

S. Gwynn.
Paper Mach.

N^o 88,035.

Patented Mar. 23, 1869.

Fig. 2.

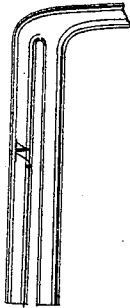
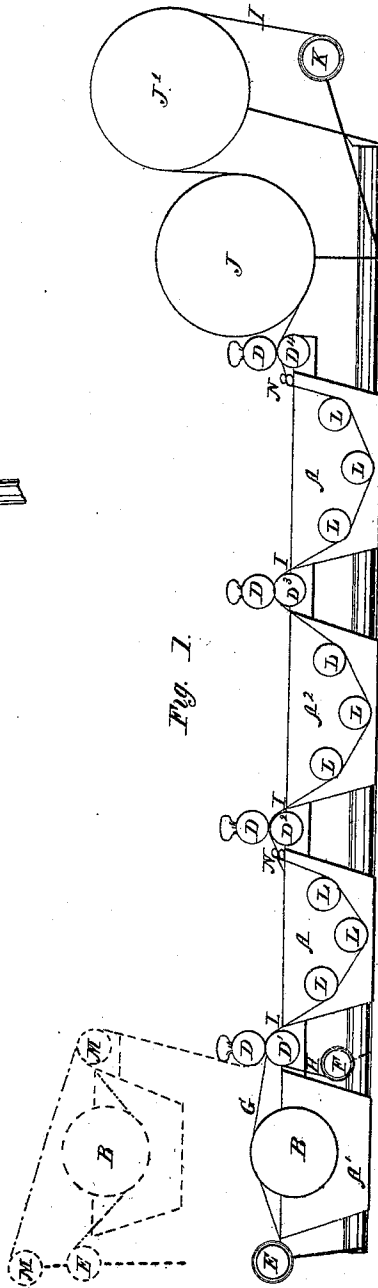


Fig. 1.



Witnesses,

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UNITED STATES PATENT OFFICE.

STUART GWYNN, OF NEW YORK, N. Y.

MACHINE FOR CONSTRUCTING VEGETABLE MEMBRANE.

Specification forming part of Letters Patent No. **88,035**, dated March 23, 1869.

Be it known that I, STUART GWYNN, of the city, county, and State of New York, have invented new and useful machinery and apparatus combined, which I have named, "A Transforming-Machine," to be used in the manufacture of a new composition of matter named "Vegetable Membrane;" and I do declare that the following is a full, clear, and exact description of the construction and mode of operating the same, reference being had to the annexed drawings, making part of this specification, in which the said machinery and apparatus combined are shown in sectional elevations—

Figure 1 being a longitudinal section elevation of the affair as arranged to make "two-ply" vegetable "membrane web," with an addition thereto in dotted lines, which, if added, would enable "four-ply" web to be made on it. Any additional number desired of the parts shown by the dotted lines may be added. Fig. 2 is a cross view of the machine or side elevation of this special part of a U-shaped perforated pipe.

A¹ A A² A are four tanks, of which A¹ is to contain the "transforming-fluid," and A² the "neutralizing-fluid." These fluids are fully described and the method of the preparation and mode of use in Letters Patent No. 73,322, granted to me January 14, 1868. A A, wash-water. B is a roller made of thick sheet-lead, or any other suitable material that will not be acted on by the fluid in which it revolves. D D¹, D D², D D³, and D D⁴ are pairs of "squeezing-rollers." I prefer them made of vulcanized rubber. E and F are rolls of "felt web," mounted on suitable axes, from which it unrolls. I is a blue line, showing the "transformed web" as it passes on and through the wash-waters and neutralizing-fluid, and finally over the steam-heated drying-rolls J and J¹, and is rolled up on roller K.

The yellow line G is the felt web passing in contact with roller B, from which it takes off enough of the transforming-fluid, in which the roller B revolves, to transform that web G, and also web H, represented by the green line. As soon as these two webs have passed through the first pair of squeezing-rollers, D D¹, they are united, and indissolubly make one "transformed web," by the use of the transforming-fluid contained in tank A¹.

N N, in Fig. 1, and N, Fig. 2, are perforated U-pipes, the holes being in the inner side of the limbs of the U. Water is ejected from these holes with force against the continuous "web of vegetable membrane" as it passes slowly through the fluids and between the limbs of the U-pipes.

L L L in tanks A, A², and A are plain bearing-rollers, used to keep the web immersed in the fluid.

Suitable gearing, or an arrangement of belts, actuate the various rollers at the speeds required. These are not required to be shown, as they may be varied to suit each man's wish, and as no invention is required to apply the variety chosen.

The method pursued in "transforming the web," and manner of using this combined machinery and apparatus, will be fully understood from the following brief description of the mode of using the same.

A web two feet wide and one thousand feet in length should not exceed eight pounds in weight. It is made in rolls of from five thousand (5,000) to ten thousand (10,000) feet in length, the former the most desirable to handle.

The method of manufacture must be varied to suit the particular purpose for which the "vegetable membrane" is to be used. Broadly, it may be described thus: The transforming-fluid is evenly spread over one or both surfaces of the "felt," by transference from a lead or other suitable roller, charged by rotating slowly on its axis, immersed one-third its diameter in the transforming-fluid, held in a suitable tank, in which the fluid is maintained at a uniform level by a self-acting siphon or other suitable device. To make the vegetable membrane threefold thickness, I find it necessary only to spread the fluid on one side or surface of two of the webs.

From the lead "transference-roller" the webs pass slowly forward, kept from touching each other for from fifteen to seventy-five seconds, depending on circumstances. They now pass altogether between the first set of compressing-rollers, and thence into and through a long tank of water; thence, as the threefold web rises out of the tank, between Y-shaped pipes, perforated on their inner sides, from which perforations issue jets of pure water,

and thence through the second set of compressing-rollers; thence into a long tank, suitably lined, containing a dilute mixture of the neutralizing-fluid in water of about the proportions of one part of the former to ten parts of the latter. As the web rises out of this tank it passes through another set of compressing-rollers, set quite tight, which squeeze out all the fluid that the web will part with without a rupture of its texture. The web next passes into another tank of water, over and under rollers submerged therein, and as it rises from this tank it passes between another Y water-pipe, to finish washing out the saline and other soluble foreign matters; thence through another set of compressing-rollers, and, finally, around one, two, or more steam-drying rolls. When it is used between or as a covering to textile fabrics, cementing, calendering, &c., in addition, will be required.

When the thickness required is more than fivefold, it will be found more desirable to pass "transformed" web, made up of two, three, four, or five thicknesses, a second time through the apparatus and machinery, than to make it thicker at one operation, although I have made it as thick as sixteenfold at one operation. Thus, to make sixteenfold, I prefer to make fourfold webs, and then unite four of them by passing them through a second operation.

To attach firmly and permanently vegetable membrane self to self, no cement other than the transforming-fluid is required; but to put it between or as a covering to textile fabrics, &c., "marine glue" and other cementing materials, each adapted to the special purpose, will be required.

Thus, any person skilled in the arts of chemistry and paper-making will readily understand how to operate the combined machinery and apparatus.

Having fully described the combined machinery and apparatus, what I claim is—

1. Machinery and apparatus combined, containing the various members of an organization equivalent to that herein described, by the use of which like results can be obtained in the manufacture of vegetable membrane, and any other analogous composition of matter.

2. The separate members of the organization of machinery and apparatus, if used for the purpose described, or when combined with any other machinery, if the combination is used for an equivalent manufacture.

STUART GWYNN.

Witnesses:

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