(No Model.)

L. FRIEDMAN.

VINEGAR APPARATUS.

No. 344,097. Patented June 22, 1886.

Fig. 1.

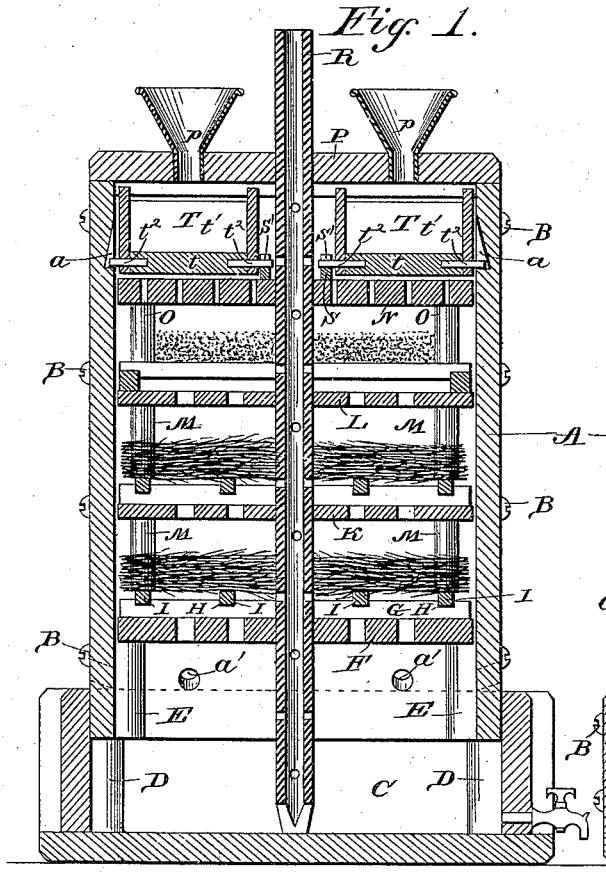
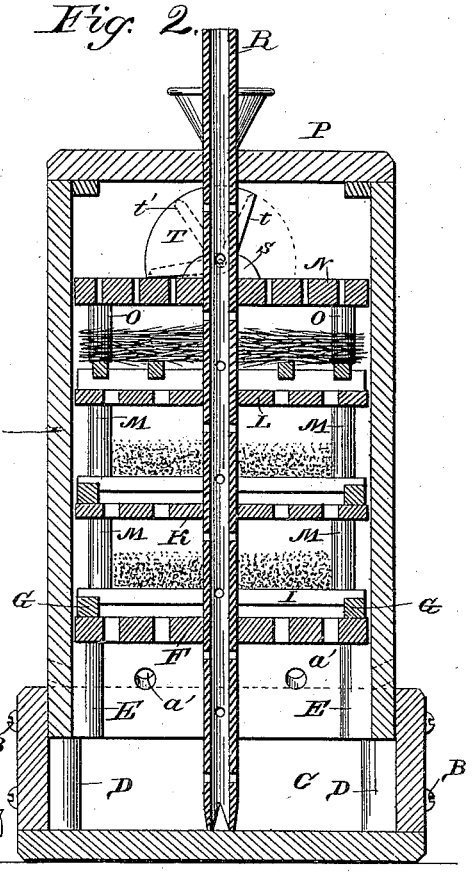


Fig. 2.



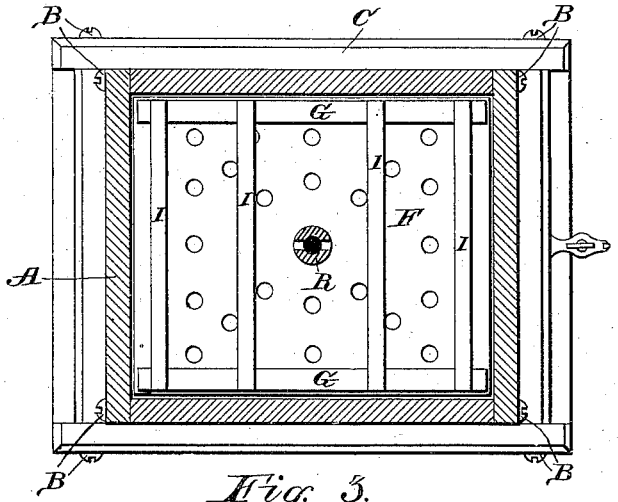


Fig. 3.

Witnesses

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LEOPOLD FRIEDMAN, OF PADUCAH, KENTUCKY.

VINEGAR APPARATUS.

SPECIFICATION forming part of Letters Patent No. 344,097, dated June 22, 1886.

Application filed April 6, 1886. Serial No. 197,972. (No model.)

To all whom it may concern:

Be it known that I, LEOPOLD FRIEDMAN, a citizen of the United States, residing at Paducah, in the county of McCracken and State of Kentucky, have invented a new and useful Improvement in Apparatus for Manufacturing Vinegar, of which the following is a specification.

My invention relates to an improvement in apparatus for the manufacture of vinegar; and it consists in the peculiar construction and combination of devices that will be more fully set forth hereinafter, and particularly pointed out in the claims.

In the drawings, Figure 1 is a vertical longitudinal sectional view of my invention. Fig. 2 is a vertical transverse sectional view of the same. Fig. 3 is a horizontal sectional view.

