

*S. Wheeler & E. Jerome. Sheet 1. 2 Sheets.*

*Paper Molding.*

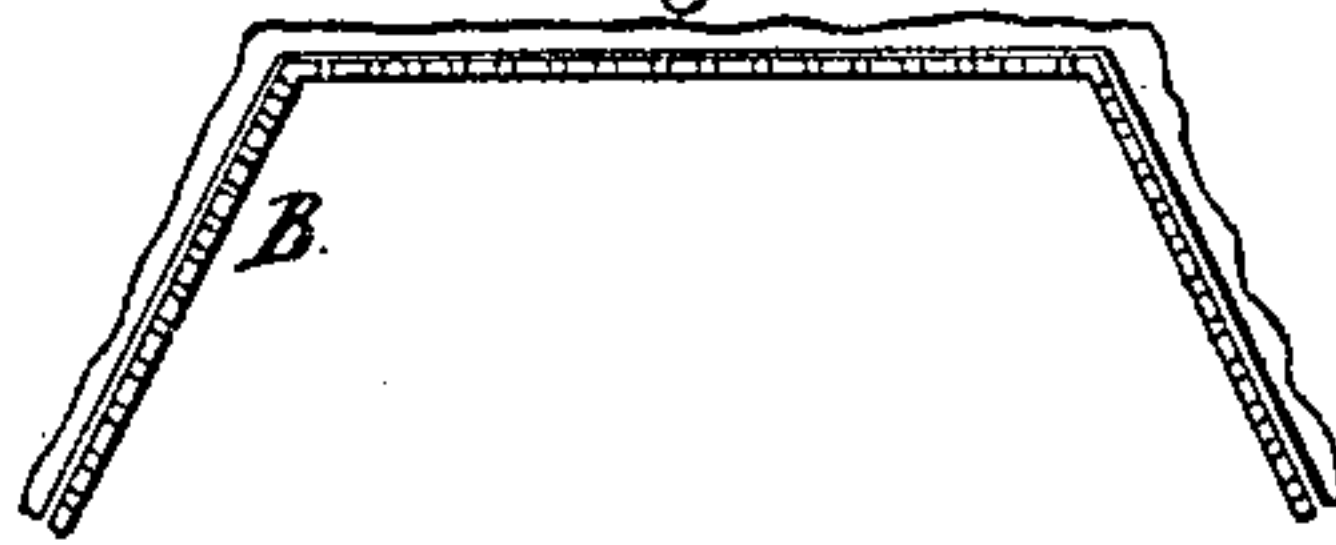
*N<sup>o</sup> 66,919.*

