C. O. GARRISON.

METHOD AND APPARATUS FOR COOLING AND SPREADING GLUE.

No. 185,825. Patented Jan. 2, 1877.

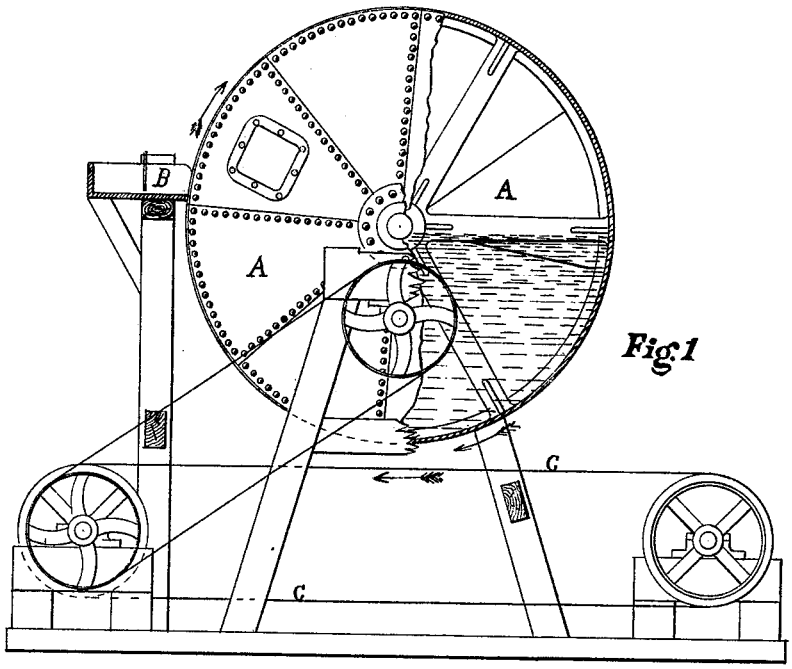
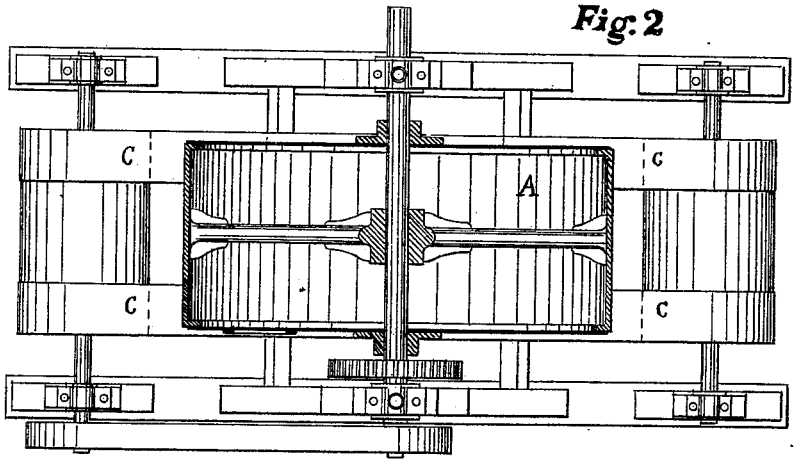


Fig: 1

Fig: 2



WITNESSES.

C. A. Dixon

William J. Tennilliger

INVENTOR

C. O. Garrison

UNITED STATES PATENT OFFICE.

CHARLES O. GARRISON, OF NEW YORK, N. Y.

IMPROVEMENT IN METHODS AND APPARATUS FOR COOLING AND SPREADING GLUE.

Specification forming part of Letters Patent No. **185,825**, dated January 2, 1877; application filed December 13, 1876.

To all whom it may concern:

Be it known that I, CHAS. O. GARRISON, of the city and State of New York, have invented a new and improved apparatus for applying and removing glue or size from a cooling-cylinder and spreading the same on nets; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, forming part of this specification.

My invention relates to an improved apparatus for the manufacture of glue. Heretofore glue has been supplied to the periphery of a cooling wheel or drum from an open trough situated beneath the cooling-drum, and after the glue is carried through a part revolution of the cooling-drum it is then scraped therefrom and deposited on an endless belt, which latter is located at the side of the cooling-wheel. The glue is carried to the delivery end of the endless belt, where it is severed in pieces of the desired size, said pieces being deposited by hand on the drying-nets. When open supply-troughs are employed, the cooling-drum, as it revolves more or less rapidly in the liquid glue therein contained, operates to draw air into the body or mass of glue contained in the trough, and as the glue is deposited or spread upon the periphery of the cooling-drum the sheet of glue is impregnated with air-bubbles, thereby rendering the manufactured article defective and objectionable for such reason. Again, when the glue is separated from the periphery of the cooling-wheel by a scraper, and thus deposited on an endless belt located at the side of the cooling-wheel, the scraper scratches the surface of the glue, rendering it liable to deteoriate more rapidly than it would were its surface left glossy, as is the case when the glue leaves the wheel. Again, when it is desired to make very thin sheets of glue, it is difficult, if not practically impossible, to transfer the thin sheet from the cooling-wheel to an endless belt, or from the latter to the drying-nets, located at one or each side of the same, as the sheet is not of sufficient strength to be self-supporting, and therefore doubles up or breaks when handled, and lies roughly on the endless belt as it is carried from the wheel. Finally, it is impossible for an attendant to handle very thin sheets of glue and place it on the drying-nets, and hence the ordinary apparatus employed for the manufacture of glue precludes the production of the thin sheets most desired and salable in the market.

