J. MURPHIN.

Air-Exhaust Apparatus.

No. 220,641. Patented Oct. 14, 1879.

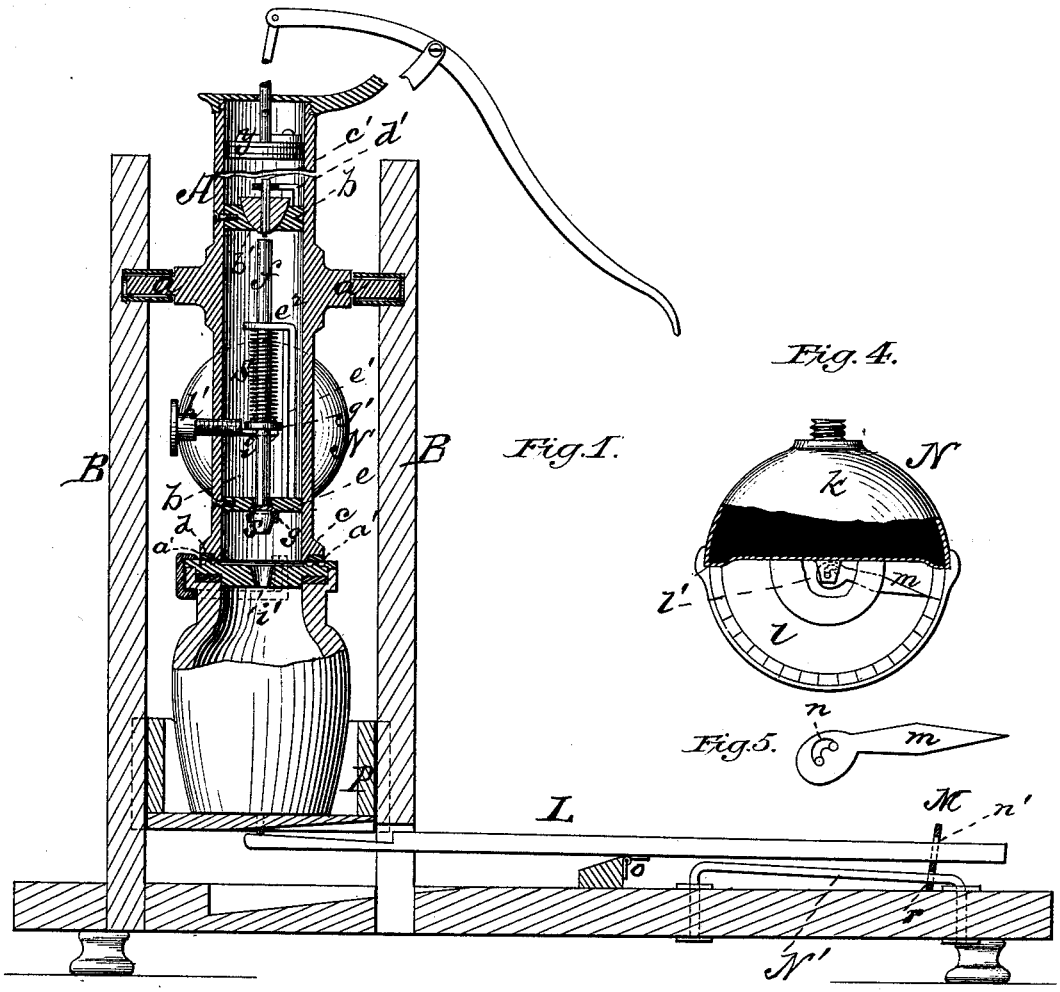


Fig. 1.

Fig. 4.

Fig. 5.

Fig. 2.

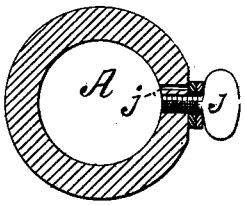
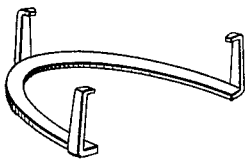


Fig. 3.



WITNESSES

John A. Ewer.

F. J. Masi

INVENTOR

Jos. Murphin

by Edw. Anderson

Sec'y ATTORNEY

UNITED STATES PATENT OFFICE.

JOSEPH MURPHIN, OF MALAGA, NEW JERSEY, ASSIGNOR TO HIMSELF AND THOMAS LEACH, OF SAME PLACE.

IMPROVEMENT IN AIR-EXHAUST APPARATUS.

Specification forming part of Letters Patent No. **220,641**, dated October 14, 1879; application filed May 17, 1879.

