

1,162,897.

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Patented Dec. 7, 1915.
2 SHEETS—SHEET 2.

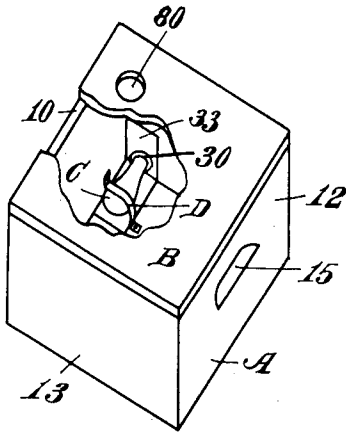


Fig. 3.

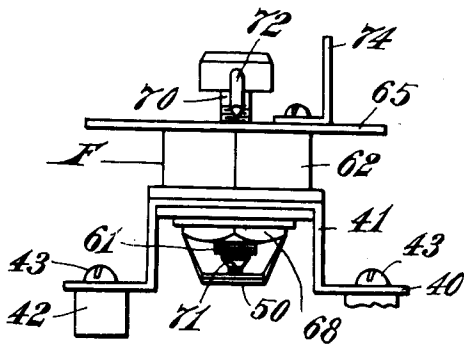


Fig. 5.

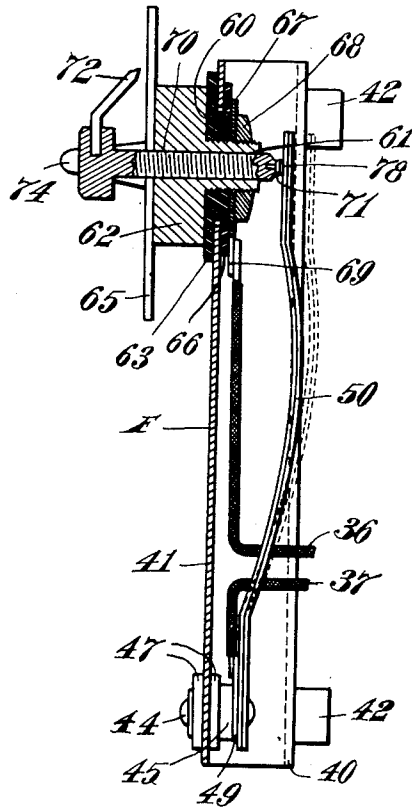


Fig. 4.

WITNESSES:

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UNITED STATES PATENT OFFICE.

BUTLER AMES, OF LOWELL, MASSACHUSETTS.

DOUGH-RAISING DEVICE.

1,162,897.

Specification of Letters Patent.

Patented Dec. 7, 1915.

Application filed March 16, 1914. Serial No. 825,066.

To all whom it may concern:

Be it known that I, BUTLER AMES, a citizen of the United States, residing at Lowell, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Dough-Raising Devices, of which the following is a specification.

This invention relates to devices for maintaining a constant temperature in a suitable container for incubating yeast or other germs or for other purposes.

It is particularly a bread incubator or dough raising apparatus and is intended especially for household use by inexperienced persons.

My device is constructed of cheap serviceable material and is so made that it will stand very rough usage, while it is so light that it can readily be carried from place to place.

In the drawings, Figure 1 is an elevation with one end removed showing the interior with the lighting and heating bulb also removed. Fig. 2 is a plan view with the cover removed and the lighting and heating bulb in place. Fig. 3 is a perspective view. Fig. 4 is a detail of the thermostat showing a longitudinal sectional elevation from the side. Fig. 5 is a plan view of the thermostat.

A is a box made of more or less heat insulating material such as wood and has four side walls 10, 11, 12 and 13, a bottom 14 and a cover B. This box preferably has handles 15 by which it can be readily carried around, and has cushioned feet or buttons 16 at the bottom on which it rests. The cover B sets on top of box A and has ribs 20 on the under side arranged to bear against the inside near the top of the side walls of box A whereby cover B is prevented from sliding out of place. I prefer to attach a band of felt 21 or similar material around the edge of the bottom of cover B, in such a manner that it rests on the top edges of the sides of box A.

Attached to one side wall 11 of box A is a plate 33 which carries the socket 30 for an incandescent electric light bulb C. Through this side wall 11 also extends a plug socket 34 which receives the plug 31 attached to wires 32 which connect with the source of electricity. This plug socket 34 extends through side wall 11 and is connected by a conductor 35 with lamp socket 30. Another

conductor 36 connects the socket portion 34 with the thermostat F while a similar conductor 37 connects the light socket with the thermostat F. To protect the bulb C, I prefer to extend a guard strip D of sheet metal from side 10 over bulb C to bottom 14. The thermostat F is fastened to side wall 11 and comprises a base plate 40 which is so bent as to have a deep longitudinal ridge 41. Plate 40 is insulated by means of collars 42 from side wall 11 to which it is fastened by means of screws 43. The sensitive arm 50 of the thermostat is fixed inside of ridge 41 by means of rivets 44 which preferably pass through collars 47 of insulating material, a metal collar 45 and a metal washer 49 with a tang to which conductor 37 is preferably soldered. This end of arm 50 is therefore firmly fixed in place and is insulated from plate 40 and electrically connected through conductor 37 with the light socket 30. This sensitive arm 50 is preferably composed of strips of tin and of zinc fastened together through their entire length. I may use any two other materials which expand at different rates whereby when the arm is heated or cooled, it will curve in one direction or the other as shown by the dotted lines of Fig. 4. It preferably carries a platinum or tungsten contact 78 which engages tip 71 on the end of bolt 70. Through the other end of the ridge 41, is a passage 60 through which passes the threaded stem 61 of a block 62 surrounded by suitable insulation 63, whereby it is insulated from ridge 41. Block 62 is held in place by a nut 68 which engages its threaded shank 61 as shown in Fig. 4. To the top of block 62 I fasten a dial plate 65 having on its face, marks and numbers indicating different degrees of temperature. Through dial 65 and a threaded passage through plug 62 and stem 61, I pass an adjusting bolt 70 which preferably has at its inner end a platinum tip 71 adjoining the end of arm 50. From its outer end a pointer 72 projects above dial 65.

