(No Model.) 2 Sheets—Sheet 1.

G. M. STEVENS & H. J. CHISHOLM.

Machine for Making Frames or Casings for Lamps from Paper Pulp.

No. 234,694. Patented Nov. 23, 1880.

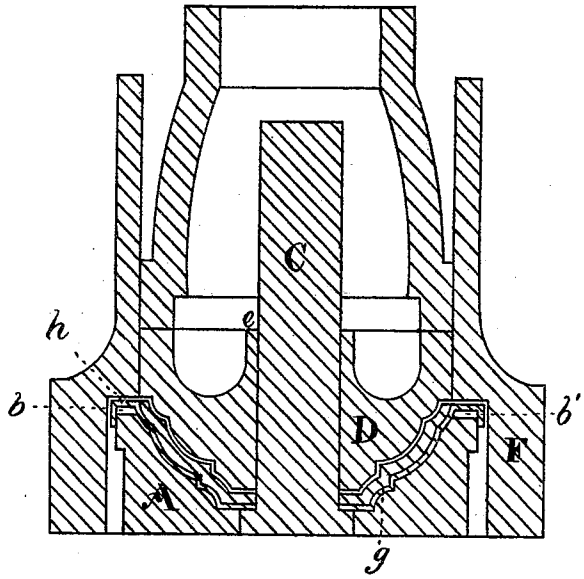


FIG. 1.

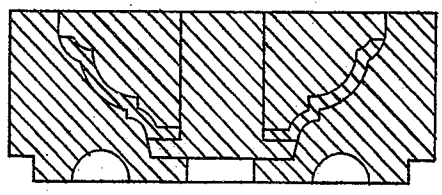


FIG. 2.

WITNESSES:
Chas. H. Kimball.
Wm. T. Goodwin

INVENTOR:
Grenville M. Stevens and
Hugh J. Chisholm
by
Clifford and Clifford
their Attys.

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

(No Model.)

2 Sheets—Sheet 2.

G. M. STEVENS & H. J. CHISHOLM.

Machine for Making Frames or Casings for Lamps from Paper Pulp.

No. 234,694. Patented Nov. 23, 1880.

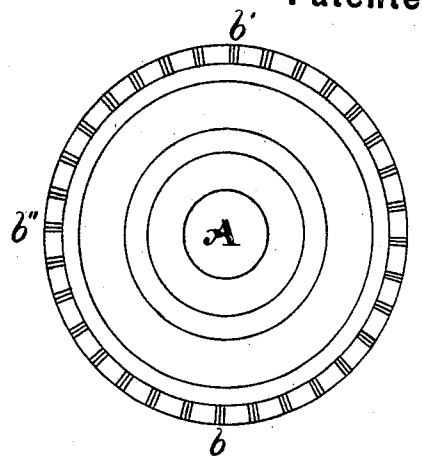


FIG. 3.

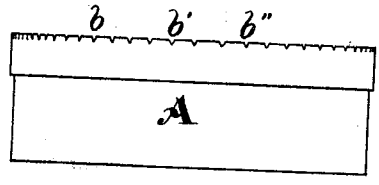


FIG. 4.

WITNESSES:

Chas. N. Kimball.

Wm. T. Goodwin

INVENTOR:

Grenville M. Stevens and Hugh J. Chisholm

by Clifford & Clifford

their Attys

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

GRENVILLE M. STEVENS, OF DEERING, AND HUGH J. CHISHOLM, OF PORTLAND, MAINE.

MACHINE FOR MAKING FRAMES OR CASINGS FOR LAMPS FROM PAPER-PULP.

SPECIFICATION forming part of Letters Patent No. 234,694, dated November 23, 1880.

Application filed September 14, 1880. (No model.)

To all whom it may concern:

Be it known that we, GRENVILLE M. STEVENS, of Deering, and HUGH J. CHISHOLM, of Portland, in the county of Cumberland and State of Maine, have invented certain new and useful Improvements in Machinery for Making Frames or Casings for Lamps from Paper-Pulp; and we do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

Our invention relates to improvements in dies for molding frames or casings for lamps from pulp by compression in dies; and the object is to furnish a partly-finished product having a hardened surface, to which a polish may be given in other dies. We attain this by the mechanism described as follows:

Figure 1 represents a vertical section through the entire mechanism. Fig. 2 represents a vertical section through the second set of dies. Fig. 3 represents a top view of the female die, showing the notches at the top. Fig. 4 represents a side view of the same.

