April 25, 1939. B. OSBORNE 2,155,441

TOWEL

Filed Aug. 19, 1936

Fig. 1

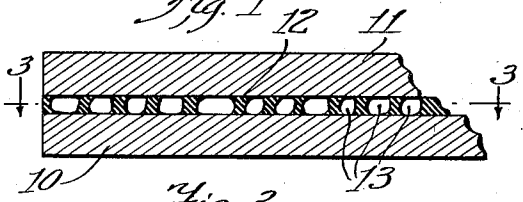


Fig. 2

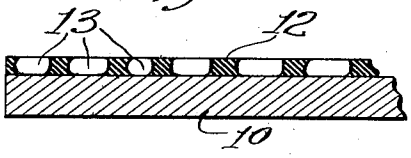
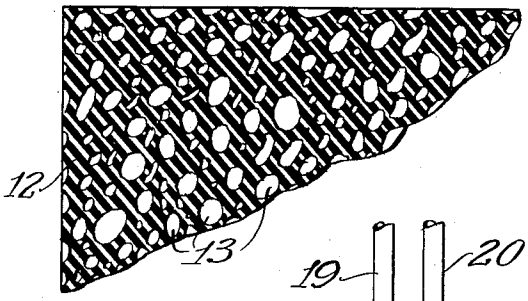
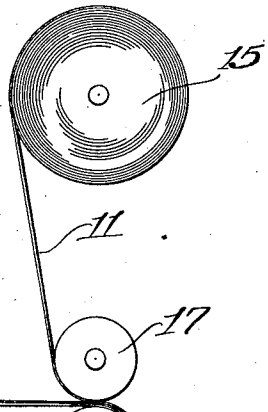


Fig. 3





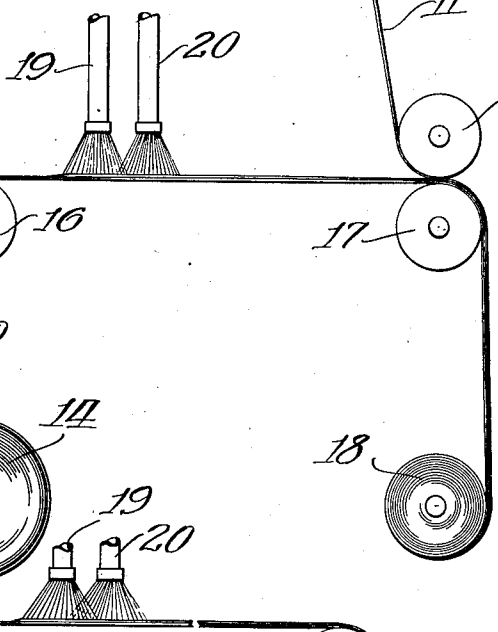
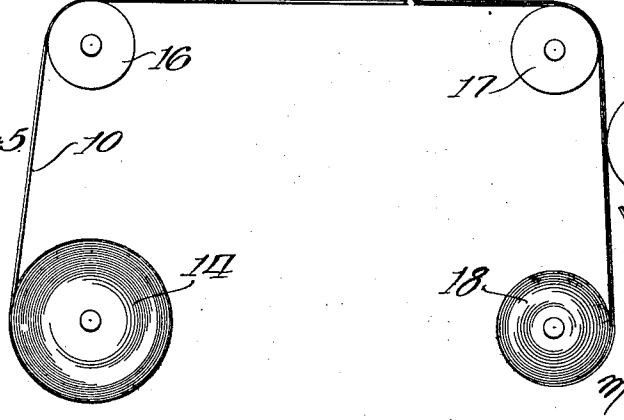


Fig. 4

Fig. 5



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UNITED STATES PATENT OFFICE

2,155,441

TOWEL

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Application August 19, 1936, Serial No. 96,748

3 Claims. (Cl. 154—46)

This invention relates to towels for personal use, and by the term "towels" used herein it is intended to denote towels, toilet paper and other sheets, usually made of paper, and intended for personal use.

Such articles formed of bibulous paper, as has heretofore been the practice in the art, are very desirable on account of the high absorbing capacity for liquids possessed by them. They have, however, been subject to the disadvantage that on wetting, the paper tends to break and become converted into pulp. For this reason these articles have not been capable of use in many applications where it is desirable to use individual absorbent fabrics or the like.

According to the present invention I provide a highly bibulous paper towel or the like, which is inherently strong and resistant to pulping, while retaining substantially unimpaired the full absorbent capacity of the paper stock for water and other liquids. These towels may be used in known manner for the purpose of drying the skin, for toilet paper, for disposable handkerchiefs and for the purpose of applying lotions and the like in beauty parlors, for wash cloths, and so forth.

My improved towel comprises a sheet of bibulous sheet tissue, to which is secured a continuous perforated sheet of coagulated latex. In one embodiment of the invention a second sheet of bibulous paper tissue is applied to the sheet of coagulated latex so that the sheets of paper tissue are thereby connected integrally together. In another embodiment of my invention no second layer of paper is employed, the rubberized surface presenting special advantages in the case of washing or applying lotions to the skin, since it presents a non-fibrous surface which does not disintegrate or roll when subjected to friction in the wet condition. The rubberized surface has remarkable inherent detergent or cleansing effects and at the same time protects the skin from rough treatment.

