Dec. 30, 1941. L. F. PRATT 2,268,301

MANUALLY OPERATED VACUUM SEALER FOR CONTAINERS

Filed April 17, 1939 3 Sheets-Sheet 1

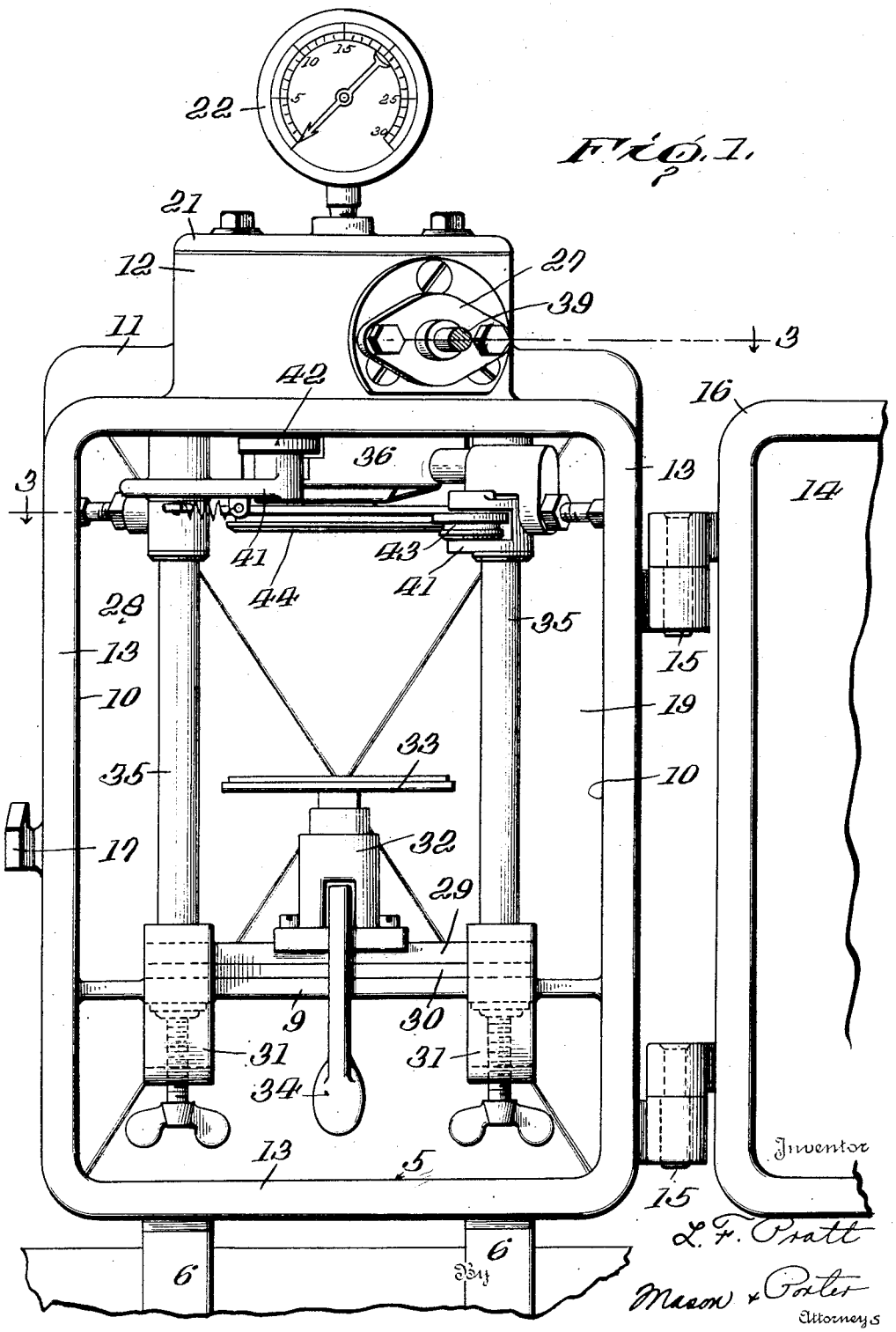


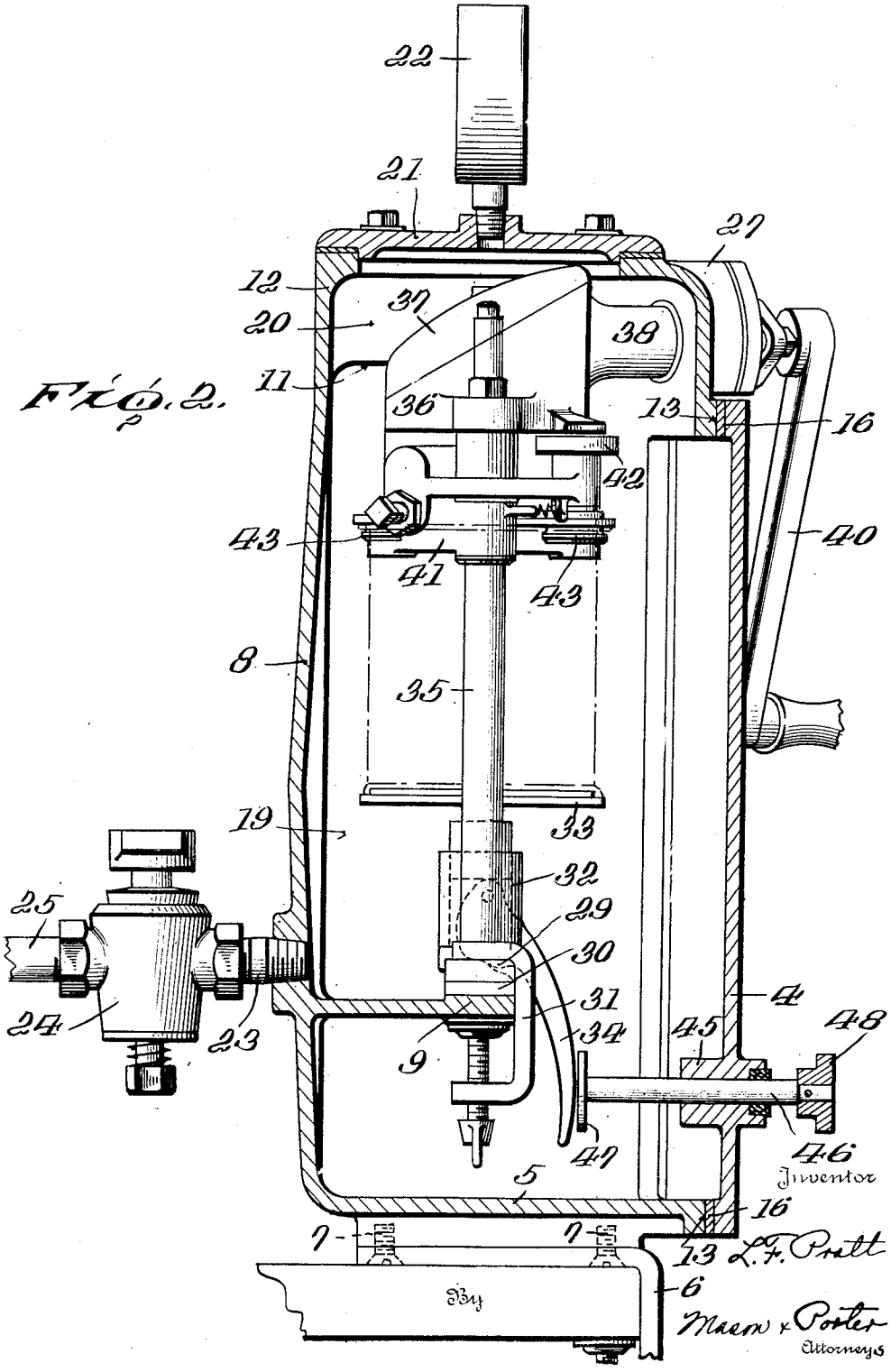
FIG. 1.

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FIG. 2.