*Patented Jul. 16, 1867.*

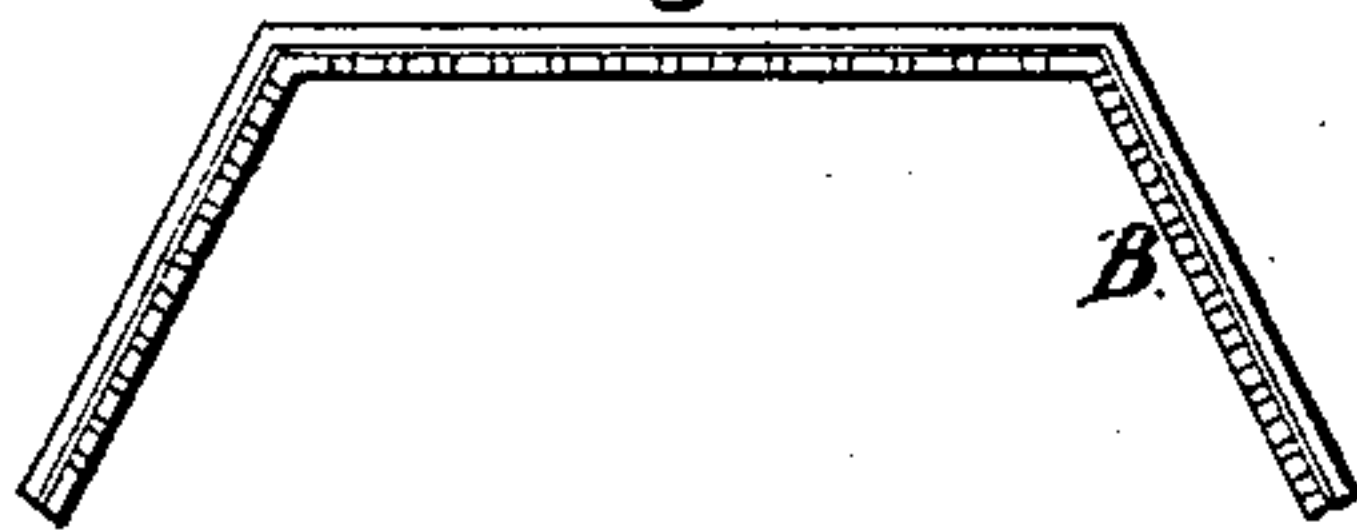
*Fig. 4.*



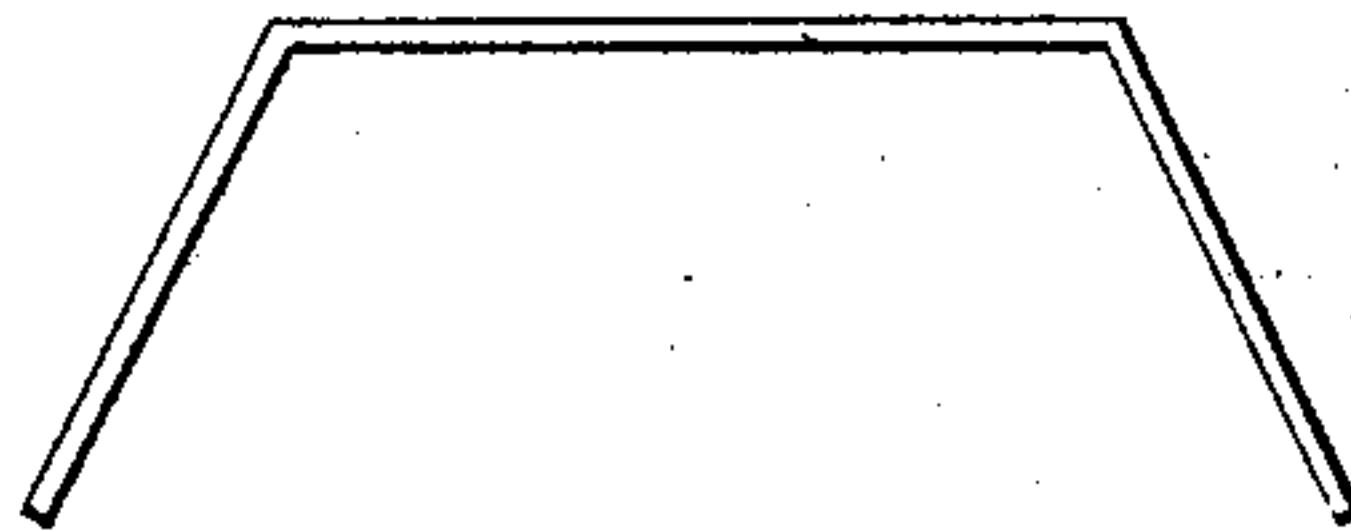
