

(No Model.)

E. HUBBARD.

PROCESS OF MANUFACTURING PAPER PAILS.

No. 389,964.

Fig. 1. Patented Sept. 25, 1888.

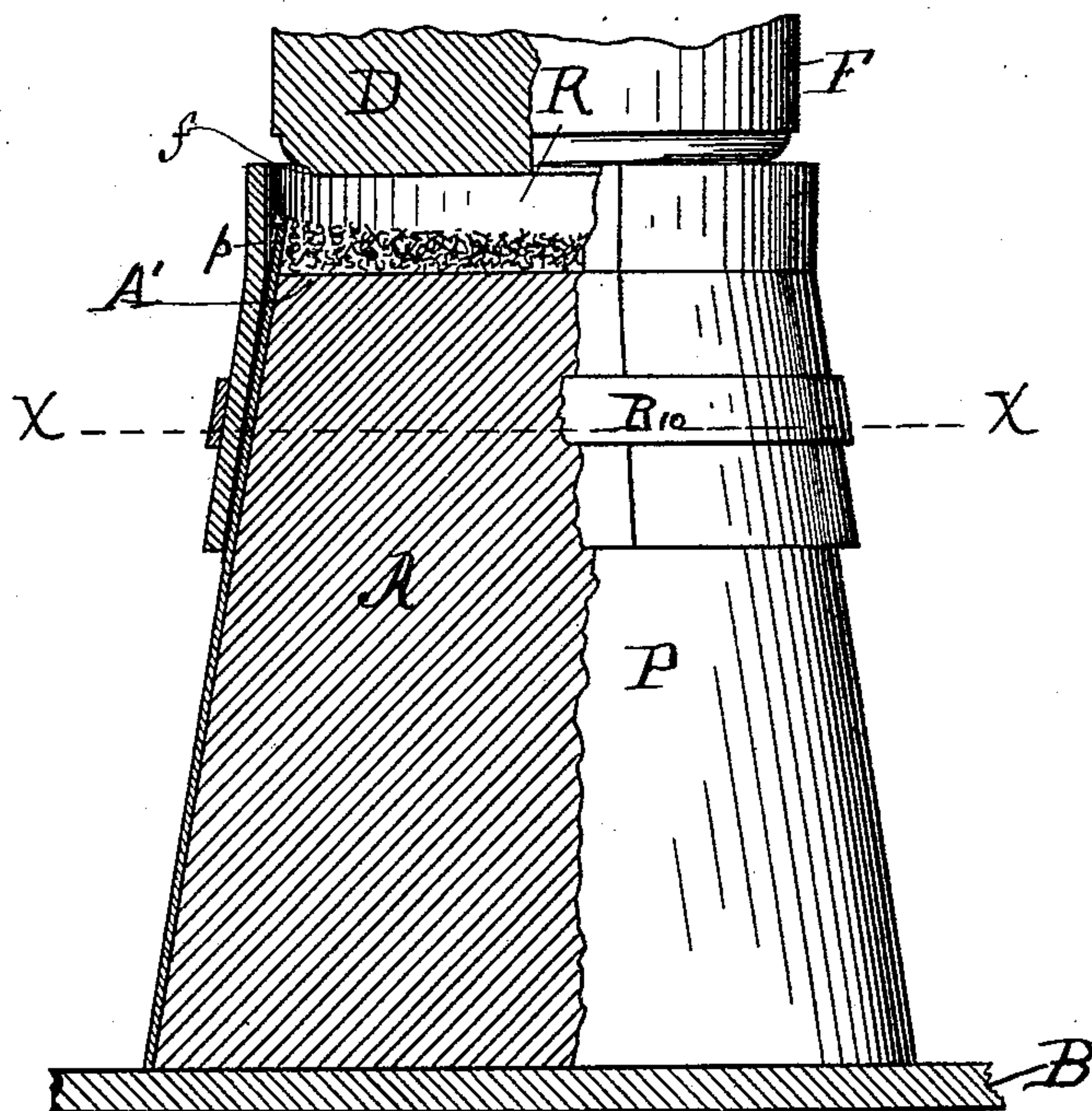


Fig. 2

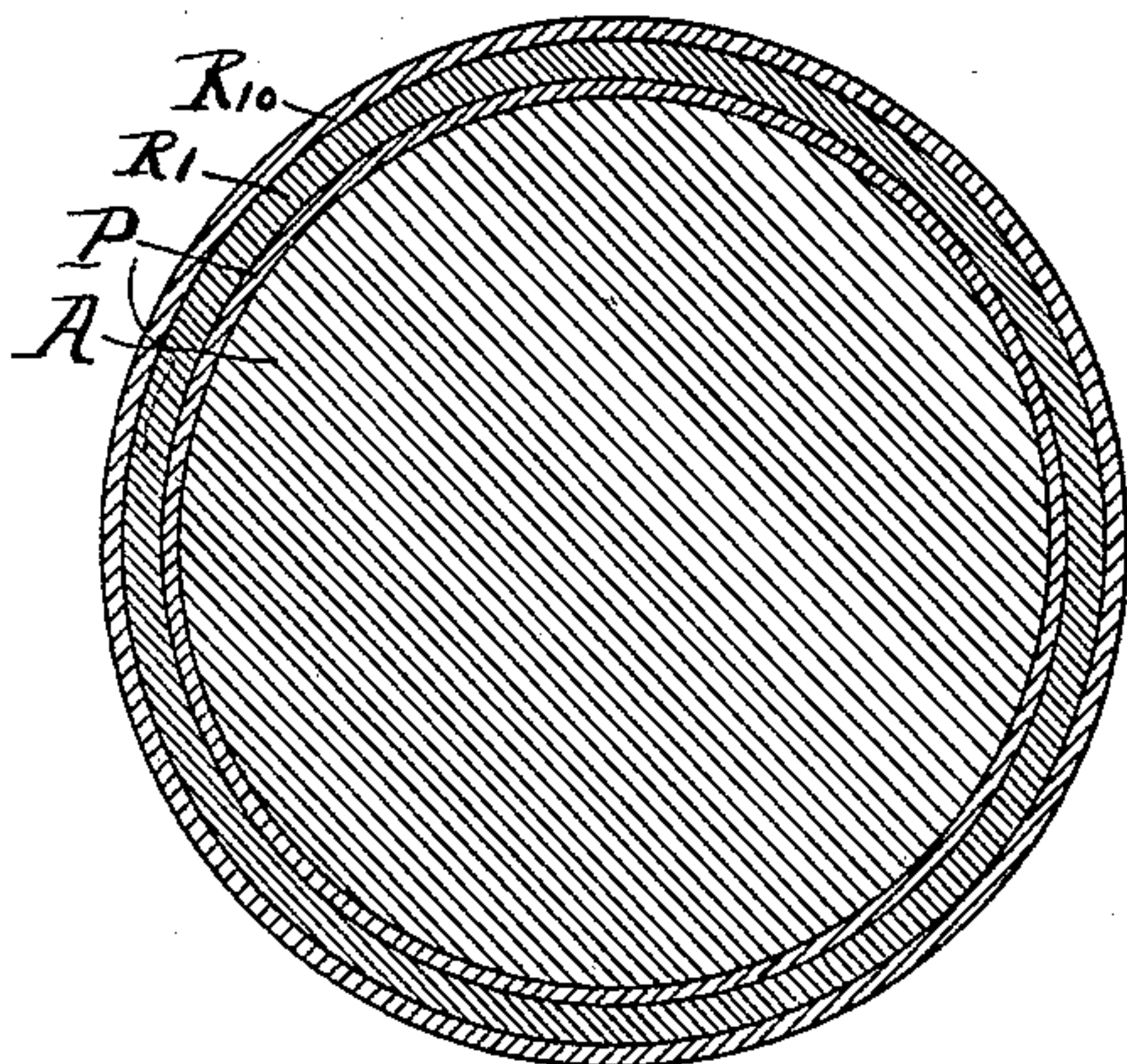
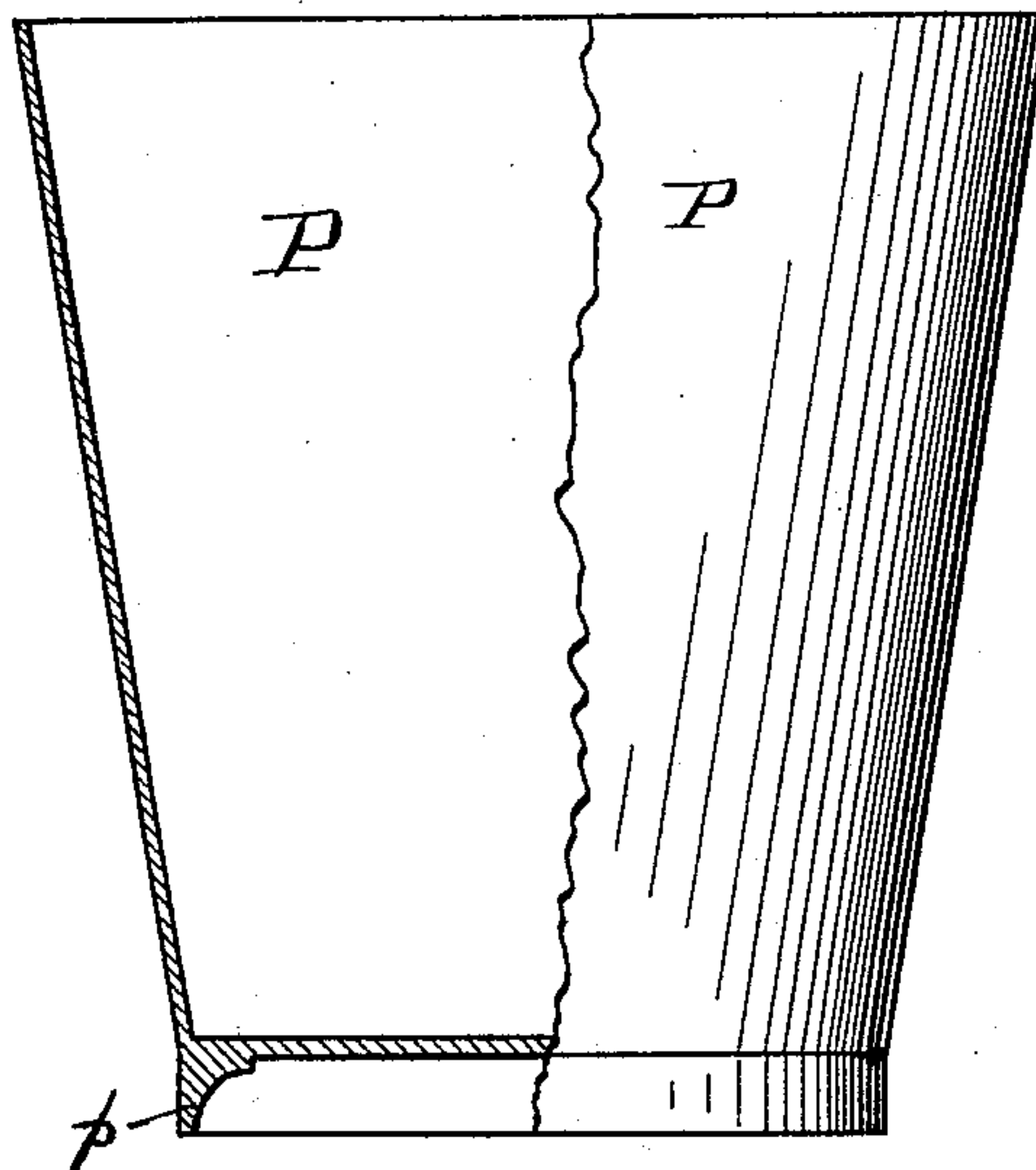


