Jan. 8, 1935. A. E. SCHNEIDER 1,987,581

SEALING MACHINE

Filed June 28, 1932

Fig. 1.

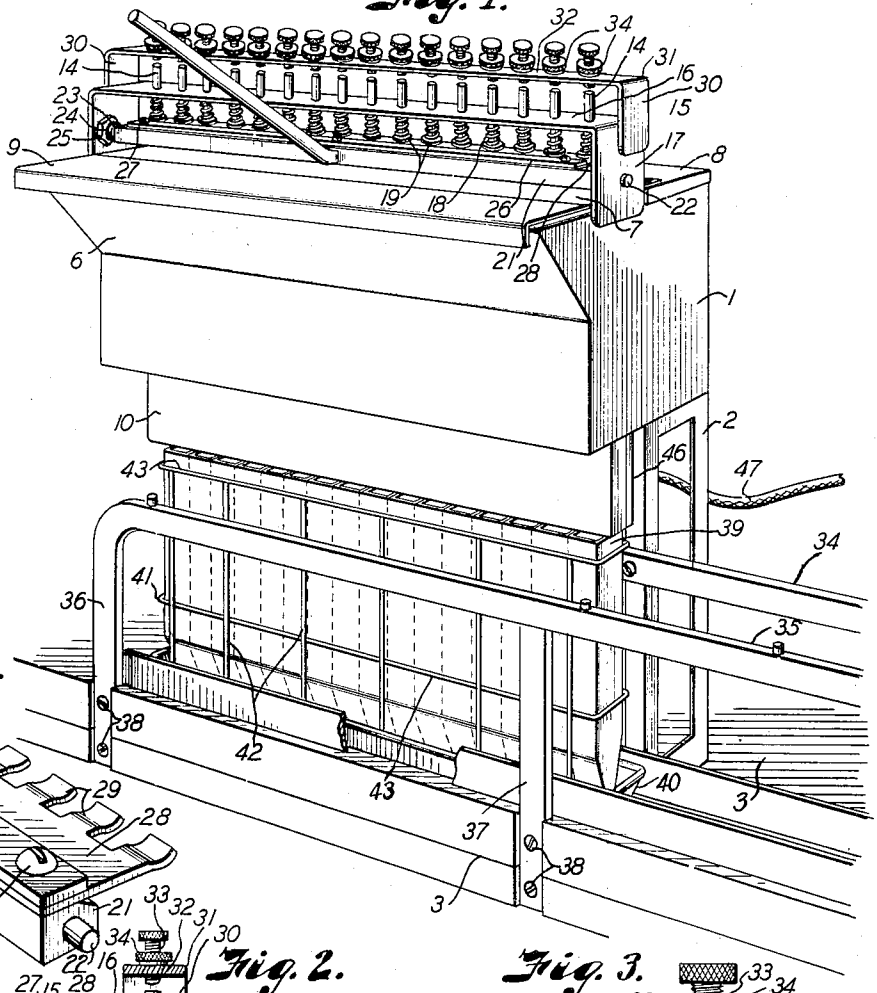


Fig. 4.

Fig. 2.

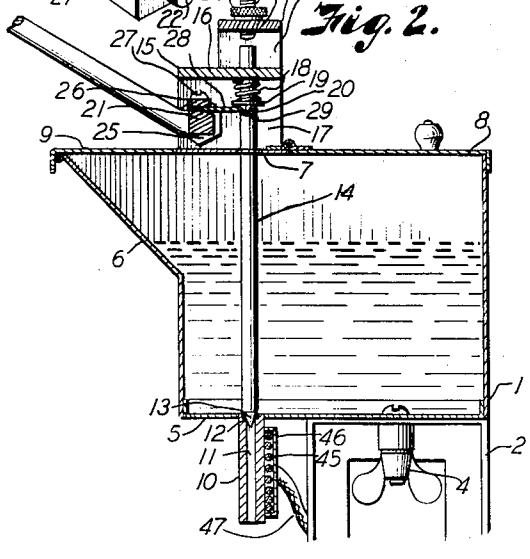
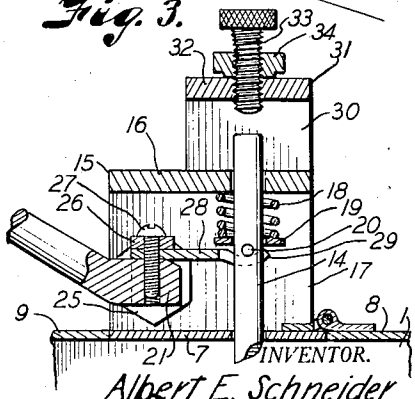


Fig. 3.



INVENTOR.

Albert E. Schneider

BY

ATTORNEY.

