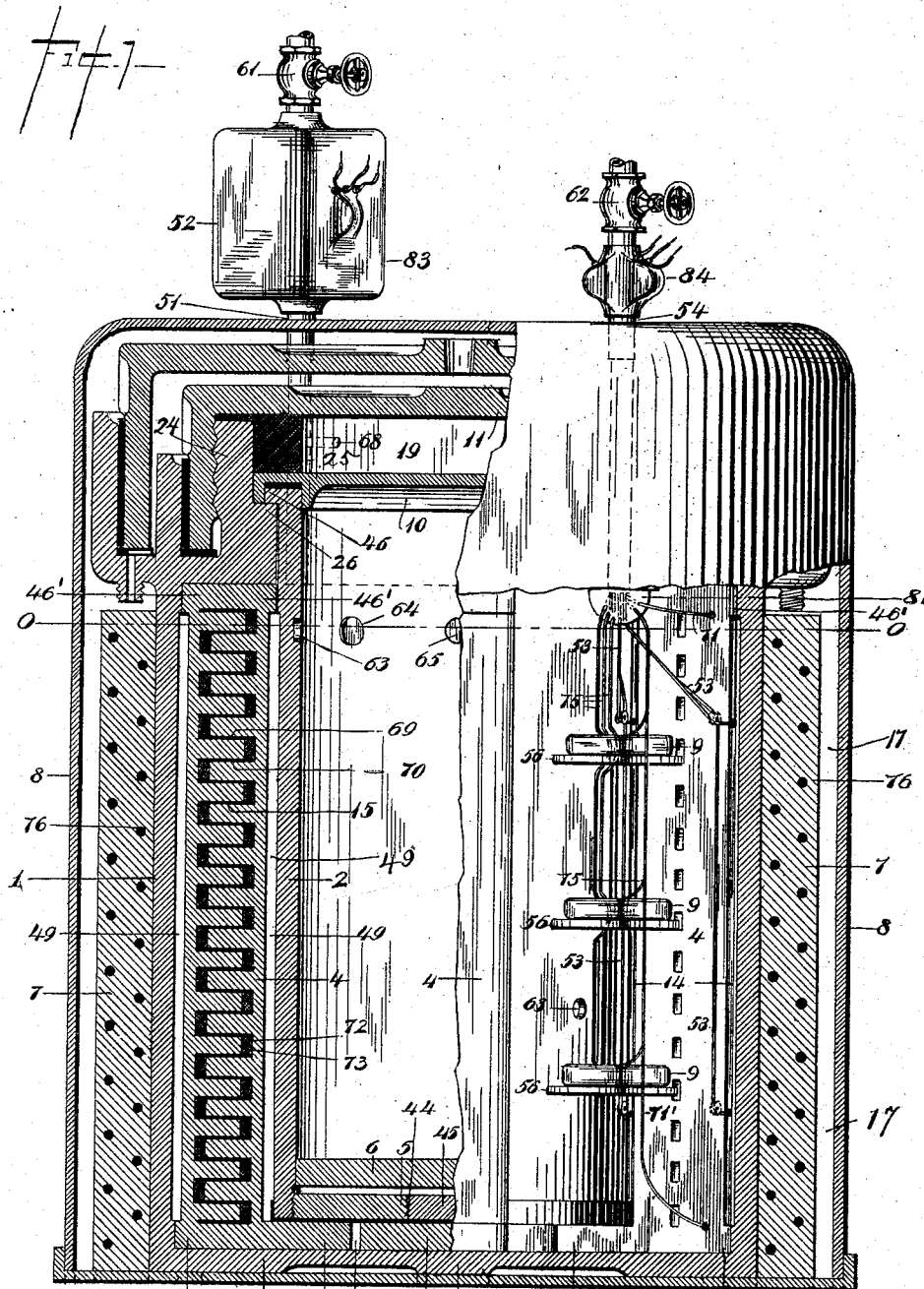


A. BAKER.

APPARATUS FOR PRESERVING FOODS.

No. 489,916.

Patented Jan. 17, 1893.



WITNESSES:

H. C. Siler
E. Sullivan Jr.

INVENTOR

Albert Baker

BY

A. C. Hartman

ATTORNEY.

(No Model.)