*Fig. 5.*



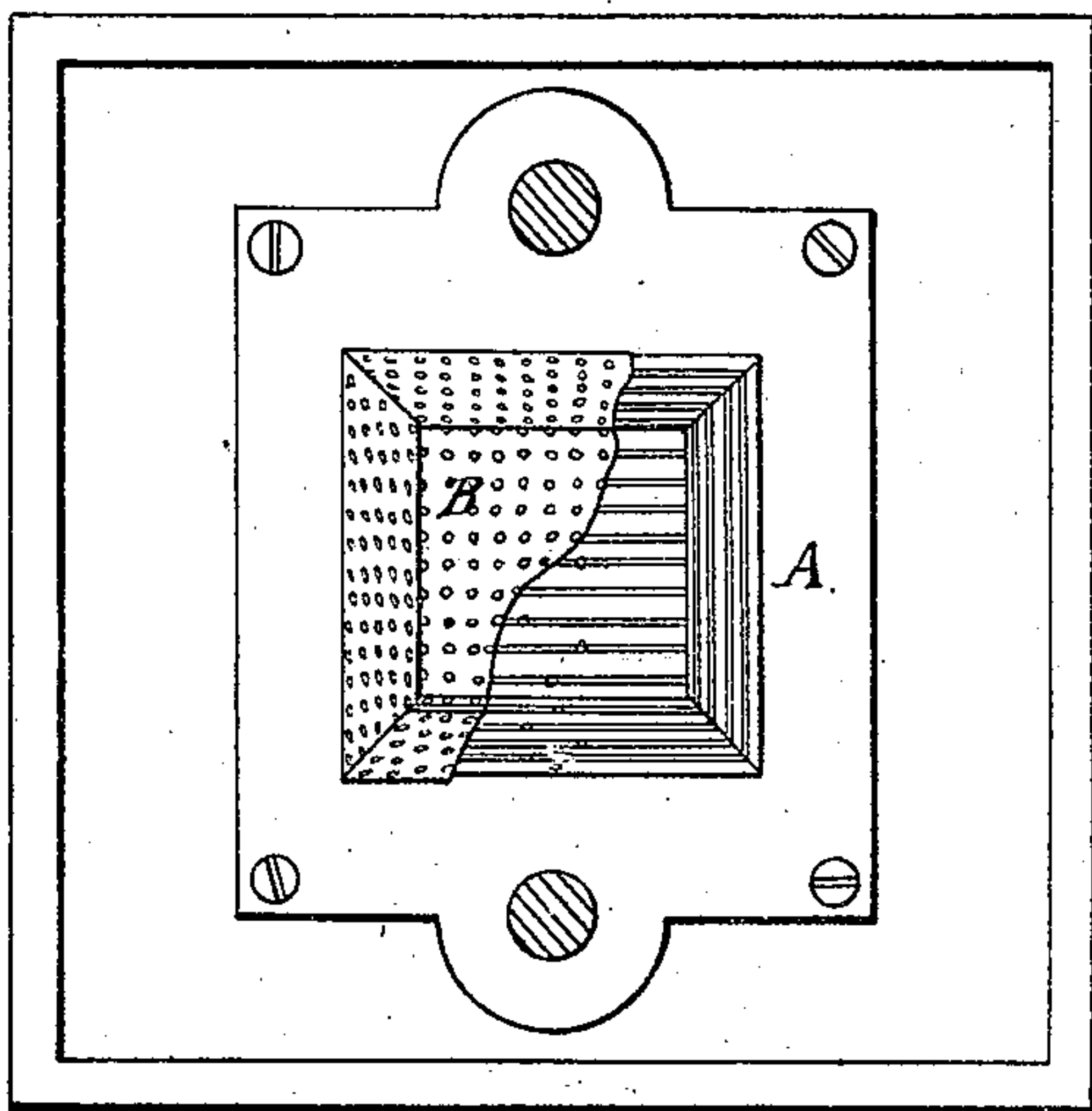
*Fig. 6.*



*Fig. 7.*



*Fig. 1.*



*Witnesses.*  
