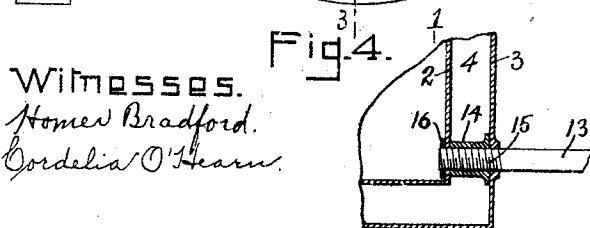
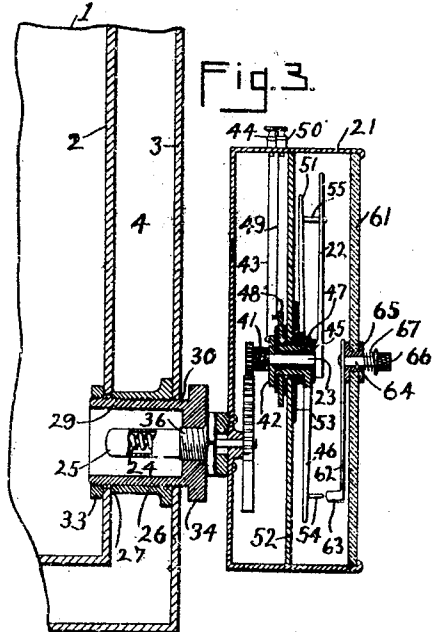
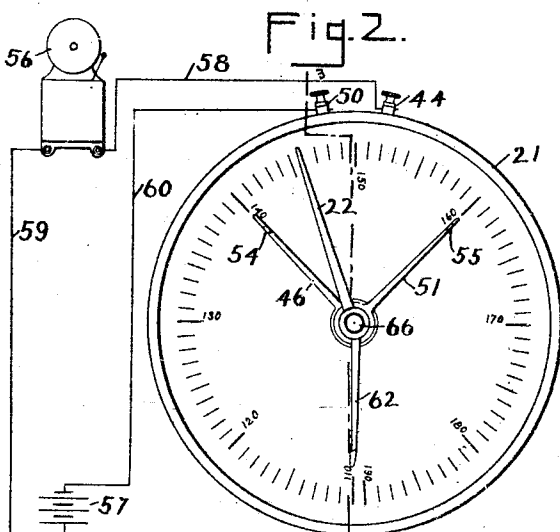
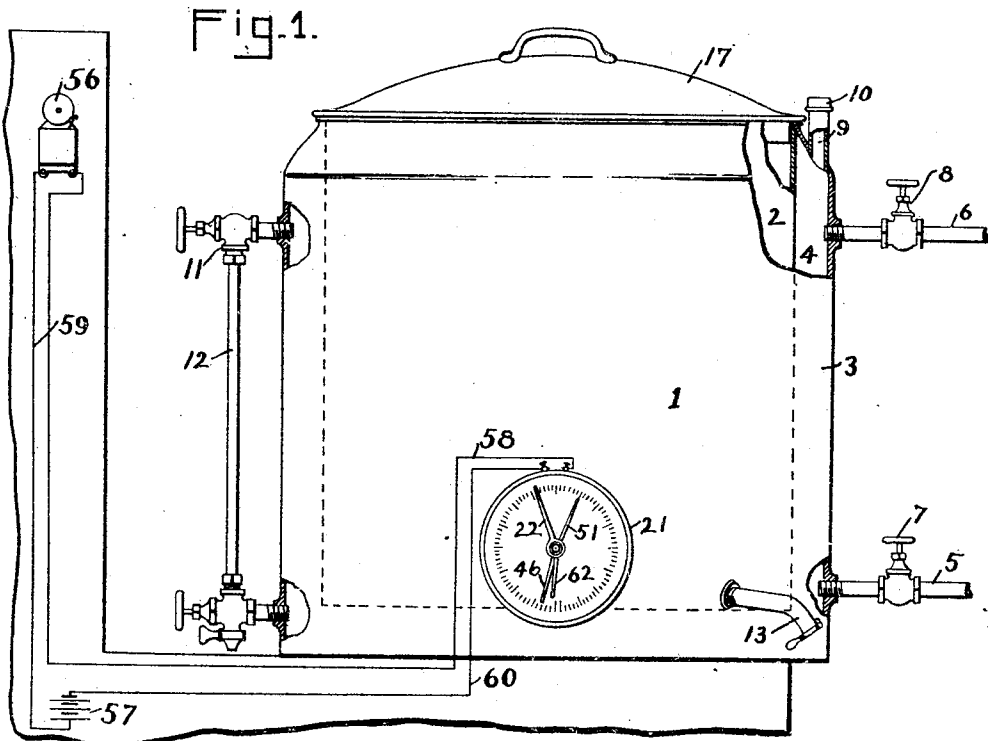