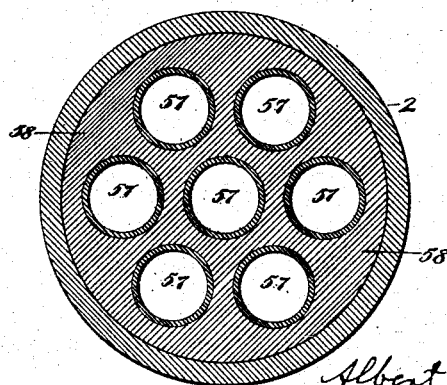
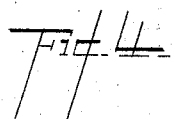
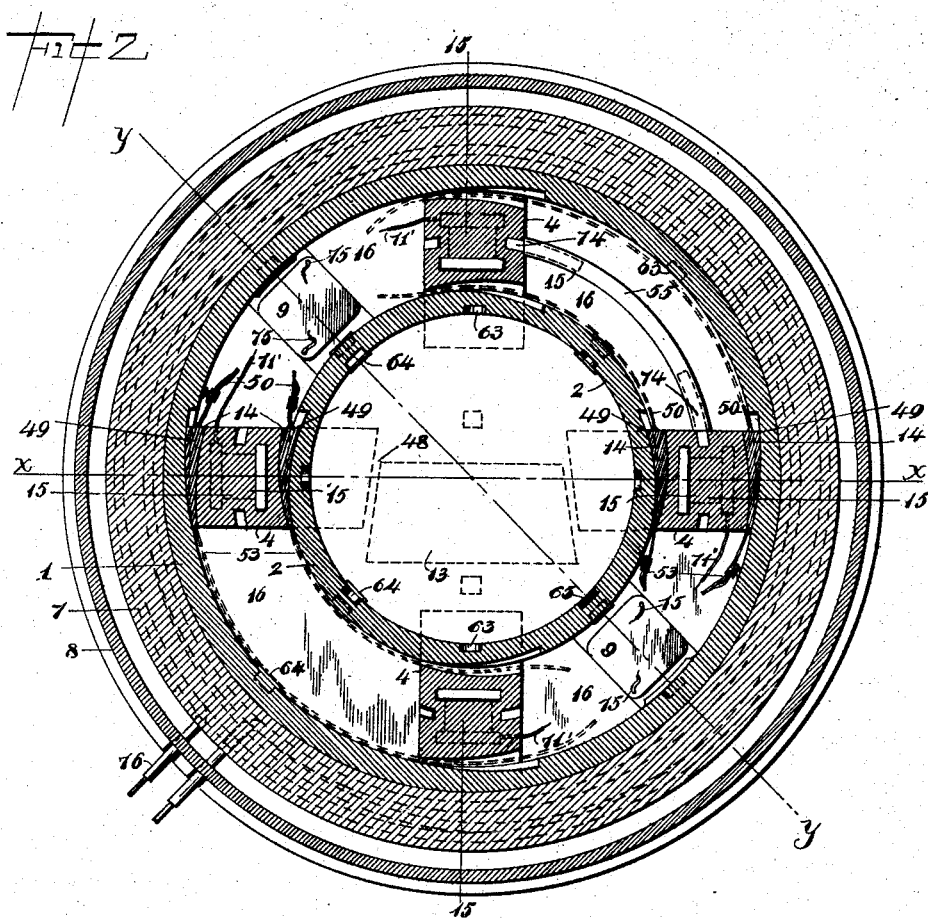
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H. O. Viles
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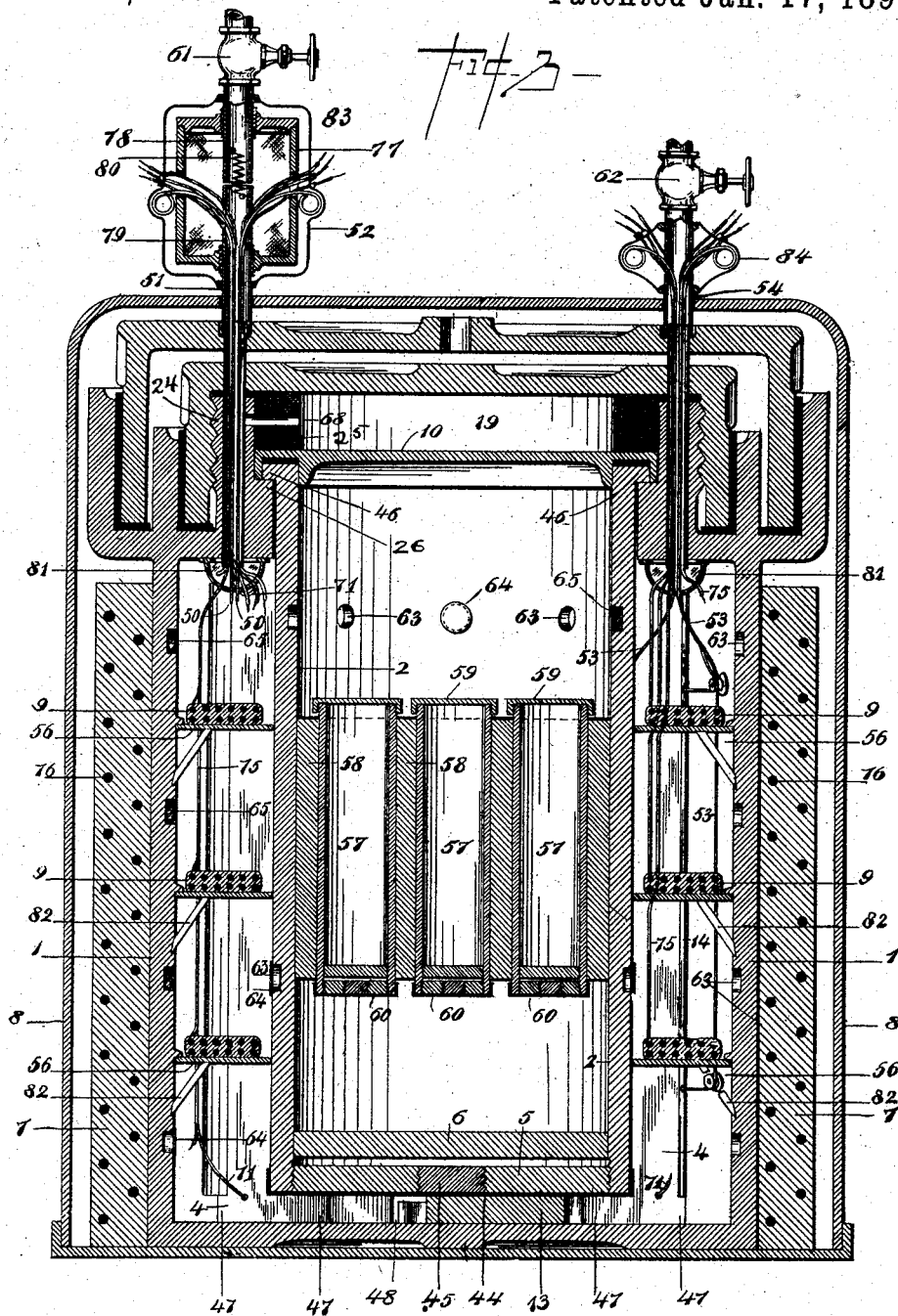
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WITNESSES:

H. C. Dites
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Albert Baker INVENTOR

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UNITED STATES PATENT OFFICE.

ALBERT BAKER, OF FORT WAYNE, INDIANA.

APPARATUS FOR PRESERVING FOODS.

SPECIFICATION forming part of Letters Patent No. 489,916, dated January 17, 1893.

Application filed January 25, 1892. Serial No. 419,225. (No model.)

To all whom it may concern:

Be it known that I, ALBERT BAKER, a citizen of the United States, residing at Fort Wayne, in the county of Allen, in the State of Indiana, have invented certain new and useful Improvements in Apparatus for Preserving Foods; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to improvements in apparatus for handling, preserving and improving foods and food substances, and is illustrated in the accompanying drawings in which:—

Figure 1 is a vertical half section of the main case taken through the line $x-x$ of Fig. 2, with the other half in perspective with part of the walls broken away to show the interior. Fig. 2 is a cross section of the main case through the lines $o-o$ of Fig. 1. Fig. 3 is a vertical section of the main case taken through the lines $y-y$ of Fig. 2. Fig. 4 is a cross section of the sub-interior cases and their envelope.

My invention consists in the construction of a number of different elements which may be combined in one apparatus. Various combinations of the different parts may be used to accomplish specific results without the use of all parts, some of which will hereinafter be pointed out and others will readily occur to those skilled in the art to which it appertains. Several cases, vessels or chambers are constructed and combined with each other, which for the purpose of differentiation are named herein respectively as a main case, a secondary case, interior cases and sub-interior cases. I also use throughout these specifications for brevity the word "current." By this term I mean a current of air, water, gas, steam, or any other suitable agent passing or forced through the cases or chambers, which may be required in the particular process to which the foods and other substances may be subjected. The selection of the agent or agents will of course vary with the ideas and processes of the operator. And it will aid in a better understanding of the use and scope of

the invention to keep in mind, that these cases are not necessarily circular in form as shown in the drawings and may be of such large dimensions as to constitute practically a fixed and permanent apparatus.

The complete invention is an apparatus consisting of the following constructions. I construct a main case of any suitable material, and of any suitable form or size, a circular form being shown in the drawings for convenience. A projection 24 is attached to the neck or opening of the main case provided with an interior recess with a shoulder of sufficient depth to receive the rims of inclosed cases and a plate or cover 10, and to leave a space or chamber 19 between the plate 10 and a cover placed on top of the projection 24. I prefer to use also with such projection 24 the cover and other hermetical sealing devices which are fully described and form part of the subject matter of a prior pending application filed December 3, 1890, and serially numbered 375,417, and such are shown in the drawings. A new use of this plate 10 chamber 19 above it is hereinafter described.

I also construct a secondary case (2) of homogeneous material or of different materials hermetically joined together for the same purposes for which such construction is employed in the main case. I provide such case with a rim (46) adapted to rest on the shoulder (26) in the interior recess (25) of the first projection (24), and extend the secondary case therefrom to, or near to the bottom of the main case in which it is placed, the two cases being so adapted in size that there shall be a chamber (17) between the walls of the two cases. I also provide such secondary case (2) with a removable bottom (5), which is provided with an orifice (44) which is closed by a plug or valve (45) in such manner as to resist the pressure or passage of a current. This opening is for the purpose of providing a passage for a current into said case without removing its bottom.

Over the rims 46 of the secondary case placed in the interior recess (25) of the first projection (24). I also place a plate (10) adapted to form a cap or cover, and I place suitable packing material between the rims and also between said plate and the inner or first cover,

adapted to seal the parts when the cover is secured in place. In some cases the said plate may be secured in place, independently if desired.