*R. H. Campbell*

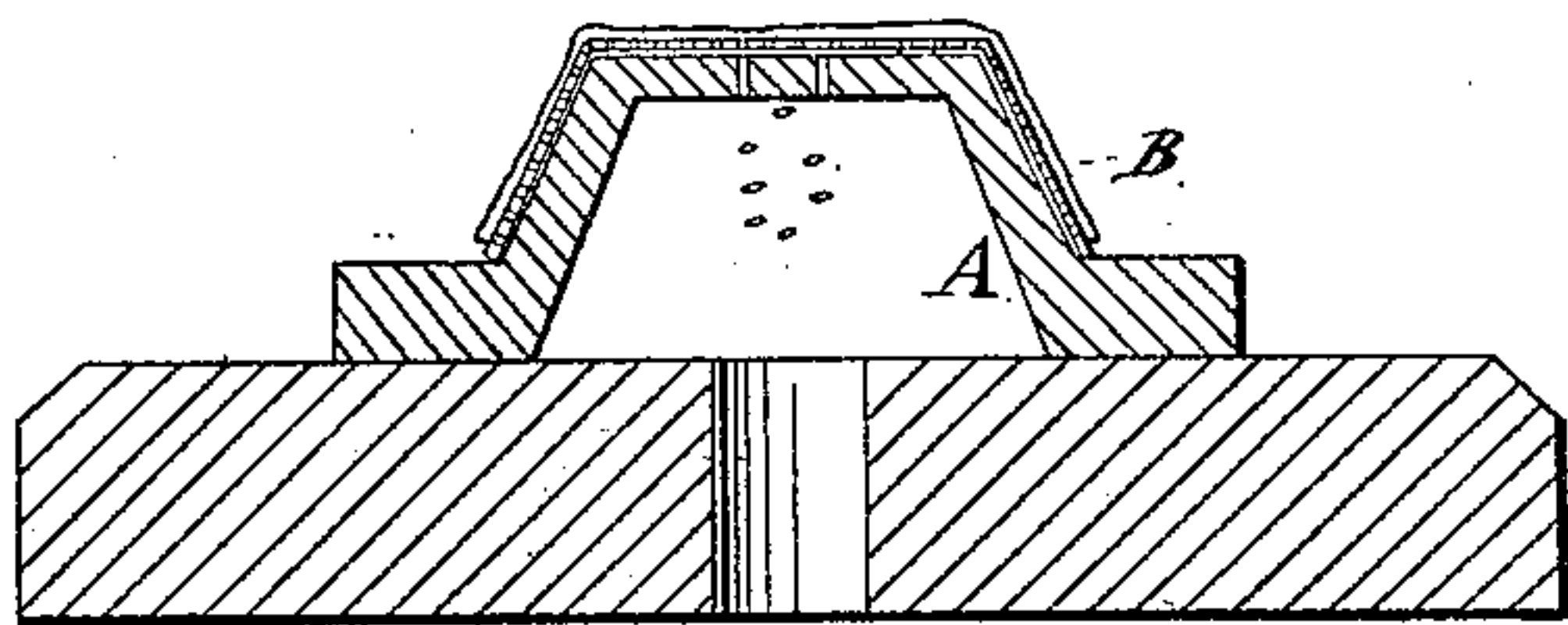
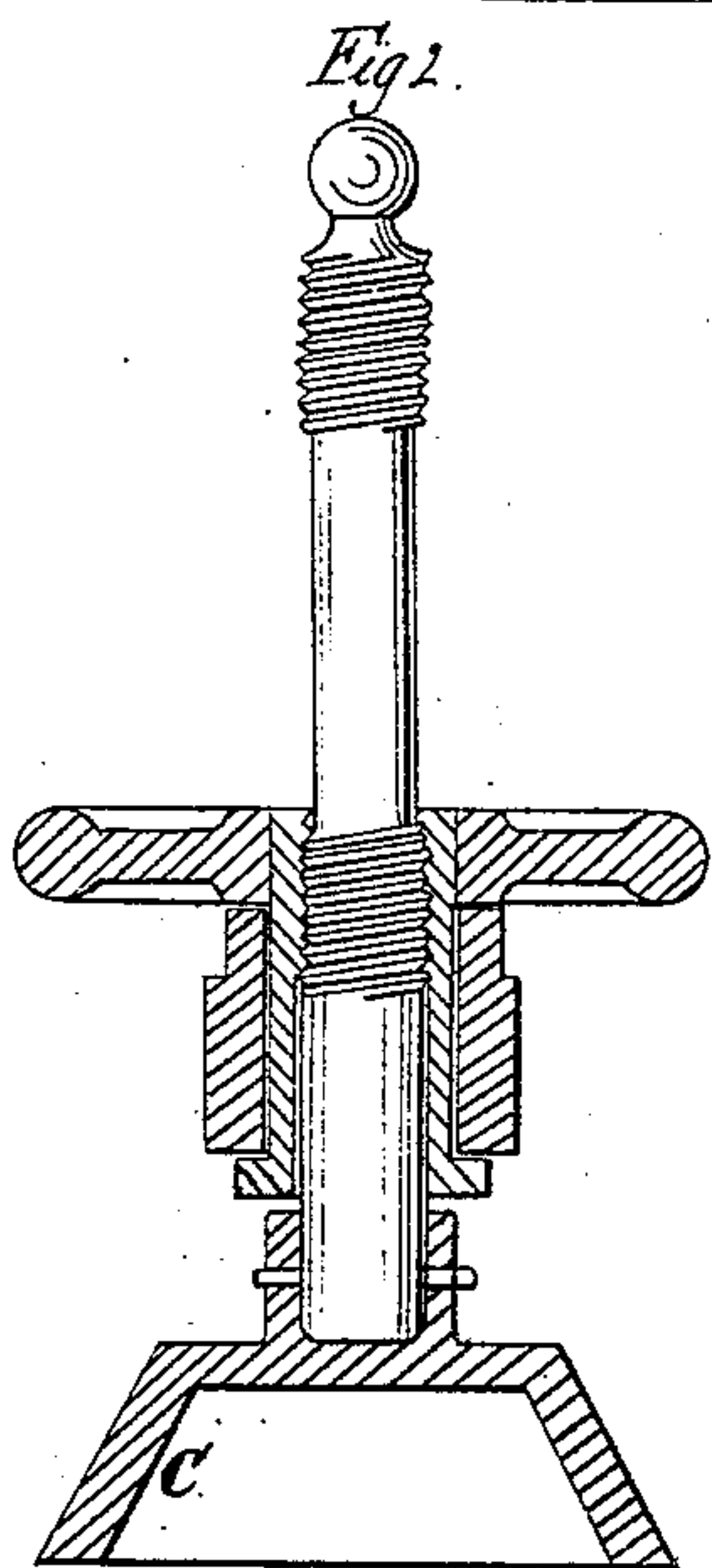
