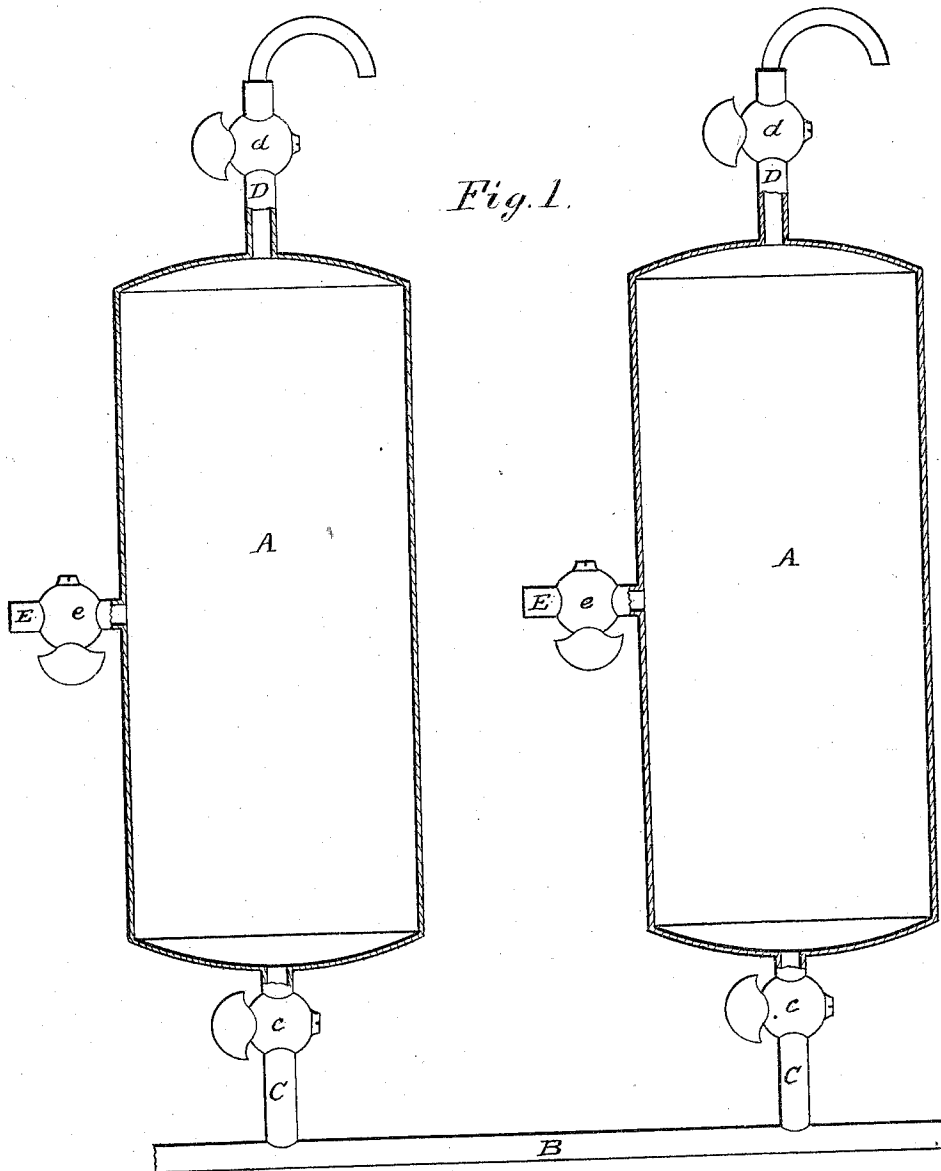


Le R. C. COOLEY.

Apparatus for Exhausting the Air from Fruit-Cans
and other Vessels.

No. 140,247.

Patented June 24, 1873.



Witnesses
E. A. Bates
George E. Upham.

Inventor.
L. C. Cooley.
Chipman & Co.
Attys.

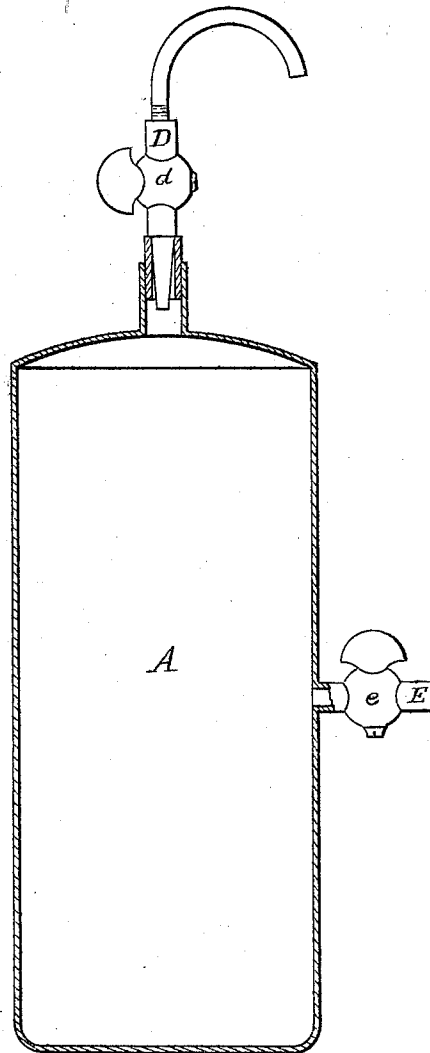
Le R. C. COOLEY.