5 I also provide the secondary case (2) as shown in Fig. 1 with a piston (6) adapted to move therein and be operated by the flow of a current preferably through the orifice (44) in its removable bottom (5), or directly against
10 it by removing such bottom (5), thereby causing the piston (6) to be forced into the secondary case (2), and compress the material therein, which is sometimes very desirable. By this means the contents of the secondary
15 case may be held under any pressure sufficiently to prevent the working and development of spores and bacteria. Such current may enter the case through the entrance pipes or through any other opening provided
20 therefor.

Between the secondary case (2) and the main case, see Figs. 1 and 2, I place two or more partition walls (4), (where the cases are circular such walls are radial) sub-dividing
25 the space between them into two or more chambers or compartments (16). The upper part of these walls are provided with projections or arms (46') on either side extending to and fitting against the walls of the
30 cases respectively. The lower ends are provided with like projections or arms (47) extending on one side up to and fitting against the walls of the main case, and on the other side extending underneath the bottom of the
35 secondary case (2) and providing a support therefor, and an aperture or passage way (48) underneath for the flow of a current, which passage way is closed by a valve (13) preferably wedge shape. Between these projections
40 or arms these partition walls are made narrower than the chamber (17) for the purpose of leaving passage ways or apertures (49), for the flow of a current from one compartment into the other. These apertures or passage
45 ways are provided with valves (14) and means to operate them from the outside of the cases. This is the preferable location of the apertures provided with valves, but if desired they may be located elsewhere in the parti-
50 tion walls. I operate these valves (14) preferably by connecting wires (50) to the wide ends of the wedge shaped valves (14) at suitable places, and conducting them through the entrance pipe (51) and out of the sterilizer
55 case (77). By pulling such wires the valves are withdrawn sufficiently to permit the passage of a current through the opening. Other wires (53) are attached to the sharp end of said valves (14) and both are conducted out-
60 side the case, preferably through the exit pipe (54) and sterilizer case 77 and afford means to close the valves. The outside ends or handles attached thereto are inclosed with elastic or flexible covers (83-84) hermetically
65 attached to the case, permitting their operations without admitting air to the case. The

functions of these chambers and compartments and the openings provided with valves are to provide a more uniform diffusion of a current and to provide means to enable the
70 operator to retard the flow from one chamber to another at several different places, and to regulate its volume by the valves. Another function is, that the material in the different chambers may be subjected to successive
75 treatments by confining sterilized air or other agency in one chamber or compartment until its action therein is completed, and then letting it flow into the next chamber and so on.

In the chambers (16) formed by the parti-
80 tion wall where the construction is very large for extensive operation, I further sub-divide the space by cross walls (55) extending from one partition wall to the other. These cross walls may be also, like the partition walls
85 provided with valves and openings if desired. Within the compartments I place suitable supports for the materials, preferably shelves (56) and brackets 82, the brackets being adapted to support materials suspended from
90 them. By so suspending the foods and substances, they are separated from each other and thus better preserved in form and fiber, and provision is thus made for a free circula-
95 tion around them and through them of a cur-
rent.

For extensive operations I also, place preferably within the secondary case two or more sub-interior cases (57), or chambers, seven of which are shown in the drawings, Fig. 4. I
100 preferably inclose them within an envelope (58) adapted to fit in the secondary case and be supported therein at any desired altitude. These sub-interior cases are provided with
105 covers (59) and means to hermetically seal them, and also with removable bottoms (60) provided with valves or plugs. These sub-interior cases when desired may be made with their envelope (58) of the same size and
110 length as the secondary case, and when so constructed the envelope (58) may be substituted for the secondary case, the function of each of these sub-interior cases being identical with that of the secondary case hereinbefore described. An additional function or
115 purpose in the combining of these sub-interior cases is to permit the operation of successive stages of treatment at the same time: so that when the material has been fully sub-
120 jected to one step in the process in one case, it may be removed to another case and submitted to a second step in the process, fresh material being added at the same time to the first one and other material taken out of the
125 last one and so continued.

I also provide an entrance pipe (51) and an exit pipe (54) to the main cases, Figs. 1 and 3, for the passage of a current, preferably extending them into the case through its neck and covers. These pipes are provided on the
130 outside with stopcocks (61-62) to regulate the pressure of the flow of a current within

the case, and to permit the use of means to exhaust the air or gases from the case and its compartments.

I also provide cells or recesses (63) within the walls of the apparatus at any required places for the purpose of holding substances to affect the foods or contents, and also for holding capsules containing such substances. The cells not containing capsules are provided with covers (64) and both covers and capsules are constructed of materials adapted to be broken or dissolved singly or in series at the will of the operator, by the application of heat, moisture, mechanical or chemical means. Various materials may be used for such construction, their selection depending upon the character of the inclosed substances and the means to be used for breaking or dissolving the same. Generally either gelatine, Canada balsam, shellac or cocoa butter, will answer the purpose. Capsules are used when a more complete inclosure is desired, and when it is desired to precipitate the substances into the foods or contents, which may be done by tilting the case so they will drop out of the cell. This is desirable in seasoning the foods.

