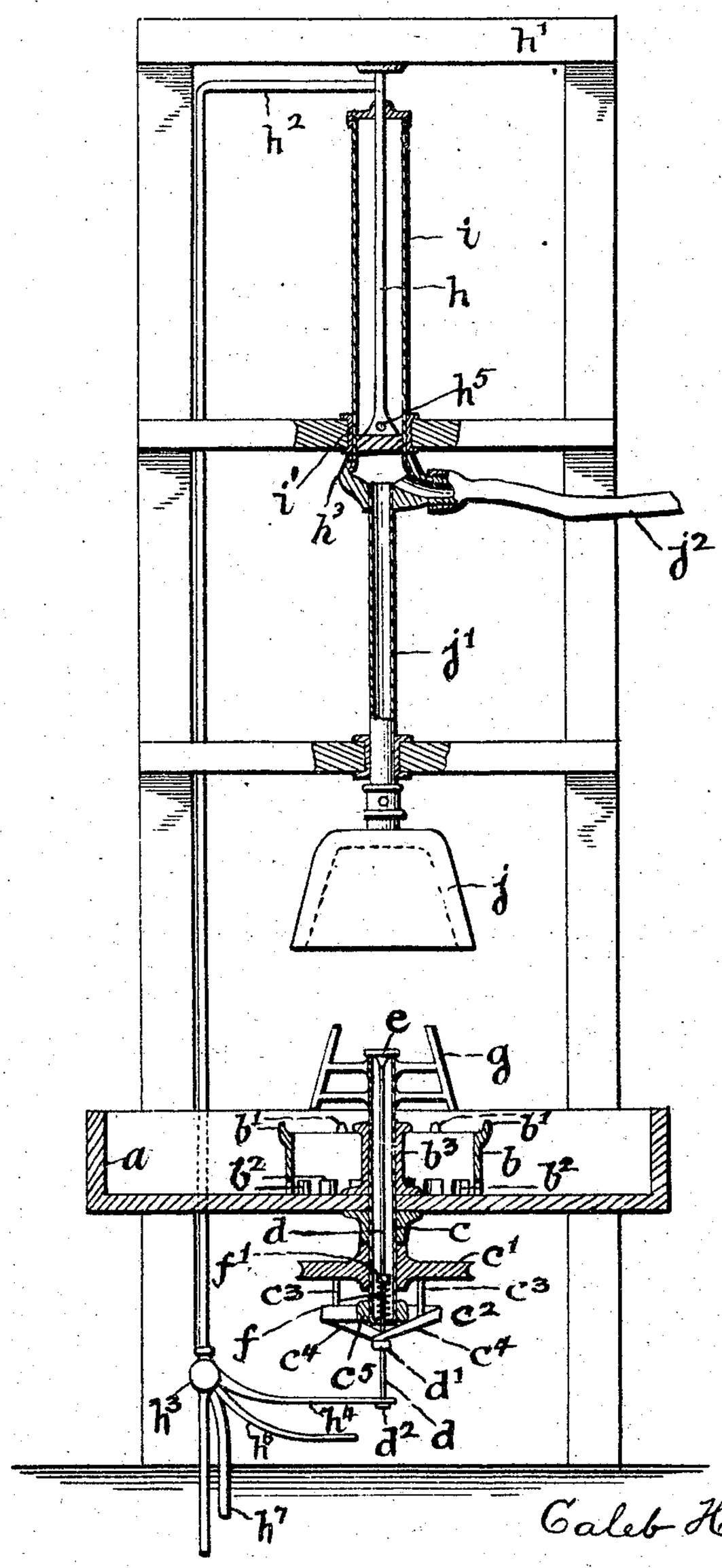
No. 782,371. PATENTED FEB. 14, 1905.

C. H. VALENTINE.

MANUFACTURE OF ARTICLES FROM FIBROUS PULP.

APPLICATION FILED JUNE 24, 1903.



Witnesses

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No. 782,371. Patented February 14, 1905.

UNITED STATES PATENT OFFICE.

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MANUFACTURE OF ARTICLES FROM FIBROUS PULP.

SPECIFICATION forming part of Letters Patent No. 782,371, dated February 14, 1905.

Application filed June 24, 1903. Serial No. 162,830.

To all whom it may concern:

Be it known that I, CALEB H. VALENTINE, a citizen of the United States, and a resident of Allentown, in the county of Lehigh and State of Pennsylvania, have made a certain new and useful Invention in Manufacture of Articles from Fibrous Pulp; and I declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it appertains to make and use the invention, reference being had to the accompanying drawings.

