

O. KNIPFER.

Processes of Ornamenting Articles of Ivory.

No. 151,888.

Patented June 9, 1874.

Fig:1.

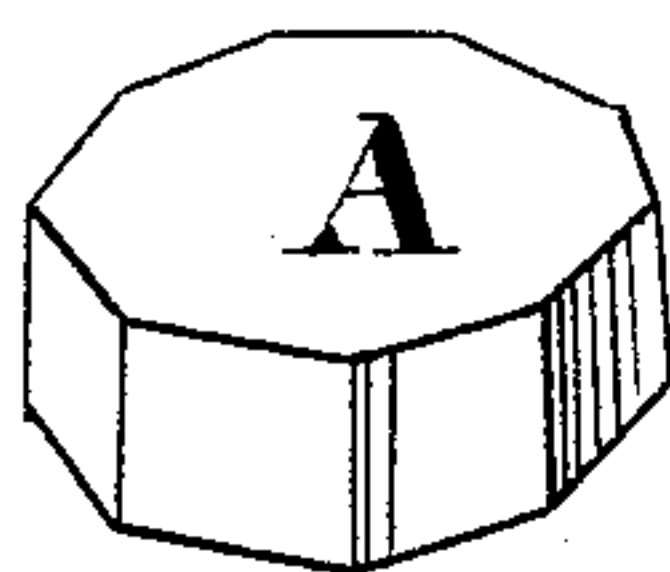


Fig: 2.

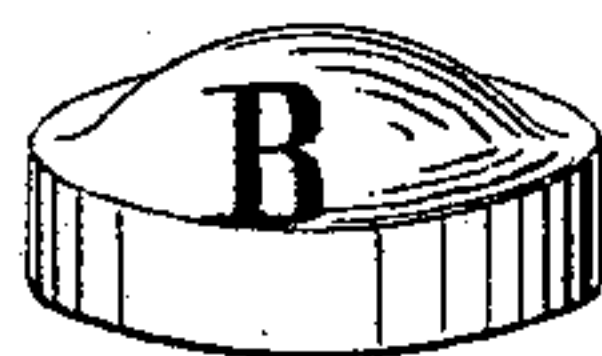


Fig:3.

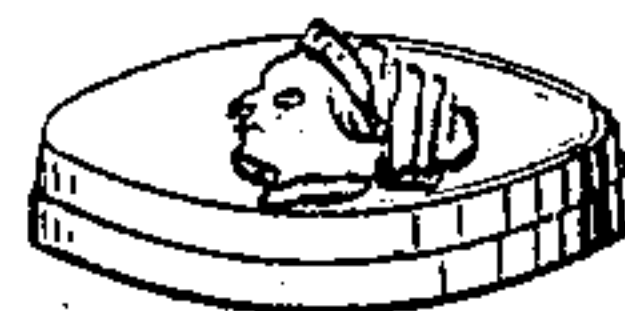
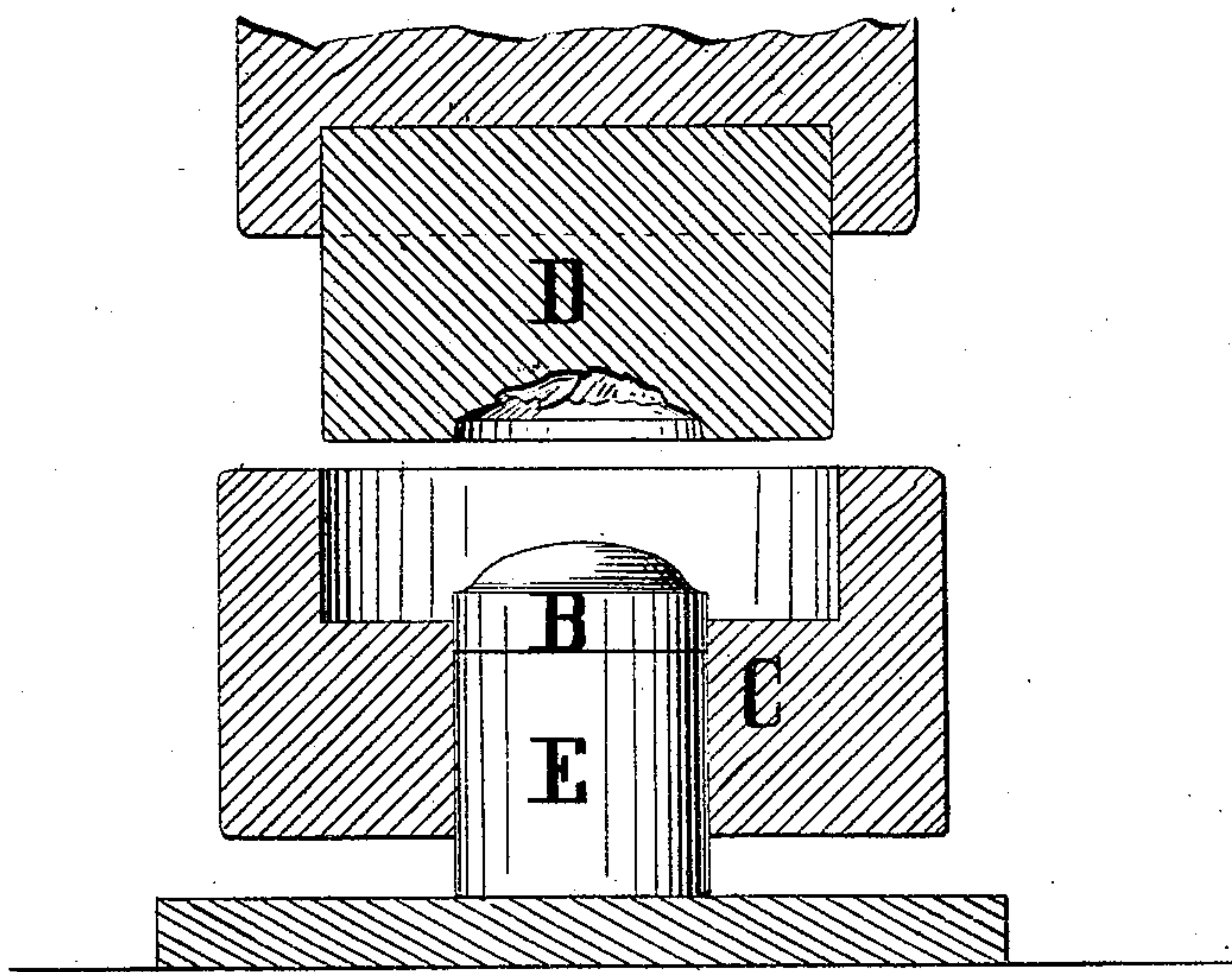