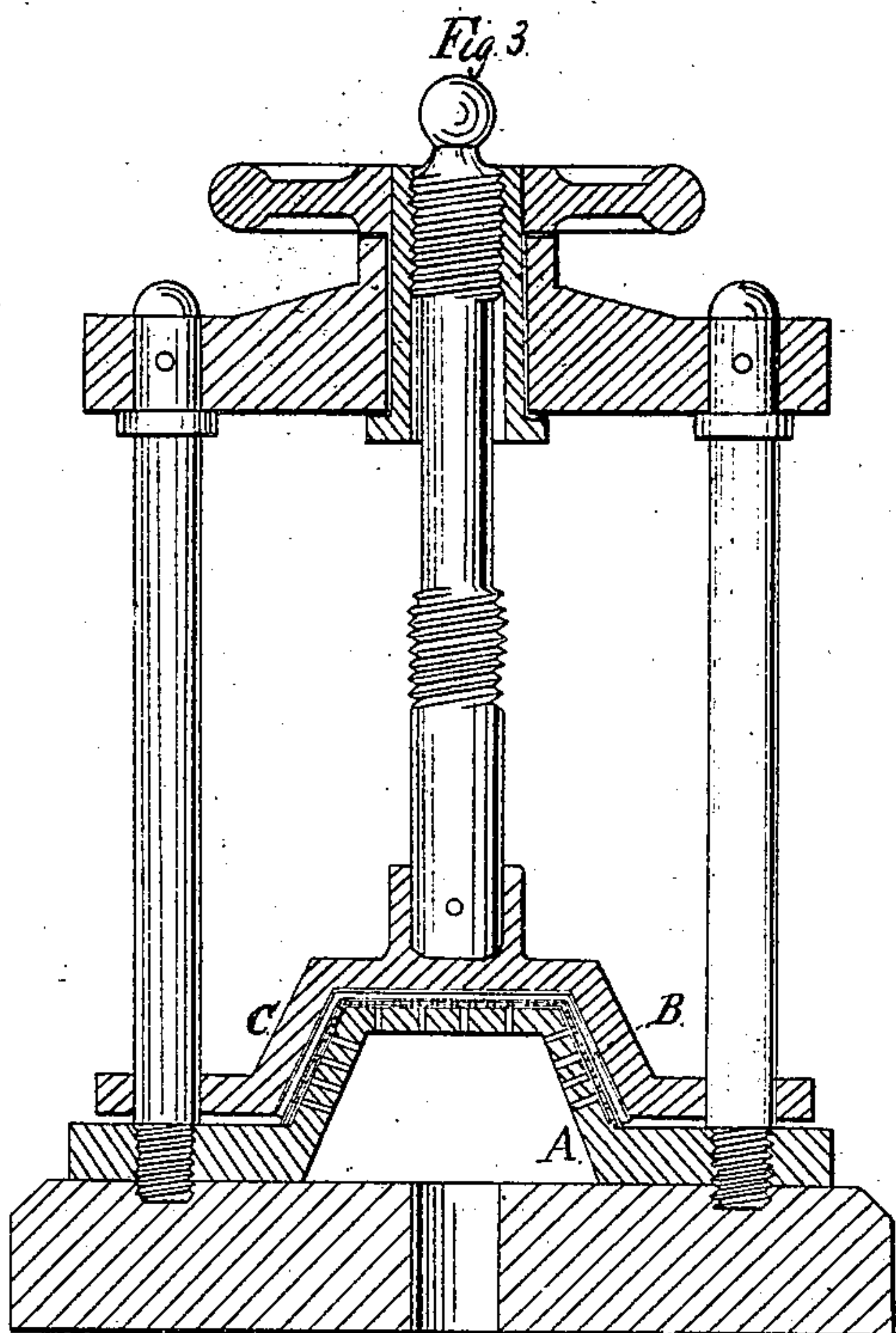
*Inventors.*  
*Sith Wheeler*  
*Edgar Jerome*  
*by their agents*  
*Mason, Fenwick & Lawrence*

