

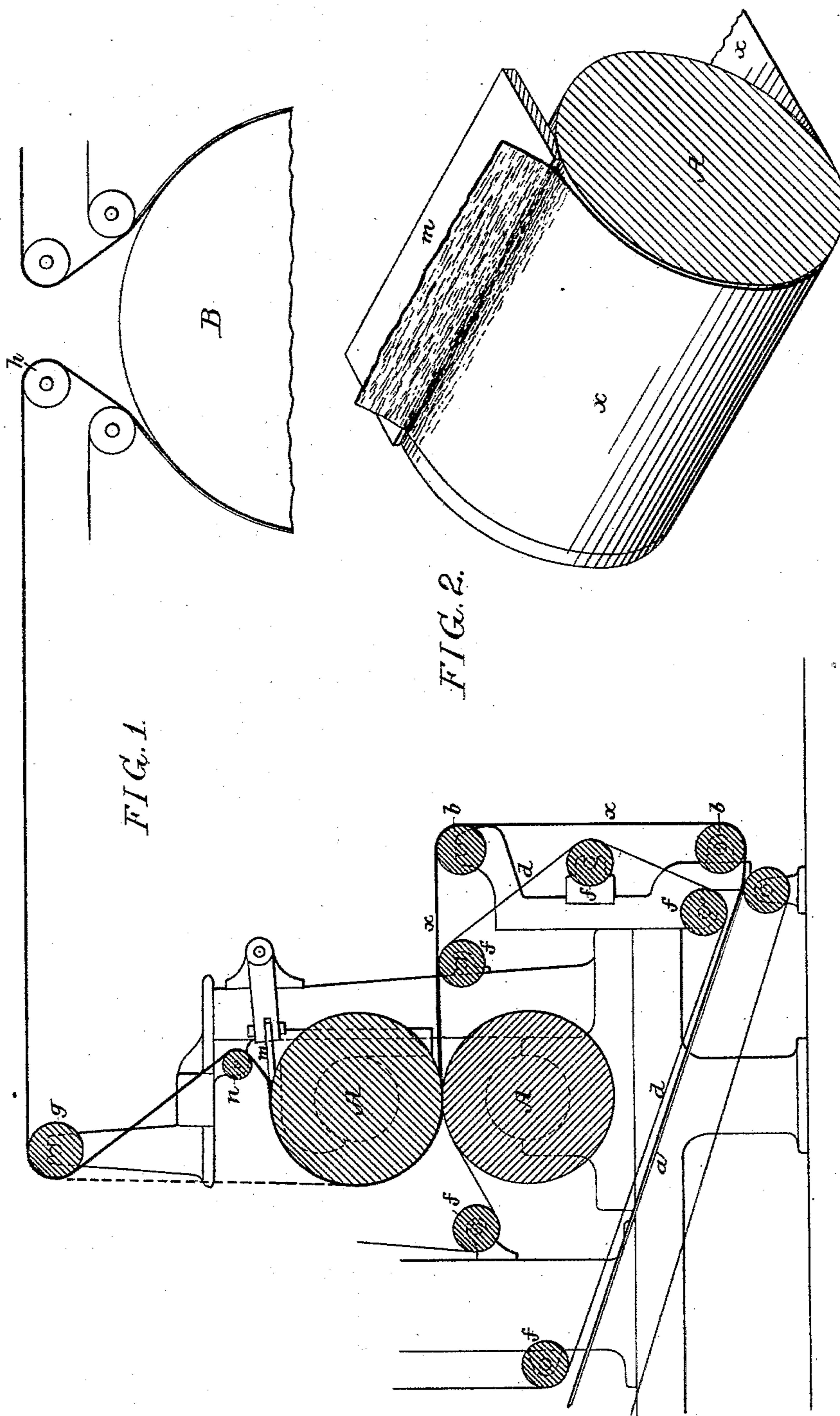
(No Model.)

W. LYSLE.

MODE OF MAKING WRINKLED OR ROUGH SURFACED PAPER.

No. 414,557.

Patented Nov. 5, 1889.



Witnesses:
Alex. Barkoff
William D. Bonner.

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UNITED STATES PATENT OFFICE.

WILSON LYSLE, OF FRANKLIN, CHESTER COUNTY, PENNSYLVANIA.