This invention is an improvement upon the patent of Theodore Grundmann, No. 110,229, December 20, 1870.

A represents the outer chamber or case, in which the oxidizing process is to be carried on. The sides of the said chamber or case are secured together at the corners by means of copper screws B. By thus connecting the sides of the case together the joints of the case are made perfectly air and water tight, and the said sides of the case may be readily taken apart when desired.

C represents a rectangular box or receptacle, which forms the bottom for the chamber A, and in which the latter is located, the said box C being provided in its corners with shouldered standards D, on which the lower edges of the sides of the case or chamber rest, thus supporting the chamber or case A at a suitable distance above the bottom of the box or receptacle C. On the inner corners of the chamber A, at the lower side thereof, are secured similar shouldered standards, E, on which is supported a perforated platform, F. On the upper side of the said platform, at opposite sides thereof, are secured flange-rails G, which are provided in their upper sides with notches H, to receive and secure the ends of transverse bars I, which extend across the platform F at a suitable distance above the upper side thereof.

K and L represent similar perforated platforms, provided with flange-rails and transverse bars, and the said platforms are supported one above the other and above the platform F by depending supporting-feet M, with which the said platforms are provided.

N represents the perforated platform, which is supported at a suitable distance above the platform L by means of depending feet O, with which the said platform N is provided.

P represents the top or cover of the chamber A. Through the center of the said cover, and through the centers of the platforms located in the chamber or case, are made suitable vertically-aligned openings to receive a vertical perforated air-tube, R, which is open at its upper and lower ends and extends through the chamber A, its lower end communicating with the box or receptacle C, and its upper end communicating with the outer air above the cover P.

On the upper side of the platform N, on opposite sides of the central opening therein, are secured vertical lugs S, having semicircular notches S′ in their upper sides.

In the end walls of the chamber A are made vertical grooves *a*, which align with the notches S′ of the lugs S.

T represents a pair of tilting troughs, which are provided with inclined bottoms *t*, and are each divided into two compartments of equal size by means of longitudinal vertical partition-boards *t′*, which extend between the end walls of the trough. From the said end walls, near the converging edges of the bottoms *t*, project trunnions *t²*, which bear in the notches S′ and against the bottoms of the slots *a*, and thereby pivotally support the tilting troughs at a slight distance above the platform N. The cover P is provided with central inlet-openings, *p*, which are arranged directly above the centers of the tilting troughs.

The chamber A is provided near its lower end with suitable openings, *a′*, for the admission of air.

The operation of my invention is as follows: A quantity of broom-straw is arranged in horizontal layers upon the transverse bars I of each of the platforms F, K, and L, and the fermenting liquor is poured through the openings *p* in the cover of the case into the tilted troughs T, thereby filling one compartment of each trough. When the said compartments become filled with the liquor, its weight counterbalances the empty compartment of each

trough and causes the troughs to tilt, thereby emptying the liquor upon the platform N and distributing it evenly over the said platform. This liquor finds its way through the perforations in the platform N onto the broom-straw, supported over the platform L, percolates through the said broom-straw, and passes through the perforations in the said platform L upon the broom-straw over the platform K, and so on until it reaches the receptacle or box C at the bottom of the chamber, where it is finally collected, and from whence it may be drawn off at will. While the liquor slowly passes from one layer of broom-straw to another, and while it is spread on the several layers of broom-straw, it is exposed in thin films to the air, which passes through the case A and is fully oxidized by the same. The function of the perforated air-tube is to permit the escape of mephitic atmosphere from the case A and prevent it from injuring the vinegar. By thus providing the perforated platforms to support the cross-bars I, upon which the layers of broom-straw are placed, the said cross-bars are effectually strengthened and prevented from breaking under the weight of the broom-straw when the latter become thoroughly saturated with the vinegar, an objection to which the construction described in the hereinbefore-mentioned patent is open.

As the tilting troughs are provided with two compartments of equal size, it will be readily understood that while one compartment is tilted to discharge its contents the other is raised in position to collect the liquor, which is poured through the openings in the top of the case.

Heretofore it has been customary to use ordinary straw, cane, or twigs to form the horizontal layers upon the bars. Such straw, cane, or twigs are objectionable, for the reason that while in operation they become pressed by the liquor closely together and very compactly, and thereby prevent the oxygen from passing through them and having the necessary effect upon the liquor. This objection I obviate by using layers of broom-straw.

By providing the perforated air-tube the superfluous oxygen which accumulates between the platforms in the case is permitted to escape freely, and prevent it from becoming foul and injuring the vinegar, as hereinbefore stated.

Having thus described my invention, I claim—

1. In an apparatus for oxidizing vinegar, the case A, provided with the series of perforated platforms having the side flanges on their upper sides, and the cross-bars I, resting on the said flanges, for the purpose set forth, substantially as described.

2. The combination, in an apparatus for oxidizing vinegar, of the case A, the perforated platforms supported in the said case at suitable distances apart, and provided with side flanges, and the cross-bars I, the said platforms having the depending feet M, substantially as described.

3. The combination, in an apparatus for oxidizing vinegar, of the case A, the bars I, supported in the said case for the reception of the straw, the inlet air-openings at the lower ends of the case, and the perforated air-tube to permit the egress of superfluous oxygen, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

LEOPOLD FRIEDMAN.

Witnesses:
BRACK OWEN,
ROBT. B. HERRING.