Aug. 28, 1928. 1,682,346

W. A. LORENZ

PAPER FABRIC

Original Filed March 17, 1924

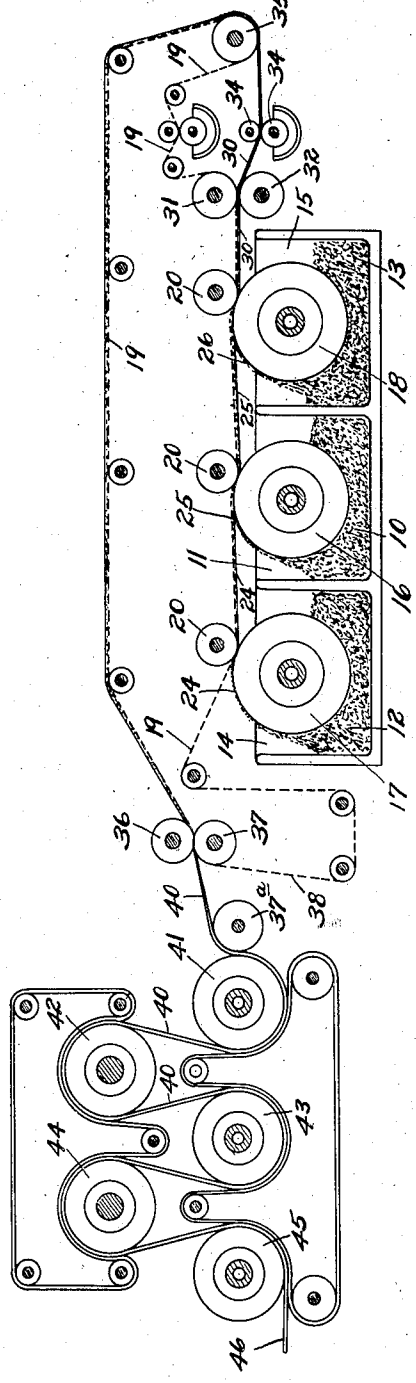


Fig. 3

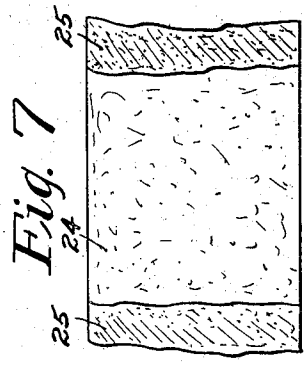


Fig. 7



Fig. 8

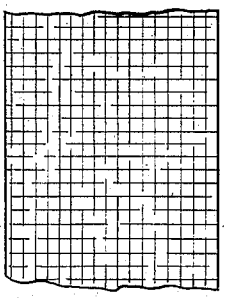


Fig. 4

Fig. 6

Fig. 5

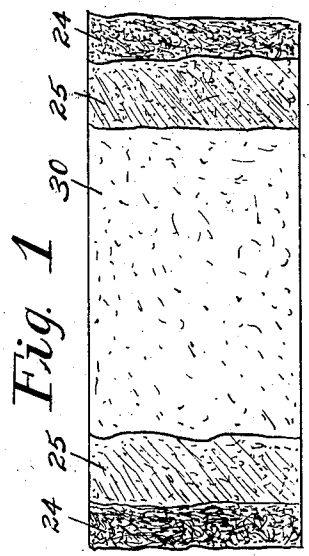


Fig. 1

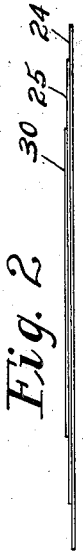


Fig. 2

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UNITED STATES PATENT OFFICE.

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PAPER FABRIC.

Substitute for application Serial No. 699,791, filed March 17, 1924. This application filed January 5, 1926, Serial No. 79,504. Renewed January 23, 1928.

This invention pertains to the production of a paper web composed of two or more layers of paper, which are joined together on a paper machine, only one of the layers being sized or waterproofed.

This application is a substitution for my application Serial No. 699,791, filed March 17, 1924.

