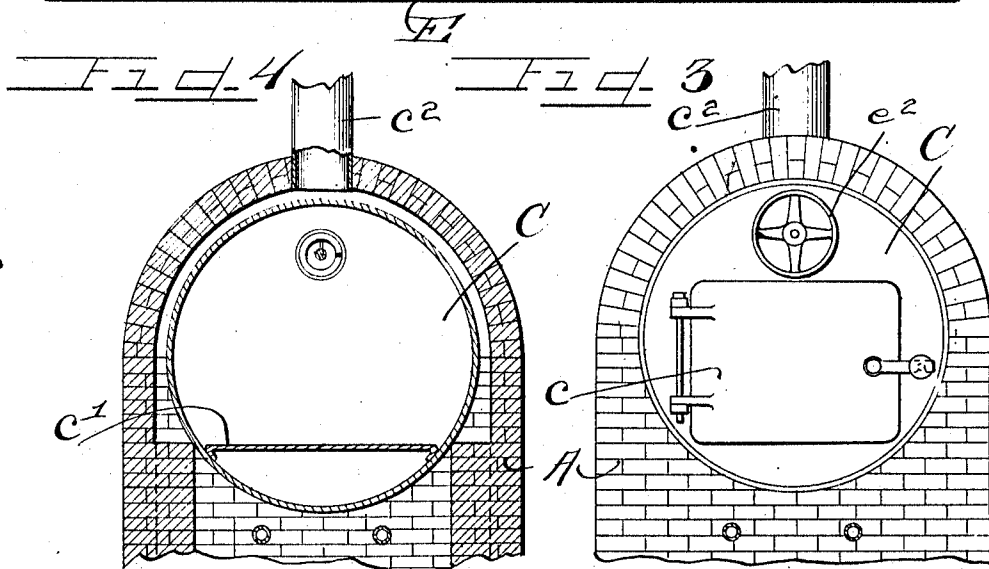
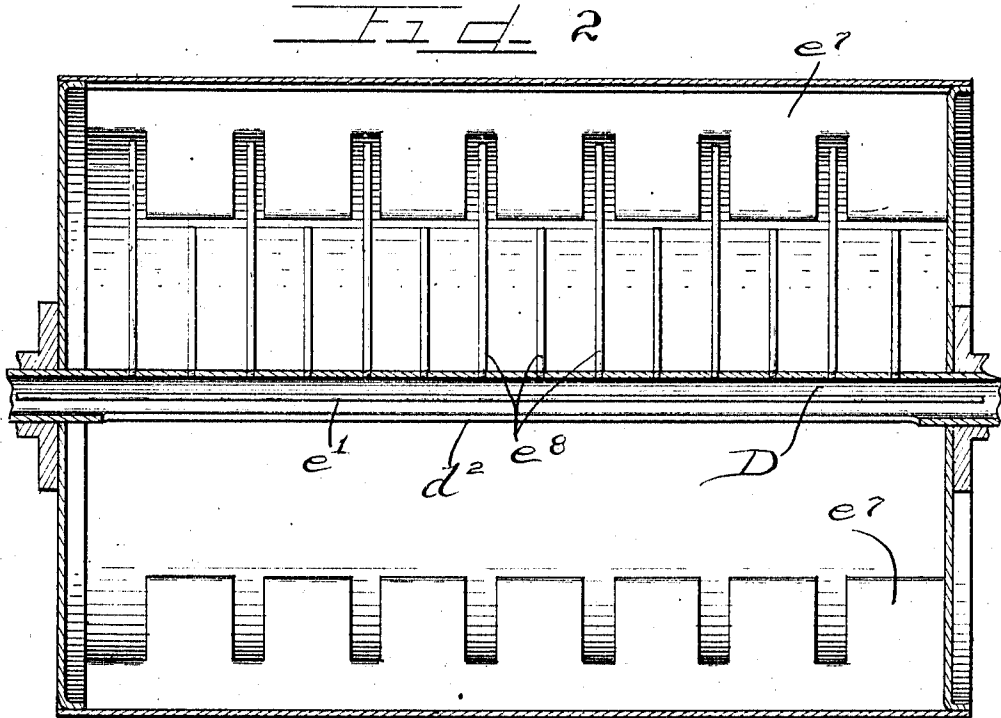
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3 SHEETS-SHEET 2.



