

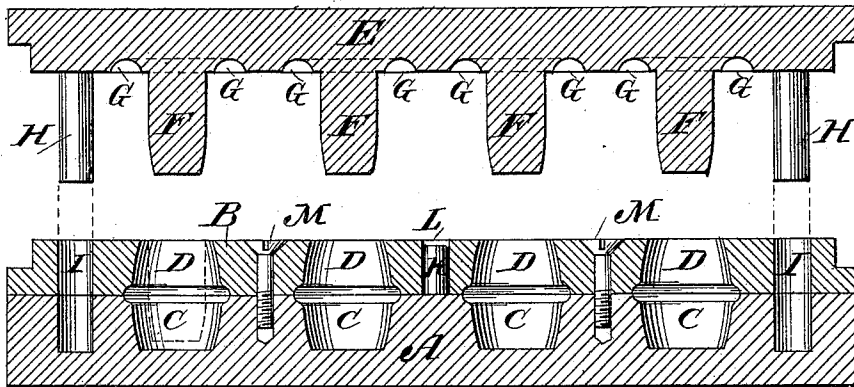
(No Model.)

J. A. FURMAN.  
HORIZONTALLY DIVIDED DIE.

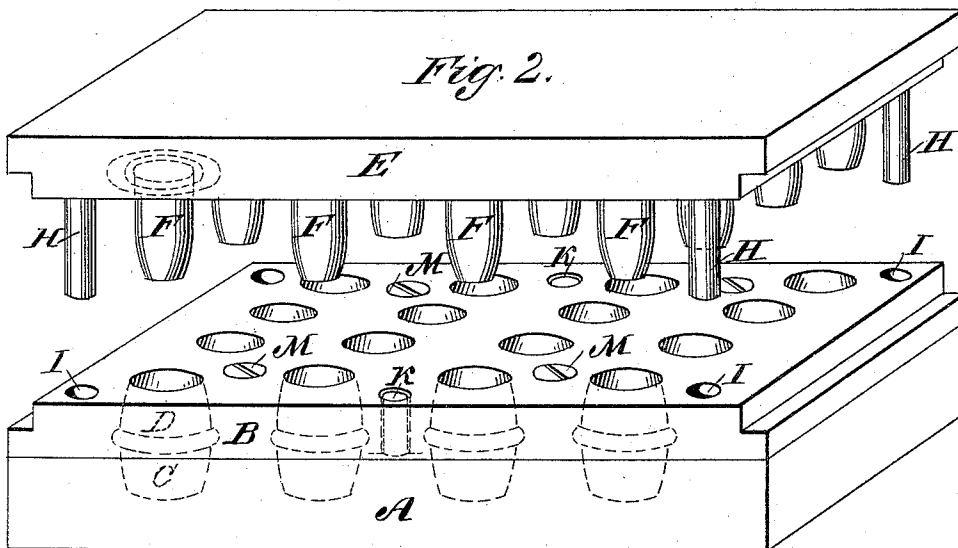
No. 395,619.

Patented Jan. 1, 1889.

*Fig. 1.*



*Fig. 2.*



WITNESSES:

Thomas Hunt.  
Henry E. Everding.

INVENTOR

John A. Furman  
BY  
C. W. Peters  
ATTORNEY

# UNITED STATES PATENT OFFICE.

JOHN A. FURMAN, OF NEWARK, NEW JERSEY, ASSIGNOR OF ONE-HALF TO  
THE CELLULOID NOVELTY COMPANY, OF NEW YORK, N. Y.

## HORIZONTALLY-DIVIDED DIE.

SPECIFICATION forming part of Letters Patent No. 395,619, dated January 1, 1889.

Application filed September 29, 1886. Serial No. 214,831. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN A. FURMAN, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Horizontally-Divided Dies for Molding Hollow Articles of Celluloid or Analogous Materials, of which the following is a specification, reference being had therein to the accompanying drawings.

