D. U. JENNINGS.

Manufacture of Waxed Thread.

No. 198,392. Patented Dec. 18, 1877.

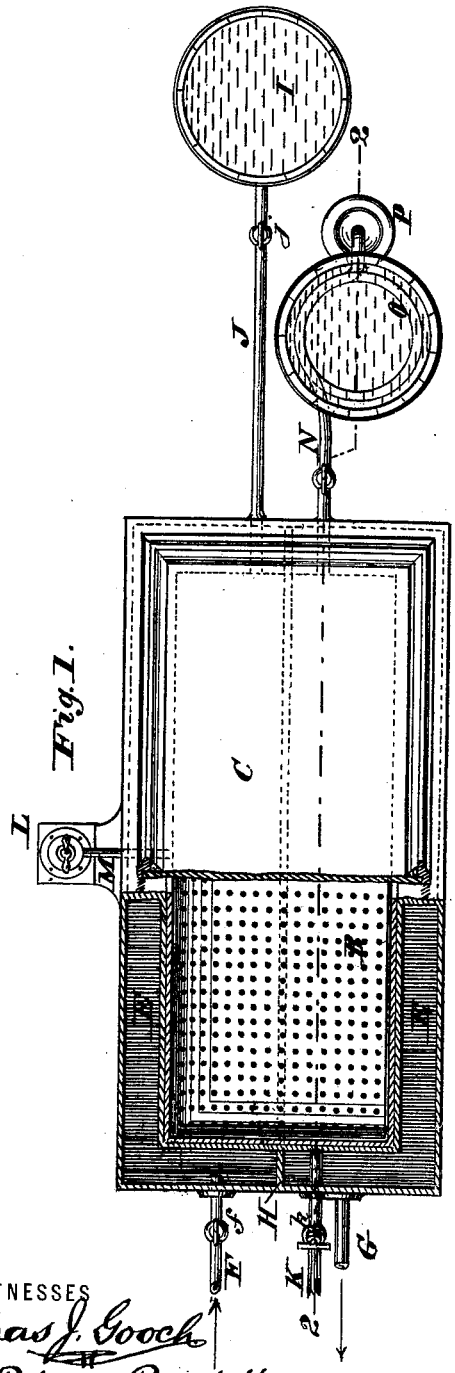

Fig. 1.

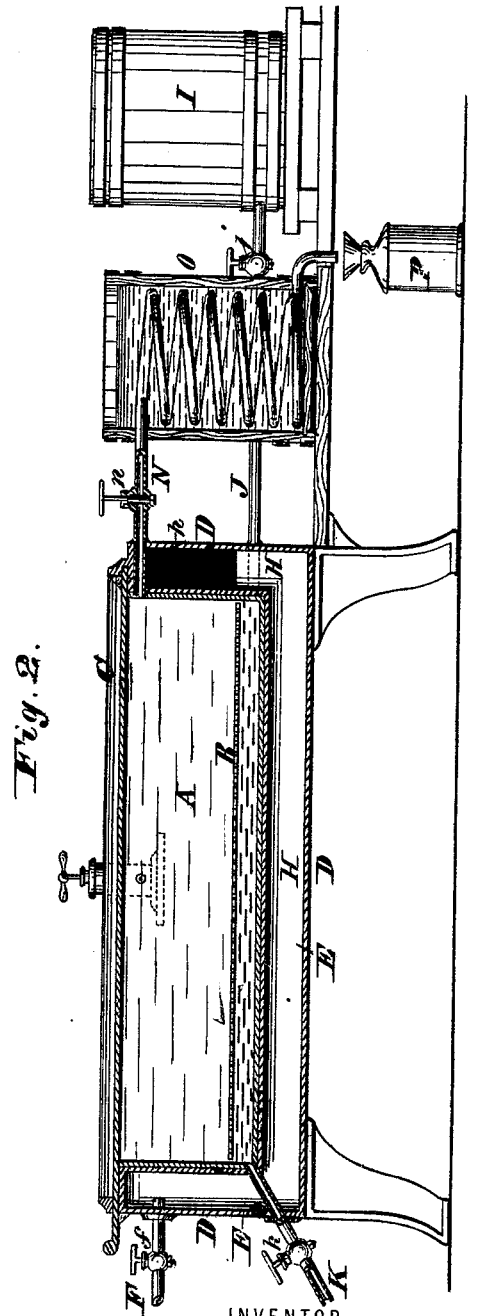

Fig. 2.

WITNESSES

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D. UFFORD JENNINGS, OF CHARLESTON, SOUTH CAROLINA.

IMPROVEMENT IN THE MANUFACTURE OF WAXED THREAD.

Specification forming part of Letters Patent No. **198,392**, dated December 18, 1877; application filed October 24, 1876.

