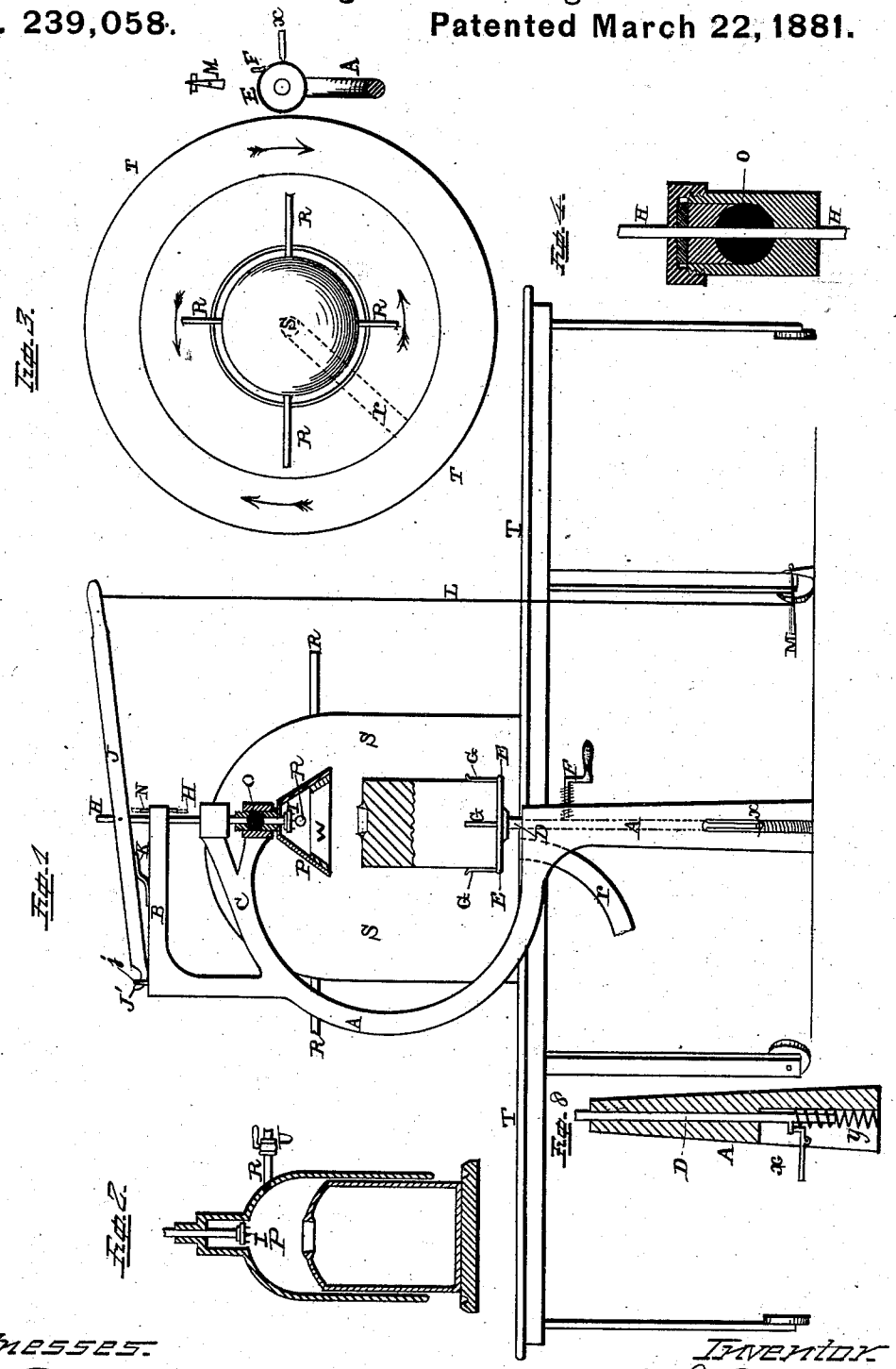
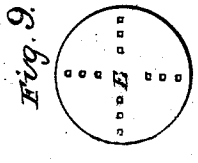
(No Model.) 2 Sheets—Sheet 1.