Figure 1 represents a vertical transverse section through the recesses for forming the exterior of the article produced and through the plungers for forming the interior of the same, the top plate and plungers being raised. Fig. 2 represents a perspective view of the dies, the top plate and plungers being raised.

My invention relates to improvements in horizontally-divided dies for molding hollow articles out of celluloid or analogous materials; and the object of my invention is to divide the dies for forming hollow articles, so that by their use the fin formed between the divided dies shall be upon the thickest part of the article produced thereby, and thus may be cut or turned off without impairing the strength of the article. I attain these objects by the mechanism illustrated in the accompanying drawings, in which similar letters refer to similar parts throughout the several views.

A is the bottom plate. B is the central plate, the two plates A and B forming the horizontally-divided dies. In the plate A are cut any suitable number of recesses, C, each in the form required for the lower portion of the article to be produced and in such form that the article may be withdrawn from the bottom plate when the central plate, B, is removed, there being no undercutting which will prevent such removal. In the central plate, B, are cut a corresponding number of apertures, D, so shaped as to form the upper part of the completed article, and so formed that when the central plate, B, is lifted from the bottom plate, A, the finished articles will be left resting in the recesses C. Thus the entire undercutting of the article produced by the dies lies between the bottom plate, A, and the central plate, B, the recesses C and

the apertures D being both at least as large, and probably larger, at the junction of these plates as at any other part. The apertures D extend entirely through the central plate, B.

E is the top plate, having depending from its lower side plungers F, corresponding in number and position with the apertures D and so shaped that they will mold the interior of the hollow articles produced by the dies and may be readily withdrawn from said articles when the top plate, E, is raised. The upper part of the plunger F is smaller than the upper part of the apertures D, so that when the top plate, E, rests upon the central plate, B, there will be a space between the plunger F and the edge of the aperture D. Around each of the plungers F a depression or recess, G, is cut in the bottom of the top plate, E, such recesses receiving the overflow of celluloid or plastic material. At the corners of the top plate, E, are guide-pins H H, and in the central plate, B, and bottom plate, D, are corresponding apertures, I, for receiving said guide-pins.

Projecting from the top of the bottom plate, A, are guide-pins K K, and in the central plate, B, are corresponding apertures, L.

The central plate, B, is first placed upon the bottom plate, A, and is secured thereto during the operation of pressing by screws M, Fig. 2, or by other suitable locking devices, in order to prevent the plastic material from being forced between these plates when the plungers descend. Celluloid or analogous material sufficient to form the articles is then placed in the recesses C through the top of the apertures D. The top plate, E, is then pressed upon the central plate, B, each of the plungers F entering one of the apertures D and forcing the celluloid to take the shape of the recess formed by C and D, the overflow of celluloid, if any, being forced into the recesses G of the top plate, E. The article being now completed, the top plate, E, is first removed, withdrawing the plungers from the hollow articles formed. The central plate, B, is then lifted, leaving the completed articles in the bottom plate, A. Thus the fin, if any, or mark showing the junction of the dies,

will appear around the thickest portion of the article produced and may be cut off without impairing the strength of the articles.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a horizontally-divided die for molding a number of hollow articles simultaneously, a bottom plate having a number of recesses therein adapted to give shape to the exterior of the lower portions of the articles and a central plate having a number of apertures corresponding in position with the recesses in the lower plate and adapted to give shape to the exterior of the upper portions of the articles, said plates being horizontally separable from each other, in combination with a top plate carrying plungers corresponding with the said recesses and apertures and adapted to give shape to the interior of the hollow articles, substantially as described.

2. A die for giving shape to the exterior of hollow articles, consisting of a bottom plate having a recess therein enlarged at its upper portion and a central plate adapted to fit upon and be united to the bottom plate and having an aperture corresponding in position with the recess in the bottom plate enlarged at its lower portion, whereby the article formed is thickened or enlarged on the line of division between said plates, in combination with a plate carrying a plunger which gives shape to the interior of the article, substantially as described.

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

JOHN A. FURMAN.

Witnesses:

C. WYLLYS BETTS,  
THOMAS HUNT.