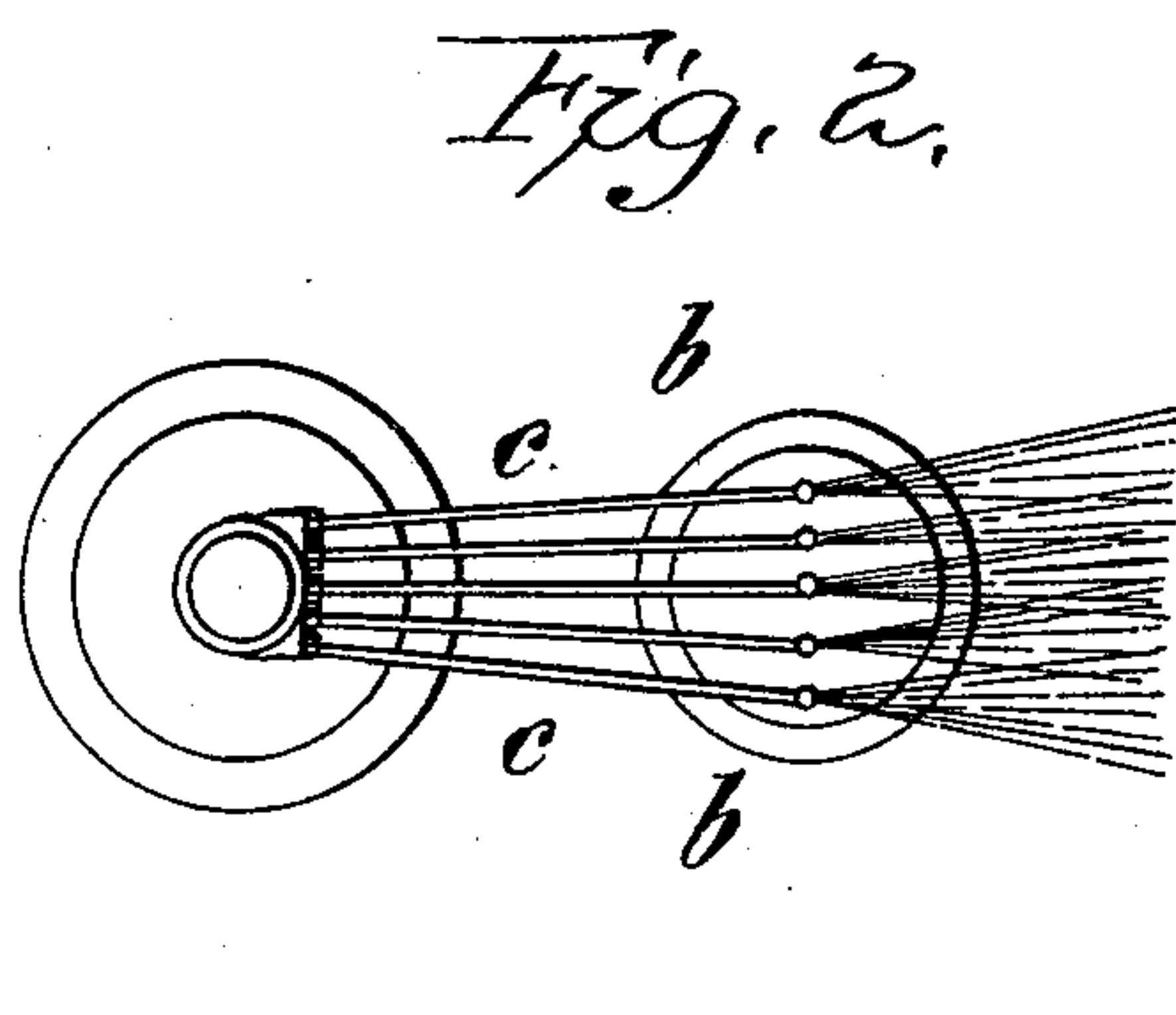
