March 9, 1954 C. A. J. LINDQUIST 2,671,743

ARTIFICIAL SPONGE CLOTH

Filed April 23, 1952

Fig. 1.

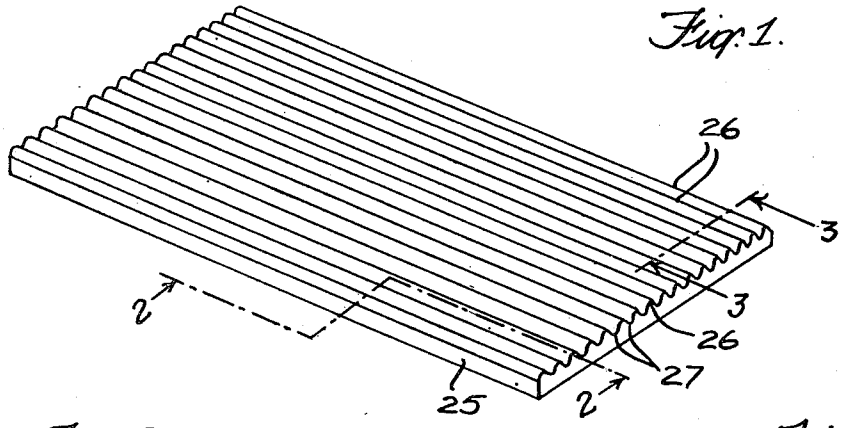


Fig. 2.

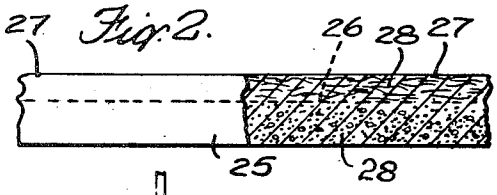
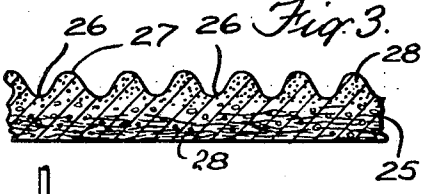


Fig. 3.



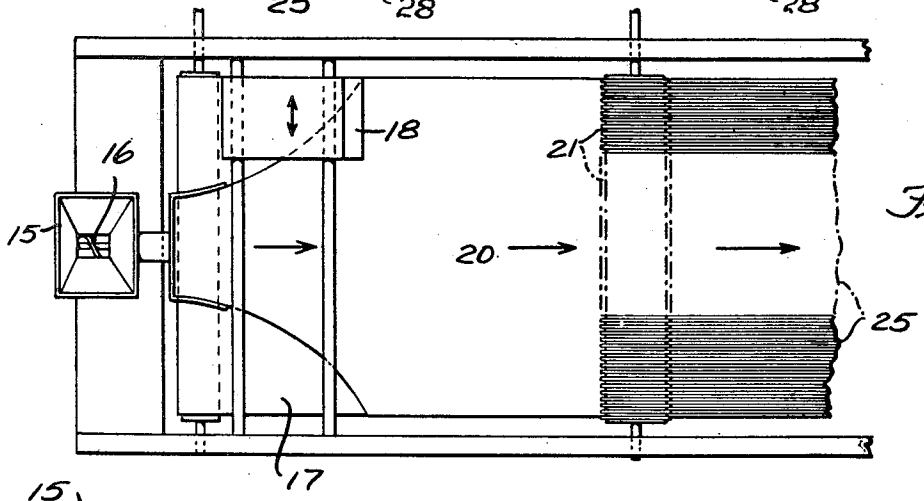


Fig. 4.

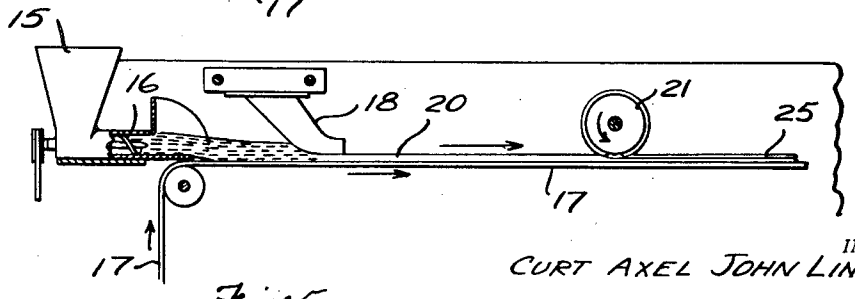


Fig. 5.

INVENTOR.
CURT AXEL JOHN LINDQUIST.

BY Victor N. Borot

ATTORNEY

Patented Mar. 9, 1954

2,671,743

UNITED STATES PATENT OFFICE

2,671,743

ARTIFICIAL SPONGE CLOTH

Curt A. J. Lindquist, Norrkoping, Sweden, assignor to Aktiebolaget Celloplast, Norrkoping, Sweden, a corporation of Sweden

Application April 23, 1952, Serial No. 283,870

3 Claims. (Cl. 154—55)

1

This invention relates to absorbent sheet material such as is produced by the apparatus and method of my application Serial No. 152,092, filed March 27, 1950, and of my application Serial No. 283,869, filed coincidentally with this application.