Apparatus for Exhausting the Air from Fruit-Cans
and other Vessels.

No. 140,247.

Patented June 24, 1873.

Fig. 2.



Witnesses.
E. A. Bates.
George E. Upham.

Inventor:
L. C. Cooley.
Chipman & Coomer & Co
Attys.

UNITED STATES PATENT OFFICE.

LE ROY C. COOLEY, OF ALBANY, NEW YORK.

IMPROVEMENT IN APPARATUS FOR EXHAUSTING THE AIR FROM FRUIT-CANS AND OTHER VESSELS.

Specification forming part of Letters Patent No. **140,247**, dated June 24, 1873; application filed June 10, 1873.

To all whom it may concern:

Be it known that I, LE ROY C. COOLEY, of Albany, in the county of Albany and State of New York, have invented a new and valuable Improvement in Apparatus for Exhausting Air from Vessels; 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.

This invention has relation to means for exhausting air from fruit-cans, jars, and other vessels; and it consists in the construction and novel arrangement of an air and steam tight chamber, provided with pipes having stop-cocks, and adapted for blowing off the air out of said chamber, and for connection with a steam-generator and with the jar or vessel from which the air is to be exhausted, the latter pipe being connected with the chamber at a point above the bottom thereof. The object of this invention is to provide a simple and economical apparatus, whereby the vacuum created by the condensation of steam in an air-tight chamber may be directly applied to a jar or vessel for the rarefaction of the air therein contained, without liability of admitting steam or water into said jar or vessel.

In the accompanying drawings, the letter A designates the air and steam tight condensing-chamber, which may, for some purposes, when a portable apparatus is preferred, serve as a generator, but when more extensive operations are contemplated the condensers A are designed to be connected with a steam-pipe, B, leading from a separate generator, which may be in some part of the building remote from the operations. The connecting-pipe C leading from the main steam-pipe to the condenser is provided with a stop-cock, *c*. At the other end of the condenser is located usually the blow-off pipe D, also provided with a stop-cock, *d*, and designed for the exit of the air from the chamber A when the same is expelled by the steam admitted through the pipe C, or formed in said chamber when used as a generator. At some point of the chamber above its base the pipe E is located, said pipe being provided with a stop-cock, *e*, and designed for connection immediately with the vessel to be exhausted of its air, or with such intermediate transfer pipes or devices as may be

required in the operation being carried on. On account of this arrangement of the pipe E above the bottom of the chamber, water of condensation is not liable to drip through said pipe.

The operation is as follows: All the stop-cocks having been closed, steam is let on. Stop-cocks *c* and *d* are then opened until the air is thoroughly expelled from the condenser, its place being supplied by steam. These stop-cocks are then closed, and condensation is effected by drenching the condenser externally with cold water, or otherwise. Then the vessel to be exhausted having been suitably connected with the pipe E, or some transfer device connected therewith, the stop-cock *e* is opened, and equilibrium between the vacuum in the condensing-chamber and the air in the vessel takes place with consequent rarefaction of said air. Then the stop-cock *e* having been closed steam may be admitted again to the condenser, blowing off the rarefied air therein, and a repetition of the action of the vacuum upon the rarefied air of the vessel may be had, if desirable.

When the condensing-chamber is also used as the generator the blow-off pipe should be arranged at the top and curved or bent downward, so that its end can be introduced into a vessel of water for the purpose of ascertaining whether all the air has been driven out of said chamber. This pipe is designed to be removable from a larger tube connected immediately with the chamber and designed to serve as a passage for water.

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

1. The air-exhausting apparatus consisting of a condensing-chamber having a bent blow-off tube, and provided with a pipe, E, for direct connection with the jar, said pipe being located at a point above the bottom of the condensing-chamber, as and for the purposes specified.

2. A series of condensing-chambers having the blow-off tubes D, the pipes E located as specified, and stop-cocks *d* and *e*, in combination with the steam-pipes B C and stop-cocks *c*, substantially 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.

Witnesses: LE ROY C. COOLEY.

C. SCHUYLER,
JOS. F. WINNE.