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1,987,581

SEALING MACHINE

Albert E. Schneider, Carter Lake, Iowa, assignor to Baker Ice Machine Co. Inc., Omaha, Nebr., a corporation of Nebraska

Application June 28, 1932, Serial No. 619,693

5 Claims. (Cl. 226—80)

My invention relates to apparatus for sealing containers and more particularly to apparatus of that character for sealing paper or like containers of a frozen confection, such as is illustrated in the application for patent filed by Kenneth E. Haworth, Serial No. 595,312.

In manufacturing that confection, waterproofed containers arranged in strips are filled with flavored liquid, frozen and stored in a suitable cooler from which they may be dispensed for consumption upon extrusion of the frozen contents through the open end of the container.

In order to protect the confection from dust or dirt while in storage, or after removal from storage, for delivery to a purchaser and also to retard melting of the confection after removal from the cooler, as during an interval of delivery to a purchaser, it is desirable to provide a seal in the open end of the container which will not affect the taste of the confection and which may be easily removed to permit extrusion of the frozen body.

It is the object of my invention to provide apparatus embodying such improvements for supplying a sealing medium, such as paraffin or the like, which may be retained in liquid form by heat, but which will solidify when cooled, to seal the containers, and means for retaining the containers in material receiving relation in the apparatus, a preferred form of such apparatus being illustrated in the accompanying drawing, wherein:

Fig. 1 is a perspective view of a sealing apparatus embodying my invention illustrating a number of filled containers in position for receiving the sealing material.

Fig. 2 is a transverse vertical section of the tank element of the apparatus particularly illustrating an outlet conduit with its valve and valve operating mechanism.

Fig. 3 is an enlarged vertical section of part of the apparatus particularly illustrating the valve operating mechanism.

Fig. 4 is a detail perspective view of a part of a lever unit for operating the discharge valves of the apparatus.

Referring more in detail to the drawing:

1 designates a preferably rectangular-shaped tank adapted for containing a liquid sealing medium, such as melted paraffin. The tank is supported from beneath its rearward portion by a frame 2 that may be attached to a table or the like 3, and is removably retained on the frame by wing nuts 4 and is so positioned that its front portion 5 overhangs the table to provide room for the container rack later described. The front of the tank is provided with an upwardly extending forward mouth portion 6 to facilitate filling and observation of contents of the tank, and to provide a hopper into which surplus sealing material may be poured back into the tank.

Fixed to the ends of the tank and extending longitudinally over the overhanging portion thereof is a cover strip 7, and hinged to the cover strip to enclose the rear portion of the tank and permit access thereto for filling or observation is a lid 8 having edge flanges adapted to lie over the ends and rear wall of the tank to effect a snug closure.

Slidable on the end and front wall of the tank is a lid 9 for closing the hopper.

Depending from the bottom of the overhanging portion of the tank in front of the frame 2 is a discharge block 10 having a series of vertical equally spaced conduits 11 therein registering with openings in the bottom of the tank and each having a tapered valve seat 12 flush with the bottom of the tank and adapted to seat the tapered end 13 of a valve rod 14 that extends through the tank and slidably through an opening in the cover strip 7. The upper ends of the valve rods extend through openings in a guide bar 15 having a body part 16 containing the rod openings and end portions 17 attached to the ends of the tank in any suitable manner to provide a space between the body 16 and the top of the tank.

The valve rods 14 are yieldingly urged downwardly to engage their tapered portions in the valve seats 12 by springs 18 surrounding the rods and bearing at their upper ends against the bottom of the body portion 16 of bar 15 and at their lower ends on washers 19 which surround the rods and are supported by pins 20 extending through and fixed to the rods.

Operation of the rods to open and permit closure of the valves is effected by a lever unit including a rock bar 21 pivotally mounted in the ends of the end portions 17 of the bar 15 beneath the body portion 16 and preferably provided with end trunnions 22 having pivotal mounting in seats 23 formed in the heads of bolts 24 threaded into the end portions 17 of bar 15, and held in adjusted position on said end portions by lock nuts 25.

Extending throughout the length of the rock bar 21 and fixed thereto by a clamp bar 26, attached to the rock bar by screws 27, is a valve lifting plate 28 having rearwardly directed fingers 29 extended rearwardly beneath the washers 19 on the valve rods and engaging the pins 20

on said rods to lift the rods upon operation of the rock bar.

Supported on the bracket member 15 by arms 30 attached to the end members 17 is an auxiliary bracket 31 extending over the upper ends of the valve rods in spaced relation thereto. Threaded through the auxiliary bracket 32 in alignment with the valve rods 5 are set screws 33 having lock nuts 34 engaging the top of the bar 32 to adjust the set screws at desired elevations for selectively limiting lifting movement of the valve rods.

Located beneath the overhanging portion 5 of the material tank is a guide including a rail 34 attached to the tank supporting frame 2 and a rail 35 arranged in spaced relation to the rail 34 and provided with supporting legs 36 and 37 attached to the table 3 by screws 38, one of the legs being preferably formed by bending one end of the rail 35.

