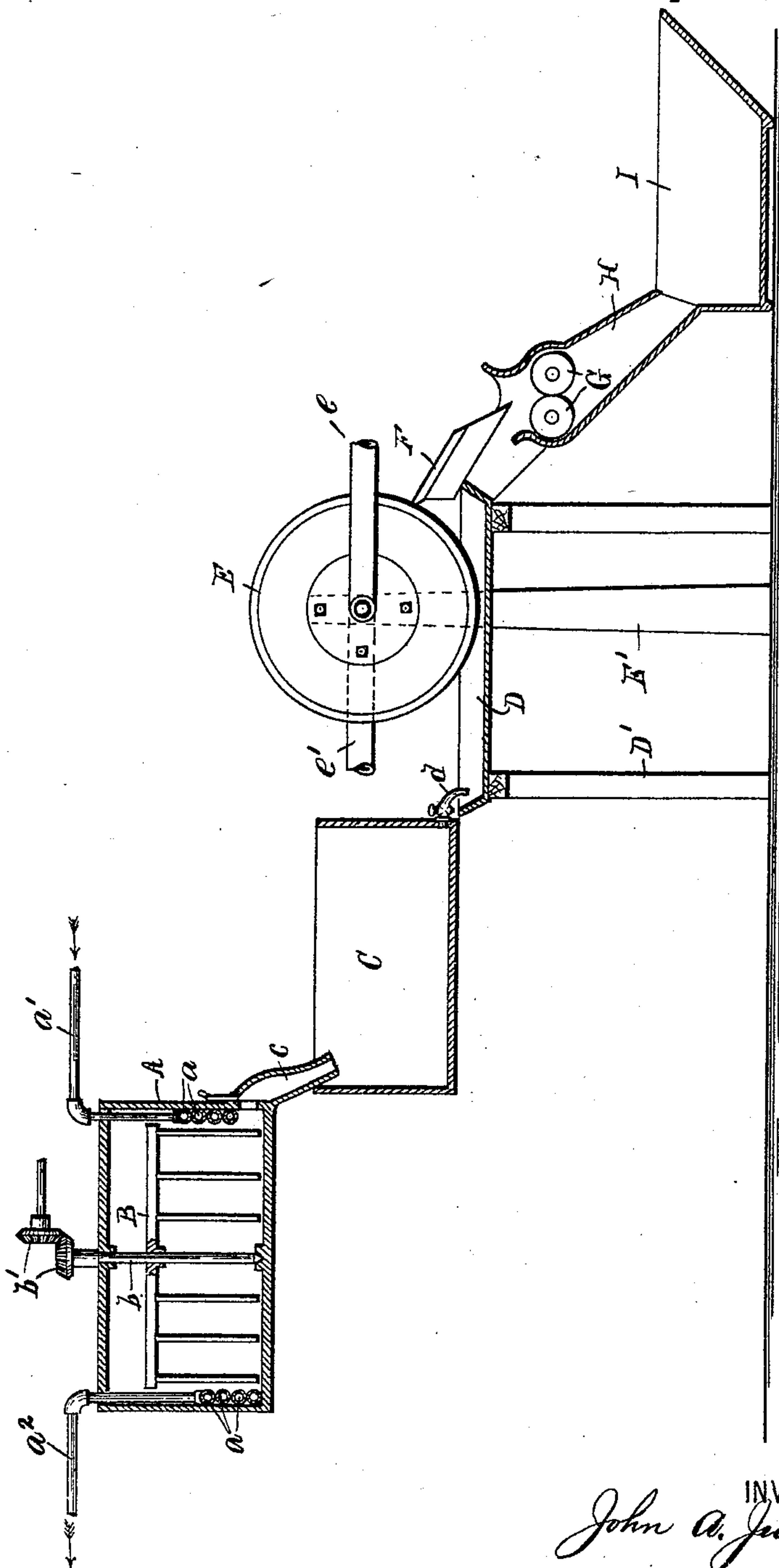


(No Model.)

J. A. JUST.
GLUE AND PROCESS OF MAKING SAME.

No. 536,633.

Patented Apr. 2, 1895.



WITNESSES:
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JOHN A. JUST, OF SYRACUSE, NEW YORK, ASSIGNOR OF ONE-HALF TO
DANIEL H. GOWING, OF SAME PLACE.

GLUE AND PROCESS OF MAKING SAME.

SPECIFICATION forming part of Letters Patent No. 536,633, dated April 2, 1895.

Application filed July 6, 1894. Serial No. 516,711. (No specimens.)

To all whom it may concern:

Be it known that I, JOHN A. JUST, of Syracuse, in the county of Onondaga, in the State of New York, have invented new and useful
5 Improvements in Glue and Processes of Making the Same, of which the following, taken in connection with the accompanying drawing, is a full, clear, and exact description.

My invention relates to a method of producing a new glue possessing characteristics and capabilities lacking in ordinary glue; and it consists in subjecting ordinary glue to certain modes of treatment, all as will be hereinafter more particularly described and
15 pointed out in the claims.

Ordinary dry glue can only be made during cold weather, is manufactured in sheets, and, when desired for use, is soluble only in hot water, and must be kept hot during its use.
20 The so called "liquid glues" consist of glue and certain acid or chemical preparations, and are quickly dried or evaporated and unfitted for use, unless contained in air-tight receptacles.

Ordinary glue is more or less liable to putrefaction or decomposition when subjected to moisture. It greatly tends to permit the development of disease germs, and often forms molds which produce volatile compounds, as
30 when applied to certain kinds of wall paper, or similarly colored substances, and particularly those containing arsenic or antimony in composition. It is well known that these volatile compounds are more or less poisonous, and seriously endanger the health and lives of those subjected to the influences thereof.