The invention has relation to the manufacture of articles from pulp, and has for its object the formation of articles of various kinds from the fibrous pulp of paper, wood, manila, or stock of like character in such manner as to draw out the fibers of the material as the article is formed, so that such fibers will lie smoothly and closely and the article formed will have a structure of a laminated and tough nature.

With this object in view the invention consists in the novel process of manufacture and product, as hereinafter set forth.

Referring to the accompanying drawings, the letter a designates a tank for the pulp, carrying a mold base or bottom b, having marginal centering-lugs b' for the mold proper and pulp-admission openings b^2. Mounted within the sleeve b^3 central of base b is the rotary sleeve c, carrying at its lower end portion the loose belt-pulley c', having a clutch connection c^2 with the sleeve c. This clutch connection consists of depending rods c^3 upon pulley c', such rods engaging spring-arms c^4, carried by collar c^5, fixed to sleeve c, said spring-arms bearing at their lower extremities upon collar d' of valve-rod d, such rod extending centrally through sleeve c and carrying the valve e, arranged to close the upper end of sleeve c. A tension-spring f bears against the closed lower end of sleeve c and against collar f' of the valve-rod, with the result that valve e is opened when the spring-arms are disengaged from collar d', releasing the valve-rod.

The agitator or stirrer g, which conforms to the shape of the mold, is carried at the upper end portion of sleeve c.

A stationary hollow shaft or piston-rod h depends from framework h' and has a water-pipe connection h^2, provided with valve h^3, such valve being opened upon upward movement of the valve-rod d owing to engagement of operating-arm h^4 with collar d^2 of the rod d. The piston-rod h has piston-head h^3 at its lower end, water-exit openings h^5 being provided in the piston-rod adjacent to such piston. i is a reciprocatory water-cylinder movable in guideways i' and in which said stationary rod h and piston-head h^3 are located, such cylinder and rod being of sufficient length to allow proper withdrawal of the mold carried thereby. This mold consists of an inclosure j, open at the bottom to receive the stirrer g and closed at the top, which has a suction-pipe connection j', such pipe being at its upper end fixed to and carried by the cylinder i and having a suction-hose j^2 connected thereto. The mold has in its interior a wire-cloth form j^3, through which the exhaust acts, drawing the water of the pulp mixture through the wire-cloth, suction-pipe, and suction-hose aforesaid and leaving the deposit of fiber on the inner surface of said wire-cloth. The special construction and operation of the mold is set forth in my patent bearing date June 25, 1901, and numbered 677,330.

In operation the pulp-mold j is lowered (by allowing the water in cylinder i to escape) upon the agitator or stirrer g, which fits therein, such stirrer having blades g', which have a parallel relation to the sides of the wire-cloth form. Under rotation of the stirrer through belt-wheel c' the pulp is stirred up and kept in regular motion around the mold and near the same, thereby distributing the fibers in a close manner parallel to each other and to the concave surfaces of the article formed, with the result of forming a tough and laminated article of smooth appearance, the fibers being evenly deposited. Also the articles formed will be of even thickness, as the stirrer-blades are set for such thickness, and when it is reached, through the friction

created by the stirrer-blades against the sides of the article being formed the drag upon belt-pulley c' will be such that its depending rods c^3 will press the spring-arms c^4 of sleeve c outwardly, releasing the valve-rod and admitting air into the mold. At the same time the valve h^3 in water-pipe h will be opened, admitting water to cylinder i and raising the mold from the agitator or stirrer. A second operating rod or handle for valve h^3 is shown at h^6.

h^7 is a waste-pipe for pipe h^2.

Having described the invention, what I claim, and desire to secure by Letters Patent, is—

1. In the manufacture of articles from pulp, the process of exhausting the water of the pulp through a perforated form, stirring the pulp in a manner parallel and adjacent to the sides of the form, relieving the exhaust, and raising the form from the pulp, substantially as specified.

2. In the manufacture of articles from pulp, the process of exhausting the water of the pulp through a perforated form, stirring the pulp, and automatically relieving the exhaust and raising the form from the pulp upon the completion of the article, substantially as specified.

3. In the manufacture of articles from pulp, the process of exhausting the water of the pulp through a perforated form, stirring the pulp, and automatically relieving the exhaust, stopping the stirring action, and raising the form from the pulp, upon the completion of the article, substantially as specified.

4. In the manufacture of articles from pulp, the process of exhausting the water of the pulp through a perforated form, stirring the pulp in a manner parallel and adjacent to the sides of the form, and automatically relieving the exhaust, and raising the form from the pulp upon the completion of the thickness of the article, substantially as specified.

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

CALEB H. VALENTINE.

Witnesses:

D. J. NAGLE,

MORRIS HOATS.