The insulation 63 is preferably in the form of a bushing with a boss which extends through passage 60. The insulation 66 is preferably a washer which fits over the boss of 63 to make a better surface for metal washer 67 against which bears the binding nut 68. The parts are held in place by tightening nut 68 as shown in Fig. 4. Metal washer 67 preferably has a tang 69 to which is soldered the end of conductor 36. It will

be seen that adjusting bolt 70 is electrically connected with the source of current and is insulated from plate 40. The only means of closing the circuit is therefore through sensitive arm 50 coming in contact with the tip of bolt 70. The course of the current when arm 50 is in contact with tip 71 is from one wire 32 through plug 31, plug socket 34, conductor 36, washer 67, nut 68, block 62, bolt 70, tip 71, contact 78, arm 50, collar 49, conductor 37, light socket 30, bulb C, conductor 35, plug socket 34, plug 31 and the other wire 32. Electrical connection is made or broken by inserting or removing plug 31. The normal position of arm 50 is in contact with tip 71 as shown. I prefer to use a glass window 80 through the cover B in such position that the contents can be seen and so that it can be seen whether or not the electric light is lighted.

The operation of the device is as follows: Suppose it is desired to raise dough for bread making and to leave it for a given time at a temperature about 80 degrees. Pointer 72 is moved to 80 on dial 65 which action either screws in or out the bolt 70 and tip 71. The cover B is now put in place and plug 31 is inserted, which causes the electric light C to begin to burn throwing off heat as well as light gradually increasing the temperature in the box until it reaches 80 degrees. While this is occurring, arm 50 is also being heated and when 80 degrees are reached if it has been properly adjusted therefor, its free end will move away from tip 71 thereby opening the circuit and putting out the electric light. As soon as the temperature begins to drop, arm 50 begins to cool and its free end moves toward tip 71 until it touches it thus closing the circuit, when the bulb C lights and the operation is repeated. I prefer to use a stop 74 which projects from dial plate 65 to prevent pointer 72 from turning beyond certain limits or to a sufficient degree to allow bolt 70 to be unscrewed. I prefer to inclose conductors 36 and 37 in a tube 75 to protect them from injury and I prefer to cut away at 77 under the edges of cover B so as to form handles to lift it on and off.

Among other advantages of my invention, I claim the use of light as well as heat in my incubator as I believe it to be an advantage in developing the bacteria.

In the dotted lines in Figs. 1 and 2, I show the outlines of a common form of bread raising pan. This is circular viewed from the top and as viewed from the side tapers downward toward the bottom. With this shaped pan and a rectangular box A, it will be seen that the bulb C placed at a lower corner is in a safe position and is not likely to be injured especially as it is protected by guard D. Similarly, the thermostat F is arranged in another corner where

it will be out of the way and not likely to be injured. The construction of thermostat F is such that all delicate working parts are inside of the ridge 41 of plate 40 and are therefore protected while tube 75 protects the wires.

My device is cheap, simple, strong, light and durable with no parts to get out of order or to be misplaced. It is practically fool proof and can be used by the most inexperienced person.

I claim:

1. In a dough raising device, the combination of a portable rectangular casing having a movable top, an electric lamp positioned in the case adjacent one of the lower corners thereof, a thermostatic control device also positioned within the casing adjacent another lower corner thereof and in electrical connection with said lamp, and a receptacle for dough resting on the bottom of the casing and having sides tapering outwardly toward the upper edge thereof whereby the reduced portion of the wall of said receptacle will be out of contact with the lamp and said control.

2. In a dough raising device, the combination of a portable casing, having a movable top and transporting handles on the side walls thereof, a plate on one of the side walls of the casing having a socket, an electric lamp fitted to said socket, a plug socket projecting through the last mentioned side wall of the casing and through said plate adjacent the lamp socket, said plug socket being adapted to receive a suitable plug having connection with a source of electricity, a thermostat inclosed by the casing, a conductor leading from the plug socket to the lamp socket, a conductor leading from the plug socket to one member of the thermostat, a conductor leading from the lamp socket to another member of the thermostat, and a removable receptacle for dough and the like positioned within the casing and adapted to rest upon the base of the casing, substantially as and for the purpose described.

3. In a dough raising apparatus, a portable casing having a removable top, and transporting hand engaging means, a plate on one of the side walls of the casing adjacent the base thereof having a socket, an electric lamp fitted to said socket, a plug socket projecting through the last mentioned side wall of the casing and through the plate, adjacent said lamp socket, said plug socket being adapted to receive a suitable plug having connection with a source of electricity, a thermostat within the casing adjacent the lower edge thereof, a conductor leading from the plug socket to the lamp socket, a conductor leading from the plug socket to one member of the thermostat, and a conductor leading from the lamp socket to another member of the thermostat, the two

last mentioned conductors extending along one wall of the casing adjacent the base thereof, a receptacle for dough resting on the base of the casing and having tapering
5 side walls overlying said lamp and thermostat, and a guard plate interposed between the lamp and receptacle.

In testimony whereof I hereto affix my signature in presence of two witnesses.

BUTLER AMES.

Witnesses:

JOSEPH A. LEGARE,
JOHN C. McKENNA.