My new glue produced by my process can be made throughout the whole year, is readily
40 soluble in cold or hot water, consists preferably of a dry powder and remains unaltered under ordinary conditions. It is not liable to putrefaction or decomposition, and does not form molds capable of producing volatile compounds when applied to wall papers and
45 similarly colored materials. It is strongly adhesive, dries very hard, and is more or less elastic when dried.

In carrying out my process ordinary glue
50 or gelatine solutions of any degree or quality

are boiled until containing about forty-five to fifty per cent. of glue, and the concentrated solutions are then subjected to a heated temperature until the glue when dried, is soluble in cold water. This change in the gelatinous
55 material is thought to be effected by hydration or the chemical absorption or combination of water therewith, and, the water thus combined with the glue becomes a constituent part of the final product, and cannot be
60 separated by influences such as are ordinarily experienced in the application of glue.

In subjecting the concentrated solution to a heated temperature, it is preferably maintained at a temperature of about 176° Fahrenheit for from twenty-four to forty-eight
65 hours. This treatment gives the best result with solutions of ordinary glue or gelatinous material but if said solutions are maintained at a higher or lower temperature the same result may be obtained in a less or greater time.
70 If the glue or gelatinous material from which the solution is formed varies in quality the length of time such solutions should be subjected to the heated temperature must also
75 be varied.

The condition of the heated mixture is readily ascertained by withdrawing a small amount from the vessel containing the same, and drying this small amount, which, if sufficiently treated, may be reduced to powder, and
80 will mix with either cold or hot water. If the sample of the heated mixture does not indicate that the same is sufficiently treated, the high temperature thereof is maintained until the
85 desired result is obtained. The material thus heated which is practically a solution of my new glue is then sterilized or heated by a considerable temperature, which is preferably
90 about 230° to 280° Fahrenheit. The material when sterilized or finally heated may be reduced to powder, although this final operation is not an essential step of my process.

This process of producing my new glue may be carried out by any suitable apparatus, and
95 in order that the same may be more readily understood, I have here illustrated a simple mechanism for producing said glue.

A represents a chamber for receiving the solution of glue or other gelatinous material,
100

and *a*, heating coils arranged within the chamber A and connected to inlet and outlet pipes *a'* *a*².

B is a revoluble agitator mounted within the chamber A upon a shaft *b* driven by gears *b'*. The solution within the chamber A is subjected to a heated temperature by the pipes *a*, and is simultaneously stirred by the agitator B. A supply reservoir C for the heated solution is connected with the chamber *a* by a conduit *c*, and, if desired, is maintained at any desired temperature by suitable coils or other heating apparatus not illustrated.

D is a shallow chamber for receiving the solution from the reservoir C, and *d* is an outlet pipe opening from the reservoir C and discharging into the chamber D.

E is a revoluble steam containing drum connected to inlet and outlet steam pipes *e e'*. The lower portion of the periphery of the drum E is arranged within the chamber D, and, as said drum is revolved, the material within the chamber D adheres to its periphery. The drum E is heated to the desired temperature for sterilizing or finally heating the glue, and the sterilized or finally heated glue is removed therefrom by a suitable scraper F, and thence passes to grinding rolls G G arranged in the chute H. A suitable receiving chamber I is connected to the chute H for receiving the glue after its discharge from the rollers G.

It will be understood that the receptacle A, the reservoir C, the knife F, the rollers G, and the chamber I may be mounted upon any suitable supports, and in the drawing I have shown the chamber D and the drum E as mounted on supports D' E'.

It is evident that my invention is not limited to the illustrated and described construction of mechanism for carrying out my process, and it is thought that said process and the product produced thereby will be readily understood upon reference to the accompanying drawing and the foregoing description.

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

1. The herein described process of forming glue soluble in cold water, the same consisting in maintaining a solution of ordinary glue or gelatinous material at a heated tempera-

ture until the glue or gelatinous material when dried, is soluble in cold water, substantially as and for the purpose described.

2. The herein described process of forming glue soluble in cold water, the same consisting in concentrating a solution of ordinary glue or gelatinous material until the glue or gelatinous material forms about forty-five or fifty per cent. of the concentrated solution, then maintaining the concentrated solution at a heated temperature until the glue or gelatinous material when dried, is soluble in cold water, substantially as and for the purpose specified.

3. The herein described process of forming glue soluble in cold water, the same consisting in maintaining a solution of ordinary glue or gelatinous material at a heated temperature until the glue or gelatinous material when dried, is soluble in cold water, and finally sterilizing or drying said hydrolized glue or gelatinous material by subjecting the same to a temperature of 230° to 280° Fahrenheit, substantially as described.

4. The herein described process of forming glue soluble in cold water, the same consisting in concentrating a solution of ordinary glue or gelatinous material until the glue or gelatinous material forms about forty-five or fifty per cent. of the concentrated solution, then maintaining the concentrated solution at a heated temperature of substantially 176° Fahrenheit until the glue or gelatinous material when dried, is soluble in cold water, sterilizing or drying said hydrolized glue or gelatinous material by subjecting the same to a temperature of 230° to 280° Fahrenheit, and finally reducing said dried material to powder, substantially as set forth.

5. As a new article of manufacture, the herein described glue soluble in cold water, substantially as specified.

In testimony whereof I have hereunto signed my name, in the presence of two attesting witnesses, at Syracuse, in the county of Onondaga, in the State of New York, this 3d day of July, 1894.

JOHN A. JUST.

Witnesses:

CLARK H. NORTON,
K. H. THEOBALD.