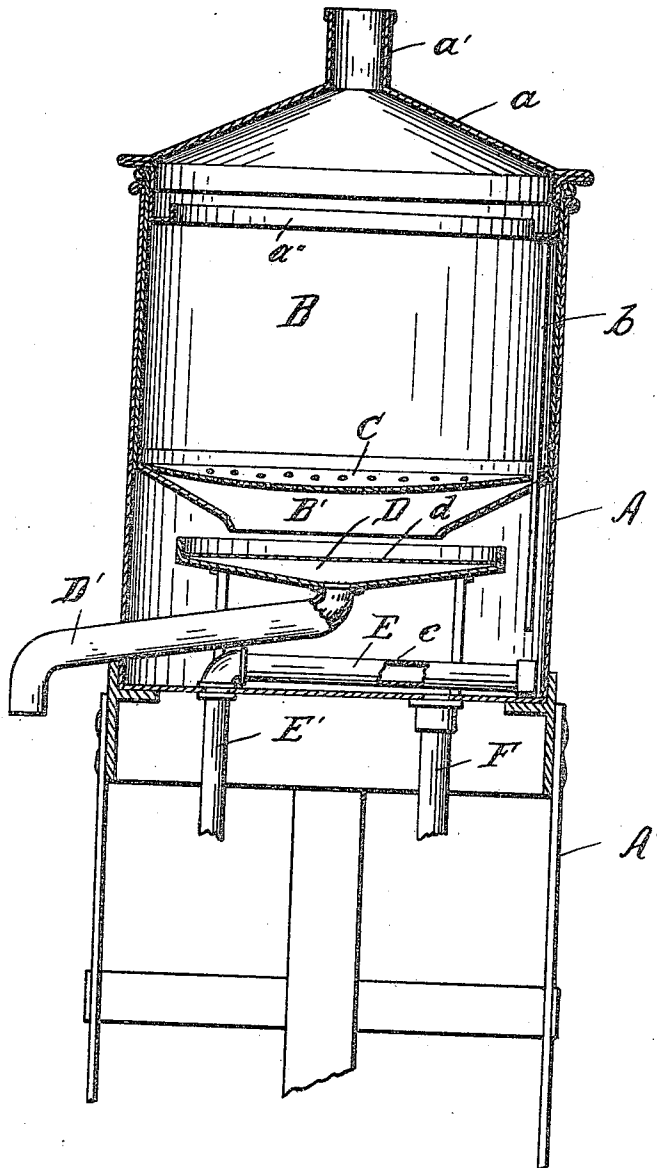


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GLUE CONVERTER.
APPLICATION FILED OCT. 29, 1908.

961,569.

Patented June 14, 1910.



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CHARLES M. ZIMMERMAN, OF CINCINNATI, OHIO.

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961,569.

Specification of Letters Patent. Patented June 14, 1910.

Application filed October 29, 1908. Serial No. 460,144.

To all whom it may concern:

Be it known that I, CHARLES M. ZIMMERMAN, a citizen of the United States, and a resident of Cincinnati, in the county of Hamilton and State of Ohio, have invented a certain new and useful Improvement in Glue-Converters, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, which forms a part of my specification.

My invention relates to an apparatus for converting or melting glue, and its object is to produce a device by means of which the glue may be melted in a very short period of time, thus avoiding the long continued application of dry heat at high temperature, which destroys the fibrous matter of the glue and diminishes its strength.

Prior to my invention the glue jelly, (and by this term I wish to be understood throughout as referring to the jelly produced by soaking dry glue in a certain amount of water) has been melted by boiling it in a kettle surrounded by water. Many disadvantages are attendant upon this method. Not only is a great deal of time required to melt the glue in this way, but the fiber of the glue deteriorates from excessive temperature and from the continued maintenance of the glue at such temperature. With this old method of converting glue, it is necessary to have a supply kettle with a quantity of glue under constant heat. This produces a rapid and continuous deterioration of the glue in both strength and body, and in addition, evaporation of the water in the glue, thus reducing it in quantity and greatly increasing its cost. By the use of my invention, these objectionable features are overcome, and the liquid glue is delivered at just the proper temperature and with an enormous saving in time. No supply kettle is necessary and no large quantity need be made in advance, as liquid glue may be produced instantly, at any time, in large or small quantities, as may be required. The glue is always uniform and fresh.

Another advantage of my invention is that the device is readily adaptable to the use of a filter, which is impracticable in the old way of melting glue, and I have accordingly provided a filter. By its use much annoyance is avoided, as glue frequently contains hard, gritty substances, and unless removed these dull the saws and other tools

used to work up the material on which it has been used.

The drawing represents a vertical section through my improved glue converter.