Similar letters refer to similar parts.

The mechanism which we use consists of a male and female die, a cylinder, and a drainer.

The special feature of our invention consists in the combination, with a male and female die, of a series of small notches around the upper edge of the female die, and a chamois or equivalent article as a drainer of the water from the pulp. After the frame is made we inclose a receptacle of tin or any suitable material for holding the oil for burning.

A is a female die, with the notches *b b′ b″* upon its upper edge. A rod, C, is attached to the center within the concavity of the female die and perpendicular to the plane of its upper edge.

D is the male die, having an opening, *e*, through which it may in its descent upon the pulp receive the rod C. F is a cylinder, closely fitted to the edge of the female die A, so that in use A is at the bottom of F. The male die D descends through F upon A. *g* is the drainer, a chamois skin or equivalent material, such as one or more layers of felt or other article having minute pores between its particles. We cover the bottom of the female die A with the drainer *g*, fitting it smoothly to the surface, and carefully carry up the drainer *g* over the edge of the female die A, so that it will lie upon the notches *b b′ b″* and extend a little beyond them on the outside of the female die. An opening is made in the center of the drainer *g* to fit upon the rod C.

Our invention, it is obvious, will apply to the manufacture of all articles similar to a lamp which are capable of being molded from pulp in dies, such as boot-heel blanks, for which we apply, of even date herewith, for Letters Patent, whip-sockets, and many others not necessary to be mentioned.

By varying the form of the dies to the shape required they may be compressed from pulp by the use of our drainer. If the article to be made be a solid one—as a boot-heel blank, not requiring an opening through it—the rod C is withdrawn and the corresponding opening in the drainer *g* is omitted, together with the opening *e* in the male die. These are obvious changes.

Our lamp case or cover for inclosing the oil-bowl is made in halves by this mechanism, and the two parts are attached at their edges by glue or in any other suitable method.

By adapting the dies in the necessary features to the form required the other parts of a lamp—as the base and the pillar—can be molded. The openings in the article molded, made by the rod C, are for the purpose of attaching the pillar to the lower half of the oil-bowl casing and the metal top upon the upper half.

The water of the pulp is drained out of it through the pores of the drainer *g* when the pressure of the male die is brought to bear. This water will be forced up through all the small interstices of the chamois or other drainer, *g*, and be delivered through the notches *b b′ b″* upon the outside of the female die. This will take place with a rapidity in proportion to the pressure, and the time required

may be in general stated to be from two to ten minutes under pressure ranging from one hundred to two hundred and fifty tons.

It is necessary to make the cylinder F fit closely upon the edge of the female die to prevent the pulp from being forced out of the female die, and to permit only the water to pass out. For this purpose we make a shoulder, *h*, in the cylinder F, to rest upon the edge of the female die A and upon the drainer, extending up over the edge.

To finish the surface of our molded lamp-case we put the parts into a second set of dies and subject them to a momentary pressure to give them a polished surface.

Our invention does not give a polished surface to the article molded in the first pressure given to the pulp.

The method of operation of our drainer is as follows: The pores or spaces between the particles which compose the chamois or other article used constitute a channel through which the water is borne away from the pulp and delivered through the notches upon the outside of the die. When the pressure is applied by means of the male die the water contained in the pulp will be driven through the channel afforded by the pores of the chamois up to the openings for its exit from the dies, which the small notches make beneath the shoulder of the cylinder. Under the degree of pressure necessary for compacting the pulp these pores will remain open sufficiently for the water to find its way through them.

We find that our method of draining enables us to produce easily from pulp those articles of a dished or hollow form which have hitherto been but little made. That portion of the pulp which makes the sides of these articles, lying as it does out of the line of direct pressure and receiving it laterally only, being forced into the space beside the male die, is drained equally with that which does fall directly beneath the male. This has hitherto been accomplished to a very limited extent.

By our method articles of many times greater depth than any yet made can be produced with the same ease as those solid or flat in form.

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

1. The combination, in a mold for making lamp-casings from pulp by compression, of the die A, the rod C, the die D, the cylinder F, the drainer *g*, and the notches *b b′ b″*, substantially as set forth.

2. The combination of the drainer *g* and the notches *b b′ b″* with the female die A, as and for the purpose set forth.

In testimony that we claim the foregoing as our own we affix our signatures in presence of two witnesses.

GRENVILLE M. STEVENS.
HUGH J. CHISHOLM.

Witnesses:
CHAS. H. KIMBALL,
JOHN P. KERRIGARD.