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ALARM FOR GLUE HEATERS.
APPLICATION FILED OCT. 1, 1906.

958,424.

Patented May 17, 1910.



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UNITED STATES PATENT OFFICE.

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ALARM FOR GLUE-HEATERS.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, CLEMENS H. NIEMANN, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Alarms for Glue-Heaters, of which the following is a specification.

Glue, such as generally used by carpenters, joiners, wood workers and other trades, usually made from animal tissue, will become plastic or soft by the application of heat and sets upon cooling, and is usually cooked before use and applied in a heated state. If, however, too great a degree of heat be applied to the glue, it will deteriorate and its adhesive qualities will be lessened or destroyed. If, on the other hand, too low a degree of heat be applied to the glue, it will not melt properly or be of the correct consistency when applied. The consistency of the glue depends also not only upon the heat of the glue, but also upon the proper amount of water or moisture added to the glue in cooking. If the degree of heat applied in cooking be too low, there is danger that the workman will add too much water in order to bring the mixture to the proper liquid state for ready application, as with a brush, and it is the object of my invention, therefore, to provide means for indicating the heat of the glue, so that the glue may be maintained at the proper heat.

My invention consists in providing an alarm for a glue-heater which will indicate when the limits of heat within which it is desired to maintain the glue are reached, and the invention will be readily understood from the following description and claims, and from the drawing in which latter:

Figure 1 is a side elevation of my improved device, the glue-tank being partly broken away for better illustration of parts. Fig. 2 is a front elevation of my improved device. Fig. 3 is a cross-section of the same taken on the line 3—3 of Fig. 2, with the fingers shown in side elevation in somewhat different relation from that shown in Fig. 2; and, Fig. 4 is a detail in cross-section showing the manner of attaching the glue-faucet.

1 represents a glue-tank comprising an inner shell 2 and an outer shell 3 forming a jacketed tank which has a compartment 4 between the shells for receiving steam or hot

water for heating the glue, which latter is received by the inner shell. The inner shell is preferably removable from the outer shell.

5 is an inlet pipe and 6 is an outlet pipe for steam or hot water, communicating with the compartment 4 and respectively having valves 7 8 therein. The pipe 5 may also serve as an inlet pipe when hot water is employed for heating the tank, and the compartment may also have an exhaust pipe 9 communicating therewith, which however is closed by a cap 10 when steam under pressure is used to heat the glue. A water-gage 11 having a glass gage-tube 12 may also communicate with the compartment 4. A faucet 13 communicates with the inner shell for discharging the glue. For permitting removal of the faucet when removing the inner shell, the faucet may have securing means somewhat similar to the means provided and hereinafter described for securing the thermometer-thimble in place. Thus 14 is a ferrule secured to the outer case and extending inwardly. The inner end of this ferrule abuts against the outer face of the inner shell. The ferrule is internally threaded and receives the threaded tube 15 of the faucet. A nut 16 screws over the inner end of this threaded tube and clamps the inner shell against the inner end of the ferrule 14. The tank may also be provided with a lid 17. The heating may also be accomplished by a flame under the tank.

