G. L. WINN & J. BLISS.

Die for Forming Articles of Plastic Materials.

No. 199,340. Patented Jan. 15, 1878.

Fig.1.

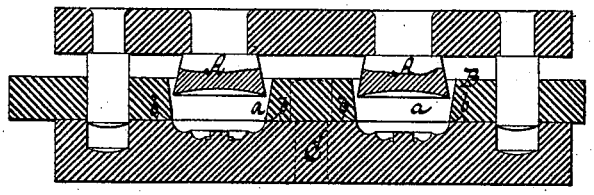


Fig.2.

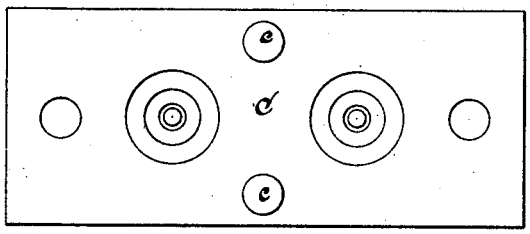


Fig.3.

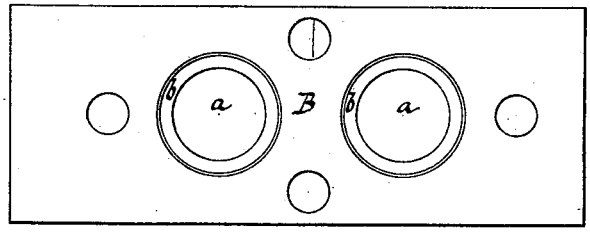
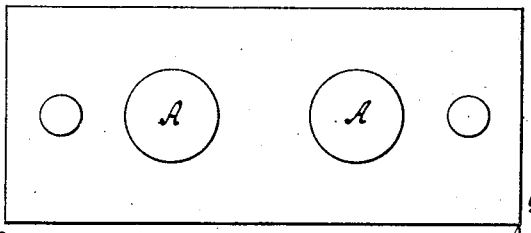


Fig.4.



Witnesses

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UNITED STATES PATENT OFFICE.

GEORGE L. WINN AND JONATHAN BLISS, OF JERSEY CITY, NEW JERSEY, ASSIGNORS TO WILFORD L. PALMER, OF NEW YORK, N. Y.

IMPROVEMENT IN DIES FOR FORMING ARTICLES OF PLASTIC MATERIALS.

Specification forming part of Letters Patent No. **199,340**, dated January 15, 1878; application filed December 18, 1877.

To all whom it may concern:

Be it known that we, GEORGE L. WINN and JONATHAN BLISS, both of Jersey City, in the county of Hudson and State of New Jersey, have invented a new and useful Improvement in Dies for Forming Articles of Plastic Materials, which improvement is fully set forth in the following specification, reference being had to the accompanying drawing, in which—

Figure 1 represents a transverse section. Fig. 2 is a face view of the matrix-plate. Fig. 3 is a similar view of the plunger-guide. Fig. 4 is a similar view of the plate which carries the plunger.

Similar letters indicate corresponding parts.

This invention relates to an improvement on that class of dies for which Letters Patent have been granted to Jonathan Bliss, October 23, 1877, No. 196,420.

Our improvement consists in the combination, in a die for pressing plastic materials, of a plunger, tapering toward its rear end, a plunger-guide, provided with a hole to receive the plunger, and with a recess for the reception of the surplus material, and a matrix, corresponding in shape to the article to be produced, so that, during the operation of pressing, that portion of the material which passes up on the sides of the plunger is relieved from pressure; and, furthermore, when the operation of pressing has been completed, and the plunger and plunger-guide are removed from the matrix, the pressed article is drawn out of the matrix, and the labor of scraping said article out of the matrix is saved.

In the drawing, the letter A designates the plunger. B is the plunger-guide, and C the matrix. The plunger is made tapering toward its rear end, and the plunger-guide is provided with a hole, *a*, which is slightly enlarged toward its rear end, its front end being just large enough to admit the outer large end of the plunger.

Round the front edge of the hole *a* in the plunger-guide extends a recess, *b*, for the reception of the surplus material. The matrix C corresponds in shape to the face of the articles to be pressed, and the face of the plunger is made to correspond to the back of said article. Suitable steady-pins *c* retain the plunger-guide in the proper relation to the matrix.

In using our die we bring the plunger-guide close down upon the matrix; then we introduce the material to be pressed into the hole *a;* and, finally, the plunger is forced into this hole against the matrix. During the operation of pressing, a portion of the material to be pressed escapes at the sides of the plunger; and, if the plunger and the hole *a* are made of uniform size throughout, such material is firmly wedged in between the plunger and the walls of the hole *a*, and the motion of the plunger is obstructed. This difficulty we have obviated by making the plunger tapering toward its rear end, so as to leave a gradually-increasing space between the hole *a* and the plunger, in which the material escaping at the sides of the plunger can accumulate without being pressed. It is obvious that the same effect is produced if the plunger is made with parallel sides, and the hole *a* is enlarged toward its rear end; or the plunger might be made tapering, and the hole enlarged toward its rear end, as shown in the example represented by the drawing.

As the plunger comes close up to the matrix the surplus material escapes into the recess *b*, which extends round the hole *a* in the plunger-guide; and when the plunger and plunger-guide are withdrawn after the operation of pressing has been completed, the pressed article adheres to the plunger and plunger-guide, and is, consequently, withdrawn from the matrix.

If the recess *b* for the reception of the surplus is formed in the matrix-plate round the matrix, the pressed article sticks in the matrix, and has to be scraped out of it; and if a number of articles are pressed at one operation, much time is lost in scraping the pressed articles out of the matrix-plate.

By forming the surplus recess *b* in the plunger-guide, the pressed article is caused to adhere to this guide by a thin film, which, after the article has been taken out of the die, readily drops off.

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

The combination, in a die for pressing plas-

tic materials, of a plunger tapering down toward its rear end, a plunger-guide, provided with a hole to receive the plunger, and with a recess for the reception of the surplus material, and a matrix, corresponding in shape to the article to be produced, all combined and adapted to operate substantially as shown and described.

In testimony that we claim the foregoing we have hereunto set our hands and seals this 8th day of December, 1877.

GEO. L. WINN. [L. S.]
JONATHAN BLISS. [L. S.]

Witnesses:
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