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 APPARATUS FOR MANUFACTURING PLASTIC ARTICLES, RELIEVS, HOLLOW BODIES, AND
 THE LIKE, OF PULP.

APPLICATION FILED JULY 19, 1911.

1,041,129.

Patented Oct. 15, 1912.

Fig. 1.

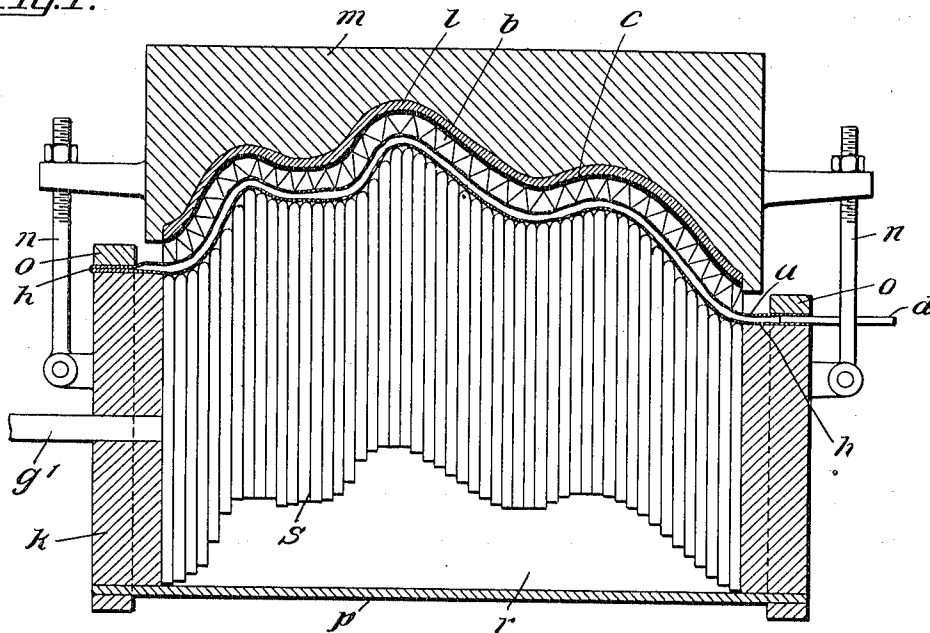
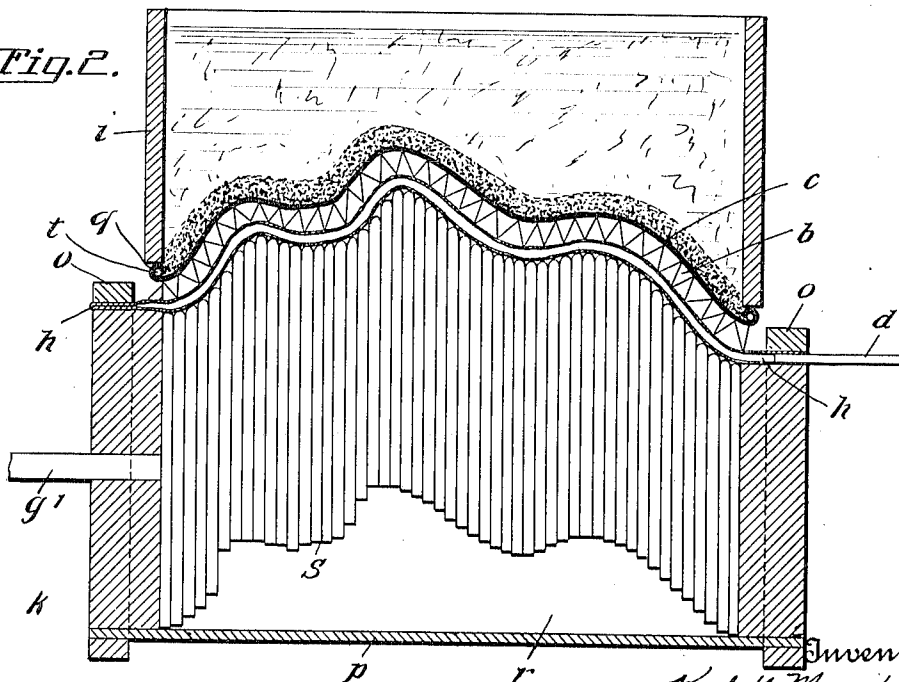


Fig. 2.



Witnesses
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UNITED STATES PATENT OFFICE.

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APPARATUS FOR MANUFACTURING PLASTIC ARTICLES, RELIEVOS, HOLLOW BODIES,
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Specification of Letters Patent.

Patented Oct. 15, 1912.

Application filed July 19, 1911. Serial No. 639,425.

To all whom it may concern:

Be it known that I, KARL WALTHER MAUERSBERGER, machine manufacturer, a subject of the German Emperor, residing at 25 Voigtstrasse, Chemnitz, Saxony, in the Empire of Germany, have invented certain new and useful Improvements in Apparatus for Manufacturing Plastic Articles, Relievos, Hollow Bodies, and the Like, of Pulp, of which the following is a specification.

