J. R. MATTHEWS.

Canning Fruit.

No. 135,927. Patented Feb. 18, 1873.

Fig. 1

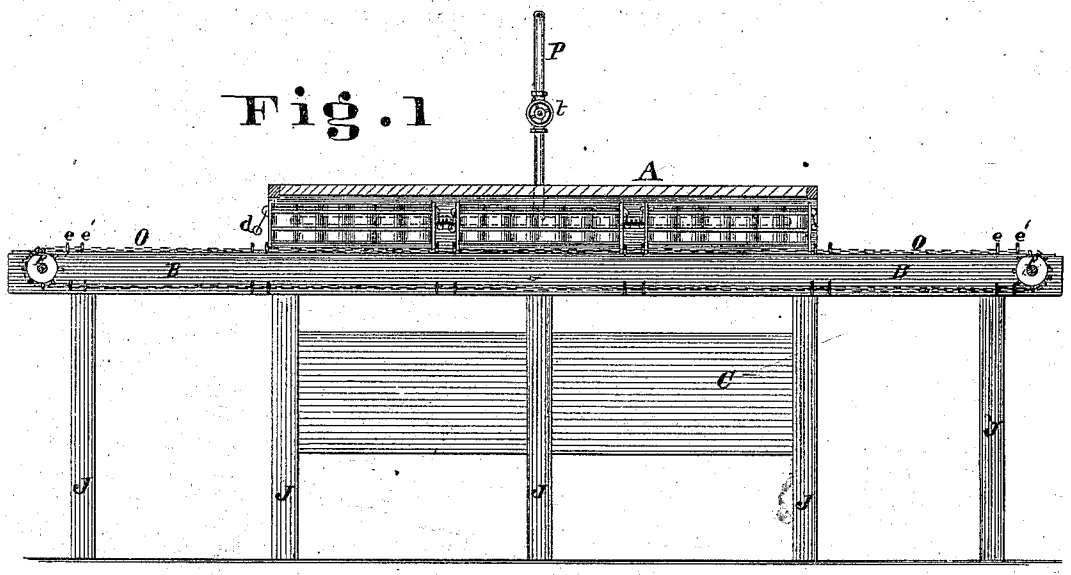


Fig. 2

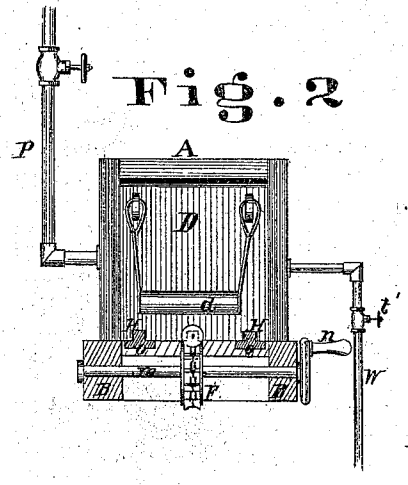


Fig. 3

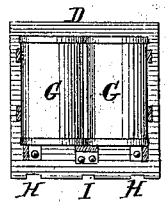
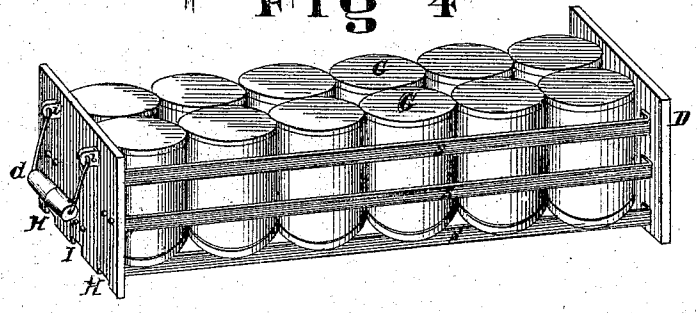


Fig 4



Attest

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UNITED STATES PATENT OFFICE.

JAMES R. MATTHEWS, OF CINCINNATI, OHIO.

IMPROVEMENT IN CANNING FRUIT.

Specification forming part of Letters Patent No. **135,927**, dated February 18, 1873.

To all whom it may concern:

Be it known that I, JAMES R. MATTHEWS, of Cincinnati, Hamilton county and State of Ohio, have invented or discovered a certain Improvement in Canning Fruit, and in the apparatus used in connection therewith, of which the following is a specification:

The object of my invention is to cheapen and quicken the process of canning fruit in such a manner that the preservation of the canned articles is more fully insured than by the ordinary methods hitherto used, and to provide a suitable apparatus to carry said process into effective operation. It consists, first, in a suitable heater arranged in connection with an endless chain, carrying sliding frames through the heater, retaining the frames which contain the articles for canning any desired time in the heater; also, in providing suitable appliances for introducing steam or heated air into the heater for curing or cooking the articles to be preserved. Second, my invention consists of a new method of treating the articles to be canned while undergoing the cooking and sealing or soldering and handling incident to the canning of fruits, vegetables, &c.; all of which will be more fully understood by a reference to the accompanying drawing and description thereof, in which drawing—

Figure 1 represents a vertical section of the apparatus; Fig. 2, an end elevation of the same; Fig. 3, an end view of one of the movable racks; Fig. 4, a perspective view of one of the same racks with the cans in position for operation.