E. R. POWELL.

Vacuum Canning and Sealing Machine.

No. 239,058. Patented March 22, 1881.





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(No Model.) 2 Sheets—Sheet 2.

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Fig. 5.

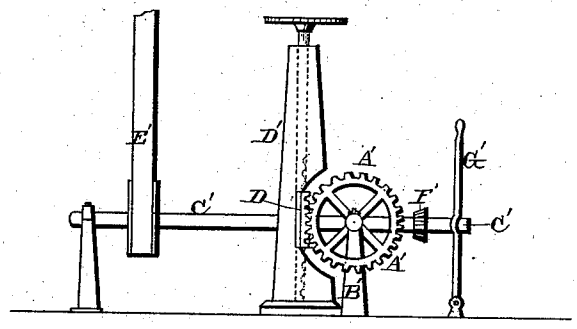


Fig. 6.

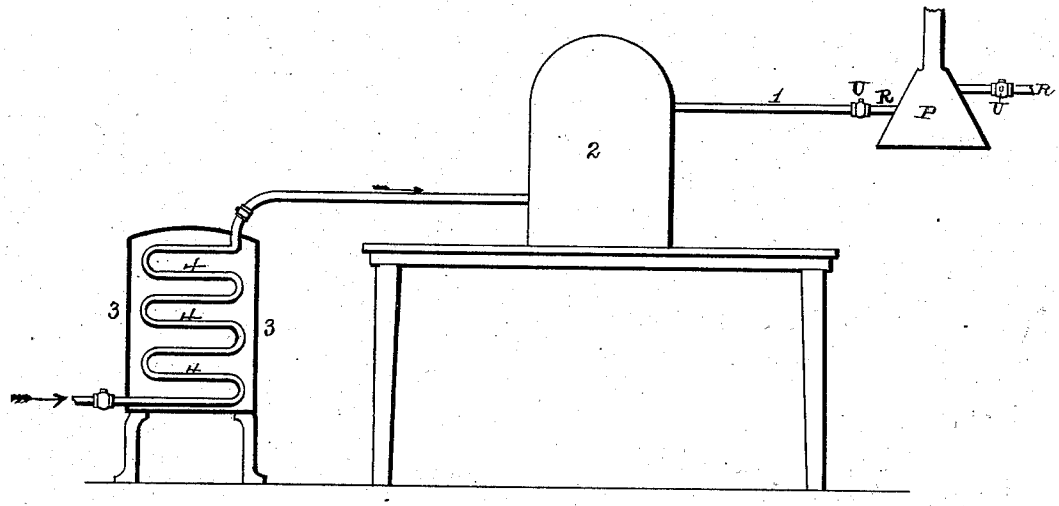
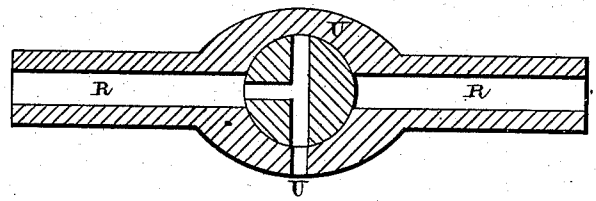


Fig. 7.



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UNITED STATES PATENT OFFICE.

EDWIN R. POWELL, OF BURLINGTON, VERMONT, ASSIGNOR TO URBAN A. WOODBURY, OF SAME PLACE.

VACUUM CANNING AND SEALING MACHINE.

SPECIFICATION forming part of Letters Patent No. 239,058, dated March 22, 1881.

Application filed December 6, 1880. (No model.)

To all whom it may concern:

Be it known that I, EDWIN R. POWELL, of Burlington, in the county of Chittenden and State of Vermont, have invented certain new and useful Improvements in Vacuum Canning and Bottling Machinery; and I do hereby declare the following to be a clear and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in vacuum canning and sealing machines; and it consists in the arrangement and combination of parts, which will be more fully described hereinafter, whereby the air can be exhausted from cans, jars, and other such vessels, for the purpose of preserving fruits and perishable articles of all kinds.