The present invention relates to an apparatus for manufacturing plastic articles, relievos, hollow bodies and the like of pulp, the raw pulp being pressed in the form of a liquid or viscid paste between an inner and an outer mold, whereby the inner mold may consist of an elastic core inflatable by means of compressed air or compressed liquid.

The novel feature of the invention consists in employing an elastic body as a foundation for the pulp layer to be formed and compressed, which admits of a pressure being exerted in a vertical direction against all parts of the mold and which body consists of a layer that is impermeable to water and a second permeable cover held at a given distance from the said first impermeable layer by means of lugs, webs or the like. When the pressure plunger is now moved in known manner against this foundation, which may be adjustable for a given or for several molds, the surplus water contained in the pulp will flow off between the two layers. This arrangement therefore admits of an easy adjustability of the foundation to any desired mold and of an easy removal of the expressed water.

In the accompanying drawing the present invention is exemplified in a constructional form.

Figure 1, is a sectional view showing the method of forming the mold or die. Fig. 2 is a similar view illustrating the act of molding an article.

The apparatus shown in the drawing is intended for the molding of flat articles such as masks. The foundation on which the paper fibers are to be deposited and through which the surplus water is to be removed consists of an impermeable layer *a* which has lugs *b* and over which a jersey covering *c* is laid and secured. The layer *a*, which will lay flat when not in use is laid for producing a mask or any other re-

lievo article over a suitable mold, so that its surface will assume the shape of this mold. On the thus obtained base a box *i* is placed and into this box the water containing the pulp fibers is admitted. While the water will now pass through the jersey covering *c* and flow off between the layer *a* and the lugs *b* until it emerges below the edges of the box *i*, the pulp fibers will settle in a uniformly close layer, well felted together, on the covering *c*. By imparting a slight shaking motion to the box or the whole apparatus the felting of the fibers may be further promoted. When the layer of pulp has reached a sufficient thickness, the box *i* is removed and in its place is substituted the mold proper, whereupon the pressure fluid is admitted through pipe *d* between the foundation consisting of a rubber bag *a* and *h*, whereby this foundation is pressed against the mold proper.

If it is desirable to produce articles differently colored on the two sides, the box *i* is removed after a layer of given thickness and color has been deposited and another box is substituted therefor into which a mixture of pulp and water is admitted which has been colored to the desired color, whereupon a second layer on a different color to the first is deposited.

The bottom mold, by which the rubber bag receives its shape corresponding to the respective mold proper, may, as shown in the drawing, be composed of a plurality of strips of square section, *s*, which are adjustable toward the rubber bag and parallel to each other and which are held in position by a frame *k*.

On the frame *k* the rubber bag *a*, *h* is secured by means of strips *o*. Before the box is placed in position and after the bottom plate *p* has been removed, the strips *s* are pushed from below either with the hand or with aid of a brush upward against a detachable auxiliary mold *m*, held by means of screws *n*, in which mold *m* is provided a soft lining *l* equal in thickness to the final finished layer of pulp, until the upper ends of said strips *s* and the rubber bag lying on them lie snugly up against the said auxiliary mold. Then the frame *k* is clamped tight and the auxiliary mold is removed.

For providing a close joint at the bottom of box *i* it may be fitted with a rubber lining at the bottom, *q*, with which it rests against

a wire rim *t* provided for this purpose in the jersey covering *c*.

In place of a rubber bag also a plain rubber plate *a* with lugs *b* and a jersey covering *c* may be used, which rubber plate is fitted in a hermetically and waterproof manner to the frame *k*, while the lower ends of the strips *s* are likewise covered with a metal plate *p* hermetically and liquidproofly fitted to frame *k*, so that a hermetically closed chamber is produced between the plates *a* and *p*. Into this chamber a pressure fluid may be admitted through a pipe *g*¹, for pressing the layer of pulp against the mold proper laid on it from above. By means of said pipe *g*¹ or any other pipe the air in this chamber *r* may be rarefied, so as to suck the rubber plate *h* tightly against the top ends of the strips *a* and thereby obtain an accurate foundation mold. In such case openings will have to be provided between the single strips *s*.

I claim:

1. A die for forming articles out of liquid pulp fiber comprising a flexible impervious base, a cover of pervious material, and separating means arranged between said base and cover, whereby liquid passing through the cover can escape from the die.

2. A die for forming articles out of liquid pulp fiber comprising two flexible members connected by intermediate means that maintain said members in parallelism and provide a plurality of conduits between them, one of said members being of pervious material.

3. In an apparatus for manufacturing relievos, hollow bodies and the like, by depositing a compressible layer of pulp on a surface permeable to water, the combination of an elastic surface comprising an impermeable base and a permeable covering held at a given distance from said base to allow water forced through the permeable cover to flow off, and a foundation for said elastic surface comprising a plurality of strips independently adjustable to and from said elastic surface, whereby their ends against which said surface bears may be adjusted to the configuration to be given the article to be produced.

In testimony whereof I affix my signature in presence of two witnesses.

KARL WALTHER MAUERSBERGER. [L. s.]

Witnesses:

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