(No Model.) 2 Sheets—Sheet 1.

R. M. HUGHES.

APPARATUS FOR MAKING VINEGAR.

No. 483,063. Patented Sept. 20, 1892.

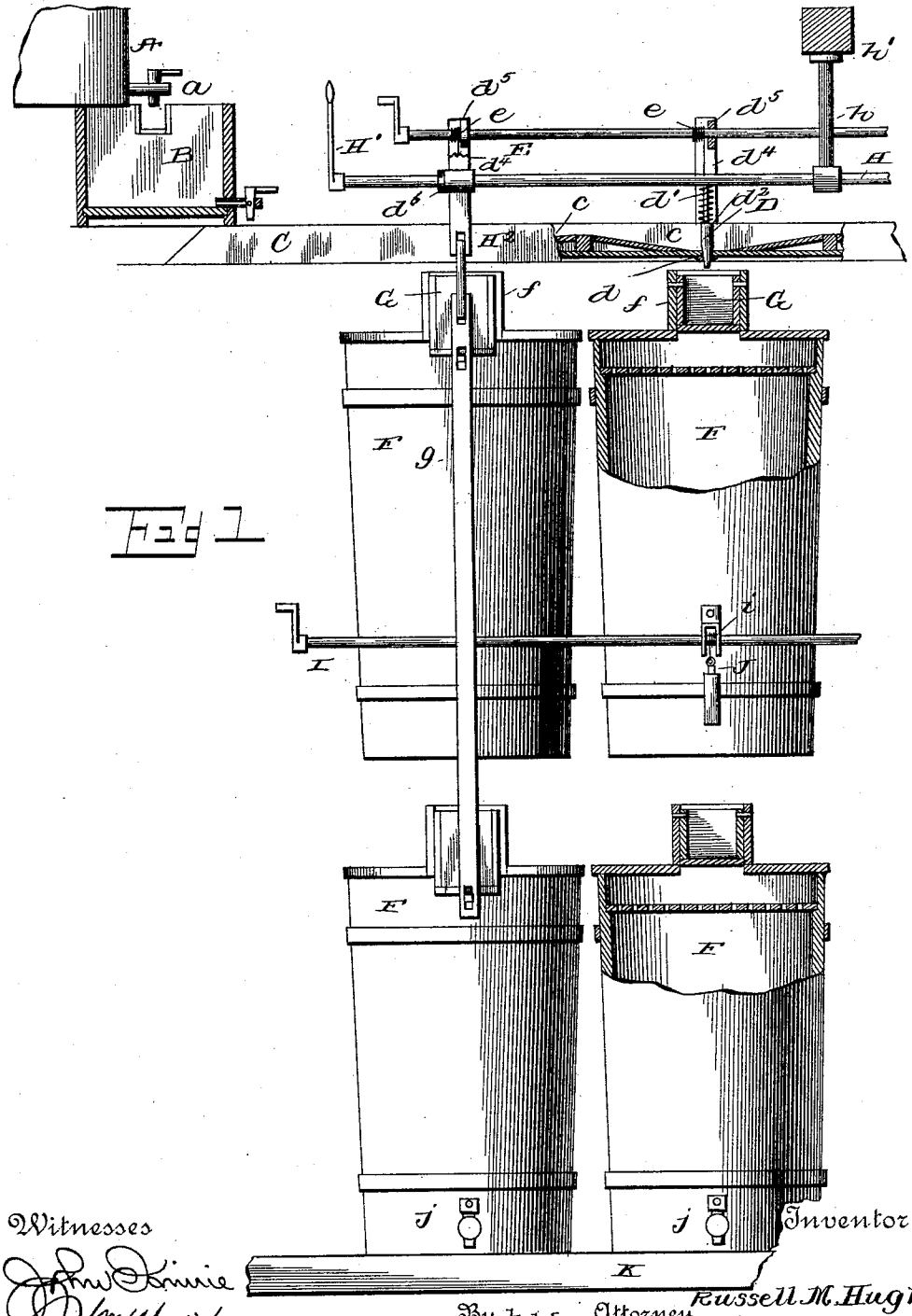

Fig 1

Witnesses
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H. M. Maister

Inventor
Russell M. Hughes
By his Attorney
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 2 Sheets—Sheet 2.