The object of my invention is to produce a simple and inexpensive machine whereby a vacuum can be quickly produced in a vessel of any kind, and the vessel then corked or closed without exposing the end of the can to the air.

Figure 1 is a side elevation of a machine embodying my invention. Fig. 2 is a vertical section of a modification of the cone. Fig. 3 is a plan view of the table, showing the vacuum-chamber in its center, on a smaller scale than Fig. 1, and one of the sealing-machines in horizontal section, placed beside the table. Fig. 4 is a detail view of the packing-box. Fig. 5 is a side elevation of a mechanism for raising the can up to the cone when the machine is operated by power. Fig. 6 is a side elevation of an attachment which is to be used in connection with my sealing apparatus. Fig. 7 is a horizontal section of the cut-off. Fig. 8 is a vertical section of the base of the frame. Fig. 9 is a plan view of the can-seat, showing the perforations for the springs.

A represents the frame of my machine, which has its upper end divided into the two arms or branches B C. The lower end of this frame is made hollow, and down through it is passed the rod D, which has the can-holder E secured to its top. To the lower end of the rod is secured a treadle, *x*, and suitable spring *y*, whereby the operator, pressing down upon the treadle, can raise the can, which is placed upon the holder E, up into the lower end of the cone, which is placed vertically above it. In order to hold the can in this raised position while the vacuum is being formed in it, a clamping-screw or other holding device, F, is used, which catches against or in the rod, and thus prevents it from slipping down. Through the holder E are made a series of holes which radiate from the center, and in which holes are placed a number of springs, G, for holding the can in place. By having the radial series of holes the springs can be adjusted in and out, so as to suit different-sized cans. Where power is used for raising the cans, the rod D will be provided with cogs, which will mesh with a wheel, A′, which is journaled on top of a standard, B′.

Upon the horizontal shaft C′, which extends past the frame or standard D′, is placed the driving-wheel, over which passes the belt E′. On this shaft C′ is placed a pinion, F′, to mesh with the wheel A′ when the shaft is moved endwise by means of the hand-lever G′. When the shaft is moved endwise, so as to cause the pinion to mesh with the wheel, the can-holder is raised upward, and when the pinion is drawn back out of contact with the wheel A′ the can-holder descends from its own weight.

The two arms B C on the upper end of the frame act as guides for the rod H, which passes vertically down through them and has the cork-holder I secured to its lower end. This rod H is operated by the lever J, which is pivoted to it, and which lever has a hook, J′, formed on its inner end to catch under a staple, *j*, or other equivalent device, on top of the frame, so as to have a slight endwise movement. Under this lever, on top of the frame, is placed a suitable spring, K, for raising the lever up again after it has been depressed by the rod L and treadle M, for the purpose of forcing a cork or stopper into the mouth of the can after the air has been exhausted from it. Passing through the top arm is an adjustable stop, N, by which the distance the rod H is to be depressed can be readily controlled. On the under side of the cork-holder are made sharp points or projections, which catch in the

cork or stopper and hold it in position ready to be forced into the mouth of the can or jar when the rod is forced downward by the treadle M.

The arm C has its end divided into two parts, in the lower one of which is made a socket to receive a packing-ball, O, which forms a tight joint around the rod H, so as to prevent any leakage of air into the top of the cone P while a vacuum is being formed in the vessel in which the fruit or other article is to be preserved. This packing can be tightened from time to time as it becomes worn, and thus a tight joint can always be kept.

To the under side of the lower part of the arm C is secured the cone P, which is lined with rubber, felt, or other suitable substance, W, for a suitable distance above its lower edge, so as to form a tight joint with the top of the can or other vessel when it is forced up into the cone.

Instead of the cone being made as shown in Fig. 1, where it simply fits over the top edge of the vessel, it may be made large enough to wholly inclose it, as shown in Fig. 2, in which case the cone will form a tight joint with the can-holder, as shown.