MODE OF MAKING WRINKLED OR ROUGH-SURFACED PAPER.

SPECIFICATION forming part of Letters Patent No. 414,557, dated November 5, 1889.

Application filed April 19, 1889. Serial No. 307,690. (No model.)

To all whom it may concern:

Be it known that I, WILSON LYSLE, a citizen of the United States, and a resident of Franklin township, Chester county, Pennsylvania, have invented an Improved Mode of Making Wrinkled or Rough-Surfaced Paper, of which the following is a specification.

The object of my invention is to produce a wrinkled, grained, or roughened surface upon a sheet or web of paper during the manufacture of the same, so that the operation may be carried on continuously and the product will not be calendered or compressed in any portion, as when a grained, crimped, or roughened surface is imparted by means of rolls after the paper has been made.

In the accompanying drawings, Figure 1 is a sectional elevation of sufficient of a paper-making machine to illustrate my invention; and Fig. 2 is an enlarged perspective diagram illustrating the manner in which the invention is carried into effect.

In Fig. 1, A A represent a pair of press-rolls of an ordinary Fourdrinier or other paper-making machine, the rolls shown in the drawings being the second or final press-rolls, although it should be understood in the outset that my invention may be carried out in connection with either set of press-rolls or with the couch-rolls of the machine, if desired, the final press-rolls having been selected for illustration simply as a matter of convenience.

It will be understood that when the invention is carried out in connection with the couch-rolls or first press-rolls the web passes therefrom to the drying-cylinders, so that there is no further pressure upon the wrinkled or roughened web or sheet.

The web of paper is carried forward from the first press-rolls upon a felt apron *a*, and after passing around suitable guide-rolls *b*, is fed onto a felt apron *d*, which passes around guide-rolls *f* and serves to support the web of paper *x* in its passage between the upper and lower press-rolls A A. Ordinarily the web of paper, after passing between the press-rolls, is carried directly upward from the upper roll to a guide-roll *g*, as shown by dotted lines in Fig. 1, the web passing from this guide-roll to the guide-

roll *h* of the first drying-cylinder B, thence around the same and onward to the succeeding cylinders of the series, as usual, a doctor-plate or scraper *m* bearing against the surface of the roll A, and being weighted or otherwise subjected to pressure, so as to keep the surface of the roll clean. The web of paper *x* being moist, has a tendency to adhere to and be carried around by the roll A, unless it is in the first instance directed up to the guide-roll *g*, and I take advantage of this tendency of the paper to be carried around by the roll A to effect the wrinkling, roughening, or graining of the surface of the paper, for if the moist web is permitted to come in contact with the front edge of the doctor-plate or scraper *m*, its progress will be obstructed to a certain extent and the web will be caused to wrinkle up before it is finally crowded over the edge of the plate and carried onward above the same. After passing over the edge of the doctor-plate the web may pass directly to the guide-roll *g*, the speed of the latter and of the drying-cylinder B being so regulated that it will not draw the web forward any faster than it is crowded over the edge of the plate, so that there will be no tendency to smooth or straighten out the wrinkles formed in the web by reason of the crowding to which it has been subjected in its endeavor to pass the edge of the plate.

In most cases I prefer to locate above the plate *m* a supplementary guide-roller *n*, as shown in Fig. 1; but this is not absolutely essential.

By the means described I am enabled to produce continuously during the process of manufacture paper having a wrinkled, grained, or roughened surface, and thus dispense with any subsequent treatment by embossed or engraved rollers for the sake of imparting to the paper a surface of this character, and as the paper after being wrinkled is simply rough-dried by the drying mechanism of the machine, it retains its original porous and absorbent character, there being no compression or closing of the pores of any portion of the paper, as in the case of paper subjected to the action of press-rolls in the usual manner.

Having thus described my invention, I claim and desire to secure by Letters Patent—

The mode herein described of effecting the wrinkling, graining, or roughening of paper continuously during the manufacture of the same, said mode consisting in crowding the
5 moist web against and over the edge of an obstructing surface and then drying the web in its wrinkled or roughened condition, substantially as specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILSON LYSLE.

Witnesses:

WILLIAM D. CONNER,
HENRY HOWSON.