21 is an indicator-case.

22 is an indicator-finger for indicating the temperature of the glue. This finger is secured to a shaft 23. The shaft 23 is actuated by a usual construction of thermometer which may for instance comprise a thermal spring 24 extending into a bulb 25 in ordinary and well-known manner.

In order to cause the heated glue to make contact with the bulb 25 for indicating the true temperature of the glue and to separate the bulb from the direct influence of the heat of the heating agency, and at the same time to place the bulb in such position that it will be out of the reach of the paddle or other stirrer that may be used to stir the glue, I provide the peculiar mounting for the temperature indicator shown and described.

26 is a ferrule rigidly secured to the outer shell and having an inner abutting end 27. This ferrule has an internally threaded bore.

A hollow cap 29 externally threaded as shown at 30, screws into this ferrule and takes through openings respectively in the outer and inner shells. A nut 33 screws
 5 over the inner end of the cap and securely clamps the outer face of the inner shell against the inner abutting end 27 of the ferrule. This construction prevents leakage of the heating agency and leakage of the glue
 10 into the heating compartment. A tight joint may be thus secured, especially as in practice the ferrule may be of iron and the inner shell of a softer metal or composition, as copper or brass. The cap has an outer
 15 head 34, which may take the form of a bolt-head. The head has an internally threaded bore for receiving the threaded stud 36 of the thermometer case.

There is an insulated connection 41 in the shaft 23 for electrically insulating the finger 22 from the parts in rear of the shaft. A collar 42 takes about the shaft, the latter being journaled in said collar, and an electric connection 43 connects said collar with
 25 a binding-post 44 on the case 21. The shaft 23 is journaled in an insulating bearing 45.

46 is a contact-finger which has a hub 47 journaled about the insulating bearing 45. A collar 48 takes about this hub and an electric connection 49 connects said last-named collar with a binding-post 50 on the case 21.

51 is a second contact-finger journaled on the hub 47. The hub 47 makes contact with
 35 the collar 48.

52 is the face-plate of the indicator, an insulated bearing 53 insulating the face-plate from the contact-fingers and the collar 48. The insulated bearing 45 extends between the collars 42 48 and between the contact-fingers and the indicator-finger. This construction insulates the indicator-finger from the contact-fingers, except when making contact therewith and acting as
 45 electric terminals as hereinafter explained, and also insulates said fingers from the case, and electrically connects the indicator-finger with the binding-post 44, and further electrically connects said contact-fingers with
 50 the binding-post 50. The contact-fingers are respectively provided with contact-stems 54 55 with which the indicator-finger is adapted to engage when the glue becomes excessively heated or drops to a heat below
 55 the desired normal. The binding-posts are electrically connected with an alarm shown as a bell 56 and with a source of electric energy shown as a battery 57 as by conductors 58 59 60. The markings on the
 60 face-plate represent degrees of heat.

I provide means for shifting the contact-fingers, so that the alarm may be set for any desired range in degrees of heat it may be desired to apply to the glue. Thus 61 is the
 65 glass-front of the indicator-case.

62 is a shifting-finger having a lug 63 adapted to engage the stems 54 55 for shifting the contact-fingers. The shifter-finger is secured to a shaft 64 mounted in a bearing 65 of the glass-front 61 and having a knob
 70 66 for turning the same. The shaft is slidable longitudinally in its bearing for bringing the lug 63 within lateral range of the contact-stems 54 55, a spring 67 normally however retracting the shifter-finger out of
 75 range of said stems. If it is desired to shift the contact-fingers, the knob 66 is grasped and the shifting-finger is turned so as to bring its lug to either side of either contact-stem, and the shifting-finger is pushed inwardly, which brings it within lateral range
 80 of the stem of the contact-finger, the shifting-finger being then turned to bring the contact-finger to register with the desired mark on the indicator face representing the
 85 desired upward or downward limit of heat to which the glue is to be subjected. These limits of heat may vary with the different classes of glue, or the work to which the glue is to be put. Thus it has been found
 90 that a heat in excess of 160 degrees Fahrenheit will lessen the adhesive quality of the glue, and the longer the excessive heat is maintained the greater will be the detrimental effect, until the adhesive qualities of
 95 the glue are practically destroyed, so that instant remedy is desired, and is obtained by my improved device. The jelly, that is, the mixture of glue and water will become thinner as the degree of heat increases, with
 100 the result that, with the proper amount of glue for the mixture, the jelly will become too thin at an excessive heat, inducing the workmen to add an excessive amount of glue to obtain a proper consistency in the jelly,
 105 and therefore wasting glue. One contact-finger may therefore be set for instance at 160 degrees.