Fig. 3.



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PROCESS OF MANUFACTURING PAPER PAILS.

SPECIFICATION forming part of Letters Patent No. 389,964, dated September 25, 1888.

Application filed November 21, 1887. Serial No. 255,736. (No model.)

To all whom it may concern:

Be it known that I, EBER HUBBARD, a citizen of the United States, residing at Chicago, county of Cook, State of Illinois, have invented certain new and useful Improvements in the Process of Manufacturing Paper Pails, which are fully set forth in the following specification, reference being had to the accompanying drawings, forming a part thereof.
Figure 1 is a partly sectional elevation of a metal form on which the pail is wound, with the body portion of the pail thereon, and a device for forming the bottom from pulp. Fig. 2 is a section at the line *x x*, Fig. 1; and Fig. 3 is a vertical section of a pail formed by my invention.

This invention consists in the process, hereinafter claimed, for making a paper pail integral, bottom and sides without joint, as of one piece, as if molded directly from pulp, but nevertheless having the body or sides made of what is technically known as "wound" material—that is, stratified paper formed of layer upon layer of paper-pulp, or, to speak more exactly, film upon film. Such material is commonly produced by the process of winding the continuous film as it comes from the cylinder of the paper-making machine about a revolving form, from which process it takes the name of wound material or wound paper; but the same structure may obviously be produced by superposing successive films by other means than winding, and I use the name to indicate such a product however produced.

The bottom of my pail may be made either of wound or molded material. When made of wound material, it will be cut out of a sheet of suitable thickness which has been formed in the usual manner by winding, as above described, upon a cylinder and cut lengthwise, so as to be removed therefrom, and spread out in a flat sheet. When formed of molded material, it will be molded directly upon the form upon which the body is wound, as more particularly hereinafter described; but in either case it is formed in such manner and in such relation to the body portion as to be integral therewith even when it is not homogeneous. This result I accomplish as follows:

The body portion or side of the pail is formed

by winding upon a form, A, a continuous film of paper-pulp drawn directly from the vat by the cylinder in the usual manner of making paper, the winding being continued until the requisite thickness is obtained. This form A is a metal cylinder or frustum of a cone, according to the shape of the pail to be made. As illustrated it is of the latter form. It may be hollow, but has a bottom, A', of sufficient thickness to serve the purpose of forming the bottom of the pail, as hereinafter explained.