The substances inclosed in the cells and capsules to affect the foods will vary largely according to the skill and purposes of the operator. Cinnamon is used to arrest and prevent fermentation and in certain cases adds flavor: cloves are used for the same purpose, but act differently and give a different flavor, and the list might be extended indefinitely. Some of the functions of the substances placed in the cells and inclosed in the capsules may be to impart odor or flavor, or to restore a dissipated element, and may be otherwise adapted to aid in the objects stated according to the skill and choice of the operator, both in their selection and times of operation.

I also provide a pipe (68) connecting the space or chamber (19) above the plate covering the rims of the said inner cases and the entrance pipe. This is for the purpose of creating a pressure by the flow of a current upon said plate to equalize a like pressure upon the bottom of secondary cases.

I also construct a thermo-electric pile (15) or thermo-spiral consisting of alternate plates or wires (69—70) of dissimilar metals, that is, of any two metals or substances having different conductive power, such as copper and zinc, or bismuth and antimony. I arrange such conductors alternately in series, connecting their alternate ends so as to form a continuous path for an electric current to pass in either direction. The ends of the series are attached to conductors (71) extending to and connected with suitable sources of electric generation outside the case or cases. Such current is regulated and controlled in the usual manner well known to the art.

I increase or intensify the effect by providing enlarged surfaces or arms (72—73) at such

alternate points of contact by spreading such ends or points. These thermo-electric piles (15) are preferably inclosed within the partition walls (4) and cross walls (55). Their function is to produce that kind of heating and cooling action known as the "Peltier and Thompson effects," described and illustrated in S. P. Thompson's works and others. Placing the thermo-pile within said walls is also novel and my own construction. The purpose is to prevent short circuiting where the chambers or compartments are filled with water, or contain other conducting fluid or material. Where thermo-piles are placed in cross walls the ends of the plates project linearly beyond the ends of the cross walls and made so as to form points of attachment 74 to the partition walls. See dotted lines in Fig. 2, with dovetail in partition walls. They are also placed so as to be near to but not in contact with the thermo-pile in the partition walls. This is a novel construction and is for the purpose of intensifying the effects of such piles in the partition walls and in the vicinity of such contact.

I also place upon suitable supports electric mats (9) consisting of fibrous or porous material containing electric conductors arranged to form a path for electric current for heating purposes, and also constructed and arranged to produce electrolytic action at given places, which latter effect is produced by arranging the positive and negative ends of the wires to the opposite sides of the materials at the given places, in such relation and manner, that moisture or other liquids permeating the foods or materials are decomposed evaporated, collected or transferred by convection or electrolytic action to the surface, where they are acted upon by a current of air or gas and eliminated from the apparatus according to the particular arrangement of the wires, and the nature and desired treatment of the material. Such arrangements to produce such effects are well known. Such electric mats are connected with conductors (75) extending outside the case and attached to suitable sources of electric generation.

I also construct an electrical jacket inclosing the cases, by interlacing through a jacket (7) of porous or absorbent material enveloping the main case externally, electrical conductors (76) or metals arranged in a thermo electric series, so that any metal in the series is thermo-electrically related to the following one, as bismuth is to antimony &c. connecting the ends of the series with any suitable source of electric generation, for the purpose of effecting a heating and cooling action. Known as the Peltier effect in contradistinction to the Joule effect. Such a method has the advantage of being under exact control.

I also provide an electric sterilizer (52) and inclose it within a case (77) which is placed between two sections of the entrance pipe, so as to form a section thereof. The upper sec-

tion (78) of the entrance pipe is utilized as a conductor of an electric current to a point separated from the lower section (79) of the pipe. Between these points or sections of the pipe is attached an electrical conductor or spiral (80) to both, of different conductive capacity from that below, or the section below terminates in a point of different conductive capacity, the object being to generate within the case electric heat and flame required for sterilizing. This may be done as shown by the termination in the small spiral conductor (80) shown, or in any usual manner: such as the use of carbons, terminal wires or resisting incandescent mediums. This form allows the points of the conductors to come in electrical contact, or otherwise, and like other common points they may be slightly separated in any suitable manner so as to produce electrical heat and flame as desired. Where a flame is required the separated points terminate in such materials and are protected by devices well known, to protect the pipes from fusion. The sterilizer case is filled with non-conducting material, so arranged as to provide a space through which a current of air or gas or other substance passes through an electric area of heat or flame so generated, whereby the same is sterilized and may also be ozonized when desired.

I also provide a cage (81) or receptacle in which I place antiseptic material, and attach it to the entrance (51) and exit pipes (54), in such manner that all the currents entering or passing out through the inner ends of said pipes pass through and are acted upon by the antiseptic material. I inclose the main case (1) when used separately, with an outside envelope (8) hermetically sealed, for preservation and transportation.

The operation of the apparatus above described will readily occur to those skilled in the art from the description of the various parts and the functions they perform.

