2 Sheets—Sheet 1.

M. NEWTON.

Paper.

No. 212,866. **Patented Mar. 4, 1879.**

Fig. 1.

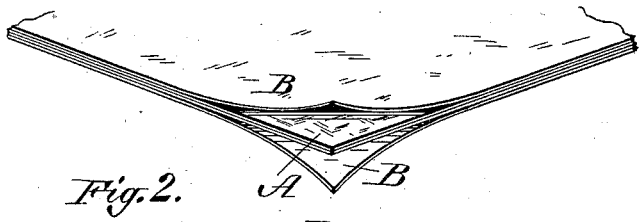


Fig. 2.

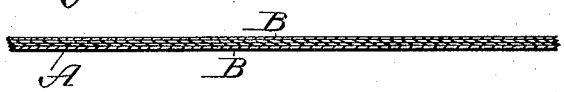


Fig. 3.

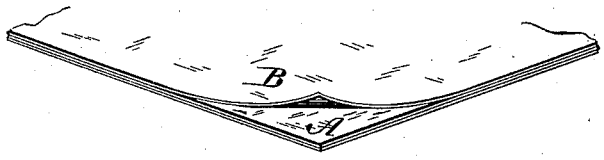
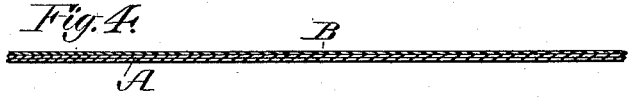


Fig. 4.



Witnesses:
Will W. Dodge
Donn B. Twitchell.

Inventor:
Moses Newton,
by Dodger & Son.
Attys.

2 Sheets—Sheet 2.

M. NEWTON.

Paper.

No. 212,866. **Patented Mar. 4, 1879.**

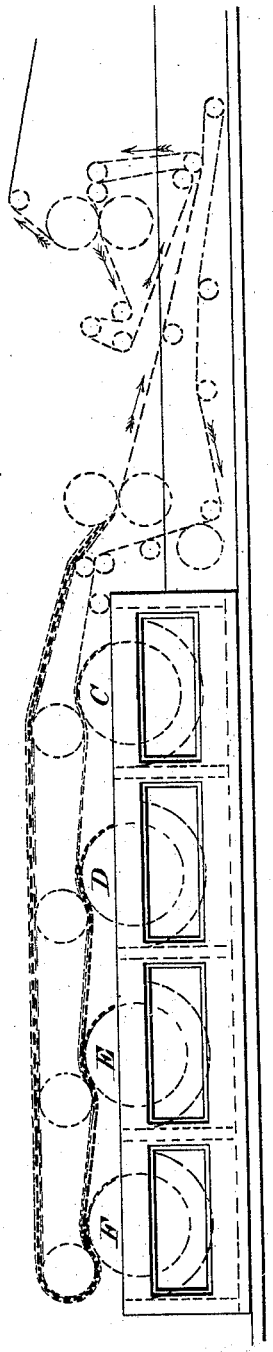


Fig. 3.

Witnesses:
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UNITED STATES PATENT OFFICE.

MOSES NEWTON, OF HOLYOKE, MASSACHUSETTS.

IMPROVEMENT IN PAPER.

Specification forming part of Letters Patent No. **212,866**, dated March 4, 1879; application filed January 16, 1879.

To all whom it may concern:

Be it known that I, MOSES NEWTON, of Holyoke, in the county of Hampden and State of Massachusetts, have invented certain Improvements in Paper, of which the following is a specification:

This invention consists of a paper composed of a thick but soft and spongy body, with one or both sides covered with a thin and tougher layer, as hereinafter more fully set forth.

Figure 1 is a perspective view, and Fig. 2 a transverse sectional view, of a piece of the paper having both sides coated with the thin outer layer. Figs. 3 and 4 are similar views of the paper having one side only coated with the tough outer layer; and Fig. 5, a side elevation of the machine.

The object of this invention is to produce a cheap paper having a thick but soft spongy body, with one or both of its surfaces covered by a thin and tough layer, said paper being suitable for carpet-lining, and for wrapping or packing furniture or other polished articles to prevent it from being scratched or bruised in transportation, and for similar purposes.