*S. Wheeler & E. Jerome. Sheet 2. 2. Sheets.*

*Paper Molding.*

*N<sup>o</sup> 66,919.*

*Patented Jul. 16, 1867.*



*Witnesses.*

*R. H. Campbell*

*Inventors.*

*Seth Wheeler*  
*Edgar Jerome*

*by their agents*

*Mason, Fenwick & Lawrence*



# United States Patent Office.

SETH WHEELER AND EDGAR JEROME, OF ALBANY, NEW YORK.

*Letters Patent No. 66,919, dated July 16, 1867.*

## IMPROVEMENT IN FINISHING BOXES, &c., OF PULP.

The Schedule referred to in these Letters Patent and making part of the same.

### TO ALL WHOM IT MAY CONCERN:

Be it known that we, SETH WHEELER and EDGAR JEROME, of Albany, in the State of New York, have invented a new and useful Mode of Pressing Hollow Articles made direct from Paper-Pulp or other analogous substance; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a horizontal section just below the pressing-follower.

Figure 2 is a vertical central section, and

Figure 3, a similar section, but taken at right angles to the section shown in fig. 2.

Figure 4 is a detached view in section of the perforated rigid frame upon which the box or hollow article is pressed.

Figure 5 is a section of the perforated frame with a box framed on it but not pressed.

Figure 6 is a section similar to fig. 5, the box pressed or finished.

Figure 7 shows a section of the box detached and finished; that is, the body of the box.

Similar letters of reference in the several figures indicate corresponding parts.

One of the features of invention which is the subject of this patent is a rigid perforated frame corresponding to the form of the hollow article required to be made, such frame being made removable from the die and adapted for use in connection with a male and a pressing female die of such construction that the paper-pulp article formed on the frame may be pressed smooth on its inner or outer surfaces, and the moisture expressed from the pulp allowed a free chance to pass off. And another feature of invention which forms the subject of this patent is sustaining the article upon a removable rigid frame upon or within which it is formed during the operation of pressing or smoothing its surfaces by a mechanical process.

To enable others skilled in the art to make and use our invention, we will proceed to describe it with reference to the drawings.

