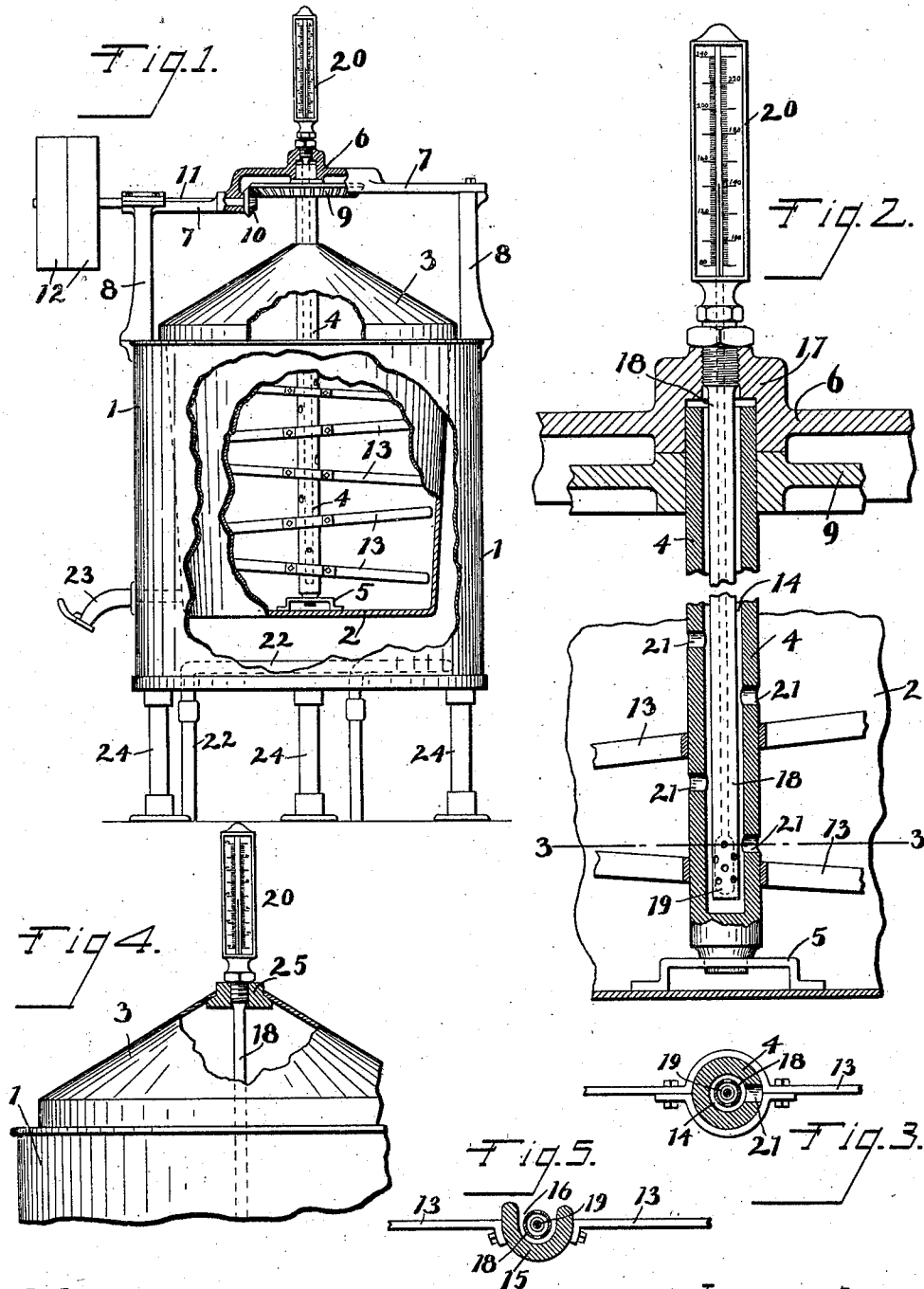


C. E. FRANCIS.
GLUE BOILER.
APPLICATION FILED NOV. 6, 1907.

986,560.

Patented Mar. 14, 1911.



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UNITED STATES PATENT OFFICE.

CHARLES E. FRANCIS, OF CINCINNATI, OHIO.

GLUE-BOILER.

986,560.

Specification of Letters Patent.

Patented Mar. 14, 1911.

Application filed November 6, 1907. Serial No. 400,956.

To all whom it may concern:

Be it known that I, CHARLES E. FRANCIS, a citizen of the United States, residing in Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Glue-Boilers, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to improvements in an apparatus for boiling and cooking of glue and the like, in which an inner receptacle for the glue is employed, mounted in an outer tank filled with water, which is preferably heated by steam coils.

The special purpose of my invention is to provide a construction, in which the temperature of the mass of glue during the process of boiling, may be accurately and easily determined at all times.

