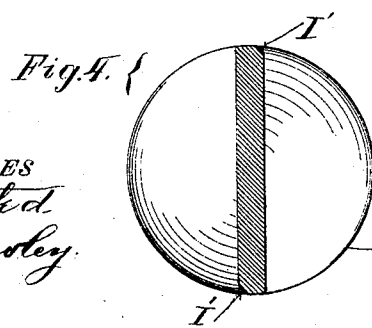
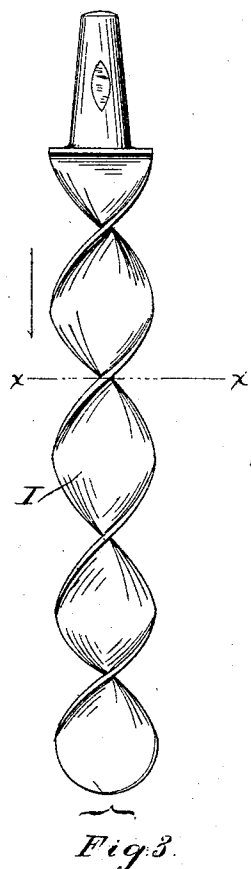
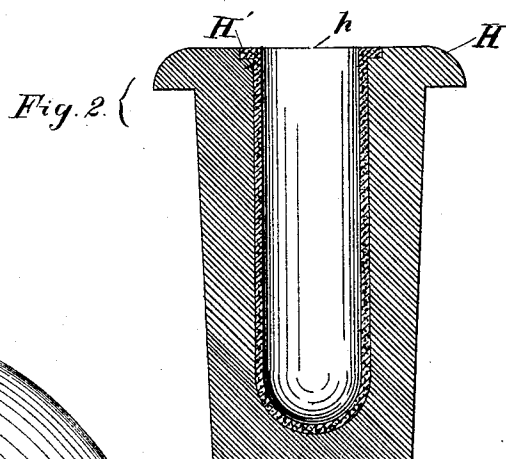
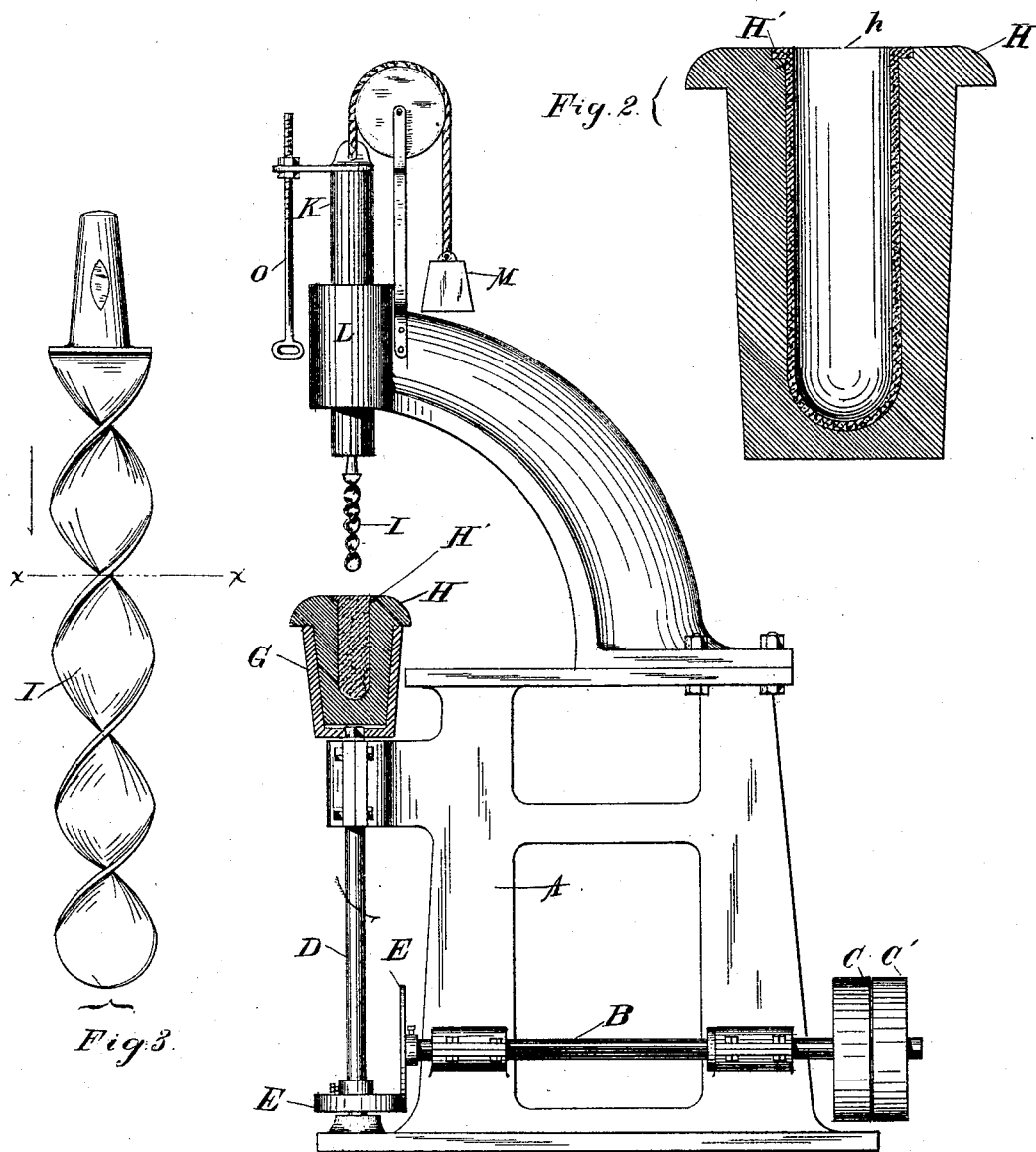


(No Model.)