WITNESSES

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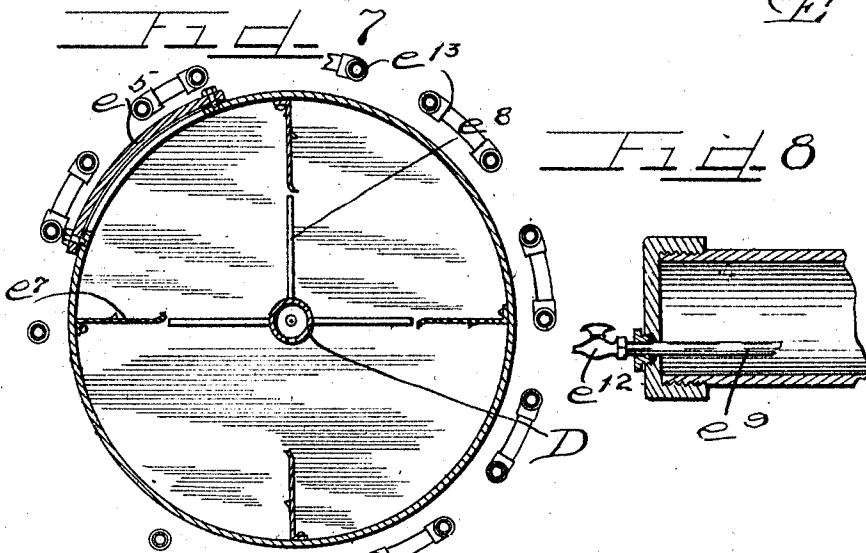
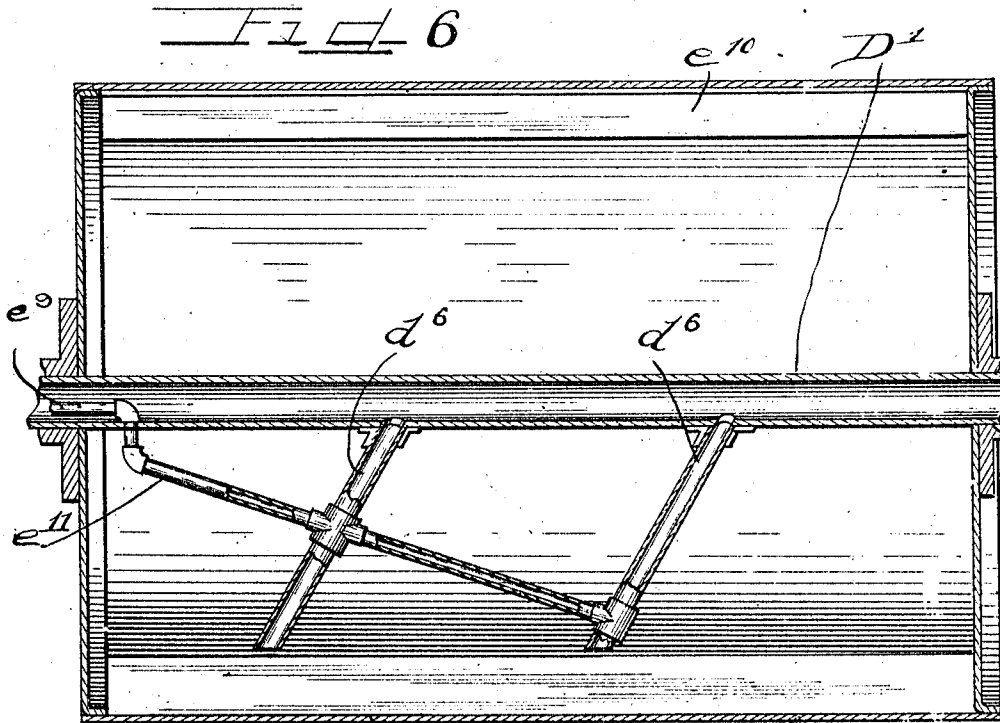
Jesse T. Hall.
 Charles E. Currier
 ATTORNEY

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3 SHEETS-SHEET 3.



WITNESSES

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INVENTOR

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 Charles W. Hall, Atty.

UNITED STATES PATENT OFFICE.

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APPARATUS FOR PREPARING PRESERVATIVES.

1,004,252.

Specification of Letters Patent. Patented Sept. 26, 1911.

Application filed July 13, 1908. Serial No. 443,376.

To all whom it may concern:

Be it known that I, JESSE T. HALL, a citizen of the United States, and a resident of the city of Chicago, Cook County, Illinois, have invented certain new and useful Improvements in Apparatus for Preparing Preservatives; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

Meats of various kinds have heretofore been smoked and salted for the purpose of preserving the same and imparting thereto a desirable and characteristic flavor. The process of smoking consumes considerable time and in fact, greatly increases the cost to the consumer of such meats.

It is an object of this invention to provide an apparatus for preparing preservatives for curing or treating meats or other food products.