The object of my invention is to provide an apparatus for the manufacture of glue, wherein the glue is deposited on the cooling-wheel in such a manner as to preclude the entrance of air-bubbles into the sheets, and to regulate the supply of glue to the wheel, so that sheets of any desired thickness may be produced; also, to arrange the several parts of the apparatus in such a manner that the sheets of glue shall be automatically deposited directly on the drying-nets, which latter are supported on an endless belt arranged to travel directly beneath the cooling-wheel; and to this end my invention consists, first, in an apparatus for the manufacture of glue, the combination, with the cooling wheel or drum, of a supply-trough, fitted practically air-tight to the wheel, whereby air is excluded from the mass of glue contained in said trough, and the sheets of glue formed without having air-bubbles therein; second, in an apparatus for the manufacture of glue, the combination, with a cooling drum or wheel, of a supply-trough for feeding the glue to the wheel, and an endless belt located immediately beneath the wheel upon which the drying-nets are deposited, and serve to support the glue as it falls by its own gravity onto said nets; third, in the improved method of cooling and spreading glue, the same consisting in feeding the glue to a revolving cooling-surface from a feed-receptacle, fitted tightly to said cylinder, and from which cylinder the sheet is automatically deposited on the glue-drying nets.

Figure 1 represents a side elevation of my improved apparatus, and Fig. 2 shows a plan view of the same.

In the drawings, A represents a cooling cylinder or drum, the periphery of which is maintained at a low temperature by means of ice-water or other cooling material, inserted or conveyed within the interior of the cylinder. B designates a box or spout of any desired size and shape, which is provided with packing, or otherwise constructed to be fitted practically air-tight to the periphery of the cool-

ing-drum, so that the liquid glue contained in the box or spout B may be fed to the periphery of the cylinder A without the ingress of air into the spout, thus preventing the formation of air-bubbles in the glue and sheet as it is formed on the cylinder.

The flow of liquid glue to the cooling-cylinder may be regulated by a stop-cock or valve located either in the supply-box or supply-reservoir, as may be desired, the object in view being to regulate the flow of glue to the cylinder according as the sheet is to be of greater or less thickness.

C represents an endless belt, located immediately beneath the cooling cylinder or drum, and said belt serves as a carrier for the drying-nets, which latter consist of detachable nets, the frames of which are ordinarily from two to three feet in width, and from four to six feet in length. These nets are placed on one end of the endless belt C, and are carried beneath the wheel, and in close proximity to the periphery of the same, the wheel and belt being geared to travel in the same direction, and at the same rate of speed.

As the sheet of glue on the cooling-cylinder is carried around until it reaches the lowest point in the circle described by the revolution of the cooling cylinder, the sheet will automatically detach itself from the wheel by reason of its own gravity, and drop onto the drying-net located immediately beneath the wheel.

The sheets of glue may be made much thinner by means of this apparatus than by the employment of the ordinary apparatus used in the manufacture of glue, as it is impossible to pick up the very thin sheet of glue by hand and transfer it to the drying-nets, while in my improved apparatus the sheets, however thin, are automatically deposited on the drying-nets without the necessity of being handled by the workman. Another valuable feature of my invention consists in the fact that I am enabled to carry on the manufacture of glue in changeable weather, as the sheets may be made very thin, and need never be handled, and thus subjected to injury, and when so formed will dry quickly, while the ordinary apparatus requires steady clear weather to insure successful treatment of the glue, as the sheets must be made of considerable thickness in order to be cut and placed on the drying-net by hand.

As scrapers or knives are not used in my apparatus to detach the sheet from the cylinder, the sheet is not scratched, but is deposited on the drying-nets, with both surfaces of sheet in a smooth and glossy condition.

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

1. In an apparatus for the manufacture of glue, the combination, with a cooling cylinder or drum, of a feeding box or receptacle, fitted tightly to the periphery of the wheel, whereby air is excluded from the liquid glue in the feed-box, substantially as and for the purpose set forth.

2. In apparatus for the manufacture of glue, the combination, with a cooling-cylinder having a feed-receptacle tightly fitted to the periphery of said cylinder, of an endless belt or carrier, located beneath the cylinder, whereby the sheet of glue is automatically deposited on the drying-nets placed on the endless carrier, substantially as and for the purpose set forth.

3. The method herein described of cooling and spreading glue, the same consisting in feeding the desired quantity of liquid glue upon a revolving cooling-surface, from which it is automatically deposited on the drying-nets in sheets of any desired thickness, substantially as and for the purpose set forth.

CHAS. O. GARRISON.

Witnesses:
C. A. DIXON,
WILLIAM J. TERWILLIGER.