I have described above, and illustrated various electric devices, all of which are old, separately considered. I do not therefore claim any part of such electrical devices, but simply their combination with and in an apparatus for handling, preserving, and improving foods as hereinafter set forth, for the uses and purposes substantially as stated.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. In an apparatus for handling and preserving foods and other substances, the combination of a main case, with a projection attached to its neck or opening provided with an interior recess and with a shoulder upon its upper part of sufficient depth to receive the rim of a secondary case, and a plate; a secondary case provided with a rim adapted to rest upon the shoulder of the interior recess of said projection, and extending to or near to the bottom of the main case and pro-

vided with a removable bottom having a central orifice closed by a plug or valve; a plate adapted to form a cap or cover to said secondary case and to rest upon and cover its rim; packing between the rim and cap of said secondary case adapted to seal the same when the cover inclosing the projection is secured in place; sub-interior cases placed within the secondary case, or within an envelope placed therein, provided with covers and means to hermetically seal them and with removable bottoms which are provided with valves or plugs; a piston fitting in said secondary case and adapted to be operated therein; a bottom to the main case provided with an orifice extended to the interior thereof closed hermetically by a plug or valve and adapted to coincide with the orifice in the bottom of said secondary case; partition walls between the secondary case and the main case sub-dividing the space between them into two or more compartments; supports under the secondary case constituting walls connected with and forming part of the partition walls, and provided with valves closing orifices and means to operate the valves externally; enveloping flexible covers hermetically attached, inclosing the handles of the wires or other mechanism connected to and operating the interior valves and adapted to permit their free operation; pipes entering the case or cases for the admission and exit of a current, provided with stop cocks, or other means for regulating the entrance and exit of a current; a cage or receptacle containing sterilizing material connected to the admission and exhaust pipes in such manner that all the current entering or flowing out through the inner ends of said pipes shall pass through the sterilizing material; a thermo-electric pile consisting of alternate metallic plates or conductors of dissimilar metal, connected at their alternate ends, so as to form a continuous path for an electric current; cross walls extending from one partition wall to another provided with said thermo-electric piles, and further sub-dividing the space into two or more compartments, the connecting ends of the piles extended beyond the cross walls lineally so as to form points of attachment in the partition walls; cells or recesses placed within the apparatus at any required places and adapted to hold capsules and materials, the cells containing materials being provided with covers, and the covers and capsules being constructed of materials adapted to be dissolved or broken by the application of heat, moisture or other means at the will of the operator; electric mats consisting of a mat of fibrous or porous material placed on suitable supports containing electric conductors interlaced and arranged to form a path for an electric current, and also arranged to produce electrolytic action at given places; electric conductors connecting the thermo-electric pile and the electric mats, with suit-

ondary case provided with a rim adapted to rest upon said shoulder in said interior recess and extended to or near to the bottom of the main case and provided with a removable bottom having an orifice closed by a plug or valve; partition walls between the secondary case and the main case sub-dividing the space between them into two or more compartments; cross walls extending from one partition wall to the other provided with thermo-electric piles, and further subdividing the space into two, or more compartments, the connecting end of said piles extending beyond the cross walls lineally so as to form points of connection and attachment in said partition walls; and a cover over said projection and means to secure in place hermetically.

8. In an apparatus for handling and preserving foods and other substances, the combination of a case with, a projection attached to the neck or opening of the case provided with an interior recess with a shoulder; a secondary case provided with a rim adapted to rest upon said shoulder in said interior recess and extending to or near to the bottom of the main case and also provided with a removable bottom having a central orifice closed by a plug or valve; electric mats consisting of material of fibrous or porous construction placed upon suitable supports within said case containing electric conductors arranged to form a path for an electric current, and also arranged to produce electrolytic action at given places and a cover over said projection and means to secure the same in place hermetically.

9. In an apparatus for handling and preserving foods and other substances, the combination of a main case with, pipes entering said case for the admission and exit of a current and provided with stopcocks or other means for regulating the entrance and exit of a current subinterior cases inclosed by an envelope extended from the neck to the bottom of the main case, provided with removable bottoms which are provided with valves or plugs; partition walls between said envelope inclosing said sub-interior cases and the main case, subdividing the space between them into two or more compartments, and a cover for said case provided with means to secure the same in place hermetically.

10. In an apparatus for handling and preserving foods and other substances, the combination of a case with, pipes entering said case for the admission and exit of a current, provided with stopcocks, or other means for regulating the entrance and exit of a current; a cage or receptacle containing sterilizing material connected to the admission and exit pipes in such manner that all the current entering or flowing out through the inner ends of said pipes shall pass through the sterilizing material; and a cover to said case and means to secure the same in place hermetically.

11. In an apparatus for handling and preserving foods and other substances, the combination of a case with, pipes entering said case for the admission and exit of a current and provided with stopcocks or other means for regulating the entrance and exit of a current a projection attached to the neck or opening of said case provided with an interior recess with a shoulder; a secondary case provided with a rim adapted to rest upon said shoulder in said interior recess and extending to or near to the bottom of the main case and provided with a removable bottom having a central orifice closed by a plug or valve; a plate adapted to fit in said recess and form a cap or cover to said secondary case; partition walls between the secondary case and said case sub-dividing the space between them into two or more compartments; sub-interior cases placed within the secondary case, or within an envelope placed therein and also provided with covers and means to hermetically seal them and having removable bottoms which are provided with valves or plugs; and a cover or covers to the openings of the case or cases and means to secure them in place hermetically.