39 designates a rack for holding containers of the type heretofore described including a pan 40 supporting a wire frame 41 consisting of spaced upright members 42 and of spaced horizontal members 43 secured to the uprights and dimensioned to enclose a desired number of the containers 39 resting at their lower ends in the pan 40.

To maintain the sealing material in liquid flowing condition and prevent clogging of the outlet conduits by cooling of the material in the conduits, I attach an electric coil 45 to the rear of the discharge block by a housing member 46, the coil being supplied with current through line 47 from any suitable source.

Assuming the parts to be constructed and assembled as described, a sealing material such as paraffin is supplied to the storage tank through either of the top openings. The heater coil is then energized by closing the circuit through the line 47 to melt the sealing material and to maintain it in liquid condition. A rack carrying filled containers of the type illustrated is moved into the guide beneath the overhanging portion of the tank and with each container in receiving relation to one of the tank discharge conduits.

With the containers in place, the valve rods are lifted by manipulation of the handle on the rock bar to release charges of the sealing material of a volume determined by adjustment of the set screws through the outlet conduits into the top of the containers.

When the sealing material contacts the frozen content of the container, it immediately cools and solidifies to sealingly close the top of the container.

The basket of sealed containers is then removed and replaced with another filled basket, the operation continuing rapidly until a stock has been built up to meet purchasing demand.

Attention is particularly directed to the location of the heat coil as alongside the block 10 to maintain the channels in heated condition so that none of the sealing material congeals therein to stop up the small openings during the cycle of non-operation. The hottest point is, therefore, at the valve block, but the entire tank becomes hot enough to melt down the paraffin to liquid state by transfer of heat through the block to the walls of the tank.

The device as illustrated may also be used to make the containers water-tight, as it may be desirable in some instances to use containers which are not leak-proof. In this use, the containers are inflated and partly filled with liquid paraffin in the same manner as when the containers are filled, but the containers, after being partially filled, are removed from the rack and the surplus sealing material is drained back into the tank through the hopper 6, after which the containers may be filled with the desired material, replaced in a rack and inserted under the machine to seal the open ends thereof, as previously described.

What I claim and desire to secure by Letters Patent is:

1. Apparatus of the character described including a vessel for containing sealing material in fluid condition having a plurality of outlet openings in its bottom, rods reciprocable in the vessel having valve portions at their ends for opening and closing said outlet openings, a supporting arm above the vessel, expansion springs surrounding the rods and bearing against the supporting arm for yieldingly urging the rods toward the outlet openings, a lever unit pivotally mounted on the supporting arm having a rock bar for lifting the rods, and stop nuts on the supporting arm for limiting movement of the rods to determine volume of discharge through said outlets.

2. Apparatus of the character described including a vessel for containing sealing material in fluid condition having a plurality of outlet openings in its bottom, rods reciprocable in the vessel having valve portions at their ends for opening and closing said outlet openings, expansion springs surrounding the rods for yieldingly urging the rods toward the outlet openings, a supporting bar above the vessel, a lever unit pivotally mounted on the supporting bar including a rock bar for lifting the rods, an auxiliary bracket above the supporting bar, stop means on the auxiliary bracket for limiting upward movement of the rods to determine volume of discharge through said outlets, and means for retaining a container to be sealed in receiving relation to the delivery conduits of the block.

3. Apparatus of the character described including a vessel for containing sealing material in fluid condition having a plurality of outlet openings in its bottom, rods reciprocable in the vessel having valve portions at their ends for opening and closing said outlet openings, expansion springs surrounding the rods for yieldingly urging the rods toward the outlet openings, a supporting bar above the vessel, a lever unit pivotally mounted on the supporting bar including a rock bar for lifting the rods, an auxiliary bracket above the supporting bar, and stop nuts on the auxiliary bracket for limiting upward movement of the rods to determine volume of discharge through said outlets.

4. Apparatus of the character described including a vessel for containing sealing material in fluid condition having a plurality of outlet openings in its bottom, a heating coil on the block for maintaining the sealing material in fluid condition, rods reciprocable in the vessel having valve portions at their ends for opening and closing said outlet openings, expansion springs surrounding the rods for yieldingly urging the rods toward the outlet openings, a supporting bar above the vessel, a lever unit pivotally mounted on the supporting bar including a rock bar for lifting the rods, an auxiliary bracket above the supporting bar, and stop means mounted on the auxiliary bracket for limiting upward movement of the rods to determine volume of discharge through said outlets.

5. An apparatus of the character described including a vessel for containing a sealing material in fluid condition and having an outlet opening in its bottom, a rod reciprocably supported in the vessel and having a valve portion at its end for opening and closing said outlet opening, an expansion spring on the rod for yieldingly urging the rod into closing relation with the outlet opening, a support carried above the vessel, a lever unit pivotally mounted on the support including a bar engaging the rod for lifting the rod, an auxiliary bracket above the support, and a stop means on the auxiliary bracket for engaging the rod for limiting opening movement of the rod to determine volume of discharge through the outlet opening.

ALBERT E. SCHNEIDER.