The body of the pail (indicated by the letter P) is wound as described, with a portion, *p*, protruding beyond the bottom of the form A. The form is then placed bottom upward upon a supporting bed or table, B, under a piston-follower or die, D, which may be reciprocated vertically by any well-known means. (Not illustrated.) The rim R, having the tapering part R', corresponding to the taper of the form A, is set down over and around the upper or smaller end of the pail on the form. The inner diameter of this rim is only enough greater than that of the form to allow for the thickness of the paper body of the pail, so that the straight portion of said rim when it is placed, as described, about the pail and form commences at the plane of the outer surface of the flat head A' of the form A, and, extending upward therefrom, forms the side walls of a cylindrical chamber, into which is now placed the material of which the bottom is to be formed. This may be a sheet of wound paper-pulp cut or formed of proper size for such bottom and laid in upon the bottom (or, in its inverted position, the top) of the form, or it may be paper-pulp in mere mass. In either case the piston or follower F now descends into the rim R, which it closely fits, and forces the bottom material closely down upon the head of the form A and upon the lip or flange of the body *p*, which is also mashed down by the piston, so that a complete union is made between the said lip and the bottom material, both it and the bottom being in the condition of fresh—*i. e.*, undried—pulp, the only difference being that the said flange *p* is stratified, while the bottom may be unstratified mass; but the union effected is as complete as and

perfectly similar to that which occurs between the successive films or layers of which the stratified body, including said flange, is composed.

If a chine is desired, the follower F will have
5 a portion cut away around its lower edge at *f*,
into which the necessary amount of material
will be forced as the follower descends upon
the bottom. The follower being removed, the
rim R may also be removed and the pail on
10 the form A placed in suitable place to become
dry, when it may be ornamented or otherwise
finished, as desired.

To facilitate the removal of the rim R, it is
preferably made in several pieces, as illus-
15 trated, which are held together by a hoop,
R¹⁰, in the manner of the staves of an ordinary
tub or barrel, and, this hoop being first re-
moved, the said separate pieces or staves *r* may
be withdrawn laterally away from the paper
20 pail, thus avoiding the danger of mutilating
the pail, as might occur in drawing the rim off
longitudinally, since it may not "relieve"
easily from the fresh paper-pulp.

My process differs from any process which
25 has heretofore been employed for the manu-
facture of pails or like articles in that the
body and bottom are both in the condition of
raw pulp when brought into contact for the
purpose of uniting, so that they unite by the
30 complete cohesion of the pulp which forms
them respectively, and the structure when
completed is integral and not merely cemented
together.

I am aware that paper tubes made after the
35 usual manner of forming paper from pulp have
been taken while yet moist and used as the
body and portion of the bottom of a pail to
which the remaining portion of the bottom,
which was formed of paper strips and paper-
40 pulp and mucilaginous substance intermin-
gled, was united by contact and pressure; but
this method of forming pails is distinguished
from mine in that the tube necessarily has be-
come true paper (although still moist) before
45 the bottom is applied to it, and such bottom
cannot be securely joined to such body by a

mere contact and cohesion, and in such process
of manufacture reliance has to be placed upon
interweaving the strips of paper which are
used in the formation of the body and upon 50
the use of mucilaginous substance to complete
the union of the parts. I do not claim such a
process; but my invention is dependent upon
and limited to the fact that the condition of the
parts when brought into contact for the pur- 55
pose of uniting is that of pulp and not of
paper.

I claim—

1. The process of making paper pails, which
consists of the following steps: first, deposit- 60
ing the pulp in successive layers or courses
about a form to constitute the body of the
pail; second, depositing on the end of the
form on which the body is thus wound, and
while said body is still wet pulp, a further 65
quantity of wet pulp, lapping a portion of such
body, and molding said further quantity by
suitable pressure against the end of the form
to form the bottom, whereby the body and bot-
tom come into contact while both are still wet 70
pulp, and in that condition cohere and become
integral, and, third, drying the entire pail,
substantially as set forth.

2. The process of making paper pails with
a chine, which consists in the following steps: 75
first, depositing wet pulp in successive lay-
ers or courses about a form to constitute a
body; second, depositing on the end of such
form while the body is still wet pulp a fur-
ther quantity of wet pulp, lapping a portion 80
of the body to form the bottom of the pail;
third, molding the pulp deposited for the bot-
tom and the lapped portion of the body to form
a chine at the margin of the bottom of the pail;
fourth, removing the molding device, and, 85
fifth, drying the entire pail, bottom, and chine
on the form, substantially as set forth.

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Attest:

CHAS. S. BURTON,
E. F. BURTON.