

T. PHILLIPS.
 Paper for Paper-Bags and in Apparatus for Making
 the same.

No. 200,337. *Fig. 1.* Patented Feb. 12, 1878.

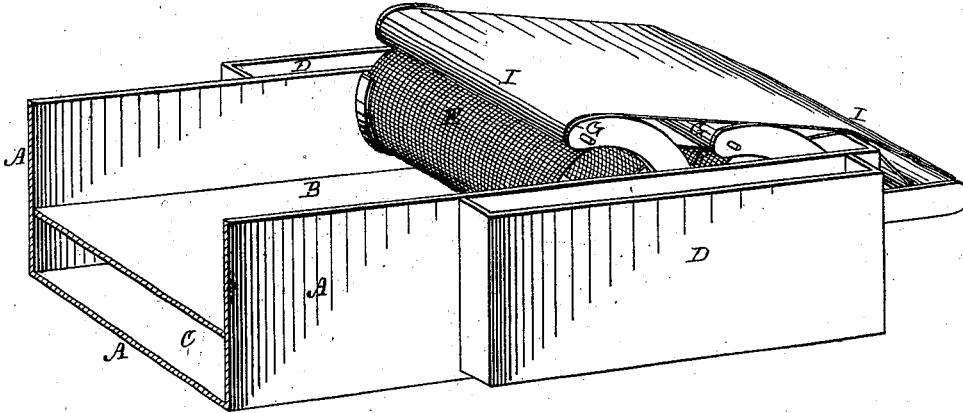


Fig. 2.

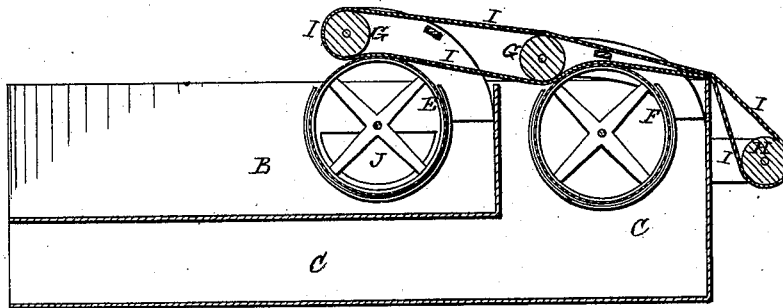
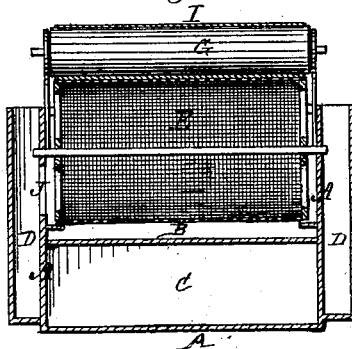


Fig. 3.



Witnesses.
 W. B. Masson
 Edmund Masson

Inventor.
 Thomas Phillips,
 By atty A. B. Stoughton

UNITED STATES PATENT OFFICE.

THOMAS PHILLIPS, OF AKRON, ASSIGNOR OF ONE-HALF HIS RIGHT TO
ALFRED ADAMS, OF CLEVELAND, OHIO.

IMPROVEMENT IN PAPER FOR PAPER BAGS AND IN APPARATUS FOR MAKING THE SAME.

Specification forming part of Letters Patent No. **200,337**, dated February 12, 1878; application filed
November 5, 1875.

To all whom it may concern:

Be it known that I, THOMAS PHILLIPS, of Akron, in the county of Summit and State of Ohio, have invented certain new and useful Improvements in Paper for Paper Bags, and in the apparatus for making the same; and that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 represents, in perspective, so much of a paper-making machine as will illustrate my invention. Fig. 2 represents a longitudinal vertical section through the same. Fig. 3 represents a vertical transverse section through the same.

My invention consists in making a strong or stout paper out of two layers of pulp of the same or similar qualities, one layer being made of bleached and the other of unbleached pulp, and in doing this by means of a machine having two vats, two cylinders, one felt, and one or more waste-water boxes common to both vats.