My improved converter comprises essentially a chamber in which is located a perforated diaphragm to receive the glue jelly; a trough located below the diaphragm to receive the liquid glue; and means, such as a perforated steam pipe, adapted to pass steam up through said diaphragm where it attacks and melts the glue jelly. It contains other features to facilitate the collection of the glue to filter it, and to prevent the water of condensation from mixing with the liquid glue, and these will be more particularly pointed out as I proceed with my description.

In the drawing, A is a cylindrical vessel, open at its upper end, and supported in any convenient manner on a stand A'. Within the vessel A is supported as shown a removable drum B, provided with a wide, inclined flange or funnel B' at the bottom.

C is the perforated diaphragm, which is substantially of the diameter of the drum and is supported above the funnel B'. The diaphragm is preferably dished as indicated to cause the liquid glue to flow toward the center.

D is the collecting trough, preferably of conical form. It is located immediately below the funnel B', with its edges extending beyond the lower end of said funnel, so as to catch the liquid glue as it is directed therinto by said funnel. A pipe D' is secured to the bottom of the trough to draw off the liquid glue into any suitable receptacle. A filter *d* of wire gauze is located in the trough to strain the glue and catch all extraneous material.

E is a steam pipe, provided with perforations *e*.

E' is the steam supply pipe, which is preferably provided with a means (not shown) to choke the supply of steam to the pipe E, so that it may be allowed to expand in said pipe rather than be forced through it. A pipe F secured to the bottom of the chamber A, permits the escape of the water of condensation.

The drum B is provided with a conical lid *a*, having an escape pipe *a'*. A trough *a''* is located about the upper edge of the drum B. As the steam rises, such of it as does not escape through the pipe *a'*, strikes

the conical wall of the lid *a*, condenses and runs down into the trough *a''*. The latter is slightly inclined toward a pipe *b*, which passes down to a point near the bottom of the chamber A.

The operation of my improved converter is as follows:—Glue is soaked in the proper proportion of water to form the glue jelly. Any desired amount of this jelly is placed on the diaphragm C, the lid *a* having been removed for that purpose, and steam is admitted to the pipe E. It escapes through the perforations *c*, and passes up about the edges of the trough D, and through the diaphragm, where it attacks and melts the glue. The liquid glue drops through the perforations of the diaphragm, and falls into the trough D, first passing through the gauze filter *d*, being directed therein by the funnel B'. It then passes out through the pipe D' into any suitable receptacle provided for the purpose.

I do not wish to limit myself to the details of construction described herein and shown in the drawings, as it is apparent that they may be modified in various ways without departing from the spirit of my invention.

What I desire to claim as new and to cover by Letters Patent is:

1. An apparatus for converting glue, comprising an inclosed chamber, a perforated diaphragm located within said chamber, a funnel below said diaphragm, a collector below said funnel, there being a free passage between the two, and a perforated steam pipe below said collector, with means for supplying steam to the same.

2. An apparatus for converting glue, comprising an inclosed chamber, a perforated diaphragm located within said chamber, a funnel below said diaphragm, a collector below said funnel, there being a free passage between the two, a gauze filter covering said collector and a perforated steam pipe below said collector, with means for supplying steam to the same.

3. An apparatus for converting glue, comprising a vessel, a lid closing the same, said lid being provided with an escape pipe, a perforated diaphragm located within said vessel, a funnel below said diaphragm, a

collector below said funnel, there being a free passage between the two, a distributing pipe leading from said collector beyond the limits of said vessel, and a perforated steam pipe below said collector, with means for supplying steam to the same.

4. An apparatus for converting glue, comprising a vessel, a conical lid inclosing said vessel, a steam escape pipe secured to said lid, a trough about the upper inner edge of said vessel, a pipe leading from said trough to the bottom of the vessel, a perforated diaphragm located within said vessel, a funnel below said diaphragm, a collector below said funnel, there being a free passage between the two, a distributing pipe leading from said collector beyond the limits of said vessel, and a perforated steam pipe below said collector, with means for supplying steam to the same.

5. An apparatus for converting glue, comprising a vessel, a conical lid inclosing said vessel, a steam escape pipe secured to said lid, a trough about the upper inner edge of said vessel, a pipe leading from said trough to the bottom of the vessel, a perforated diaphragm located within said vessel, a funnel below said diaphragm, a collector below said funnel, there being a free passage between the two, a distributing pipe leading from said collector beyond the limits of said vessel, and a perforated steam pipe below said collector, with means for supplying steam to the same, and mechanism for drawing the water of condensation from said vessel.

6. An apparatus for converting glue, comprising an inclosed chamber, a perforated diaphragm located within said chamber, a funnel located below said diaphragm, a collector adapted to receive the contents of said funnel, said collector extending beyond the limits of the lower end of said funnel, there being a free passage between the two, and a steam pipe provided with perforations below said collector.

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Witnesses:

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