This sheet material is of the type known as artificial sponge cloth and is composed of regenerated cellulose having fibers incorporated therein to increase its tensile strength and provided with cavities or pores produced by leaching out soluble salt crystals, such as Glauber's salt, which were mixed into the viscose.

According to the process of my said copending application, this material is produced in the form of a continuous web or sheet which is subsequently cut into pieces of the desired size. The viscose with the fibers and salt crystals distributed thoroughly in it is extruded and spread evenly upon a traveling belt, and is subjected to a smearing or massaging action as it moves along sufficient to effect substantial orientation of the fibers in the plane of the web, after which it is led into the coagulating bath.

One of the meritorious features of this product is the fact that it has one of its surfaces corrugated or provided with parallel grooves and ridges of substantial depth and height relative to the thickness of the cloth, and that the fibers in the region of that surface are substantially oriented into parallelism with the corrugations. This construction gives an excellent cleaning surface to the cloth and imparts pliability to the sheet and adds materially to the tensile strength in the direction of the corrugations.

Also the preceding transverse smearing incidental to the spreading action effects a general transverse orientation of the fibers so that the fibers in the final product are principally oriented in the plane of the cloth, some in a transverse direction, and some in a longitudinal direction. The chief characteristic is produced by the final corrugation and the arrangement of the fibers resulting therefrom.

With reference to the drawings the illustrated embodiment of the invention will be described together with the process that is followed to produce the article. Thereafter the invention will be pointed out in claims.

Fig. 1 is a perspective of a sponge cloth embodying the invention.

Figs. 2 and 3 are fragmentary sections of the same on lines 2—2 and 3—3, respectively, of Fig. 1.

Fig. 4 is a diagrammatic plan of an apparatus for producing the cloth of Fig. 1.

2

Fig. 5 is a diagrammatic side elevation of the same, partly in section.

It is contemplated to make the cloth in a continuous web or sheet and to cut the individual pieces therefrom. Such an individual cloth is shown in Fig. 1, the thickness being somewhat exaggerated for clarity of illustration. In practice the cloths are substantially the thickness of a chamois skin.

In practice viscose with the leachable crystals and the fibers mixed therein is deposited in a hopper 15 and is extruded therefrom by a power driven screw 16 on to an endless driven belt 17 into the path of a laterally reciprocating spreader 18 which spreads the material into a sheet 20 across the belt.

Disposed transversely across the belt after the spreader is a roller 21 which has its surface corrugated by annular grooves and ridges and is spaced from the belt so that the ridges enter the surface of the sheet, preferably to the bottom of the grooves as shown. The sheet consequently emerges from underneath the roller in the form of a corrugated sheet 25 and is thence conducted into a coagulating bath (not shown). The belt 17 may if desired have a pattern formed in its upper face which will be molded in the lower face of the sheet. Means (not shown) drive the roller 21 in the same direction as the web and at a peripheral speed somewhat in excess of the belt speed.

The counterpart of the corrugated surface of the roller 21 is generated in the top face of the sheet 25, forming longitudinal ridges 27 and intervening grooves 26. The smearing caused by the overspeed of the roller together with the extensive contact area due to the corrugations produces a very considerable longitudinal orientation of the fibers 28 from the corrugated surface well toward the opposite surface. The lateral rubbing or smearing of the spreader 18 has also operated to orient the fibers in more or less of a transverse direction in the plane of the cloth, and therefore while there is a strong longitudinal orientation in the ridged surface, the fibers throughout are largely in or approximately in the plane of the cloth.

The result is a cloth of high tensile strength and one which has a particularly soft surface.

It will be understood that the invention is not limited to the precise form of corrugations shown and that modifications may be made in the construction of the cloth shown in the drawings and above particularly described within the principle

and scope of the invention as defined in the following claims.

What is claimed is:

1. Artificial sponge cloth consisting of regenerated cellulose having fibers incorporated therein, the fibers being substantially oriented in the plane of the cloth in one transverse sectional part in a longitudinal direction and in the remaining transverse sectional part at a substantial angle to said longitudinal direction.

2. Artificial sponge cloth consisting of regenerated cellulose having fibers incorporated therein and having one surface corrugated with substantial parallel grooves and ridges and the fibers in that surface portion of the cloth being substantially oriented in parallelism with the grooves and ridges.

3. Artificial sponge cloth consisting of regenerated cellulose having fibers incorporated therein and having one surface corrugated with straight parallel ridges and grooves.

CURT A. J. LINDQUIST.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
1,147,331	McCorkindale	July 20, 1915
2,295,823	Banigan et al.	Sept. 15, 1942
2,398,001	Haney et al.	Apr. 9, 1946
2,506,249	Tammen	May 2, 1950
2,540,906	Overton et al.	Feb. 6, 1951