It is also an object of this invention to provide a device of the class described which is efficient, cheap to construct and operate and with which the preservative can be prepared at minimum cost.

The invention relates to the matters hereinafter described and more fully pointed out and defined in the appended claims.

In the drawings: Figure 1 is a side elevation of a device embodying my invention. Fig. 2 is an enlarged central section of the feeding cylinder. Fig. 3 is an enlarged end elevation of the retort. Fig. 4 is a transverse section thereof. Fig. 5 is an enlarged detail view of the means whereby the fumes are delivered into the feeding cylinder. Fig. 6 is an enlarged longitudinal section of a modified form of the treating cylinder. Fig. 7 is a transverse section of the treating cylinder. Fig. 8 is an enlarged detail of the vent pipe and connection therefor with the interior of the cylinder.

As shown in the drawings: A, indicates a retort comprising, as shown, a brick or other suitable arch furnace having supported therein a metallic or other suitable receptacle C, to contain the fumes from the ingredients which are placed in the receptacle. Said receptacle is provided with a door *c*, for the admission of such ingredients, and a grate *c'*, to support the same therein above the bottom of the receptacle. As shown, a

chimney or stack *c*², is connected with the furnace above the retort to conduct away the products of combustion. Opening from said retort near the top thereof is a horizontally extending, tubular non-rotatable shaft D, supported, as shown in Fig. 1, on standards *d-d'*, and journaled on which is the treating cylinder indicated by E, and which, as shown, is provided at one end with a belt pulley *e*, rigidly secured thereto, whereby said cylinder may be rotated upon said tubular shaft. Journaled through the top of the retort, and extending axially through said tubular shaft, is a shaft *e'*, which, as shown, is provided at one of its outer ends with a belt pulley *e'*², and within the receptacle is provided with a fan *e*³, directed toward the bore of said tubular shaft and provided on said shaft with a spirally arranged lid or web of metal *e*⁴, which fits within said tubular shaft and the lid of which is such that when rotated in the direction of the operation of the fan, the fumes or gas is forced over into the cylinder E. As shown, said cylinder is provided in one side thereof with a longitudinal door or opening adapted to be closed by a plate *e*⁵, which may be either bolted to the cylinder or may be otherwise secured thereon and which may be opened to permit the insertion or removal of the material to be treated, but which is closed during the operation of the machine.

Arranged around the treating cylinder is a refrigerating coil *e*¹³, the leads of which are spaced a distance apart at the discharge position to permit free access to the interior of the cylinder through the cover *e*⁵. Said coil lies close enough to the cylinder to have a cooling or refrigerating effect thereon. Said cylinder, as shown in Fig. 2, comprises a sheet metal shell having secured thereon and projecting inwardly from the shell longitudinally extended webs or flanges *e*⁷, and as shown, rigidly secured to the tubular shaft and projecting in all directions therefrom to near the edges of said flanges are stirring pipes or rods *e*⁸, of which, as shown, the alternate stirring rods are made of considerably greater length than the intermediate stirring rods and in consequence, said longitudinal plates or webs are notched inwardly to permit the stirring rods to pass the same. The stationary tubular shaft D, is provided with a longitudinal slot *d*², through which the fumes from the receptacle

C, are admitted into the treating cylinder and a cock e^{12} , is provided at the end of said shaft for releasing pressure whenever desirable.

In the construction shown in Fig. 6, the cylinder is provided with longitudinal, inwardly directed ribs or flanges e^{10} , and connected in the tubular shaft D' , are pipes d^6 , which incline toward one end of the cylinder and act to direct the fumes from said tubular shaft into the salt or other material as it falls from said flanges or ribs e^{10} . As shown also, a pipe e^{11} , communicates with a vent pipe e^9 , which communicates through suitable fittings with the pipe d^3 , and a cock e^{12} , secured on the end of the vent pipe to permit the escape should it be desired, of a portion of the fumes from the treating cylinder to reduce the pressure.

The operation is as follows: Common salt or chlorid of sodium is placed in the treating cylinder E, by removing the cover plate e^5 , and dry beech wood and salicylic acid are placed in the cylinder through the door c , which fits so closely to the retort as to render the same practically air-tight. The proportions of each ingredient used may, of course vary. Conveniently, about one hundred (100) pounds of the dry beechwood and about twenty eight ounces of the salicylic acid is used to a ton of salt, though, of course, the proportions vary through a wide range and other material than beechwood may be substituted to provide the desired fumes in the smoke, and of course, other ingredients may be substituted for, or used in connection with, the salicylic acid.