To all whom it may concern:

Be it known that I, D. UFFORD JENNINGS, of Charleston, in the State of South Carolina, have invented a certain new and useful Improvement in the Manufacture of Waxed Thread for sewing and in processes and apparatuses for treating thread and other fibrous matter with wax and other preserving agents, of which the following is a specification:

My process consists, essentially, in dissolving the wax or other preserving agent in bisulphide of carbon or other suitable liquid, as a vehicle for conveying it to the interior, and causing it to thoroughly permeate the fibrous material, then removing the surplus solution by pressure, and driving off the remaining bisulphide or other solvent by evaporation, and saving said solvent by condensation for future use.

My apparatus consists of a tank with a perforated or grated false bottom, on which the fibrous material rests, and through which the solution ascends, suitable connections being provided for introducing the solution beneath, the diaphragm pressing out and drawing off the surplus solution, and conveying to the condenser the vapor which is driven off by heat from a steam-jacket or other means.

My invention further consists in an improved manufacture of waxed sewing-thread, as hereinafter specified.

In the accompanying drawings, Figure 1 is a plan view of the apparatus, partly in section. Fig. 2 is a vertical longitudinal section in the planes indicated by the lines 2 2, Fig. 1.

A represents a tank, provided with a perforated false bottom, B, and closed at top by a tight cover, C. The tank is secured within a casing, D, so as to form a space, E, extending around and beneath the tank, and receiving steam through a pipe, F, so as to constitute a steam-jacket to heat the contents of the tank. G is an outlet-pipe for the steam. H is a partition, extending from the top of the steam-space at the end where the pipes F G are located to the bottom, thence along the whole length of the casing, and up a short distance at the other end, leaving a space, *h*, through which the steam must flow in order to pass from one side of the jacket to the other, and thus causing the steam to circulate on all sides of the tank.

I may represent a vat containing a solution of wax in bisulphide of carbon, benzole, naphtha, or other liquid, which solution is admitted through a pipe, J, to the tank A beneath the perforated bottom B, and, after filling the entire space beneath said perforated bottom, rises through the latter, and is thus applied uniformly to any fibrous material placed within the tank.

K is a pipe for draining off the surplus solution.

L is an air-pump, communicating by a pipe, M, with the interior of the tank, for the purpose of producing pressure above the material therein, so as to express surplus solution out of the fibrous matter after the saturation thereof.

N is a pipe for conveying vaporized bisulphide from the tank A to a condensing-worm, O, from which the condensed chemical is caught in a suitable vessel, P, for subsequent use.

The pipes F J K N are guarded by cocks *f j k n*, respectively.

Operation: Raw cotton or thread in hanks, or whatever material it may be desired to treat, is placed in the tank A upon the false bottom B to the depth of six inches or less. The solution is then let in from the reservoir I through the pipe J until the space beneath the perforated bottom B is filled, and the solution rises through said perforated bottom, and completely saturates the material. This done, the cock *j* is closed and the cock *k* opened to drain off the surplus solution, which is expressed as completely as possible by means of air forced into the tank above the close layer of material by means of the pump L. The cocks *f* and *n* are then opened, allowing vapor to escape to the worm O, and admitting steam to the jacket E, producing heat of 200° or more, which gradually and completely drives off in vapor all the bisulphide or other solvent remaining in the material.

The invention is useful in the application of white wax, paraffine, or other like material to cotton, linen, or woolen thread or yarn for sewing or other purposes, or shoemaker's wax

to thread for shoe or harness making, or tar or other preserving agent to cordage, nets, canvas, or other fibrous manufacture.

It is applied to the finished article or to the material out of which it is made in either a raw or partially-manufactured state. It can be applied with good effect to raw cotton or flax, or to the rolls or slivers as they come from the carding-machine, or to the article when partially or completely spun.

The features which distinguish my improved manufacture of waxed thread from waxed thread heretofore made are, that the wax is applied to the interior and throughout the body of the thread instead of mainly on the surface, and the mode of application and treatment causes it to assume a granulated or crystallized condition. These two conditions entirely obviate or avoid the disadvantage usually found in waxed thread from the presence of the wax in a sticky condition, mainly on the surface of the thread. This, as is well known, precludes the use of waxed thread as heretofore made on most sewing-machines, and causes great difficulty in the use of waxed thread, even in machines specially designed for boot and shoe sewing.

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

1. The process herein described of applying wax or other preserving agent to sewing-thread or other fibrous matter, consisting in dissolving the wax or other matter in a liquid vehicle, saturating the fiber with the solution, squeezing out the surplus by pressure applied to the mass, and then driving off the remainder of the solvent by evaporation.

2. The apparatus described, consisting of the close treating-tank A, having perforated false bottom B, the reservoir I, communicating with the treating-tank through a pipe, J, the air-pump L, for producing pressure to express the surplus solution, the steam-jacket E for applying heat to vaporize the remainder of the solvent, and the condenser O for recovering the same for future use.

3. The improved manufacture of waxed sewing-thread, having the wax applied to the interior of its body, as herein specified.

D. UFFORD JENNINGS.

Witnesses:

JOS. F. CUMMINGS,

GEORGE BLAESE.