I am aware that thick paper and paper-board have been made by first making thin sheets of paper of the same or different qualities of pulp, or of different colors of pulp, and bringing said sheets together and passing them through between pressure-rollers to unite them, so far as there is any union between them, into one sheet.

My invention differs essentially from the above-mentioned process. I make but a single sheet of the two pulps, and when the two pulps are run under the pressure-rolls to form them into a sheet, the pulps are absolutely one mass, and when united there is no separation of one from the other. It is one solid felted mass—a single sheet, and taken from a single felt.

To enable others skilled in the art to make and use my invention, I will proceed to describe the same with reference to the drawings.

A represents the sides and bottom of a vat, within which are made two separate pulp-vats, B and C, for containing pulps of the same or different qualities; and on the outer sides of the vat A there are boxes D, for receiving the

waste or size water from one or both of the gauze cylinders E F.

The cylinders E F revolve, respectively, in the pulp-vats B C; and each cylinder has working in connection with it a coucher, G, in contact with both of which couchers, and around an exterior roller, H, runs a single felt, I.

At one end of each of the cylinders E F there is an opening through the side of the vat, as at J, to allow the waste-water from the cylinders to pass into one or the other of the boxes D; or there may be openings at both ends of the cylinders, to allow the waste-water to pass into both boxes, and from these boxes the waste-water may be pumped or carried up into the vats B or C. The pulp used in each of the vats, being uncolored, will impart no color to the waste-water, which may therefore be returned to the vats, and used over and again in either or both of the vats.

The vat to the left of the drawing is represented as being open. They, of course, must be closed, but in such manner as to feed in the pulp separately to the separate pulp-compartments B and C, the bleached pulp being fed to one vat, and the unbleached to the other. The vat may be called but a single one, though it has a partition within, forming two pulp-compartments; but it is one in so far as the waste-water is concerned, as it is immaterial into which one of the pulp-compartments the waste-water is returned, so that, in point of economy and expense, there is a great saving.

It is well known that a thick paper cannot be made by one cylinder, as it cannot carry beyond a given quantity of pulp, and, if overloaded, is inoperative; hence the attempts to make such paper out of two or more thin sheets laid together and pressed into one, but having absolutely no felted union.

My process and mode of operation are as follows: I place in the vats or compartments B C pulps of the same or of similar strong material, and use a cylinder in each compartment, but a single felt. The cylinder F carries up from its compartment and delivers upon the felt at its coucher a certain quantity of pulp. This pulp is carried along until, at the other

cylinder E, another supply of pulp is carried up and laid upon the first-named supply. These two quantities of pulp, thus united, form a single pulp, because as yet there has been no pressure upon it. It is carried along to or near to the roller H, whence it is taken off and run between pressure-rolls, in the usual well-known way. The waste-water from the two compartments may be used indiscriminately in either vat.

In making thick paper, where only one side of the sheet needs to be of bleached stuff, I find my invention highly valuable and very economical—as, for instance, the unbleached pulp may be put into the compartment B, and the bleached pulp into the compartment C, and when these two pulps are placed upon the single felt I by the respective cylinders in each compartment, there is a pulp with one side darker than the other, but a single pulp nevertheless, and this mass of pulp of two shades, but of the same or of different qualities, is afterward formed into a sheet in the usual well-known manner, but much stronger than if made of two sheets laid and rolled to-

gether, and stronger, too, than if made entirely of bleached stuff, inasmuch as bleaching is more or less damaging to the strength of the fiber, and is, moreover, expensive.

Having thus fully described my invention, what I claim is—

1. The combination, in a paper-forming machine, of two separate vats, B, each provided with a cylinder, with a single felt, and a coucher, G, arranged to operate on each cylinder, and one or more waste-water boxes common to both vats, all constructed to operate substantially as shown and described, whereby two different qualities of pulp may be united before being pressed to form a sheet of paper, as set forth.

2. As a new article of manufacture, a paper composed of two layers of pulp, one bleached and the other unbleached, substantially as set forth.

THOS. PHILLIPS.

Witnesses:

A. B. STOUGHTON,
EDMUND MASSON.