Heretofore it has been customary to provide for the taking of the temperature of the mass of glue from the side of the receptacle, and it will be readily understood that there may be a considerable variation between the temperature of the mass at the sides and at the center. Glue boilers are frequently supplied with stirring appliances, operated by hand or power, to thoroughly agitate the mass of glue during the cooking. By reason of the stirrer arms rotating through the mass, it has been found impracticable to suspend any heat testing device at the central portion of the receptacle, as the stirrer arms would necessarily come in contact with the device.

It is the purpose of my invention, therefore, to provide a construction in which the thermometer or other heat testing device may be so mounted and suspended, that the temperature may be taken from the central portion of the mass.

In the drawings Figure 1 is a front elevation of my improved apparatus, partly broken away to illustrate the construction. Fig. 2 is a central vertical section in detail of my improved stirrer shaft with the thermometer in position. Fig. 3 is a cross section of the shaft taken on the lines 3, 3 of Fig. 2. Fig. 4 is the detailed front elevation partly in section of a modified form of construction, in which the stirrer shaft is omitted. Fig. 5 is a transverse section of a modified form of the stirrer shaft.

1 is an outer metallic tank of suitable size and shape, and preferably cylindrical, which is mounted on the standards 24, 24, to raise the same to the proper height from the floor. Suspended from the upper flange of this outer tank 1, is an inner pot or receptacle 2, for holding the glue to be cooked.

3 is a suitable tight-fitting cover for the glue receptacle, and passing down centrally through this cover is a vertical stirrer shaft 4, which has a bearing at the lower end in the cap 5, and at its upper end outside the receptacle, has a bearing in the cover plate 6, which is either secured to or integrally connected with the supporting arms 7, which at the ends are bolted and sustained by the standards 8, 8, mounted on the upper edge of the outer receptacle.

9 is a beveled gear keyed on the upper end of the shaft 4, and engaged by the pinion gear 10, on the shaft 11, which has its bearing in the cap plate 6, and on the upper end of one of the standards 8. This shaft 11 carries the usual tight and loose pulleys 12, 12, for the driving belt.

Bolted or otherwise secured on the shaft 4, within the glue receptacle, are the stirrer arms 13, 13, which are intended to agitate and thoroughly stir the mass with the rotation of the shaft 4.

The shaft 4, is provided with a hollow space 14, throughout its length, or instead of being hollow, the shaft may be formed as shown in Fig. 5, at 15, of crescent shape in cross section, and in this way providing a hollow space 16, which will correspond to the hollow space 14, of the shaft 4. A screw threaded opening is formed centrally through the boss 17, of the cap plates 6, and a thermometer casing 18, is mounted in this boss 17, with the casing and bulb 19, of the thermometer, extending down through the hollow shaft 4, while on the upper end of the thermometer casing, outside of the cap plate 6, is secured the scale 20, to indicate the temperature. Openings 21, 21, are drilled through the shaft 4, to allow the glue to enter and come directly in contact with the thermometer bulb. Of course, when the crescent shaped shaft 15, is employed, the glue can circulate around the thermometer, through the open space of the shaft.

When the glue boiler apparatus is furnished without any stirrer, the cover 3, is provided with a screw threaded collar 25, in

which the thermometer 18, is mounted, so that the bulb of the thermometer can extend down into the center of the mass.

It is usual to heat the water in the outer receptacle of the apparatus by coils of steam pipe, which are indicated in the drawings in Fig. 1 at 22.

23 is the draw-off pipe for the inner glue receptacle.

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

1. In combination with a cooking vessel, a hollow stirring shaft located within said vessel, a thermometer within the hollow shaft extending into and projecting above said vessel, means for operating said shaft and a stationary support above said shaft for the thermometer.

20 2. In combination with a cooking vessel, a hollow stirring shaft, located within said vessel, a thermometer extending into said vessel through said shaft and provided with an indicating portion which projects above said vessel, means for operating said shaft and stationary means for securing said thermometer in place.

30 3. In combination with a cooking vessel, a hollow stirring shaft located within said vessel and provided throughout its length with perforations, a thermometer provided

with an elongated tube which extends into said vessel through said shaft, a stationary cap located above said shaft through which said thermometer extends and to which it is secured, and means for rotating said shaft. 35

4. In combination with a cooking vessel, a hollow stirring shaft extending into said vessel, a thermometer provided with an elongated tube which extends into said vessel through said shaft and an indicating portion which extends out of said shaft above said vessel, and a stationary cap located above said shaft for mounting said thermometer whereby the temperature of said vessel may be ascertained without removing said thermometer. 40 45

5. In combination with a glue cooker, a hollow shaft extending into said cooker, stirring arms mounted on said shaft, a casing mounted on said cooker and provided with a bearing for said shaft, a thermometer extending into said cooker through said shaft, a cap, mounted on said casing, and inclosing the end of said shaft for supporting said thermometer, and means for operating said shaft. 50 55

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Witnesses:

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