In the present invention the pulp which is to form the web of paper is varied in its consistency, that is, one of the layers of paper is to be produced from preferably heavily sized pulp, and the other layer or layers are to be produced from substantially unsized pulp. These layers are joined together.

The pulp is produced on the cylinder type of machine. A layer of pulp may be formed on one cylinder and it may be reinforced by a layer that is formed on another cylinder, and if preferred still another layer may be made upon another cylinder and joined to the other layers. I prefer to form a triple layer, that is, a central layer of pulp which is heavily sized, and two outer layers of pulp which are not sized. If preferred, one of the outer layers may be omitted.

In the accompanying drawings:

Figure 1 represents a plan view of a triple layer web of paper;

Fig. 2 shows an edge view thereof;

Fig. 3 shows a machine for producing this paper;

Figs. 4, 5 and 6 show plan, edge and end views, respectively, of the web of Figs. 1 and 2 after the same has been roughened or corrugated in one or more directions; and

Figs. 7 and 8 show plan view and edge view, respectively, of a two layer web of paper produced by two cylinders, one of which layers is sized.

The sized pulp 10 is contained in a central vat 11. The unsized pulp is shown at 12 and 13, in vats 14 and 15, respectively. The pulp in vat 10 may be heavily sized with resin, or latex or any other waterproofing or sizing material desired. The pulp is lifted from each vat 10, 12 and 13 upon the surface of the cylinder in each vat, as, for example, 16, 17 and 18, by the use of vacuum in the usual manner, and each layer is delivered upon the blanket 19 which is pressed against the cylinder by rolls 20—20. The film of paper 24 which is delivered by the cylinder 17 upon the blanket 19, is augmented by means of the pulp which is delivered by the succeeding cylinder 16, making a heavier web 25. In this manner a two layer web is formed by two cylinders.

It is preferred, however, to make a triple layer web, which is accomplished by delivering from the cylinder 18 a film of paper 26 which augments the web 30, then passes between pressing rolls 31, 32, the blanket 19 passing over rollers backwardly over other guiding rollers toward the pressing and drying end of the paper machine. Water may be pressed out of the web 30 between rollers 34, 34. The web is then returned to the blanket 19, passing around the roller 35 and over the top rollers toward the drying end of the machine, first passing between pressing rollers 36 and 37. The blanket passes downwardly over roller 37, as at 38, and around rollers which guide the blanket under the first roller 20, cooperating with the cylinder 17.

After water has been pressed from the web 40, it passes to drying cylinders 41, 42, 43, 44 and 45, going in the direction 46, to the winding or cutting devices. The drying cylinder and means for carrying the paper over the cylinders are made in the usual manner.

In Fig. 1, the first web 24 is shown, and the central web 25, as well as the third web 30. These are shown in edge view Fig. 2 broken off at each end; when pressed together they form a web of paper which is especially adapted for producing paper wash cloths. The central, or sized layer, prevents the wash cloth from dissolving in use, and the two outer layers not being sized will readily absorb soap so as to produce the wash cloth. Figs. 4 and 5 show the web corrugated. This web may be corrugated, crinkled, or roughened in any desired manner. Fig. 8 shows a two-ply web in which 24 shows the outer layer of unsized pulp, and 25 shows the adjacent layer of the heavily sized pulp.

In producing wash cloths which will not dissolve during use, with either cold or hot water, it is very desirable to treat the fabric in some manner that will prevent the water from going through the interior of the paper, and thus dissolve it. This invention provides a central layer or one outer layer which is so heavily sized, that it will not dissolve in

use. The means for rendering the heavily sized web of paper waterproof, is not pertinent to this invention. This waterproof material may be resin, latex, or any other material of a similar nature, which will run on a paper making machine without choking it up.

I claim as my invention:

1. A paper fabric composed of a layer of sized pulp and one or more layers of unsized pulp, combined therewith, said combined web being roughened, by embossing or crinkling, thus forming a web of paper adapted for paper wash cloth purposes.

2. A paper fabric adapted for paper wash cloth purposes and composed of a central layer of sized pulp and two outer layers of unsized pulp respectively combined with the opposite sides of the central layer.

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