A represents a truncated pyramidal die made hollow and with channels and perforations on and through its top and sides, as represented. This die is applicable to a suction or atmospheric machine working on the principle set forth in Edward H. Knight's patent, dated April 3, 1866, for making hollow articles out of paper-pulp. B is a hollow perforated frame made of metal, hard rubber, or other rigid material. Its shape is an exact counterpart of that of the die. This frame is placed over the die so as to protect the channels and perforations of the die from being clogged. The pulp, when the exhausting apparatus is in action, deposits thinly and evenly upon this finely perforated frame, the channels and perforations allowing a free current of air through the machine, and also permitting a free escape of water from the pulp which is drawn upon the frame. The die may be removable from the forming machine along with the permeable frame, or it may be a fixture with said machine and a counterpart of it used in the pressing operation hereafter described. The rigid perforated frame must always be removable from both the forming-die and the atmospheric apparatus.

When the same die is used as the basis for pressing and forming the hollow article, it is taken away from the machine, together with the rigid frame and hollow pulp article, and placed upon the bed-plate of a screw-press and properly confined under a female pressing-die, C, as represented. This female die is in its form an exact counterpart of the male die. The screw-press shown is constructed with a blank between two portions of a thread, so that time may be saved in raising and lowering the female die. Any proper style of press may be adopted.

In case it is not desirable to remove the forming-die along with the permeable rigid frame, a press, with a die just like the one shown in the drawing, is employed, and as soon as the rigid frame with the hollow article upon it is removed from the forming-die of the atmospheric apparatus, the frame with the hollow article upon it is placed upon the die of this frame and the female pressing-die is forced down upon the surface of the hollow article with sufficient force to impart a smooth-finished surface to it, and to express the water out of the pulp. The rigid frame is then lifted off of the die and the hollow article upon the frame is set out to dry. When dry it is removed from the rigid frame and said frame is used for another operation.

The top of the box is formed in the same manner as the body, the forming-dies and pressing-dies being only changed in form and character accordingly as circumstances require.



The pressing or smoothing and finishing process may be performed by rolling, rubbing, or in any known practical way of smoothing substances of the nature herein mentioned.

As hollow articles may be made by the atmospheric process of Knight, hereinbefore referred to, either upon the outer or inner surface of the permeable frame, we do not limit our invention to finishing the hollow articles upon the outer surface. If the articles are formed upon the inner surface of the permeable frame, a male pressing-die will have to be substituted for the female die, and the female die will take the position of the male die, and thus be a supporting wall to the permeable frame, such inverted female die being constructed with channels and passages for water to freely escape; and when used in the forming process will be constructed so as to allow a free suction of air through the machine.

Any desired form of article, or particularly such as are mentioned in Edward H. Knight's patent of April 3, 1866, may be pressed and finished by our invention herein described.

We will state here that in the manufacture of hollow articles direct from paper-pulp, papier-mache, and other analogous substances, by the atmospheric process and upon permeable surfaces, the product is defective and unsubstantial, and the surfaces next the pulp mass in which the permeable surfaces are immersed are rough and uneven, as well as unsightly, thus rendering it necessary to submit the article to a finishing process. The delicate nature of the article in a moist state also renders it necessary that the sides thereof be supported during this finishing process and during the handling of the articles. Our permeable rigid frames meet all of these difficulties and enable us to furnish directly from pulp, by the atmospheric process, merchantable hollow articles. In the manufacture of blanks, from which to make boxes and other many-sided hollow articles, a permeable rigid plate corresponding to the surface of the shaping-die is used as the basis upon which to press and finish the blank, such permeable plate being used upon the die, and the paper-stock pressed into shape and finished upon it, instead of being finished upon the die proper. We regard this as another of the many ways of employing permeable rigid plates or frames upon which to press and finish articles or products made directly from paper-pulp. The making of blanks for paper boxes and other many-sided hollow articles is not the subject-matter of this patent, but that of another patent of even date with this one.

What we claim as our invention; and desire to secure by Letters Patent, is—

Pressing or finishing the article upon or within a removable permeable rigid frame, such frame being the one upon or within which the article is made.

Sustaining the hollow article by a permeable rigid frame during the pressing or finishing process.

SETH WHEELER,  
EDGAR JEROME.

Witnesses:

J. H. BULLOCK,  
M. V. B. WINNE.