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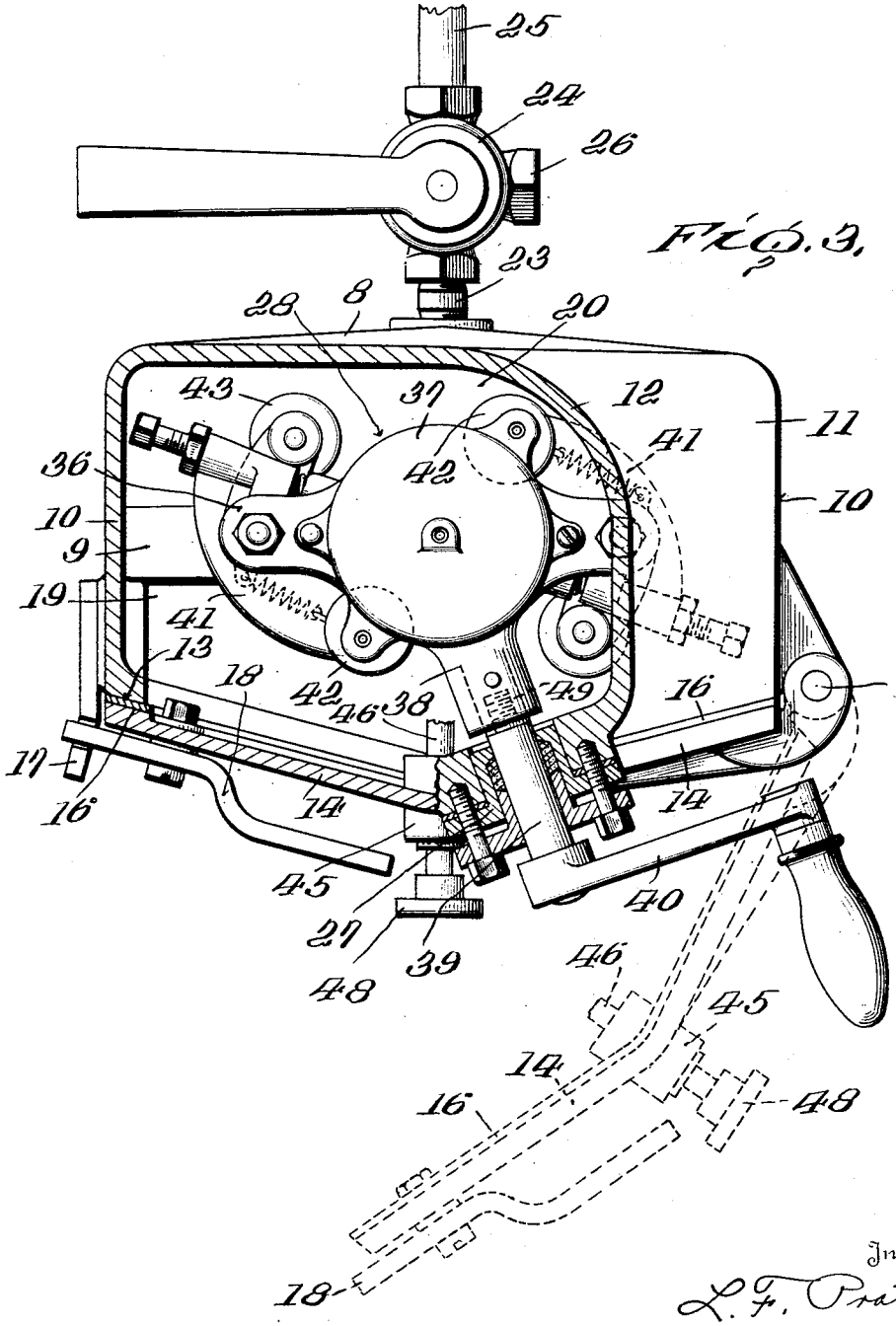


FIG. 3.

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UNITED STATES PATENT OFFICE

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MANUALLY OPERATED VACUUM SEALER FOR CONTAINERS

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Application April 17, 1939, Serial No. 268,388

4 Claims. (Cl. 113—23)

The invention relates generally to container sealing equipment and has for an object to provide a novel, inexpensively constructed, simple and efficient, hand actuated head seaming machine for sealing, in a vacuum, cans containing fruits, vegetables, fish and meat or like products.

I am aware that equipments have heretofore been provided for hand sealing cans in a vacuum, but all such equipments of which I am aware are complicated and cumbersome in construction, and are available only at a cost which is prohibitive to the small user.

The invention therefore includes among its objects that of providing an exceedingly simple and inexpensively constructed vacuum chamber readily mountable on and removable from a table or other suitable support and including a suitably latched and gasketed door, and a head seaming unit mounted wholly within the chamber and operated by a crank or handle member projected through a packed gland carried by said chamber.

Another object of the invention is to provide a vacuum chamber of the character stated, and a hand actuated head seaming means mountable in and removable as a unit from said chamber.