This paper I make by forming the pulp for the body of any material that will form a soft spongy mass when formed into a sheet, and which may be composed of satinet rags, jute waste, wood-pulp, and the like, or a mixture of similar materials, so as to produce a layer or body somewhat similar to blotting-paper, but more soft and spongy. Upon this I place a thin layer of pulp composed of a stronger and firmer material—for instance, such as is used for making Manila paper—and this I place upon one or both surfaces of the soft spongy body, according as the paper is designed for one or another use. If it be designed for wrapping or packing polished articles, such as furniture and the like, only one side will be thus coated, as represented in Figs. 3 and 4, in which A represents the soft spongy layer or body, while B represents the thin tough layer. If it is to be used as a carpet-lining or for a similar purpose, then both sides will be provided with the thin tough layer B, as shown in Figs. 1 and 2.

The process of making the paper is as follows: A paper-forming machine is arranged as shown in Fig. 5, with four separate vats, each provided with a forming roll or cylinder and with a felt arranged to pass over all the cylinders. The two central vats are supplied with the pulp for forming the soft body A, while the two end vats are supplied with the pulp used for forming the thin tough layers for the outside of the sheet. When the machine is set in motion a layer of the tough material will be deposited on the felt by the cylinder C at the rear end, and as it passes along the two central cylinders, D and E, will each deposit on this first layer a layer of the soft spongy pulp, and as it passes over the last cylinder, F, that will deposit another layer of the tough material, and thus will be produced the compound sheet having the thick soft spongy body A, coated on each side with a thin layer, B, of the tougher material. If it be desired to coat it on one side only with the layer B, then the pulp for forming such layer will be omitted from one of the end vats, and the other end vat alone be supplied with the material.

The object of using two vats and forming-cylinders in the center for supplying the soft spongy material is to produce a thicker body of that material. It is obvious, however, that either more or less than two vats and cylinders may be used for supplying the material for the body A, depending upon how thick it may be desired to have the body, it thus being made thicker or thinner, according to what it is to be used for. In practice, however, I find that two are sufficient to provide a body thick enough for all ordinary purposes.

By thus inclosing the soft spongy material between the two thin layers of tougher material I impart to the sheet sufficient strength and toughness to enable it to be successfully used where a sheet of the soft spongy material alone could not be, and impart to the sheet as a whole a far greater degree of durability than it would have if composed wholly of the soft spongy material; and by coating the sheet on one side only it has sufficient strength and durability to enable it to be used for wrapping or packing articles, as described, in which case it is generally used but once, and then only for a short time.

It will be seen that by making the paper in the manner described I combine the qualities

of softness or sponginess with that of toughness and durability, thus producing an article that is peculiarly adapted for use as a carpet-lining and all similar purposes, as well as for packing furniture and similar articles.

By this method of making the paper I am enabled not only to make the soft spongy body wholly of pulp and of any desired thickness, but also to make the laminæ or layers of a uniform thickness, each layer presenting substantially a plane surface, so that when they are all brought together to form the finished sheet it will be of an even or regular thickness.

I am aware that a paper has heretofore been made by inclosing a layer of strong coarse material between two layers of cotton or linen pulp, thus forming a sheet of uniform density throughout for making paper collars and cuffs and for cards, the object in such case being simply to cheapen the product by using a cheaper material in the center, and also that a layer of paper-pulp has been combined with woven or felted fabrics; and I am also aware that a carpet-lining has been made by inclosing a lap or layer of raw cotton between two sheets of paper-pulp; but I am not aware that a paper having a soft spongy body composed wholly of paper-pulp, of uniform thickness throughout, covered with one or more thin layers of tough material, also of uniform thickness throughout, such as above described, has ever before been made in such a manner as I have described, so as to produce a laminated sheet wherein the several laminæ are of plane surface, and which surfaces are made to adhere to each other in the process of manufacture with sufficient tenacity to unite the whole in a sheet; and, therefore,

What I claim is—

As a new article of manufacture, a paper having a soft spongy body, A, composed of one or more layers of soft spongy pulp, covered on one or both sides with a thin tough layer, B, substantially in the manner and for the purposes described.

MOSES NEWTON.

Witnesses:
J. P. BUCKLAND,
M. B. NEWTON.