Fig: 4.



Witnesses:

*Ernst Billhuber*  
*Henry Gentner*

Inventor:

*Otto Knipfer*  
*per*  
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*Attys*



# UNITED STATES PATENT OFFICE.

OTTO KNIPFER, OF BRIDGEPORT, CONNECTICUT.

IMPROVEMENT IN THE PROCESSES OF ORNAMENTING ARTICLES OF IVORY.

Specification forming part of Letters Patent No. **151,888**, dated June 9, 1874; application filed February 4, 1874.

*To all whom it may concern:*

Be it known that I, OTTO KNIPFER, of Bridgeport, in the county of Fairfield and State of Connecticut, have invented a new and useful Improvement in Producing Ornamental Articles of Ivory; and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification, in which drawing—

Figure 1 represents a perspective view of a rough piece of ivory. Fig. 2 is a similar view of a blank prepared for my purpose. Fig. 3 is a similar view of the same blank after it has passed through my press. Fig. 4 is a vertical section of the punch and cup which I use in carrying out my invention.

Similar letters indicate corresponding parts.

The object of this invention is to produce, on the surface of a block of ivory, designs in relief, by first preparing a blank of the required shape, then immersing the same in a softening solution and inserting it into a cup, in which it is exposed to the action of suitable dies, and finally bleaching it by the action of a suitable bleaching-liquid. The operation of pressing the ivory is facilitated by placing beneath the block a cushion of hard wood, whereby said block is prevented from cracking.

In the drawing, the letter A designates a block of ivory, which is cut off in the required thickness. From this block I prepare a blank, B, such as is shown in Fig. 2, the body of this blank being turned so as to fit a ring or cup, C, which is situated beneath the die D, containing the design to be produced on the surface of the blank. The surface of said blank is more or less convex, according to the depth of the design in the die. After the blank has been prepared I immerse the same in a suitable softening solution, such, for instance, as spirits of niter diluted in water in about the following proportions: Spirits of niter, one quart; water, one gallon. In this solution the blank is left for about five days, (more or less,) according to the bulk of the blank. After the blank has been softened I place it into the cup C, under the die, and, by depress-

ing the die with sufficient force, the design contained in the die is produced on the surface of the blank in relief, the cup C preventing the blank from splitting. When taken from the press the article has the appearance shown in Fig. 3. When the operation of pressing has been completed I remove the ornamental article from the press, wrap it up in paper, and let it dry for about forty-eight hours, and thereby the ivory recovers its original hardness without being affected by the influence of the atmosphere. On removing the ornamental article from the wrapping-paper, it will be found that the same appears yellow, which is due to the fact that the oily matter contained in the ivory is caused to accumulate on the surface thereof by the pressure, and it becomes necessary to subject the article to a bleaching operation, which is accomplished by boiling said article in lime-water. When dry, the body of the article is brought to the desired shape by subjecting it to the action of suitable cutting-tools.

During the operation of pressing, I have found it of great advantage to apply to the under surface of the blank a piece, E, of hard wood, which acts as a cushion, and still further reduces the danger that the ivory will crack under the action of the dies.

This process may be applied to all kinds of articles made from blocks of ivory, such as shirt-studs, buttons, and other articles of a similar nature.

I am aware of an English patent, No. 1,159, granted in 1870, wherein is described a certain mode of producing a design on a thin sheet or veneer of ivory, the same consisting in covering such veneer with a thin sheet of brass or copper, and then placing upon such thin metal sheet a plate having a design engraved upon its surface, the thin sheet or veneer of ivory resting upon card-board or wood, and the whole thus arranged pressed together and one impression taken, the thin metal sheet being then removed and the veneer placed over the engraved plate for finishing the design, but no means for preventing lateral expansion of the thin veneer is described. Neither is it shown that the veneer is bleached after receiving the impression, although it is incidentally mentioned that the veneer may

be softened prior to its being impressed; but such process I do not claim.

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

The within-described process of producing designs in relief on a block of ivory, of sufficient thickness to sustain the design without a backing, the same consisting in first softening said block by means of nitric acid or equivalent softening solution, then pressing the same with dies while within a ring or cup-shaped

holder, for preventing lateral expansion of the block, afterward drying it in wrappers, and finally bleaching the said block after receiving the desired impression, all in the manner herein described, and for the purpose set forth.

This specification signed by me this 21st day of January, 1874.

OTTO KNIPFER.

Witnesses:

W. HAUFF,

E. F. KASTENHUBER.