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Letters Patent No. 97,189, dated November 23, 1869.

IMPROVED PAPER FELT OR WADDING.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that we, WILLIAM W. GLENTWORTH, M. D., of Philadelphia, Pennsylvania, and WILLIAM H. GANDEY, of Lambertville, New Jersey, have invented a new article of manufacture, termed Paper Felt, which is described as follows:

Nature and Objects of the Invention.

Our invention consists in producing, from rags or other paper-stock, which may be of sufficiently low price, a fabric or manufacture, which, while exhibiting, in a partial degree, some of the characteristics of paper, will possess sufficient tenacity to adapt it to hold together without the compression which is necessarily employed in the manufacture of ordinary paper.

In producing our new manufacture, we subject the rags to only a partial pulping-process, so that the thread of the rags will not be completely disintegrated.

A special contrivance is necessary to assist in carrying this imperfect pulp up on the cylinder, from whence it is taken and dried, without the pressure that is usually employed in the manufacture of paper.

We thus produce a fabric possessing great capacity for absorption, and of great utility as a material for surgical dressings, lining of children's diapers, table-covers, bed-clothing, wadding of all kinds, filtering, and a great variety of other purposes.

General Description.

In carrying out our invention, the rags are boiled and washed, and bleached as for the manufacture of ordinary paper, until they reach the condition known as half stuff.

They are then, without further pulping, formed into a sheet, on the making-cylinder, but the stuff being so light and porous, it will not adhere to the cylinder until reaching the couch-roller in machines as ordinarily constructed and arranged.

We therefore carry the wet felt under the surface of the water, and employ it to hold the stuff in contact with the cylinder, until reaching the couch-roll, beneath which it passes in customary manner, but with the lightest possible pressure which will successfully remove it from the cylinder.

It is then carried to the rolls, but instead of using the press-rolls, employed in ordinary paper-manufacture, we employ wooden rolls, with as light pressure as can be used to remove the sheet from the felt.

It is then carried immediately to the driers, without a "drier-felt."

The forming and drying-processes are thus performed throughout with the least possible amount of pressure.

After leaving the driers, the sheet is subjected to a softening-process, which may be performed by passing it between a pair of rolls, corrugated circumferentially, and then over an angular metal surface, where it is subjected to the beating action of a rapidly-revolving roll, having longitudinal corrugations, the effect of which is to crush and spread the corrugations produced in the sheet by the prior rolls; and by passing it through a series of such appliances, arranged alternately, the material acquires a uniform and very soft texture, with even greater porousness than when first dried.

A material thus made has a capacity for absorbing more than eight times its own weight of water, and being exceedingly cheap, it is of great utility for surgical dressings, and infants' diapers, because when once used it can be destroyed, with but a fraction of the expense involved in the mere washing of linen.

It is also a superior non-conductor of heat, and hence may form an excellent and cheap material for bed-clothing, which, when worn out or soiled, can be sold for fully a third of its first cost, as a material for making paper.

We claim, as our invention—

1. The paper-felt, produced in the manner and by the process substantially as above described.
2. The process, substantially as herein described, for producing our new manufacture, by taking the material up on the making-cylinder, while in the condition of half stuff, and subsequently drying it with little or no pressure.

W. W. GLENTWORTH, M. D.
WM. H. GANDEY.

Witnesses:

BENJ. MORISON,
WM. H. MORISON.