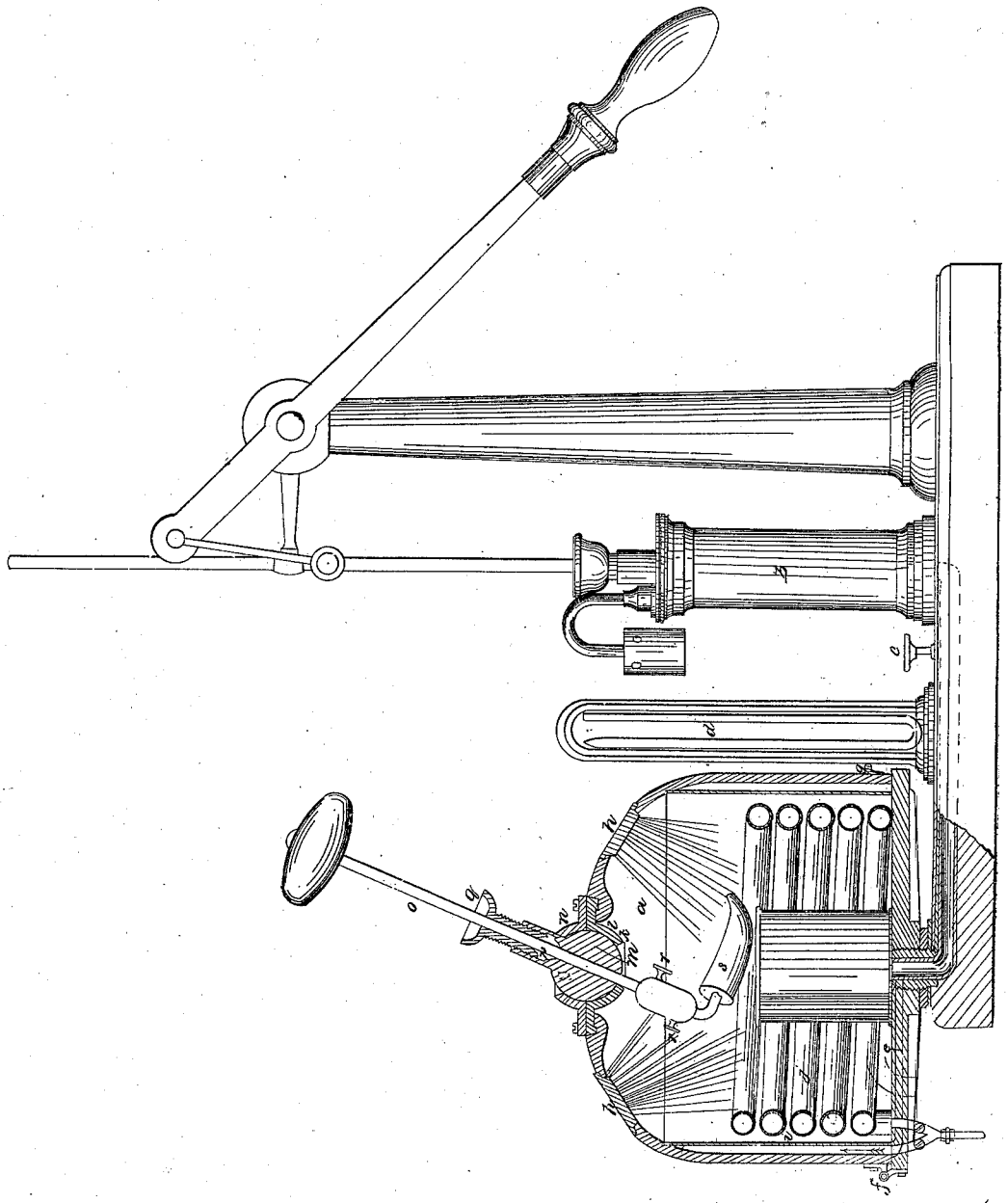
J. Green,

Soldering Machine.

No. 11,297. Patented July 11, 1854.



Witnesses:
Gerth Knight

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UNITED STATES PATENT OFFICE.

JOEL GREEN, OF CINCINNATI, OHIO.

IMPROVEMENT IN APPARATUS FOR SEALING CANS.