As soon as the gases, vapors, or fumes begin to generate in the retort, the treating cylinder is rotated from any suitable source of power and also the fan and spiral conveyor on the shaft e' , are driven by means of the belt pulley e^2 , thus forcing the smoke and fumes from the retort into the treating cylinder. This flow from the retort to the treating cylinder is materially assisted by means of the refrigerating coil, which holds the temperature of the shell or cylinder below that of the smoke and as a result prevents the salt from becoming unduly heated and the salt being at a lower temperature than the fumes, precipitation occurs and more or less soluble deposits of all of the ingredients driven over from the retort are deposited as a coating on each grain of salt. The refrigerating coil also causes the vapors from the retort to be precipitated on the shell of the cylinder as the cylinder is rotated at a slow rate of speed, the salt is carried upwardly on the inwardly directed flanges until it slides therefrom upon the mixing rods and thence into the bottom of the cylinder, this action constantly rolling the salt over the shell and causing the same to take up any of the condensed products

on the shell. Such condensation, of course, tends constantly to lower the pressure in the cylinder, thus greatly facilitating the flow from the retort to the cylinder and in most cases rendering the use of the fan or spiral conveyer or any other forcing means, entirely unnecessary. It also obviates the necessity for providing a vent for the purpose of lowering pressure, in which event the vent cock e^{12} , is used only for the purpose of enabling a portion of the fumes to be withdrawn from the cylinder for the purpose of testing the quality.

Of course, other ingredients than salt may be treated by the process described, and furthermore, any more or less volatile materials that may be useful in connection with salt as a preservative for food products or for other purpose, may be used in connection with the ingredients heretofore mentioned with the retort or in lieu thereof, the vapors therefrom condensing or precipitated upon the cold salt or ingredient in the cylinder, thus enabling a preservative or disinfectant to be prepared containing almost any characteristics that may be required.

Of course, the fumes or emanations within the cylinder should from time to time be tested, during the application of the process to determine the richness within of the ingredients it is desired to associate with the more abundant material in the cylinder. By so testing the gases and fumes escaping from the vent, the process may be timed to afford any desired richness of the resulting products of the various ingredients to be used.

Of course, I am aware that details of this construction may be varied. I therefore do not purpose limiting this application for patent otherwise than necessitated by the prior art.

I claim as my invention:

1. In a device of the class described, a retort, a hollow shaft communicating therewith, a cylinder journaled on the hollow shaft and communicating with the shaft, a shaft extending through the hollow shaft, a fan thereon for forcing the fumes from the retort through the hollow shaft into the cylinder and mixing mechanism in the cylinder.

2. In a device of the class described a retort, means for forcing the volatile distillates and fumes from the retort, a rotatable cylinder adapted to receive salt and the fumes therein and mix the same together, and means for cooling the cylinder to condense and precipitate the fumes and gaseous products in the cylinder.

3. In a device of the class described a retort, a rotatable cylinder, a member affording communication between the retort and cylinder, a fan for forcing fumes from the

retort into said member, rotatable spiral means for forcing the fumes through the member into the cylinder, stationary mixing members in the cylinder and rotatable mixing members in the cylinders.

4. In a device of the class described a retort, a rotatable cylinder, a member affording communication between the retort and cylinder, a fan for forcing fumes from the retort into said member, rotatable spiral means for forcing the fumes through the member into the cylinder, stationary mixing members in the cylinder, rotatable mixing members in the cylinder and a cooling coil arranged around the exterior of the cylinder.

5. In a device of the class described, a rotatable cylinder, mixing mechanism therein, a hollow shaft opening into the cylinder, a spiral member rotatable in the hollow shaft, a retort communicating with the hollow shaft and a fan for forcing the fumes into the hollow shaft.

6. In a device of the class described, a rotatable cylinder, mixing mechanism therein, a hollow shaft opening into the cylinder, a spiral member rotatable in the hollow shaft, a retort communicating with the hol-

low shaft, a fan for forcing the fumes into the hollow shaft, and a cooling coil inclosing part of the cylinder for cooling the contents of the cylinder.

7. In a device of the class described a retort for containing the material to be vaporized, means for heating the material in the retort, a hollow shaft extending from the retort, a cylinder rotatable thereon, said shaft slotted to deliver the fumes from the retort into the cylinder and coacting mixing mechanism, part secured to the shaft and part to the cylinder.

8. In a device of the class described a cylinder provided with an opening extending approximately the entire length thereof, means for rotating the same, stationary mixing members in the cylinder, mixing members rotatable with the cylinder, a cover plate for closing the opening and a cooling coil inclosing part of the cylinder.

In testimony whereof I have hereunto subscribed my name in the presence of two subscribing witnesses.

JESSE T. HALL.

Witnesses:

K. E. HANNAH,
LAWRENCE REIBSTEIN.