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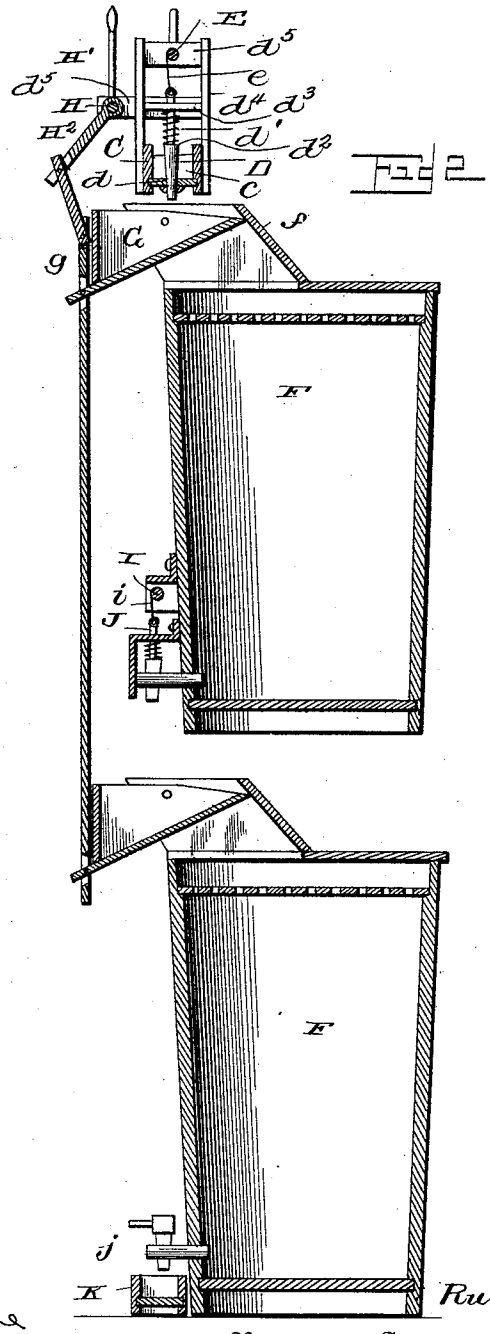

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UNITED STATES PATENT OFFICE.

RUSSELL M. HUGHES, OF LOUISVILLE, KENTUCKY.

APPARATUS FOR MAKING VINEGAR.

SPECIFICATION forming part of Letters Patent No. 483,063, dated September 20, 1892.

Application filed April 2, 1892. Serial No. 427,516. (No model.)

To all whom it may concern:

Be it known that I, RUSSELL M. HUGHES, a citizen of the United States, residing at Louisville, in the county of Jefferson and State of Kentucky, have invented certain new and useful Improvements in Apparatus or Plants for Making Vinegar; and I do hereby 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.

My invention relates to an improved apparatus or plant for the manufacture of vinegar; and it has for its object to secure exact results, and also to effect saving in the liquid in preventing the spilling of the same and saving in labor; and to these ends it consists in means to feed or charge the wash to the charging-trough, and from there to the plant or series of generators, and to make the required "cross," all substantially as hereinafter more fully disclosed, and pointed out in the claims.

In the ordinary way of making vinegar the wash is drawn from the wash-tank into a bucket by hand and packed and the contents of the bucket poured into a generator, this also being done by hand. A quantity of the liquid is next drawn by hand into a bucket from said generator and the contents of the bucket poured into a second generator. Vinegar is then drawn off by hand into a bucket from the second generator and poured into the receiver, and to make a cross each second or third bucket containing part-made vinegar is taken from generator No. 1 and poured into generator No. 2. In like manner vinegar is taken from generator No. 2 and poured into generator No. 1, this for the purpose of imparting additional sourness to the packing of generator No. 1.

In the accompanying drawings, Figure 1 is a broken sectional elevation of my apparatus or plant for the manufacture of vinegar. Fig. 2 is a sectional elevation of the same, taken at an angle of ninety degrees to the plane of the section of Fig. 1.