It has been found that below 140 degrees Fahrenheit the spreading efficiency of the
 110 glue will be lessened, and the glue will not be received properly into the pores of the wood or other articles being glued, resulting in poor joints. It is therefore desirable that the glue shall not go below 140 degrees
 115 Fahrenheit, and the other contact finger may therefore be shifted to register with the mark 140 on the dial. The heat of the glue may without detriment vary between these two points, but is preferably maintained as
 120 near 150 degrees Fahrenheit as possible, and as the heat varies the indicator-finger may shift between the contact-fingers. As soon, however, as the indicator-finger makes contact with the contact-stem on either contact-
 125 finger, electric circuit will be formed between the battery and alarm, and the bell will ring, thereby indicating the abnormal state of the glue, which may thereupon be
 130 forthwith remedied.

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

1. In combination, in a glue heater, a jacketed container comprising a thimble spanning the space of the jacket thereof and interrupting said space and opening into the interior of the container, with a thermometer having a bulb in said thimble permanently located in the said interruption of said space and distanced from the wall of said thimble adjacent said opening for permitting the contents of the container to contact said bulb and removing said bulb from direct influence of the temperature in said jacket, substantially as described.

2. The combination of a glue heater comprising an inner shell and an outer shell forming a jacketed tank having a heating-compartment between said shells, a thimble releasably connecting said shells and opening into said inner shell, and a thermometer-bulb secured in said thimble and permanently located between the planes of said shells and distanced from the wall of said thimble adjacent said heating compartment but exposed at said opening for permitting the glue in said inner shell to contact with said bulb.

3. In a glue heater, the combination of an outer shell, an inner shell releasably received thereby and spaced from said outer shell for forming a heating-compartment between said shells, pipes for conveying a heating agency secured to said outer shell, a thimble releasably connecting said shells and provided with a lateral wall having an opening at the inner end thereof opening into said inner shell and having a closing wall at its outer end, the said thimble forming an interruption in said heating-compartment,

a thermometer having a bulb located within said thimble and secured in said outer end but distanced from said lateral wall for removing said bulb from direct influence of the heating agency in said heating compartment and permitting contact of the glue in said inner shell with said bulb, but removing said bulb from contact of a stirrer in said inner shell, said bulb being permanently located in the said interruption of said heating-compartment and outside the vertical plane of the interior of said inner shell, substantially as described.

4. In a glue heater, the combination of an outer shell 3, a removable inner glue-container shell 2, said shells having a heating-compartment 4 therebetween, a hollow cap 29 releasably secured to both of said shells and having a lateral wall spanning said heating-compartment and opening into said inner shell, said hollow cap forming an interruption in said heating-compartment, a bulb secured in said hollow cap from its outer end and distanced from said lateral wall for removing it from direct influence of the heating-agency in said heating-compartment and permitting the glue in said inner shell to be received about said bulb, said bulb being within said hollow cap for removing it from danger of contact by a glue stirrer in said inner shell, and permanently located in the said interruption of said heating-compartment, substantially as described.

In testimony whereof I have subscribed my name hereto in the presence of two subscribing witnesses.

CLEMENS H. NIEMANN.

Witnesses:

THEODORE C. JUNG,
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