

J. STEVENS.
PAPER VESSEL.

No. 176,371.

Patented April 18, 1876.

Fig. 1.

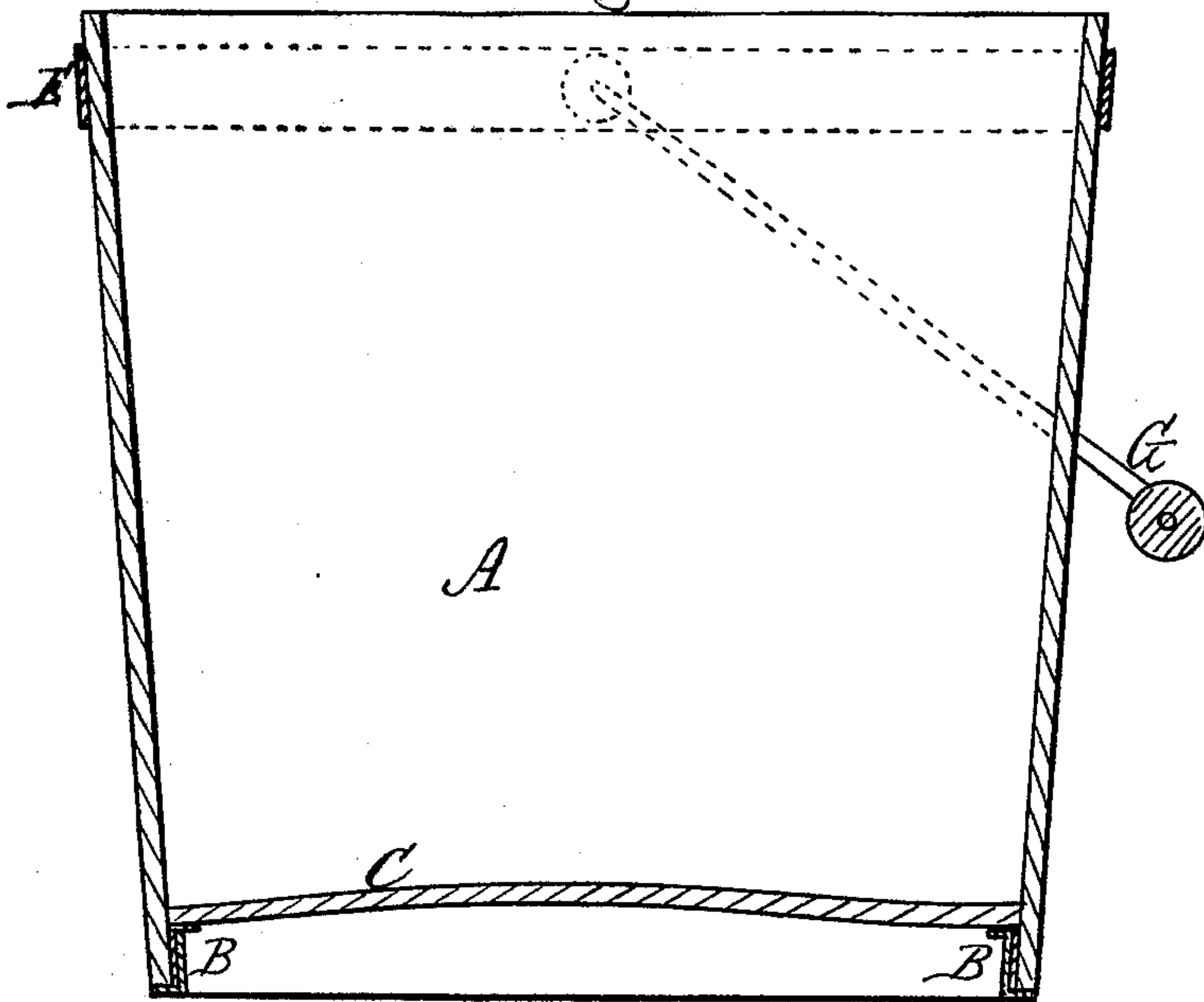
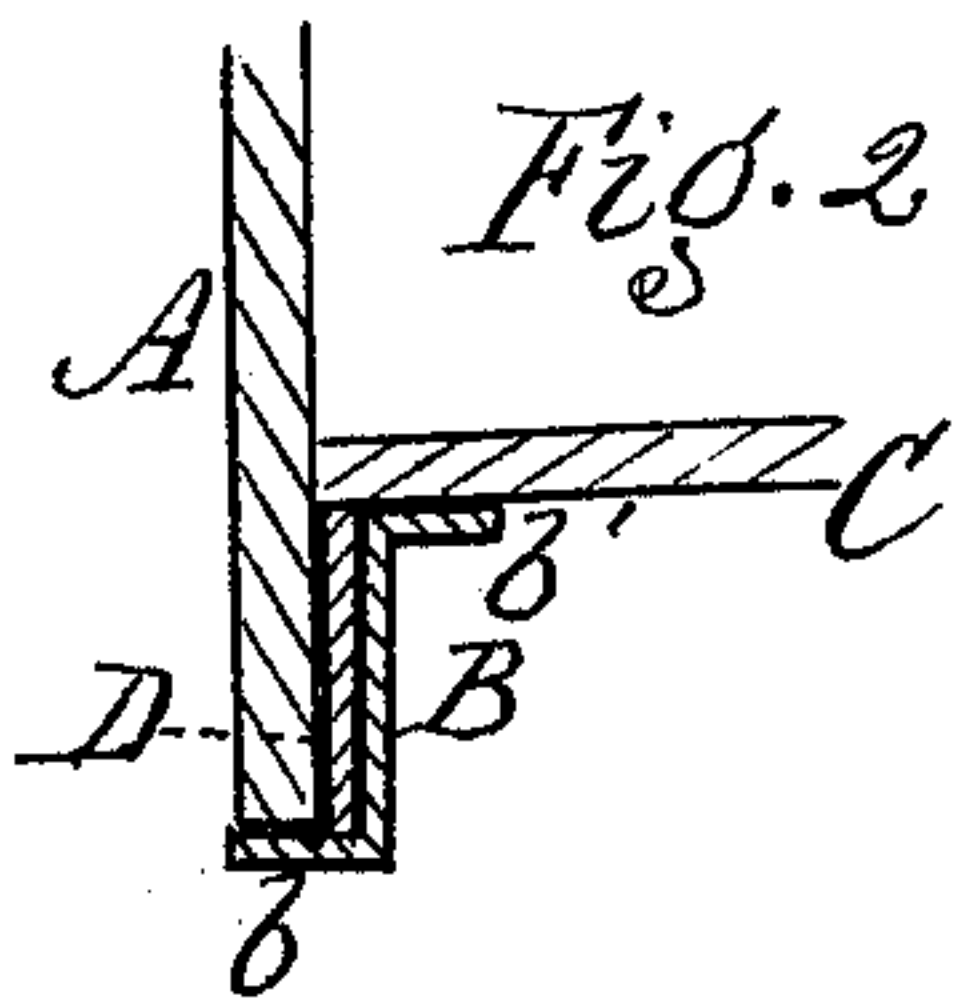