Specification forming part of Letters Patent No. 11,297, dated July 11, 1854.

To all whom it may concern:

Be it known that I, JOEL GREEN, of Cincinnati, Hamilton county, Ohio, have invented a new and useful Improvement in Hermetical Sealing or Soldering *in Vacuo;* and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the annexed drawing, making part of this specification.

The object of my invention is the soldering or otherwise sealing a preserving-canister or other vessel while withinside an exhausted chamber or receiver, and while subjected to the operation of heat. Considerable experience with such apparatus for this purpose as are now in use has impressed me with the following facts: that in order to effectually guard against fermentation, and at the same time to preserve the fresh flavor of the fruit or other edible, it is requisite to seal up or close the containing-vessel while under the action of such a moderate degree of heat as by the reduction of atmospheric pressure shall effect a thorough evolution of vapor at a temperature below the cooking-point; and I have also observed that for practical purposes a much greater range is required for the soldering-tool, and it is also desirable that the heated bit should be brought in direct contact with the solder.

In the accompanying drawing my apparatus is represented by a vertical section through the receiver *a* and its immediate accessories. The pump *b*, stop-cock *c*, and barometer *d*, being of any approved construction, are merely represented by external view. The receiver *a* may be made of cast-iron, and may be of capacity capable of containing any number of cans which it may be desired to operate upon at one heat of the soldering-bit, which, after the abstraction of the surrounding heat-conducting medium, will retain an effective degree of heat for upward of thirty minutes—a period which amply suffices to solder a hundred cans. The receiver may be ground in the usual way to fit air-tight to a base-plate, *e*, having the customary hollow screw-connection. The receiver, when large, may be provided with a hinge, *f*, and handle *g*, the pivot of the hinge being so placed relatively to the base of the receiver as to cause the adjacent edge of the latter to lift clear off from the base-plate, and, when being closed, to set square down upon it, so as to avoid bruising the plate. The receiver, if of an opaque material, will be pierced with several glazed openings, *h*, and may be whitened on its concave surface in order to fully appropriate the light, and to make everything within clearly visible to the operator. The heat is imparted by either a jacket, *i*, or coil *j*, containing steam, heated air, or boiling water, and which may be used either in conjunction or separately. To a circular aperture, *k*, at the summit of the receiver, is applied the seat *l* of the ball *m*, which is secured to its place by a cap, *n*. The ball *m* is traversed by a rod, *o*, which is capable of sliding longitudinally or rotating within the ball, all access of the external atmosphere being effectually prevented by packing *p*, secured by the gland or follower *q*. Thus by means of the ball a free scope for vibration is afforded to the rod, and by its own play within the ball facility is afforded for protraction and retraction and rotation of the rod. To the lower extremity of the rod is fastened a copper soldering-bit, *s*, by means of set-screws *r*. The universal movement permitted to the rod evidently enables the bit to be shifted to any part of the cans with perfect ease to the operator.

The operation is as follows: Solder being placed in suitable proximity to the perforations left in the cans for escape of air, and the cans being placed upon the plate and the heated bit attached to the lower end of the rod, the receiver is then closed down over the cans and steam is applied to either the coil or the jacket, or to both, and continued until the cans rise to such a temperature as will evolve vapor by the application of the exhaust, which being effected by the pump *a*, the bit is then promptly brought to bear upon the solder of one can after another and the work is accomplished.

For the purpose of ascertaining the conditions of exhaust and temperature within the receiver, a barometer and thermometer may be placed in connection with it.

I claim herein as new and of my invention and desire to secure by Letters Patent—

1. The application of a steam jacket, coil, or equivalent device to an exhausted receiver, in connection with a soldering apparatus, for

the purpose of sealing or soldering preserving-canisters, &c., under the combined agencies of heat and vacuum, for the purposes explained.

2. The combined ball and sliding and air-tight joints of the rod, as described, permitting the heating, insertion, and the vibratory longitudinal and revolving motion of the soldering-bit, while excluding the external atmosphere, for the purpose of soldering *in vacuo*, as herein explained, and enabling the direct application of the heated bit without the intervention of any other substance.

In testimony whereof I hereunto set my hand before two subscribing witnesses.

JOEL GREEN.

Witnesses:
GEO. H. KNIGHT,
WM. H. LYTLE.