A. A. BLOUNT & F. K. WAY.
MACHINE FOR MAKING HOLLOW ARTICLES.

No. 479,347.

Patented July 19, 1892.



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UNITED STATES PATENT OFFICE.

AMBROSE A. BLOUNT, OF SPRINGFIELD, AND FRANK K. WAY, OF DAYTON, OHIO, ASSIGNORS, BY MESNE ASSIGNMENTS, TO THE BOSTON FILTER COMPANY, OF BOSTON, MASSACHUSETTS.

MACHINE FOR MAKING HOLLOW ARTICLES.

SPECIFICATION forming part of Letters Patent No. 479,347, dated July 19, 1892.

Application filed November 13, 1891. Serial No. 411,818. (No model.)

To all whom it may concern:

Be it known that we, AMBROSE A. BLOUNT, residing at Springfield, Clark county, and FRANK K. WAY, residing at Dayton, in the county of Montgomery, State of Ohio, citizens of the United States, have invented certain new and useful Improvements in Means for Making Hollow Articles, of which the following is a specification, reference being had therein to the accompanying drawings.

Our invention relates to certain new and useful improvements in means for making hollow articles of plastic material, the peculiarities of which will be hereinafter fully described, and particularly pointed out in the claims.

In the accompanying drawings, on which like reference-letters indicate corresponding parts, Figure 1 represents a side view and partial section of a machine exemplifying one mode of carrying out our invention; Fig. 2, a sectional view of a receiving-mold and a tubular article therein as it appears after the operation of the machine; Fig. 3, a detail view of a special kind of forming-tool particularly adapted to the production of tubular articles; and Fig. 4, an enlarged cross-section of Fig. 3 on the line $x x$, looking in the direction of the arrow.

The letter A designates a suitable frame or base provided with bearings for a horizontal shaft B, carrying fast and loose pulleys C C', respectively, which are belted in the usual way to a line-shaft. (Not shown.) Bearings are also provided in the said frame for a vertical shaft D, rotated by means of a rubber-faced friction-wheel E, engaging with a disk F, mounted on the said shaft B. The speed of the vertical shaft may be varied by changing the position of the wheel E nearer to or farther from the center of the disk F. A supporting-head G is carried by the vertical shaft and adapted to support a receiver or mold of plaster-of-paris or other material, provided with an opening H', in which is packed the plastic material h of which the article is to be fashioned. This material may be clay or other suitable substance or compound of such consistency as to retain its molded position and be acted on readily by a forming-tool I,

which constitutes the substantial feature of novelty in this machine, the before-described parts being of well-known construction. This forming-tool is of a spiral or twisted shape and adapted to the shape of the article to be made. In the machine illustrating our invention the article is of a tubular form and the forming-tool is of a spiral shape. The edges of the tool are beveled or rounded, as shown at I', Fig. 4, on the sides opposing the plastic material as it is rotated against the forming-tool by the receiving-mold H. In this construction the forming-tool is non-rotatable, but is mounted in a reciprocating piece K, sliding in a bearing L, supported by the frame of the machine directly over the mold H. A balance-weight M acts on the piece K to raise it and the forming-tool after being drawn down into contact with the plastic material by the pull-down handle O.

In operating the machine the receiving-mold is filled with plastic material suitably prepared and the forming-tool is brought down, so as to gradually enter the plastic material and remove the surplus from the interior of the mold, which surplus under the rotative action of the head is raised up the inclined surface of the forming-tool, leaving a shell constituting the thickness of the article and being the difference in size between the forming-tool and the opening H' in the mold. The article is shown in section in Fig. 2 as it appears after withdrawing the forming-tool.

The rounded edges I' of the forming-tool are opposed to the direction of rotation of the material and act to press the material outward and condense or solidify it. This prevents the formation of blisters or air-bubbles in the walls of the article and produces a uniformity of structure which allows of making the article of a shell-like thinness, if so desired. This is of special advantage in the production of certain articles, such as filters. We wish to be understood as laying claim, broadly, to this feature of our invention.

While we have exemplified one mode of carrying out our invention, we do not wish to confine ourselves to the particular form and

construction herein shown and described. It is evident that the forming-tool instead of being non-rotatable and the material being rotated may be rotatable by ordinary well-known means, as well as reciprocable, and the material be stationary; also, that either member may be reciprocated to bring the forming-tool into contact with and remove it from the plastic material. The essential principle is that the inclined surface of the forming-tool and its rounded or beveled edges should oppose the rotative action of one member on the other, which causes the surplus plastic material to be removed and the remainder compressed.

For the further understanding of the manufacture of the article it is remarked that the article after being hollowed by means above described is removed from the mold, dried, and fired in a kiln, as is usual in the manufacture of porcelain articles and the like.

Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The herein-described forming-tool for

making hollow articles, the same consisting of a twisted blade or strip in the shape of a spiral with a transversely-rounded entering end and having the sides and end of said spiral rounded on its opposing edges, substantially as shown and described, and for the purpose set forth.

2. In a machine for making hollow articles, the combination, with a mold to form the outside of said article, of a forming-tool consisting of a twisted blade or strip in the form of a spiral blunt on its entering end and provided with rounded opposing edges, substantially as and for the purpose described, one member being reciprocable and either member rotatable, and means to effect such reciprocation and rotation of said members with respect to each other.

In testimony whereof we affix our signatures in presence of two witnesses.

AMBROSE A. BLOUNT.
FRANK K. WAY.

Witnesses:

OLIVER H. MILLER,
H. M. PLAISTED.