R. B. CRANE.

Art of Making Seamless Paper-Baskets.

No. 203,000. Patented April 30, 1878.

Fig. 1.

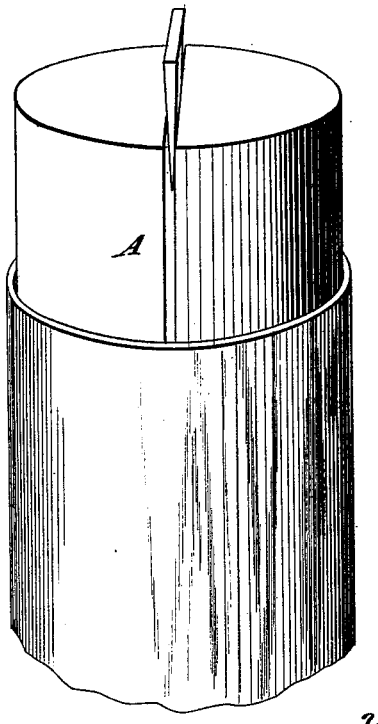


Fig. 2.

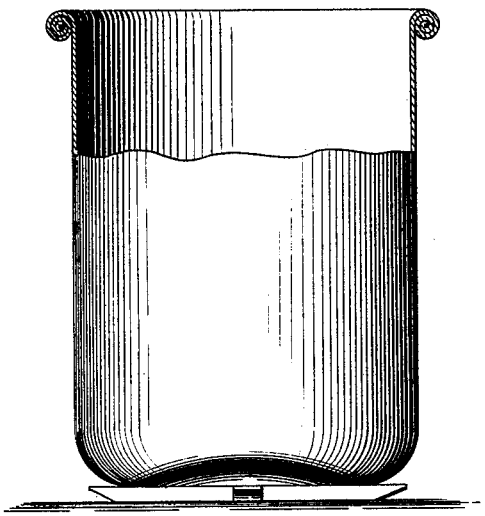
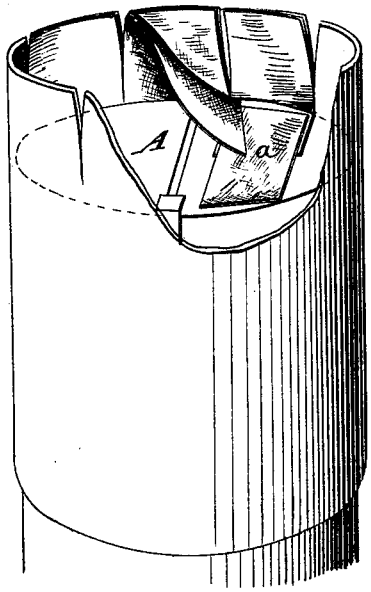


Fig. 3.



Witnesses.

A. Ruppert.

J. G. Mason.

R. B. Crane

Inventor.

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Attys

UNITED STATES PATENT OFFICE.

ROBERT B. CRANE, OF WESTFIELD, MASSACHUSETTS.

IMPROVEMENT IN THE ART OF MAKING SEAMLESS PAPER BASKETS.

Specification forming part of Letters Patent No. **203,000**, dated April 30, 1878; application filed March 19, 1878.

To all whom it may concern:

Be it known that I, ROBERT B. CRANE, of Westfield, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in the Art of Making Seamless Baskets or other analogous Articles of Heavy Paper, of which the following is a specification:

The object of this invention is the manufacture of baskets, boxes, trunks, or other analogous articles from paper without seams out of tubes formed of successive layers of paper.

In Letters Patent No. 84,263, issued to James B. Crane on the 24th day of November, 1868, a process and machinery are shown for manufacturing paper into tubes of any required thickness, which is referred to as affording the means for manufacturing the article which forms the basis of the manufacture which is the subject of my invention.

In the annexed drawing, making a part of this specification, I have illustrated one manner of converting these paper tubes into articles of the character indicated, in which the article is formed on an expansible core, which may be removed, leaving the article formed of paper entirely. Instead of the expansible core, a form may be employed made of sheet metal or other suitable material, upon which the paper jacket is formed, and which may be allowed to remain as a lining to the article, which lining will be confined by the contraction of the paper in drying.

Figure 1 is a perspective view, showing the expansible core with the paper tube applied. Fig. 2 is a section, showing the manner of forming a rim on the article by rolling the paper tube on itself, so as to form a solid volute. Fig. 3 is a perspective view, showing the manner of forming the bottom of the article below the end of the core.