In the embodiment of my invention I employ the usual wash-tanks A, into which the wash is pumped by a suitable pump, and from this tank the wash is drawn off by an ordinary faucet *a* into a charging-box B, of a capacity to hold just enough wash and no more to properly charge or fill a charging-trough C. The trough C is, as seen most clearly in Fig. 1, subdivided into a series of shallow compartments or sections *c*, one for each bucket of each one of the upper row of generators, presently described, said compartments each being adapted to hold the quantity of wash to fill each bucket of said generators. The outlet-openings *d* of the respective compartments or sections *c* of the charging-trough C are normally closed by plugs D, fitting or seated at their lower tapered ends in said openings. The plugs D are automatically held in their seats by springs *d'*, preferably coiled around reduced upper portions of said plugs and held under tension between shoulders d^2 on said plugs and cross-pieces d^3, held upon uprights d^4, to which the side pieces of the trough C are secured.

E is a handled shaft suitably journaled in supports or brackets d^5, fastened to the trough C, and having connection by cords or straps *e* with the plugs D to permit by turning said shaft in the required direction the winding of said straps or cords upon said shaft and the consequent removal or unseating of the plugs or valves for the escape or outlet of the wash.

F F are the generators, preferably arranged in an upper and a lower row—say twelve or fifteen deep—and having hung or pivoted in chute-like extensions *f* at their upper ends buckets G, the aligning buckets of upper and lower generators being connected together by rods or bars pivoted near their ends to said buckets, respectively, to permit the simultaneous dumping or tilting of the buckets. H is also a shaft suitably journaled in a hanger or bracket *h*, secured to a beam *h'* above, and in a cross-piece d^6, projecting from one of the uprights d^4. This shaft, having a crank H' for its convenient actuation, has connection with the bucket-connecting rods or bars *g* by a toggle or jointed lever or pitman H^2, the toggle-joint being provided to allow the dumping or tilting of the buckets by the turning of said lever when it is desired to empty the buckets into the generators.

Journaled upon the front side of the upper row of the generators is a handled shaft I, having connection by cords or straps *i* with the spring-pressed plugs J, applied to these

generators to permit the drawing off wash therefrom to the lower generators. The wash, however, is first drawn off into the buckets of the lower generators and the contents of the buckets poured into said generators by the tilting or dumping of the buckets through the means above described. The lower generators are provided near their bottoms at the front with ordinary faucets *j* to permit of the drawing off the liquid or contents thereof into a trough K, arranged under said faucets along the base of said generators, the liquid or vinegar being carried by the trough to the receiver. (Not shown.)

From what has been stated herein concerning the ordinary mode of making vinegar the operation of my apparatus or plant will be readily understood by those skilled or expert in the business, the different steps in the latter being performed mechanically and, as is obvious, much more expeditiously and with greater facility and unattended with the spilling of the liquid and the labor involved in the use of said ordinary method, and yet securing equally as good and exact results.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In an apparatus for making vinegar, the combination of the charging-trough having compartments and means for effecting the discharge of the contents of said compartments, the upper generators having tilting buckets hung in chutes upon the upper ends of said generators, and means for dumping or tilting said buckets, said charging-trough compartments adapted to discharge into said buckets, substantially as set forth.

2. In an apparatus for making vinegar, the combination of the charging-trough having compartments and means for effecting the discharge of the contents of said compartments, the upper and lower generators having tilting buckets hung in chutes upon the upper ends of said generators, aligned upper and lower buckets being connected together and the upper buckets adapted to receive the contents of the compartments of the charging-trough, means for operating or tilting the buckets of the upper and lower generators, and plugs or valves applied to the upper generators and adapted to deliver the contents of the upper generators into the buckets of the lower generators, and means for operating said plugs or valves, substantially as specified.

3. In an apparatus or plant for making vinegar, the combination, with the upper and lower generators, of the plugs or valves applied to the upper generators and means for operating said plugs, the tilting buckets arranged upon said generators and connected together, and means for actuating or tilting said buckets, said plugs or valves being adapted to draw off the liquid of the upper generators into the buckets of the lower generators, substantially as set forth.

In testimony whereof I have hereunto signed my name in presence of two witnesses.

R. M. HUGHES.

Witnesses:
ALF. H. PEYTON,
J. F. RIGSLY.