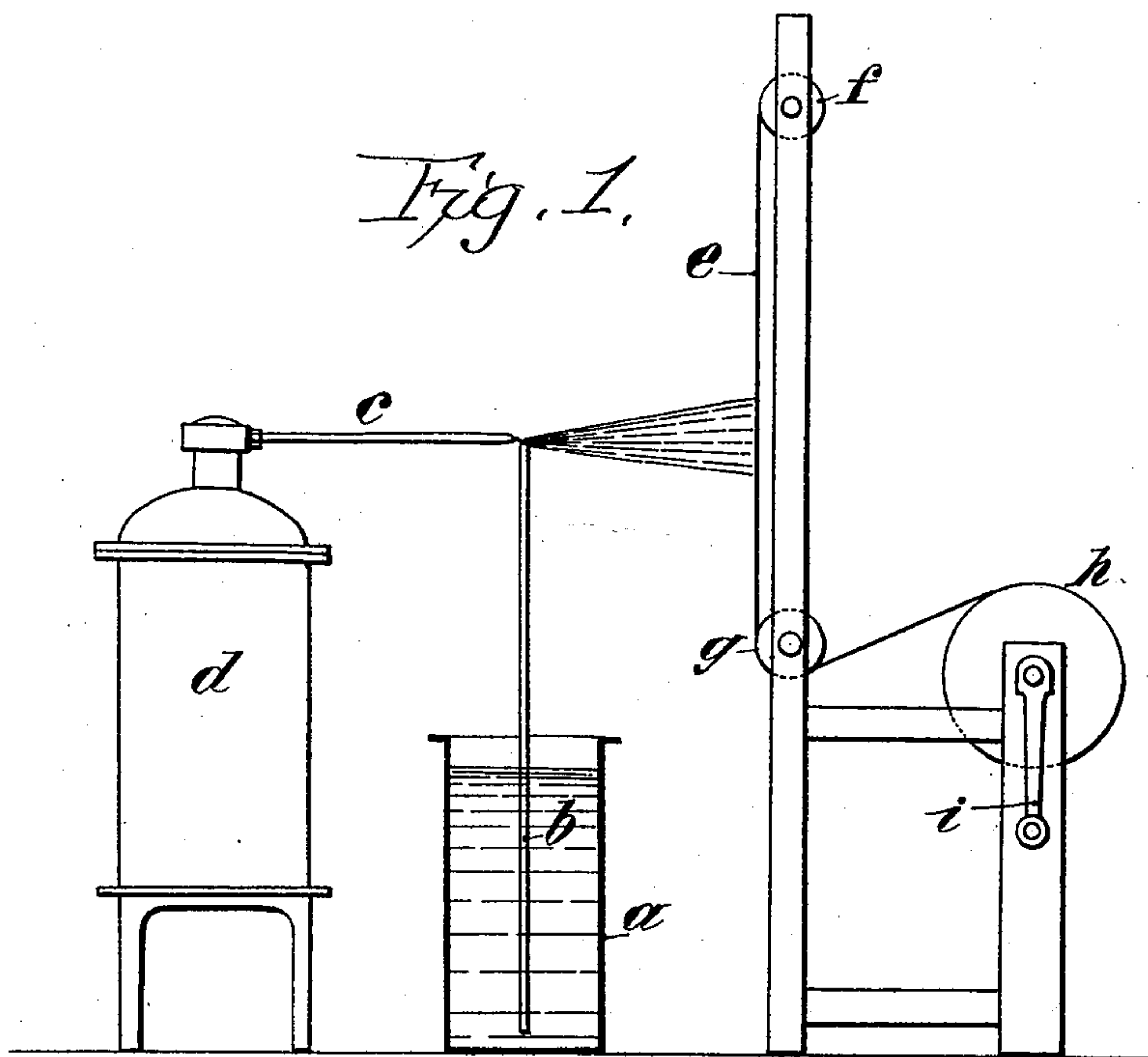


