

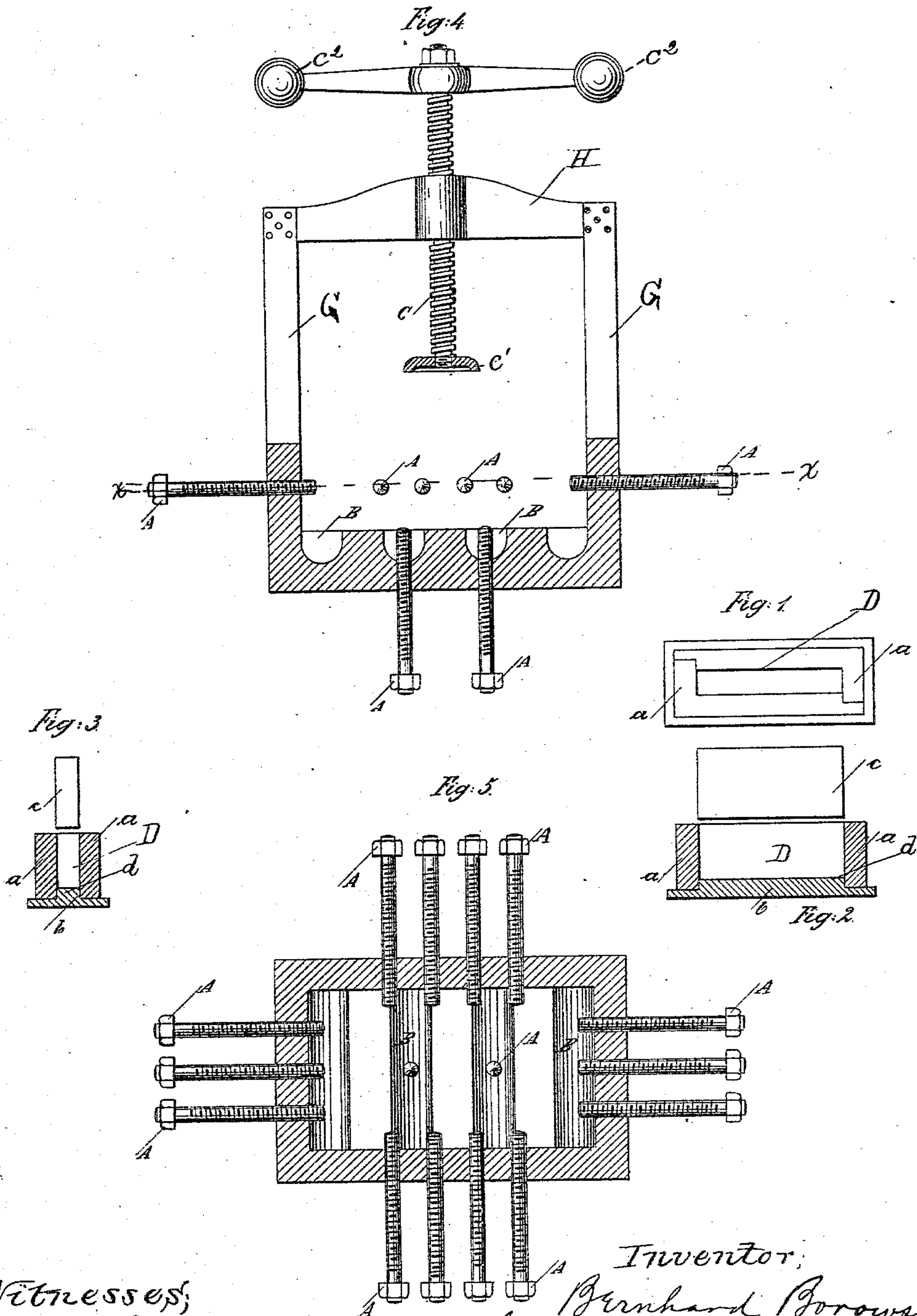
(No Model.)

B. BOROWSKY.

METHOD OF UNITING SMALL PIECES OF AMBER INTO A LARGE BLOCK.

No. 288,300.

Patented Nov. 13, 1883.



Witnesses;
A. J. Lerché.
W. C. Jordinston

Inventor;
Bernhard Borowsky
by Melville Churchill
His atty

UNITED STATES PATENT OFFICE.

BERNHARD BOROWSKY, OF STARGARD, PRUSSIA, GERMANY.

METHOD OF UNITING SMALL PIECES OF AMBER INTO A LARGE BLOCK.

SPECIFICATION forming part of Letters Patent No. 288,300, dated November 13, 1883.

Application filed July 31, 1882. (No model.)

To all whom it may concern:

Be it known that I, BERNHARD BOROWSKY, of Stargard, in the Kingdom of Prussia and German Empire, have invented a new and Improved Method of Uniting Small Pieces of Amber into a Large Block; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the figures and letters of reference marked thereon:

My invention consists in an improved method of uniting the small pieces and chips that are produced in the manufacture of amber articles into a large block, and in improved apparatus for carrying out the said process. In quality the block produced by my process is nearly the same as the natural product, the only difference being that in mine electricity is developed more easily and the cohesion of the particles is greater, thereby enabling me to make more delicate and finer articles than usual.