The same letters are employed in all the figures in the indication of identical parts.

A paper tube of the required thickness and length to form the desired article is taken in its damp state and applied to the expansible core A, which, in the case illustrated, is formed of two semi-cylindrical parts, with interposed wedges, by which the sections of the core may be separated sufficiently to allow the core to be taken out on the removal of the wedges.

Cores of more than two sections may be employed, and the core may have any form which it is designed to give to the article. Instead of using wedges to set out the sections, screws or levers may be employed to expand and contract the core.

An exterior rim is formed by rolling the paper on itself, to form a solid volute of such diameter as may be desired to give to the article its required finish and strength. If desired, this rim may be formed by rolling the paper over a hoop; but for ordinary purposes simply rolling it on itself will give sufficient staunchness to the body of the article.

The lower end of the paper tube extends beyond the end of the core, preferably about one-sixth ($\frac{1}{6}$) of the diameter of the article at the bottom. A greater or less extension, however, may be employed. If there is a surplus of material left in forming the bottom, the surplus may be cut away by the operator. The side of the tube beyond the core is then cut into slits, extending from the bottom of the core to the edge of the paper. The paper tube, being formed in laminæ, may be readily split into films of more or less thickness. The inner of these films are then folded down onto the end of the core, and a thin sheet of paper is laid over them, or, preferably, strips of paper *a* are interwoven with them and with one another, extending across the bottom. The next series of films are then bent down, and other strips are interwoven with them and the other strips, and so on in succession until the bottom is formed of the requisite thickness.

During the operation of forming the bottom wet paper-pulp, mixed with sizing or glue, is worked in among the successive films of which the bottom is formed, for the purpose of compacting the whole into a homogeneous seamless mass. When the bottom has been formed it is covered with a coating of the mixed pulp and adhesive substance and smoothed off, so as to form a finish and coating which will conceal the parts of which the body of the bottom is made. The surplus water is then taken out of the bottom by covering it with a porous cloth, through the texture of which the water will pass when pressure is applied by the hand, which is swept off by the operator; or, as I prefer, a female form, with channels to permit

the escape of the water, may be set on the bottom, and mechanical pressure applied to force out the water. The core, with the paper applied, is then set aside, to be dried by natural or artificial heat. When the paper is dried the core is contracted by removing the wedges or operating the screws. The article thus formed of paper is finished by smoothing, painting, varnishing, or otherwise, according to taste.

If designed to hold a liquid, the article may be coated with an insoluble coating or varnish. Where the article is intended to be metal-lined, the metal form is used, which is intended to make the lining instead of the adjustable core. The article may be made with or without the volute rim, as preferred.

The contraction of the paper in drying will set it onto the internal lining firmly, so that it cannot be removed.

This process may be applied to the manufacture of trunks, chests, and analogous articles of paper in the following manner: In such case the core will be formed of two parts, each expansible, as in the case where a single core is used, the parts being joined on the line where the top and bottom of the trunk, &c., are intended to connect. The parts of the core being laid together, a paper tube is applied to the core, which in this case is made longer than the core at both ends, or at the top and bottom. The ends of the paper tube are then slit, and the ends of the trunk, or the top and bottom, as the case may be, are then formed in the manner hereinbefore described.

When completed and dried, the paper, which now will inclose the entire core, is cut on the line of the division of the two parts of the core, parallel with the top and bottom, and the parts separated. The cores are then taken out, and we have the top and bottom formed in a single piece. The trunk may then be stiffened and finished according to judgment and fancy.

It is to be understood that, in making articles that are intended to be durable, paper-stock of the strongest quality should be used.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. As an improvement in the art of forming seamless baskets and other analogous receptacles from paper, forming the bottoms from a tube composed of successive layers of paper, over a central core, by first slitting and dividing the edge and then folding down successive lamina thereof, interweaving them with independent pieces, and cementing the whole by working in a mixture of paper-pulp and an adhesive substance and then extracting the water, substantially as set forth.

2. The improvement in the art herein set forth, consisting of first distending a tube of thick moist paper upon a core, form, or pattern and then turning down the edge to form a volute rim for strengthening the top of a paper basket or other analogous receptacle, which is hardened by drying, substantially as set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

ROBERT B. CRANE.

Witnesses:
S. S. CONNER,
W. F. HOLMES.