12. In an apparatus for handling and preserving foods and other substances, the combination of a main case with, pipes entering said case for the admission and exit of a current and provided with stopcocks or other means for regulating the entrance and exit of a current a projection to the neck or opening of said case, provided with an interior recess with a shoulder of sufficient depth to receive the rims of inclosed cases and a plate and leave a space or chamber between the plate and a cover placed on top of the projection; a secondary case provided with a rim adapted to rest upon the shoulder of said interior recess and extended to or near to the bottom of the main case, and provided with a removable bottom having an orifice closed by a plug or valve; a plate adapted to form a cap, or cover to said secondary case and to rest upon and cover the rims thereof; partition walls between said secondary case and the main case sub-dividing the space between them into two or more compartments; sub-interior cases placed within the secondary case or within an envelope placed therein provided with covers and means to hermetically seal the same and with removable bottoms which are provided with valves or plugs; and a cover or covers to the openings of the case or cases and means to secure them in place hermetically.

13. In an apparatus for handling and preserving foods and other substances, the combination of a case with, a projection attached to the neck or opening of the case provided with an interior recess with a shoulder; a secondary case provided with a rim adapted to rest upon the shoulder in said interior recess and extended to or near to the bottom of the

able sources of electric generation outside the apparatus; an electric sterilizer inclosed within a case placed between sections of the said pipe, the case forming a section thereof; a
 5 jacket of porous or absorbent material enveloping the main case externally and provided with electric conductors of different
 10 current interlaced therewith; and a cover or covers to the openings of the case or cases and means to secure them in place hermetically.

2. In an apparatus for handling and preserving foods and food substances, the combination of a main case with, a projection attached to the neck or opening of said case, provided with an interior recess with a shoulder; a secondary case provided with a rim adapted to rest upon said shoulder within
 20 said recess of said projection and extended to or near to the bottom of said case, and also provided with a removable bottom having an orifice closed by a plug or valve; a plate adapted to fit in said recess and form a cap
 25 or cover to said secondary case; supports under the secondary case constituting walls connected with the partition walls, and provided with apertures provided with valves and means to operate the valves externally; partition walls between the secondary case and
 30 the main case sub-dividing the space between them into two or more compartments and provided with apertures and valves and means to operate the valves externally; pipes
 35 entering the case or cases for the admission and exit of a current provided with stopcocks, or other means for regulating the entrance and exit of a current; suitable packing material between the parts requiring sealing; and a cover over said projection and means to secure the same in place hermetically.

3. In an apparatus for handling foods and other substances, the combination of a main
 45 case provided with a removable plug or valve with, a projection attached to the neck or opening of said case provided with an interior recess with a shoulder; a secondary case provided with a rim adapted to fit in said recess and rest on said shoulder and extending
 50 to or near to the bottom of the main case and also provided with a removable bottom having an orifice closed by a plug or a valve; a plate adapted to fit in said recess and form a cap or cover to said secondary case; a piston fitting in said secondary case and adapted to be operated therein; suitable packing between the parts requiring sealing; and a cover to said projection and means to secure the
 60 same in place hermetically.

4. In an apparatus for handling foods and other substances, the combination of a main case with, pipes entering said case for the admission and exit of a current and provided
 65 with stopcocks or other means for regulating the entrance and exit of a current a projec-

tion attached to the neck or opening of said case provided with an interior recess with a shoulder; a secondary case provided with a rim adapted to fit in said recess and rest upon
 70 said shoulder and extended to or near to the bottom of the main case and provided with a removable bottom having an orifice and a plug or valve closing the same; a plate adapted to fit in said recess and form a cap or
 75 cover to said secondary case; a piston fitting in said secondary case and adapted to be operated therein; a pipe opening into the space or chamber formed between the plate covering the rim of said secondary case and a cover
 80 placed above it, and opening also into the entrance pipe; suitable packing material between the parts requiring sealing; and a cover to said projection and means to secure the same in place hermetically.

5. In an apparatus for handling and preserving foods and other substances, the combination of a main case with, pipes entering said case for the admission and exit of a current and provided with stopcocks or other
 90 means for regulating the entrance and exit of a current a projection attached to the neck or opening of said case provided with a recess with a shoulder; a secondary case provided with a rim adapted to fit in said recess and
 95 rest upon said shoulder and extended to or near to the bottom of the main case and provided with a removable bottom having an orifice closed by a plug or valve; a plate adapted to form a cap or cover to said secondary case and
 100 to rest upon and cover the rim thereof; packing between the rim and cap or cover to said secondary case adapted to seal the same, and a cover to said projection and means to secure the same in place.

6. In an apparatus for handling and preserving foods and other substances, the combination of a main case with, a projection attached to the neck or opening of said case provided with an interior recess with a shoulder; a secondary case provided with a rim
 110 adapted to fit in said recess and rest upon said shoulder and extend to or near to the bottom of the case, and provided with a removable bottom having a central orifice closed
 115 by a plug or valve; partition walls between the secondary case and the main case sub-dividing the space between them into two or more compartments and provided with apertures and valves closing the same, and means
 120 to operate the valves externally; a thermoelectric pile consisting of alternate metallic plates or conductors of dissimilar metals connected at their alternate ends so as to form a continuous path for an electric current; and
 125 a cover over said projection and means to secure the same in place hermetically.