(Specimens.)

J. A. MAQUAIRE.
FIBROUS MATERIAL.

No. 606,067.

Patented June 21, 1898.



Witnesses:
E. B. Bolton
Attorney

Inventor:
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his Attorneys.

UNITED STATES PATENT OFFICE.

JULES AMÉDÉE MAQUAIRE, OF PARIS, FRANCE.

FIBROUS MATERIAL.

SPECIFICATION forming part of Letters Patent No. 606,067, dated June 21, 1898.

Application filed December 3, 1896. Serial No. 614,348. (Specimens.) Patented in France February 14, 1896, No. 253,979; in Belgium February 15, 1896, No. 119,849, and in England February 17, 1896, No. 3,533.

To all whom it may concern:

Be it known that I, JULES AMÉDÉE MAQUAIRE, of the city of Paris, France, have invented an Improved Fibrous Material, (for which I have obtained Letters Patent in France for fifteen years, dated February 14, 1896, No. 253,979; in Belgium for fifteen years, dated February 15, 1896, No. 119,849, and in England for fourteen years, dated February 17, 1896, No. 3,533,) of which the following is a full, clear, and exact description.

My invention relates to an improved fibrous material, which I call by the name of "eucalyptus wool or wadding," and to the process of producing the same. The said fibrous material is obtained by the treatment and utilization of the fibers of a well-known plant of the *Myrtaceæ* family designated under the generic name of "eucalyptus."

Figure 1 is a side view, partly in section, of an apparatus for restoring to the fabric certain ingredients which are lost in the baths. Fig. 2 is a plan view of part of Fig. 1.

The eucalyptus are woody plants which often grow to great heights and of which the leaves, the liber, and the tissues contain fibers capable of being brought into the filamentous condition. These eucalyptus fibers thus treated and rendered capable of being utilized in spinning and weaving, as well as for other industrial applications, form the improved material which is the main feature of the present invention.

Although the eucalyptus fibers can be treated by all the processes generally used for the conversion of ligneous fibers into textile threads, I prefer to work according to the following process, which better suits their special nature.

The parts of the plant to be used are first allowed to soak for about fifteen to twenty hours in a bath of lukewarm water. They are then heated in a boiler or in a keir, the temperature being raised progressively by 10° every half-hour until 120° is reached, which brings the total duration of this operation up to about five hours. The fibrous mass is then rolled and brought into the form of very thin ribbons or strips, then washed in a five-per-cent. bath of carbonate of soda or in

any other equivalent alkaline bath. The fibers are then beaten and afterward thoroughly washed with water, again beaten and placed for twenty-four hours in a bath of lukewarm water, to which have been added ten per cent. of hydrochloric acid and one per cent. of ammonium chlorid, (sal-ammoniac.) In place of the hydrochloric acid and sal-ammoniac I can employ any other acid and any other suitable ammoniacal salt or alkali salt. After this treatment the mass is subjected to a washing with resin soap, then to a washing with plenty of water, which will free it from all free and soluble bodies. Afterward the fibers are dried, scutched, and stripped, and when thoroughly dry are ready for the carders to make wool or wadding.

In order to make up for the loss of useful principles resulting in the treatment which the fibrous matter undergoes, the resins collected in the course of this treatment are restored to the wadding in the following manner: The residue from the treatment of the fibrous matter contains oil of eucalyptus, resins, tars, various essences, &c. This residue is placed into a receiver *a*, into which a certain number of vertical tubes *b* dip. At the upper extremity of each of these tubes is a horizontal tube *c*, which is set into the dome of a boiler *d*. The various tubes *c* are arranged in a common horizontal plane and diverge in the manner shown in diagram, so that they cover the whole width of the stuff to be impregnated. The steam which escapes through the mouthpiece of each of these tubes *c* produces aspiration in each of the corresponding vertical tubes *b*, so that the resins, tars, essences, &c., in the receiver *a* rise into the tubes *b* and are projected upon the tissue *e* by the steam-jets escaping from the extremity of the horizontal tubes *c*. The tissue to be impregnated is rolled up on the drum *f*. It descends in vertical direction to the tubes *c*, passes on roller *g*, and finally rolls upon arbor *h*, which has a crank *i*. Turning the latter slowly the progression of the tissue is obtained, and in that manner the whole surface of the same will be impregnated with resins.

The eucalyptus threads thus brought to the condition of textile fibers form, as I have said,

an improved fibrous material which can be used either as such in the manufacture of all objects into which wool or wadding enters, or it can be utilized in any other desired manner.
5 For instance, my improved material can serve for the manufacture of all kinds of felt or be spun so as to make pure eucalyptus yarn, or mixed yarn, by admixture with other textiles—such as flax, hemp, silk, ramie, wool, cotton,
10 or the like. These pure or mixed yarns can be used alone or serve in the manufacture of all fabrics or knitted goods, either alone or in combination with any other kinds of textile threads. In any case the products ob-
15 tained by the application of eucalyptus wool or wadding possess all the hygienic and absorbent properties of the material of which they are composed, and they remain in a good condition for a very long time by reason of
20 the imputrescibility of this material.

I claim—

The herein-described process consisting in taking the fibrous parts of the eucalyptus plant, subjecting the same to a bath of tepid water, heating to the point of ebullition, then 25 subjecting the material to the action of an alkaline bath, an acid-bath, and a soap-bath, and then restoring the essential principles which have been removed from the fiber in the several baths as the resins by applying 30 the same to the fibers, substantially as described.

The foregoing specification of my manufacture of an improved fibrous material signed by me this 17th day of November, 1896.

JULES AMÉDÉE MAQUAIRE.

Witnesses:

EDWARD P. MACLEAN,
ALBERT MOREAU.