In the accompanying drawings, Figures 1, 2, and 3 are top plan, longitudinal, and cross-sectional views, respectively, of the receptacle for containing the pieces of amber to be united. Fig. 4 is a side view, partly in section, of the press for holding this receptacle. Fig. 5 is a sectional view taken on the line *x x* of Fig. 4.

Similar letters of reference in the several figures indicate the same parts.

D represents the receptacle for containing the pieces of amber to be united, and it is composed of three principal parts, the bottom piece, *b*, having the raised central portion, *d*, against the sides of which the side pieces, *a*, are adapted to abut. These side pieces are each composed of angle-irons *a a*, having a long and short side, as shown. In the end of the longer side is a rabbet, into which the end of the short side of the other iron fits, thus forming a tight receptacle. The press for holding this receptacle consists of the hollow base portion and the upwardly-projecting standards G, connected at their top by a cross-piece, H, through which works the screw C, having at one end the platen *c'*, and at the other the handles *c''* for operating it. The bottom portion is corrugated, or has depressions B formed in it, the purpose of which will be

farther on explained. The bottom and sides of said bottom portion have working through them the bolts A for securely clamping the receptacle D in position.

The operation of my invention is as follows: The box or receptacle D is put into the hollow portion of the press, its bottom resting on the screws passing through the bottom of the press. Then the bolts passing through the sides of said bottom portion are tightened up, forcing the sides of the receptacle D firmly against the edges of the raised part *d* of the bottom *b*, thereby forming a perfectly tight box. The inside of this box is then coated with a thin coating of putty to prevent the amber from sticking to the sides and bottom of the receptacle, and also to exclude atmospheric air. The amber pieces and chips are then filled in and the top covered with another layer of putty. Then the plunger *c*, (shown in Figs. 2 and 3,) which accurately fits into the box, is put on top of the mass and the screws C screwed down, the platen *c'* on its end pressing the plunger into the box, thereby slightly compressing the pieces of amber. Burning charcoal or other burning fuel is then filled in around the box and the temperature of the whole raised to about 500° centigrade, which generally takes about two hours and a half. The depressions B in the bottom of the press are for the purpose of containing coal or other fuel, so that the box may be uniformly heated on all sides. When the required temperature is reached, the screw C is screwed tightly down, forcing the plunger into the box, and thereby uniting the semi-fluid pieces of amber into a solid block. After the box has remained for about half an hour the temperature is lowered gradually, such reduction of temperature taking from six to eight hours, the amber being all the while kept under pressure until it is quite cool.

It is very important that the putty applied to the surface of the amber should be one that hardens quickly, and be very tenacious, and which, notwithstanding the high pressure to which the amber is subjected, will allow none of the amber to escape in the form of vapor, for if the volatile parts of the amber-oil should vaporize and pass off the operation would fail.

Heat may be applied to the box containing

the amber in a variety of ways—such, for instance, as directing a very hot blast on the box in any suitable manner.

I am aware that heretofore small pieces of
5 amber have been united and molded by the application of heat and pressure; also, that small pieces of amber have first been reduced to a plastic condition by a suitable solvent and then subjected to heat and pressure, such pro-
10 cesses being respectively disclosed in Letters Patent of the United States Nos. 234,756 and 237,497. I do not broadly claim either of such processes. The distinctive feature of my in-
15 vention is that I inclose the amber to be heated in a receptacle from which all communication with the atmosphere is cut off, and then subject the receptacle and its contents to a very high degree of heat, then apply heavy pressure, and finally allow the whole to cool slowly
20 while still under pressure. The degree of heat which I am enabled to employ, by reason of the confinement of the material in the closed air-tight receptacle, would be sufficient to vaporize and dissipate the amber in the process
25 disclosed by the patents referred to, rendering the product practically worthless.

Having thus described my invention, I claim as new—

1. The herein-described process of uniting
30 small pieces of amber into a large block, con-

sisting in placing the pieces of amber in a receptacle, hermetically closing said receptacle, subjecting it to light pressure, heating it to a high degree of heat and then applying a strong pressure, and finally allowing it to slowly
35 cool, substantially as described.

2. In an apparatus for uniting small pieces of amber into a large block, a box composed of angle-irons *a a*, in combination with the bottom having the raised portion *d* and the
40 plunger *c*, adapted to fit said box accurately, substantially as described.

3. In an apparatus for uniting small pieces of amber into a large block, a box composed of angle-irons *a a*, bottom *b*, and plunger *c*, in
45 combination with the press having the tightening-screws *A*, substantially as described.

4. The combination of the box *D*, constructed as described, and the plunger *c* of the press having the corrugated bottom, the tightening-
50 screws *A*, and the pressing-screw *C*, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

BERNHARD BOROWSKY.

Witnesses:

H. ZIMMERMAN,
G. DITTMAR.