(No Model.)

H. CARMICHAEL.

APPARATUS FOR MAKING HOLLOW WARE FROM PULP.

No. 342,180. Patented May 18, 1886.

Fig. 1.

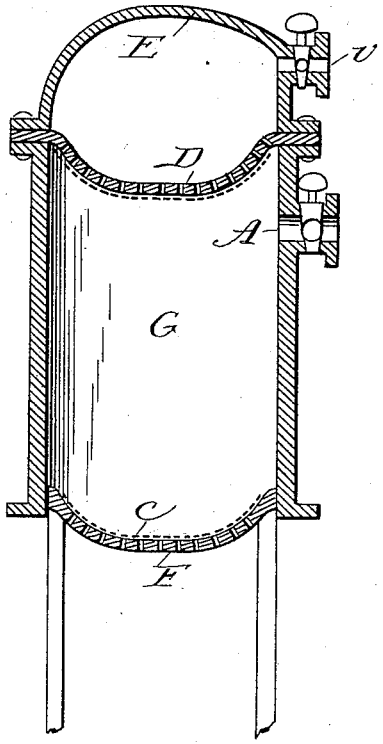
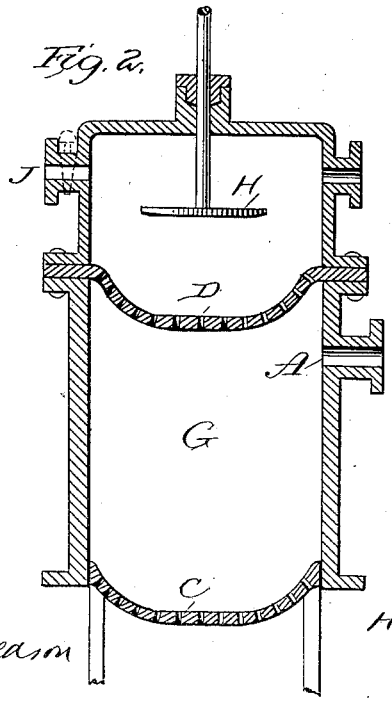


Fig. 2.



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UNITED STATES PATENT OFFICE.

HENRY CARMICHAEL, OF BRUNSWICK, MAINE.

APPARATUS FOR MAKING HOLLOW WARE FROM PULP.

SPECIFICATION forming part of Letters Patent No. 342,180, dated May 18, 1886.

Application filed December 5, 1885. Serial No. 184,844. (No model.)

To all whom it may concern:

Be it known that I, HENRY CARMICHAEL, of Brunswick, in the county of Cumberland and State of Maine, have invented a new and useful Improvement in Apparatus for Making Hollow Ware from Pulp; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention is an improved apparatus for forming articles, such as hollow ware, plates of any shape or for any use, out of pulp of any suitable kind.

The main object sought to be accomplished is the ready and thorough expulsion of the water from the pulp in the process of forming the article. In connection with this object I have also sought to simplify the mechanism by which the pulp is compressed to proper shape and the water expelled.

In the accompanying drawings, Figure 1 represents a vertical section of a press built in accordance with my invention. Fig. 2 shows a modified form in the same section.

In these drawings, G represents the main pulp-chamber, formed, preferably, of cast-iron, with parallel walls and of the shape in cross-section like that of the article to be molded.

A represents an orifice, which is to be suitably connected to the pump or tank which supplies the pulp-liquor. To the flanged top is secured a cover, D, the lower face of which is made in the form of the article to be molded. Such a cover is conveniently made out of a massive perforated plate with facing of fine wire-gauze. Over the cover I place a hood, E, having an orifice, B, connected to the compressed-air supply. The hood and cover may be conveniently attached to the walls of the chamber by bolts passing through the flanges, as shown in Fig. 1. The air and pulp supply pipes should be provided with suitable cocks. Into the lower part of the chamber is closely fitted a hollow plunger, F, provided with a mold-plate, C, similar in shape and construction to the cover D, both mold-plate and cover being suitably curved to form the article when they are forcibly brought into opposition. The plunger may be actuated by toggle-joint, hydraulic pump, or other suitable device for applying the pressure thereto.

In operating the machine the air is shut off by turning the stop-cocks in the air-pipe at V, the plunger being set in the lower position before closing the lower end of the pulp-chamber. The pulp-liquor is then admitted to the pulp-chamber in quantities sufficient for the article. The pulp-cock is then closed at the orifice A and the plunger forcibly raised until the water has been largely squeezed from the pulp, and while the pulp is compressed between the cover D and the mold plate C the compressed air is admitted to the hood E, and, finding its way through the cover, expels the interstitial moisture from the pulp, discharging it as vapor or spray. After this the plunger may be dropped below the mouth of the pulp-cylinder, and the article removed from the drainer.

The device shown in Fig. 1 is simple and effective; but it may be made as shown in Fig. 2, in which the cover D and the plunger, with its mold-plate C, is the same with the same kind of cylinder. In this case, however, I have provided for expelling the water by pressure both from the upper and lower pressure-plates, and to this end I have provided orifices J within the hood, from which the water percolating through the cover or upper pressure-plate, D, may be discharged. The orifice J is closed when the air-pressure is turned on.

In order to limit the area of the discharging-surface of the cover D, I provide a plate, H, fitted to the central plane surface of that of the cap and provided with a stem, which passes through a suitable stuffing-box in the upper part of the hood. This plate is to be lowered and held firmly against the cap while the pulp is being drained. This prevents any of the pulp-liquor from passing through that part of the mold-plate covered, and thus controls the thickness of the pulp in the article at the parts covered by the plate.

I claim as my invention—

1. A pulp-chamber having an opening provided with a stop-cock through which the pulp is introduced, and provided also with a perforated cap and hood connecting with an air-supply pipe, in combination with a plunger having a perforated mold-plate corresponding to the shape of the cap and opposite to it, and

means for forcibly raising the plunger and expelling the moisture, all substantially as described.

2. In combination with the chamber, with its plunger, the pulp-supply orifice, and perforated cap, the hood having an induction for the compressed air, a discharge-orifice therein, and a plate within the hood, mounted upon a suitable stem, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HENRY CARMICHAEL.

Witnesses:
J. P. WINCHELL,
O. J. RIPLEY.