7. In an apparatus for handling and preserving foods and other substances, the combination of a case with, a projection attached
 130 to the neck or opening of said case provided with an interior recess with a shoulder; a sec-

main case and provided with a removable bottom having a central orifice closed by a plug or valve; a plate adapted to fit in said recess and form a cap or cover to said secondary case; a piston fitting in said secondary case and adapted to be operated therein; a bottom to the said main case provided with an orifice to the interior thereof closed by a removable plug and adapted to coincide with the orifice in the bottom of said secondary case; and a cover or covers to the opening of the case and means to secure them in place hermetically.

14. In an apparatus for handling and preserving foods and other substances, the combination of a main case with, a projection attached to the neck or opening of a case provided with an interior recess with a shoulder; a secondary case provided with a rim adapted to rest upon the shoulder in said interior recess, and extending to or near to the bottom of the main case and also provided with a removable bottom having a central orifice closed by a plug or valve; a plate adapted to fit in said recess and form a cap or cover to said secondary case; partition walls between the secondary case and the main case sub-dividing the space between them into two or more compartments; a thermo-electric pile placed within the partition walls consisting of alternate metallic plates or conductors of dissimilar metals, connected at their alternate ends so as to form a continuous path for an electric current; cross walls provided with thermo-electric piles and with the connecting ends of said piles extended beyond the said cross walls lineally, so as to form points of attachment in the said partition walls; electric mats consisting of a mat of material of fibrous or porous construction placed on suitable supports containing electric conductors arranged to form a path for an electric current, and also arranged to produce electrolytic action at given places; and a cover or covers to the openings of the case or cases and means to secure them in place hermetically.

15. In an apparatus for handling and preserving foods and other substances, the combination of a main case with, a projection attached to the neck or opening of said case provided with an interior recess with a shoulder; a secondary case provided with a rim adapted to rest upon the shoulder in said interior recess and extending to or near to the bottom of the main case and provided with a removable bottom having an orifice closed by a plug or valve; a plate adapted to fit in said recess and form a cap or cover to said secondary case; partition walls between the secondary case and the main case sub-dividing the space between them into two or more compartments; cells or recesses placed within the apparatus at any required places and adapted to hold capsules and materials, the cells containing materials being provided with covers and the covers and capsules con-

structed of materials adapted to be dissolved or broken away by the application of heat, moisture, or other means at the will of the operator; means to dissolve or break said covers and capsules and a cover over said projection and means to secure the same in place hermetically.

16. In an apparatus for handling and preserving foods and other substances, the combination of a main case with, a projection attached to the neck or opening of said main case provided with an interior recess with a shoulder; a secondary case provided with a rim adapted to rest upon the shoulder in said recess and extending to or near to the bottom of the main case; a plate adapted to fit in said recess and form a cap or cover to said secondary case; partition walls between the secondary case sub-dividing the space between them into two or more compartments; a thermo-electric pile consisting of alternate metallic plates or conductors of dissimilar metals connected at their alternate ends and adapted to form a continuous path for an electric current; cross walls extending from one partition wall to the other provided with thermo-electric piles, and further sub-dividing the space into two or more compartments, the connecting ends of the piles extended beyond the cross walls lineally so as to form points of attachment in the partition walls; sub-interior cases placed within the secondary case or within an envelope placed therein and also provided with covers and means to hermetically seal them and with removable bottoms which are provided with valves or plugs; and a cover over said projection and means to secure it in place hermetically.

17. In an apparatus for preserving and handling foods and other substances, the combination of a main case with, pipes entering said case for the admission and exit of a current and provided with stopcocks or other means for regulating the entrance and exit of a current a projection attached to the neck or opening of the main case provided with an interior recess with a shoulder; a secondary case provided with a rim adapted to rest upon the shoulder of the interior recess of said projection and extending to or near to the bottom of the main case, and provided with a removable bottom having an orifice closed by a plug or valve; partition walls between the secondary case and said main case sub-dividing the space between them into two or more compartments; and a cover to said projection and means to secure the same in place.

18. In an apparatus for handling and preserving foods and other substances, the combination of a main case with, a projection attached to the neck or opening of said main case provided with an interior recess with a shoulder; a secondary case provided with a rim adapted to rest upon the shoulder in said interior recess and extending to or near to

the bottom of the main case and provided
with a removable bottom having a central
orifice closed by a plug or valve; pipes enter-
ing the case or cases for the admission and
5 exit of a current, and provided with stop
cocks, or other means for regulating the en-
trance and exit of a current; electric mats con-
sisting of fibrous or porous material placed on
suitable supports containing conductors ar-
10 ranged to produce electrolytic action at given

places; and a cover over said projection and
means to secure the same in place hermeti-
cally.

In testimony whereof I hereunto subscribe
my name, in the presence of two witnesses, this 15
11th day of January, A. D. 1892.

ALBERT BAKER.

Witnesses:

H. C. HARTMAN,

MARY J. LEONARD.