Connected with the upper part of the cone is the pipe R, which connects it with the vacuum-chamber S, which is placed in the center of the double revolving table T, and this vacuum-chamber is connected by the pipe *r* with the apparatus or machine which exhausts the air from it. This vacuum-chamber is placed upon a stand or pedestal of its own, and is therefore independent of the two tables, which revolve in opposite directions around it. This chamber is exhausted of its air by means of an air-pump or any other suitable means, and serves to quickly exhaust the air from the cones and vessels of as many machines as may be connected to it. As soon as the upper end of the can has been forced tightly up into the cone the cut-off U in the pipe is turned so that connection is made with the vacuum-chamber, and after the air has been exhausted from the cone and can, and the stopper has been forced into the mouth of the can, the cut-off is turned so as to cut off communication with the vacuum-chamber and open communication with the atmosphere, and thus destroy the vacuum in the top of the cone, so that the can or vessel can be easily removed. This cut-off consists of a plug having a two-way passage through it, and a shell which has an opening through one side. When the plug is turned in one direction the cone is put in communication with the vacuum-chamber, and after the vacuum has been formed in the vessel the plug is turned so that the air passes directly into the cone.

The vacuum-chamber may be of any desired size, and is placed in the center of the table, around which the various canning-machines are arranged, and the cone of each one of the machines is connected to this chamber, as above described. The air from the chamber is exhausted by means of an air-pump or machine of any kind that is suited for the purpose, and which is kept constantly in operation while the canning is going on. This vacuum, of course, acts on each cone and the vessel placed under it as soon as the communication is made between them.

The annular table T, having an opening through its center, as shown in Fig. 3, for the vacuum-chamber, is formed in two parts, each one of which is supported upon legs provided with rollers, so that they can be made to revolve freely in opposite directions. Any suitable mechanism that may be preferred may be used to revolve the two parts of the table, as this forms no special part of my invention. The different sealing-machines are arranged around the table in close proximity thereto, and these two parts of the table, in revolving in opposite directions, bring to each operator cans to be sealed and carry away those cans that have been sealed. In this way every operator is not only kept supplied with cans, but the table is prevented from being filled up in front of him, and he is not annoyed and troubled by having persons constantly passing back and forth around him.

It is sometimes desirable, in the preservation of certain articles, to first subject them to the action of hot air before the vacuum is formed. When treating such articles communication will be made with the exhausting-cone through the pipe 1 with a hot-air reservoir, 2, which will be placed at any suitable point from the canning-machine. At any suitable point from this reservoir will be a stove, heater, or furnace, 3, of any suitable kind, through which will be passed a coiled pipe, 4, which pipe may be connected with an air-forcing apparatus of any kind. As the air is passed through this coil it becomes heated and then passes up into the reservoir, where it is held ready for use. In the pipes connected with this coil and reservoir are suitable cut-offs, such as have already been shown and described, whereby the air may be turned into the cone or shut off therefrom at the will of the operator. When the hot air is first to be used upon the fruit or other article all communication is shut off between the cone and the exhausting-chamber, and then the hot air is allowed to enter the cone and fill the can. After this hot air has been allowed to remain in contact with the article that is being preserved any suitable length of time the cut-off is turned in the hot-air pipe, and then communication is made between the cone and the exhausting-chamber, so as to exhaust all the air from the vessel in which the fruit is placed.

No pump or exhausting apparatus is shown in connection with the exhausting-cone, and no forcing pump or engine is shown for forcing hot air into the cone, for the reason that any common pump or well-known apparatus may be used for this purpose, and any well-known means for operating them employed. This forms no special part of my invention.

Having thus described my invention, I claim—

1. The combination of an exhausting or vacuum chamber, a connecting-pipe, R, provided with a two-way cock or cut-off, U, and a cone, P, with can-support, and a vertically-moving rod for inserting the cork into the mouth of the can after the air has been exhausted from it, substantially as shown.

2. The combination of the frame A, can-support, cone P, pipe R, provided with a cut-off, vacuum-chamber, and a revolving table, the parts being arranged as described.

EDWIN R. POWELL.

Witnesses:
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L. C. GRANT.