The perforations in the intermediate layer of latex are sufficiently large and numerous to permit water and other liquids to pass therethrough. A certain amount of water or liquids remains in these perforations. In the embodiment of the invention which comprises two sheets of bibulous paper tissue, water and other liquids may pass from one layer to the other so that the absorbent capacity of both sheets of paper tissue is available. In the case of the single sheet of paper which carries a continuous perforated sheet of coagulated latex on its surface, water or other liquids may be absorbed through the perforations and may be delivered to the rubberized surface through the perforations when needed for cleansing purposes.

In manufacturing my improved towel I take care that the latex does not impregnate the sheet or sheets of paper tissue to any considerable extent and thereby the full absorbent capacity of the sheet or sheets is preserved. In the preferred manner of making my improved towel I spray latex upon a rapidly moving strip of paper tissue and I adjust the spray or the rate of movement of the paper strip so that I get a continuous film or sheet of latex, which has, however, numerous perforations distributed over its whole area. To prevent impregnation of the paper tissue to an objectionable extent I prefer to spray simultaneously thereon a latex coagulant, for example, dilute acetic acid. When making a towel comprising a single paper sheet, talc or other suitable material which prevents adhesion is applied to the exposed surface of the layer of latex. When making a double tissue sheet I apply another sheet of similar paper tissue which is secured to the first sheet by the adhesive qualities of the latex layer.

The invention will readily be understood from the following description of a preferred embodiment thereof, taken in conjunction with the accompanying drawing, in which:

Figure 1 is a fragmentary sectional view, on an enlarged scale, of a towel embodying my invention comprising two sheet of tissue;

Fig. 2 is a similar view of a towel which comprises a single sheet of tissue;

Fig. 3 is a fragmentary plan view of the latex layer;

Fig. 4 is a diagrammatic view showing the manner in which my double sheet toweling is made, and

Fig. 5 is a similar view showing the manner in which my single sheet toweling is made.

Referring to the accompanying drawing, and particularly to Figs. 1, 3 and 4, my improved toweling comprises two sheets 10 and 11 of bibulous paper tissue and an intermediate sheet or film 12 of coagulated latex. The film or sheet 12 is continuous and is coextensive or substantially coextensive with the sheets 10 and 11 of paper. The sheet or film 12 of coagulated latex is provided throughout its surface with numerous perforations 13, which permit water and other fluids to pass therethrough so that they are absorbed not only by the particular paper sheet 10

or 11 which is brought into contact with them, but also by the sheet on the other side of the towel.

In manufacturing my improved toweling I preferably employ two rolls 14 and 15 from which the stock which is to form the two sheets 10 and 11 is fed. The sheet 10 passes over roll 16 and both sheets 10 and 11 pass between pressure rollers 17. The combined sheet of toweling which passes through the rolls 17 is wound up on a roll 18. Between the roll 16 and the pressure rollers 17 I provide two spray heads 19 and 20. In actual manufacture the paper is wound up on the drum 18, which is driven by suitable means (not shown). The pressure rolls 17 are also driven by suitable means (not shown) and they draw the sheets 10 and 11 off the rolls 14 and 15. Latex is spread by the spray head 19 over the surface of the paper passing therebelow. A suitable coagulant, such as acetic acid, is also sprayed on the paper by a spray head 20 so that the latex is immediately coagulated and does not penetrate into the paper to an excessive extent.

The latex coated sheet 10 comes into contact with the sheet 11 when passing through the rolls 17, and the pressure of these rolls brings the sheet 11 into intimate contact with the latex so that the three layers 10, 11 and 12 are permanently secured together. The spray head 19 is adjusted to deliver a fine spray of limited amount and the drive of the rolls 17 is correlated thereto so that a continuous perforated layer or film 12 of latex is produced. The finished toweling may be cut into the suitable sizes for the particular use for which it is intended.

Referring more particularly to Figs. 2 and 5, the towel may comprise a single sheet of bibulous paper tissue 10 and a film or layer or latex 12 applied to one side thereof, which film is provided over its area with numerous perforations 13. As will readily be understood from Fig. 5, the manner in which the latex is applied is precisely the same as described in connection with Fig. 4. In manufacturing this towel, however, the paper strip is drawn from a drum 14 over rolls 16 and 17 and is wound up on a drum 18. To prevent adherence between the exposed surface of the latex layer or film and the paper layer, when the strip is wound up upon the drum 18, I apply talc or other suitable material to the latex layer. This may be accomplished by means of a soft roll 21 which rotates in contact with the coated side of the paper. This roll may be supplied by a roll 22 with talc 23 contained in a suitable container 24. A bar or the like 25 is arranged in contact with the soft roll 21 so as to remove excessive amounts of talc or the like therefrom.

Although the invention has been disclosed in connection with the specific details of preferred embodiments thereof, it must be understood that such details are not intended to be limitative of the invention except in so far as set forth in the accompanying claims.

I claim:

1. A towel comprising two sheets of bibulous paper tissue, and an integral perforate sheet or film of rubber deposited from latex therebetween connecting the sheets of paper tissue permanently together.

2. A towel comprising two coextensive sheets of bibulous paper tissue, and an integral perforate sheet of rubber deposited from coagulated latex coextensive therewith, located therebetween and connecting the sheets of paper tissue permanently together.

3. A towel comprising a single sheet of bibulous paper tissue, and an integral perforate sheet or film of rubber deposited from latex permanently attached thereto, and extending over the whole surface of the sheet of tissue with the exception of the portions corresponding to numerous minute perforations in the latex film.

BRUCE OSBORNE.