Fig. 2.



Witnesses.
A. D. McMaster
E. B. Scott.

Inventor.
John Stevens,
per R. F. Osgood,
Atty.

UNITED STATES PATENT OFFICE.

JOHN STEVENS, OF PORT BYRON, NEW YORK.

IMPROVEMENT IN PAPER VESSELS.

Specification forming part of Letters Patent No. 176,371, dated April 18, 1876; application filed May 6, 1874.

To all whom it may concern:

Be it known that I, JOHN STEVENS, of Port Byron, in the county of Cayuga and State of New York, have invented a certain new and useful Improvement in Paper Vessels; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a vertical section of a pail, showing my improvement. Fig. 2 is an enlarged section of one lower corner of same.

This improvement relates more especially to open vessels, such as pails, &c. Such articles have generally been made from pulp, and pressed in molds. It is difficult to form them with sufficient strength to resist the rough usage to which they are subjected, especially at the bottom, which comes in contact with the ground or floor, and at that point they soon break out. To obviate this difficulty I make my vessel of pressed paper or board, or a combination of the two, and employ an interior metallic hoop of peculiar construction at the bottom, which forms a stay or stiffener, and supports the bottom of the vessel.

A represents the body of the vessel, which may be made from paper-board or paper, or a combination of the two. If made of board, the edges are skived and overlapped and cemented by a strong cement. If made of paper, it is overwrapped, layer over layer, till the proper thickness is built up, being cemented between the layers. If made of combined board and paper, the latter is simply overwrapped on the former. The cylinder, being thus shaped, is placed in a hollow mandrel or form, and a core is inserted in the vessel, which is expanded by a screw, wedge, or other device, to produce the necessary compression. B is the lower hoop or stiffener, which is made of metal of any kind. It is formed with a right-angled flange, *b*, at the bottom, which overlaps and covers the bottom edge or chine of the vessel, and with a reverse right angled flange, *b'*, at the top, which projects inward and serves as a support to the bottom C of the vessel, which is a separate piece, and is made slightly convex or arching upward, as shown. D is a secondary hoop, made of paper, metal,

or other suitable material, which also serves as a support to the bottom of the vessel. These hoops are secured on the inner side of the rim of the vessel, by which they form stiffeners and stays, as will be presently described.

The essential novelty in the lower hoop consists in the use of the two right-angled flanges *b b'*, standing in reverse positions, the upper one of which stands inwardly sufficiently far to serve as a ledge or support to the bottom C, while the lower one covers and protects the lower edge or chine of the vessel. This flanged form of the hoop also gives its great strength and stiffness, so that it cannot bend or warp out of place, and as it is situated inside the rim of the vessel, it keeps the latter in proper form, and presents the usual smooth appearance of a paper pail. Much difficulty has been heretofore experienced in paper pails, from the breakage of the lower flange or chine, caused by a rough contact with the ground or floor; also from the roughing up and separation of the fibers of the material at that point, caused by dampness. My invention obviates the difficulty, by furnishing a covering to the whole lower edge or chine of the pail, which receives all the contact. The hoop B is cemented in, and, if desired, may be punched into the outside paper, and being so stiff and unyielding it can never get out of place, and therefore holds the bottom of the vessel much more securely than has before been done. The ends of the hoop are soldered, riveted, or otherwise firmly attached together. The flanges *b b'* form lateral ribs to the hoop, thereby giving it such a degree of lateral stiffness that the bottom of the vessel cannot warp or get out of shape under ordinary usage, being in this respect much more effective than an outside hoop could possibly be. The bottom C is cemented in on top of the flange *b'* and against the outer wall of the vessel, and the arching form causes it to expand when weight is applied on top.

By this means it can never break away, but always remains firm. The body of the vessel, inside or out, or both, may be covered with paint, varnish, sizing, or any coating found adapted to the purpose.

The interior or filling hoop D is essential, not so much to form a stiffener as to enable

the metallic hoop B to be cemented to the chine of the vessel. This chine, in ordinary pails and similar vessels, is very thin, and yields readily to pressure. It has, therefore, been found very difficult to keep it in place while the metallic hoop is being cemented thereto, as it springs off at different points and prevents the forming of a tight joint. But by inserting the interior or filling hoop the difficulty is overcome. To insert the hoop D it is placed upon a shouldered mandrel, its outside being covered with cement, and is pressed down to place so as to closely fill the space at the chine. The cement soon secures it to the chine, and the metallic hoop can then be applied with facility so as to make a tight joint. The interior hoop D also forms a shoulder of sufficient thickness to form, with the flange *b'* of the metal hoop, a firm support for the bottom of the vessel.

I do not claim a bottom to a paper vessel, having a projecting rim resting against the

interior of the chine; neither do I claim, in connection therewith, a metallic hoop or metallic lining for securing the rim; but

I claim—

The combination, in a vessel made of paper-board, of the separate filling-hoop D, cemented to the interior of the chine and forming a shoulder thereto, and the interior metallic hoop B, embracing and covering the filling-hoop, and constructed with the reverse right-angled flanges *b b'*, one of which projects inward and forms the seat for the vessel-bottom, while the other projects outward and overlaps and covers the chine, as herein shown and described.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

JOHN STEVENS.

Witnesses:

JOHN L. DAVIS,
R. F. OSGOOD.