To all whom it may concern:

Be it known that I, JOSEPH MURPHIN, of Malaga, in the State of New Jersey, have invented a new and valuable Improvement in an Exhaust Apparatus for Fruit-Jars, &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 representation of a sectional elevation of my apparatus. Fig. 2 is a detail section thereof. Fig. 3 is a detail perspective view, and Figs. 4 and 5 are detail views of the same.

This invention has relation to improvements in means for exhausting air from cans in putting up preserves, fruit, vegetables, and other like articles previous to sealing up the same; and the nature of the invention consists in an exhaust-pump constructed and operated substantially as hereinafter set forth.

In the annexed drawings, the letter A designates the barrel of the pump, having the trunnions *a*, by means of which it is suspended between two parallel uprights, B. The barrel extends a suitable distance below the trunnions, forming a suction-chamber. At its bottom this chamber may be provided with a lip, *c*, having a rabbet upon its under side that forms a seat, *d*, to receive a packing-ring, *a'*, that causes the pump to form a tight joint with the lid of the can.

b indicates the lower valve-seat, rigidly secured in the barrel of the pump, and having an inverted conoidal opening formed in it that receives a correspondingly-shaped valve, *b'*, having a projecting stem, *c'*, that extends through an angular overhanging guide, *d'*, upon the seat.

The upper or movable valve, *y*, does not differ essentially from those used in other pumps, and is reciprocated by a connecting-rod and lever. It may be easily packed by removing the pump-cap.

e indicates a metallic head having a central perforation, and fixed securely in the suction-chamber, somewhat above its lower end or mouth. Upon this head is erected an upright, e^1, having an overhanging horizontal arm, e^2, that affords an upper bearing to a shaft, *f*, extending through the perforation of head *e*, and carrying on its end a socket or holder, *g*, in which is removably fixed a small plug or stopple, *s*, of any desired material. Upon this shaft is a coiled spring, S, compressed when the said shaft is thrust upward between the collar *g'* and upper bearing, e^2. This shaft and cup, with its plug, are held in the position shown in Fig. 1 by means of a screw, *h'*, extending through the wall of the suction-chamber, and provided on its inner end with a lip, *i*, that is in engagement with the collar aforesaid of the shaft. By disengaging the shaft-collar and screw the shaft is projected by the spring, and the stopple forced into the central exhaust-opening *i'* of the lid of the can, where it remains fixed. This movement of the shaft should only be brought about when the air has been sufficiently exhausted from the can. The strain of the exhaust upon the can is taken off by means of a relief-hole, *j*, extending through the barrel of the pump, and opened or closed at pleasure by means of a screw, *j*, carrying a washer and packing, as shown in Fig. 2.

The extent of the exhaust is indicated by a gage, N, of the following construction: It consists, primarily, of a hollow conical metallic vessel, *k*, connected at its apex to the pump-barrel, and having rigid sides and a flexible bottom. To this is secured a dial, *l*, traversed by a finger, *m*, having in its heel a slot, *n*, of curved form, engaged by pins projecting one from a central lug, *l'*, of the flexible diaphragm or bottom, and the other from the dial. When the air is exhausted from the can the flexible diaphragm is drawn in, and the finger indicates the degree of vacuum produced.

During exhaustion the can rests upon a cradle or platform, P, arranged between the uprights B after the manner of a sash, and resting upon the weight end of a lever, L, having its fulcrum at *o* on the platform of the machine. By thrusting down this lever the cradle is raised and the can thereon lifted to within proper distance of the stopple holder and projector above described, with its lid in close contact with the packing on the bottom

of the pump, pressing closely against the lid of said can, as shown in Fig. 1. The exhaust-pump will now be worked and air drawn out of the can.

The lever L is controlled by means of a metallic slide, M, having at one end a slot, n', through which the said lever projects, and in the other a perforation, r, through which extends a long metallic staple, N′, fixed to the base of the machine parallel to the lever L. By thrusting this slide toward the exhaust-pump the lever is released and the cradle lowered, so that the can can be removed from the cradle.

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

1. The combination, with the pump A, plunger y, and its operating devices, of a fixed lower seat, b, having a conoidal opening, an angular overhanging guide, d', and conoidal valve b', with stem c', extending through said guide, substantially as specified.

2. The combination, with an air-exhaust pump, of a centrally-perforated metallic head, e, fixed in the barrel below its valves, angular upright e', projecting up therefrom, shaft f, extending through the head and upright, and provided with collar g' and plug-holder g, spring S, and turn-screw h', having lip i, substantially as specified.

3. The combination, with an air-exhausting pump having a relief-hole, j, in its side, of a headed screw working in the barrel beside hole j, and provided with a packed head adapted to close the hole, substantially as specified.

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

JOSEPH MURPHIN.

Witnesses:
E. L. PERDRIAUX,
ALLEN H. GANGEWER.