Another object of the invention is to provide a hand actuated head seaming means of the character stated including an actuator crank member formed in separable sections and capable of being mounted, assembled or disassembled from without the vacuum chamber forming casing.

Another object of the invention is to provide a vacuum chamber encased hand sealer of the character stated in which there is included means for lifting a container so that its cover will approximate but not tightly engage the seaming mechanism chuck prior to the closing of the casing door and the drawing of the vacuum, and also simple means operable from without the closed casing following the drawing of the desired vacuum therein for effecting an additional lifting of the container into tight contact with said chuck so that the seaming operation can be performed while the vacuum is maintained in said casing.

With these and other objects in view which will more fully appear, the nature of the invention will be more clearly understood by following the description, the appended claims, and the several views illustrated in the accompanying drawings.

In the drawings:

Figure 1 is a front elevation illustrating a sealing equipment embodying the invention, the vacuum chamber door being shown in the open position.

Figure 2 is a central vertical cross section.

Figure 3 is a horizontal section taken on the line 3—3 on Figure 1.

In the drawings, I have disclosed a vacuum chamber or housing of simple construction including a base 5 having depending U clamps 6 attached thereto as at 7 and including clamp screws whereby the housing may be removably mounted upon a suitable supporting table or the like, a rear wall 8 from which projects a horizontal mounting web 9, side walls 10 and a top portion 11 including a raised crown 12. The housing is open at the front, the opening being defined by a machined face 13 and adapted to be closed by a door 14 suitably hinged as at 15 to one side wall and provided with a gasket 16 for engaging and sealing the opening defining edge portion 13. A keeper 17 is projected from the side wall opposite the door hinges, and a pivoted latch 18, carried by the free body of the door, is engageable with the keeper so as to secure the door in sealing contact with the housing edge portion 13 for the purpose of sealing the interior of the housing against ingress of air.

The housing walls, bottom, top and door form within them a vacuum chamber 19 including an upwardly extending dome chamber 20 accessible through a removable cover 21 carried by the crown 12. A gage 22 is supported on and removable with the keeper 21 and serves to indicate pressure conditions within the chamber 19, 20.

A conduit 23 leads into the chamber 19 through the rear wall 8 and is controlled by a valve 24 to alternately connect the chamber to a negative pressure or vacuum pipe line 25 or to the atmospheric pressure inlet designated 26.

It will be noted by reference to the several figures of the drawings that the upwardly extended crown 21 is equipped with a packed gland 27, the purpose of which will soon become apparent.

All of the parts hereinbefore described comprise a simple and inexpensively constructed vacuum chamber or housing unit which is readily mounted upon or removable from a table or other suitable support, as shown in Figure 2 of the drawings.

A sealing or head seaming unit generally designated 28 is mounted wholly within the vacuum chamber 19, 20 and includes a base 29 mountable on the housing web 9. A suitable pad 30 may be interposed between the base 29 and the

web, and the base 29 includes depending U clamp members 31 including clamp screws by which the unit can be readily clamped to or removed from the supporting web 9.

The base 29 is provided centrally with an upstanding post 32 in which a can supporting pad 33 is mounted, and with a suitable handle and lift cam equipment 34 for manually lifting and lowering the pad for the usual purpose of presenting a can to be seamed to and withdrawing it from engagement with the chuck.

Frame standards 35 rise from the ends of the base 29 and support the head 36 of the seaming unit, and it will be noted that this head projects upwardly into the housing crown or dome 12, as indicated in Figures 1 and 2 of the drawings. The head 36 includes a removable cover 37 which is accessible and removable through the housing opening closed by the cover 21.

The unit head 36 includes a lateral bearing 38 which rotatably supports the seaming means driving shaft 39. The shaft 39 extends through and operates in the packed gland 27 and has a crank handle 40 affixed thereon by means of which the seaming mechanisms supported on the head can be manually actuated from without the housing.

The standards 35 also rockably support the seaming mechanism rocker arms 41 which carry the operating rollers 42 at one end and seaming rollers 43 at their other ends. The seaming roller equipment may include the usual first and second operation rollers which are alternately opposed to the chuck 44 for effecting the seaming of the can heads in the conventional manner. It is to be understood that the alternate operations of the rocker arms and seaming rollers are effected by cam means contained within the head 36 and not shown in detail in this particular illustration. Since the whole seaming unit herein disclosed and removably mounted, wholly within the vacuum chamber or housing, is well known in structure and operation, further detailed description of this unit is thought to be unnecessary herein. The seaming unit is disclosed in detail in the Kronquest Patent 2,023,598, issued December 10, 1935.

