

J. E. Cox,

Treating Offal.

No. 101,353.

Patented Mar. 29. 1870.

Fig. 1.

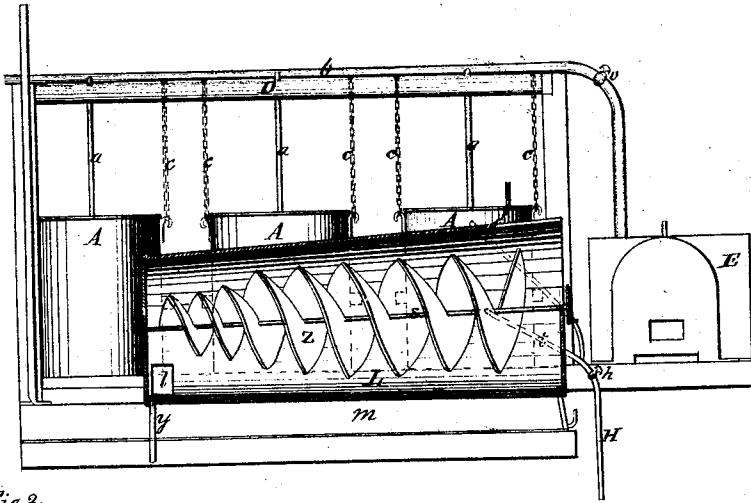
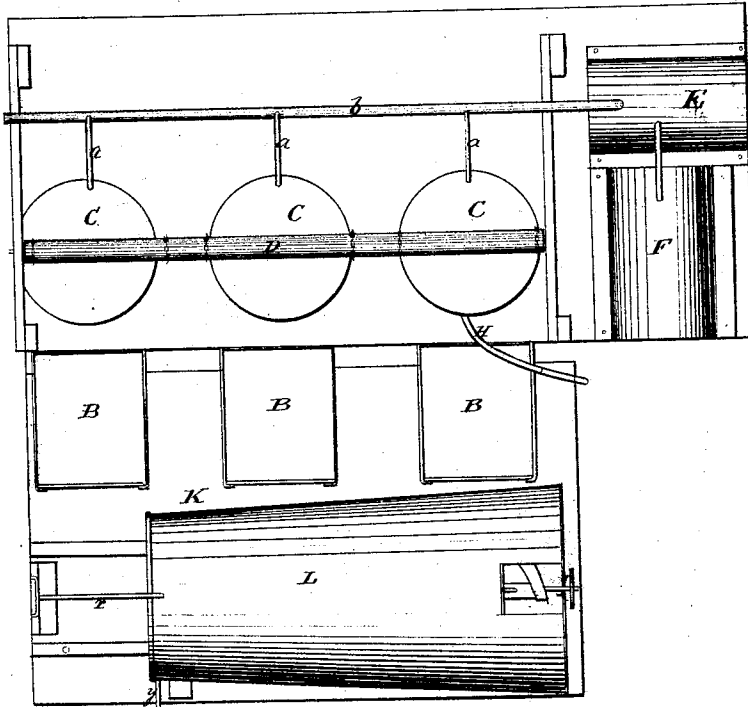


Fig. 2.



Witnesses

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IMPROVEMENT IN APPARATUS FOR KEEPING PURE THE AIR IN THE MANUFACTURE OF FERTILIZERS.

Specification forming part of Letters Patent No. **101,353**, dated March 29, 1870.

To all whom it may concern:

Be it known that I, JAMES E. COX, of Cincinnati, in the county of Hamilton and State of Ohio, have invented a new and valuable Improvement in Apparatus for Conveying Away Offensive Odors from Fertilizer-Manufactories, &c.; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a side view of my apparatus, showing section of desiccator. Fig. 2 is a plan view of the apparatus.

My invention relates to means for keeping the air pure about fertilizer-manufactories, bone-factories, &c.; and it consists, mainly, in the construction of suitable apparatus, designed both to accelerate the drying process and to convey off or utilize the gases arising from the contents of the steaming-vats.

The letters A A of the drawings designate the steaming-vats, pivoted at the sides in the usual manner in order that their contents may be readily discharged into the receiving-tanks B. The vats A A are provided with steam-tight covers C C, capable of being all raised at the same time by means of the chains *c c* passing over the windlass D. The pipes from the steam-generator connect with the vats at their lower ends, while from the upper portions thereof arise the pipes *a a*, which convey the gases generated within each vat to the main pipe *b*, which connects with a chamber, E.

F represents a furnace designed for the preparation of certain chemicals which pass over into the chamber E. The chamber E is lined with lead, and the mingling of the chemicals and the noisome gases from the vats results in the formation of a salt of ammonia, usually the muriate, which is without disagreeable odor. A stop-cock, *v*, is inserted in the pipe *b* just before its junction with the leaden chamber, designed to prevent the passage of the gases thereto whenever it may be advisable.

H designates a pipe leading from the upper part of the last vat to the bottom of a river or water-tank. It is provided with a stop-cock, *h*, and so arranged that when the pipe *b* is closed by means of the stop-cock therein all the gases from the various vats will pass through the

last vat, and thence to the bottom of the tank or river. The contents of the vats having been discharged into the receiving-tanks B B, the latter are covered with tarpaulins or other suitable covering until ready to be emptied into the desiccator.

K represents the drying apparatus, consisting of a furnace, *m*, and the desiccator L, a horizontal conical chamber provided with a helical plate, *z*, secured upon a shaft, *s*, passing centrally from end to end within the conical case after the manner of the thread of a screw. The contents of the receiving-tanks B B are introduced at the large end of the desiccator and are gradually carried forward to the small end by the action of the helix therein. At the same time the charge is stirred up in such a manner as to facilitate the action of the heat on every part thereof, and by the time it arrives at the small end of the conical case it is found to be sufficiently dry to take the form of the opening *l*, through which it is forced. Whatever liquids are forced out of the mass by the action of the screw, or are condensed within the conical case, are conveyed to the lower end thereof and carried off by the pipe *y*. Such vapors generated within the desiccator as are not condensed may be conveyed off by the pipe *r*, connecting with the chimney-flue.

Sometimes I attach a secondary pipe, *t*, to the pipe H and the vat with which it connects, to provide a double exit for the gases, in order that a stoppage may not be produced by the clogging of either pipe.

Instead of applying a furnace under the desiccating-case, I sometimes prefer to envelop it with a steam-jacket.

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

1. The apparatus herein described for preventing the presence of effluvia in the air about fertilizer-manufactories, &c., consisting of the steam-tight vats A, with elevating covers C, and windlass D, pipes *a b*, leaden chamber E, chemical-chamber F, receiving-tanks B, with covers, conical desiccating-chamber L, with rotating helix Z, opening *l*, and drain-pipe *y*, also pipe H for conveying the effluvia to the bottom of a river or tank, when constructed and arranged to operate as and for purposes set forth.

2. The horizontal conical desiccating-cham-

ber L, provided with rotating helical plate Z, when constructed and arranged to operate as and for the purposes specified.

3. In combination with the steam-tight vats A, with elevating covers C, the pipe H, arranged to convey the effluvia from the manufactory to the bottom of a river, sewer, or water-tank, as specified.

4. In combination with the steam-tight vats A, the pipes *a b* and leaden chamber E, for util-

izing the effluvia, when constructed and arranged to operate as and for the purposes specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

JAS. E. COX.

Witnesses:

R. H. MARSH,
S. DEAN.