A is a heater, which is open at either end, and is mounted on B, the bed or base of the heater. B is also constructed to serve as a bench or platform at each end by the extension running out each side of the heater-box A. F F′ are drums placed at either end of the apparatus, and mounted on suitable shafts revolving in bearings, as shown in Fig. 2. *n* is a crank for turning the drums F F′. O O is an endless chain, passing around the drums and through the heater at or near the planes shown in Fig. 2. E E′ are buttons, which should be placed in pairs a little distance from each other to facilitate the circulation of the heating agent used to cook the fruit, &c., in the heater A. Each pair should be separated from the pair in front and rear a distance corresponding to the length of the movable rack or frame D. The apparatus is mounted on suitable posts J J J J. C is a trough for receiving the condensed vapor or water escaping from the heater A. P is a pipe for admitting steam or heated air into the heater A. *t* is a cock for regulating and controlling the admission of the heating medium; W, a waste-pipe, with a like cock, *t′*. D is a sliding or movable rack or frame, in which the cans are placed to be carried into the heater A. It is composed of end plates connected by slats *s s*, as shown in Fig. 4. The end plates are provided with ears *i i*, for handle *d* to engage in. At the lower edge of the end plates of rack D gains H H′ are made, fitting tram-ways *o o* laid on the bed B. I is a notch cut in the bottom of frame-plates D, of sufficient size to allow the chain O to pass freely through, but so small that the button E will engage in the notch. Rack D, when placed on the bed B between buttons E E′ in the longer spaces, will be carried into the heater A by turning crank *n* and revolving the endless chain O.

Racks D should be made so that the end plates, when in the mouth or opening of heater A, will nearly fill the opening, as shown in Fig. 2; yet the steam or heat will circulate freely around the cans G, as spaces are formed between the slats *s s* of rack D and the sides and bottom of heater A and bed B.

My process of cooking and sealing fruit and vegetables is as follows when ordinary tin cans are used: The fruit is prepared for preserving, either with or without sweetening, and placed in cans G, the top or covers of which are not put on, but the mouth of the can is left open for the free escape of steam and gases generated in cooking. The cans are then placed in rack D. The rack D and cans G containing the fruit, &c., are placed between a double set of buttons, E E′, upon the platform B, and are carried by the chain into heater A, which should be filled with frames of cans for cooking, as shown in Fig. 1. Steam or heated air is then introduced through pipe P, and allowed to circulate around the cans containing the fruit. The fruit is retained in the heater until it is heated through and raised to any desired temperature. This can be done in from one to fifteen minutes, depending upon the size of cans, temperature and quantity of steam

used, and kind of fruit, &c., treated. As soon as the fruit is properly heated one rack of cans is removed and another is placed within the heater.

It will be more convenient to have the heater hold three or more frames, D, so that one can or more can be in the heater A all of the time; also, one rack of cans should be carried into the heater as another one is carried out.

During the heating of the fruit in cans G the gas and steam generated escape and pass off through the mouth of the cans into the heater. A small aperture is usually left above the rack D, as shown in Fig. 3, for the steam to escape, and to prevent undue pressure within the box and secure a free circulation.

When a set of cans is carried out of the rear end of the heater A they should be removed, the top wiped dry for sealing or soldering, and allowed to stand from three to five minutes for the steam to escape. The cover or top is then sealed or soldered on the can so as to exclude the air from the heated contents inside the cans. The cans then should be carried into and through the heater again, heated, or finished, so as to insure a thorough cooking and to test the soldering of the cans. The fruit is then allowed to cool for packing.

By the old method of canning, when the fruit was cooked in the cans the cans were first sealed and put into a chest or boiler and heated or scalded; then removed, and a hole made in the can for the escape of the gas and to relieve the pressure consequent therefrom; and then allowed to cool a short time; and then again placed into the chest or heater and reheated or "finished."

I usually construct my apparatus with two heaters and two sets of endless-chain attachments mounted on one bed-frame. It is obvious one or more may be used, as desired.

My apparatus enables me to treat the articles to be canned much more rapidly than any in former use. At the same time I can employ my process of heating and soldering, so that the necessity of opening the can for the escape of gas after the first heating and the subsequent resoldering or sealing are dispensed with, and thereby secure a rapid and continuous process of treatment and heating the fruit in an open can, which more fully insures the preservation of the articles canned.

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

1. The apparatus for canning articles, composed of heater A, with bed B, endless chain O, and sliding frame D, combined and arranged substantially as herein set forth.

2. The process of heating, sealing, and canning fruit and vegetables, in the manner and by the means substantially as herein set forth.

JAMES R. MATTHEWS.

In presence of—
E. E. WOOD,
EDWARD BOYD.