As has been hereinbefore described, the vacuum chamber or housing can be readily mounted upon the edge of a table or other suitable support, with the can head seaming unit wholly contained therein and readily removable therefrom. By opening the housing door a can can be placed upon the pad 33 and the handle 34 manipulated to lift the can so that the cover thereon will closely approximate but not tightly engage the chuck 44. The door can then be closed and sealed and the valve 24 manipulated to draw a vacuum in the chamber 19, 20.

It will be observed by reference to Figures 2 and 3 of the drawings that the door 4 carries a bearing 45 in which a plunger member 46 is slidably mounted. At its inner end the plunger carries an actuator head 47 disposed for engagement with the pad lifting lever 34, and this plunger can be moved inwardly or outwardly to effect engagement with or disengagement from said lever by a hand knob 48 disposed outside the door. After the gage 22 shows that the desired vacuum has been drawn in the chamber 19, 20, the knob 48 is pushed in to cause the actuator head to engage and move the lever 34 to effect an additional lifting of the pad 33 so that the container cover will be tightly pressed against the chuck 44. Then the handle 40 can be manipulated to seam-seal the container in the vacuum drawn within the chamber.

If desired, the crank shaft 39 may be formed in two sections threaded together by a right hand thread as at 49 so that assembly and disassembly of the sealing unit and the casing will be facilitated. It will be obvious that by merely turning the crank 40 counter-clockwise, a disassembly of the crank shaft can be effected, after which removal of the seaming unit as a whole from the casing is a simple matter.

It is of course to be understood that the details of structure and arrangement of parts may be variously changed and modified without departing from the spirit and scope of my invention.

I claim:

1. In apparatus of the character described, a portable housing comprising a bottom, a rear wall, side walls, a top and an open front sealed by a removable door, all combining to form a vacuum chamber of limited size for closely confining a can head seaming unit, said top including an upwardly extending dome having a packed gland therein, certain of said wall portions having a mounting web extended therefrom into the vacuum chamber, a can head seaming unit removably supported on said web wholly within said chamber and having a portion thereof extended into said dome, means for drawing a vacuum in the housing, and a seaming unit operating handle without the housing and operatively connected with the unit through the gland, the portion of the seaming unit extended into said dome including a removable cover plate through which mechanism of the unit is accessible, and said dome including a removable cover plate through which the first mentioned cover plate is accessible and withdrawable.

2. In apparatus of the character described, a portable housing open at one face and having a packed gland in a wall thereof, a can head seaming unit mounted wholly within the housing, a door for sealing the open face of the housing, means for drawing a vacuum in the housing, and a seaming unit operating handle without the housing and operatively connected with the unit through the gland, said operating handle being connected in driving relation with the seaming unit through a shaft composed of threadably connected sections capable of disassembly by movement of the handle in a direction opposite that in which it is moved to effect a can head seaming operation.

3. In apparatus of the character described, a portable housing open at one face and having a door closure at said open face; means through which a vacuum can be drawn in said housing; a can head seaming unit mounted wholly within the housing and including a chuck, a container supporting pad, and means including a hand actuated lever for lifting the pad to engage a container with a cover thereon against said chuck, said lever being adapted to be actuated partially prior to closure of the door and drawing of a vacuum in the housing to move a container with a cover thereon close to but just out of engagement with the chuck; and means operable from without and through the closed housing for actuating the lever for forcing said container into engagement with said chuck, said lifting means and said lever actuating means being wholly supported by said housing.

4. In apparatus of the character described, a housing open at one face and having a door closure at said open face; means through which a

vacuum can be drawn in said housing; a can head seaming unit mounted wholly within the housing and including a chuck, a container supporting pad, and means including a hand actuated lever for lifting the pad to engage a container with a cover thereon against said chuck, said lever being adapted to be actuated partially prior to closure of the door and drawing of a vacuum in the housing to move a container with a cover thereon close to but just out of engagement with the chuck; and a reciprocable hand operated plunger carried by the door and operable from without the closed housing for actuating the lever for forcing said container into engagement with said chuck.

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