

No. 704,400.

Patented July 8, 1902.

J. TALUAV & H. W. SCATTERGOOD.
METHOD OF FRAMING GLASS.

(Application filed June 30, 1897.)

(No Model.)

Fig. 1

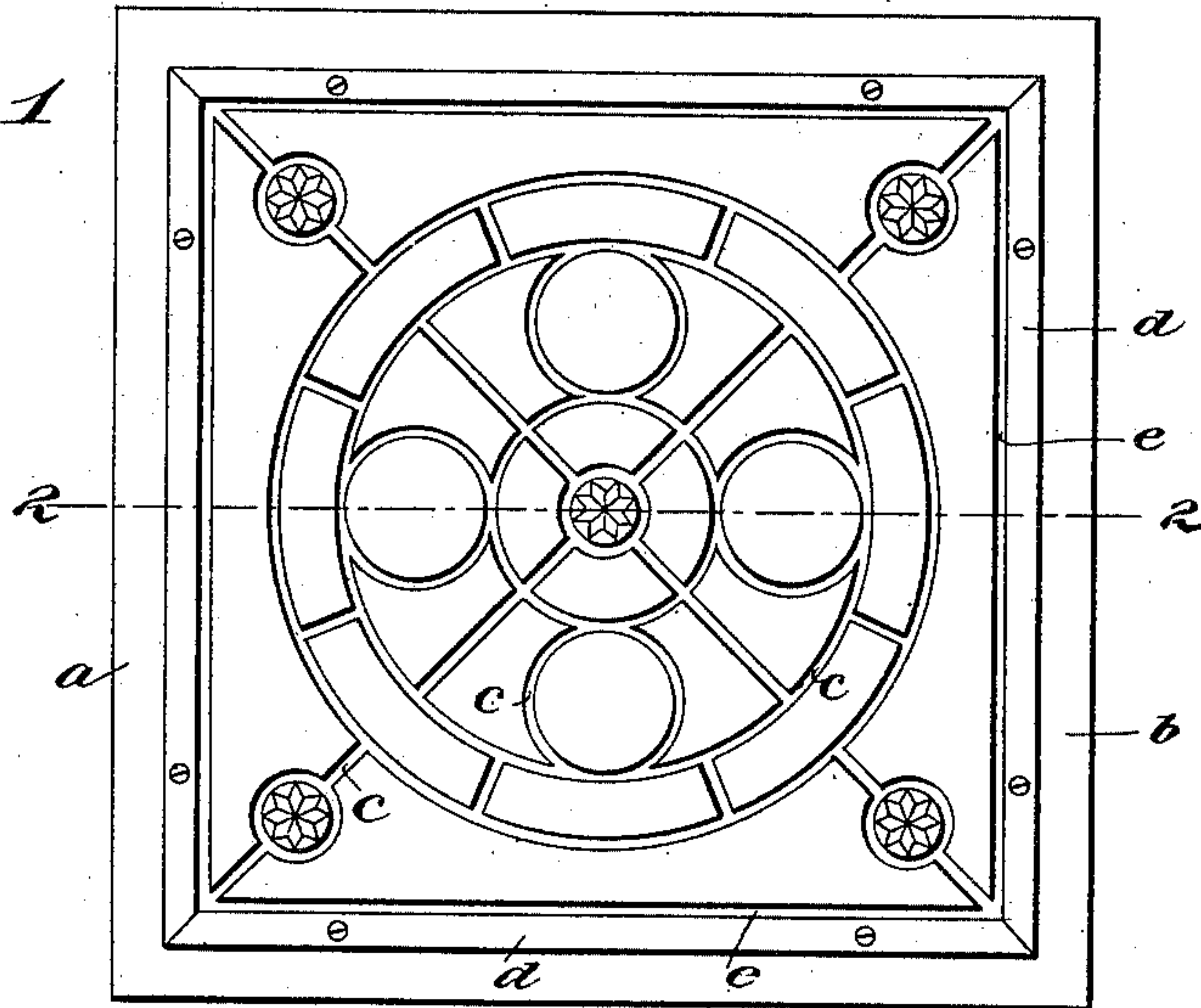


Fig. 2

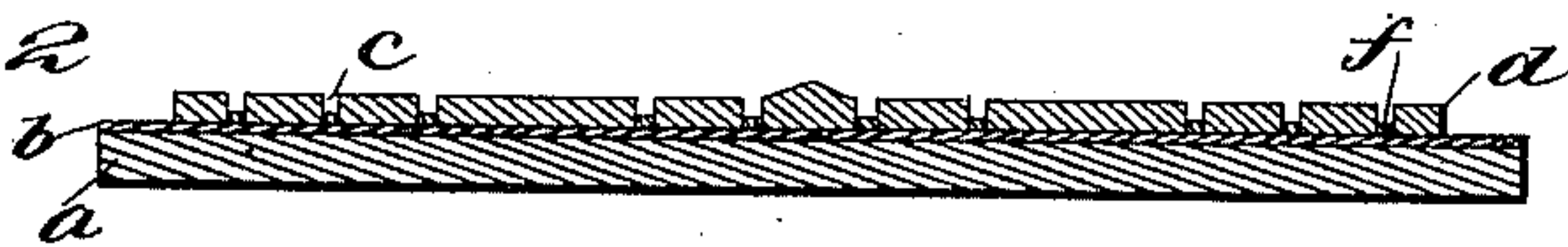


Fig. 3



Fig. 4

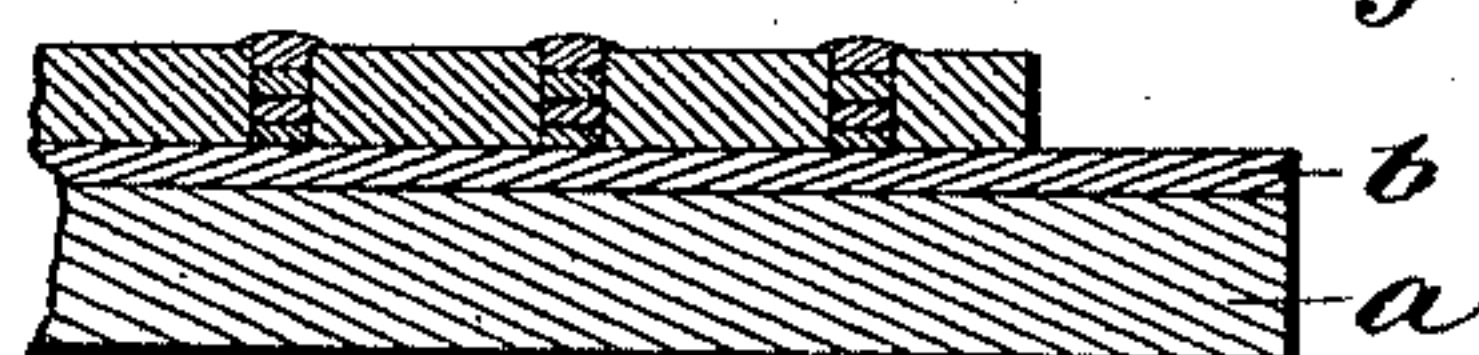


Fig. 5



Fig. 6

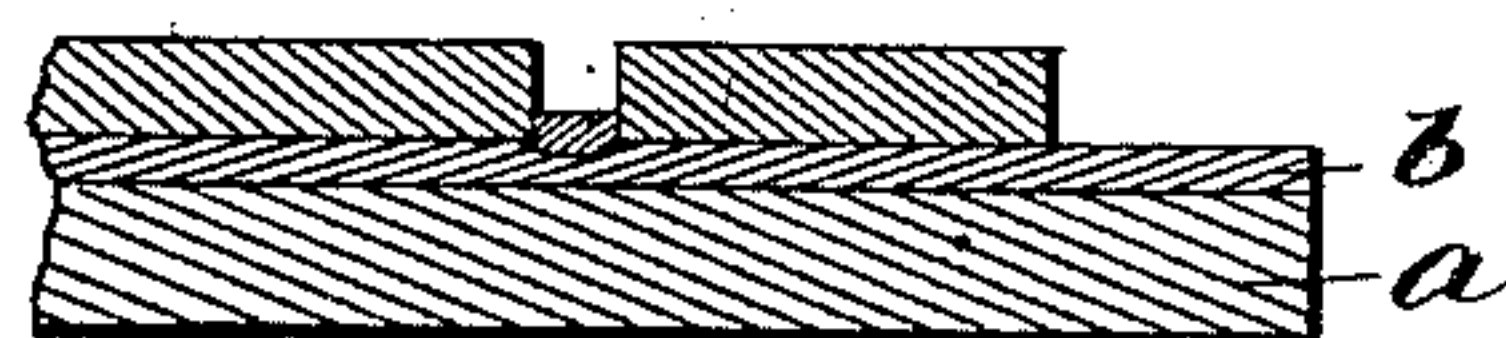
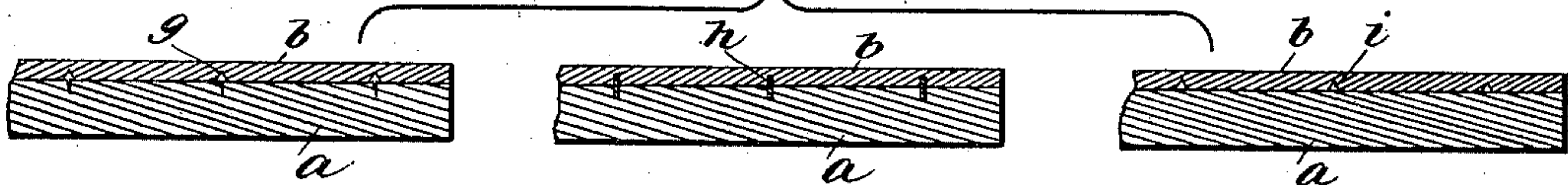


Fig. 7



Witnesses.

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UNITED STATES PATENT OFFICE.

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METHOD OF FRAMING GLASS.

SPECIFICATION forming part of Letters Patent No. 704,400, dated July 8, 1902.

Application filed June 30, 1897. Serial No. 642,966. (No specimens.)

To all whom it may concern:

Be it known that we, JULIUS TALUAU and HENRY W. SCATTERGOOD, citizens of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a certain new and useful Improvement in Framing Glass and other Objects, of which the following is a full, clear, and exact description.

10 In a prior invention of one of the joint inventors hereof owned by these joint inventors (see application of Julius Taluan filed December 16, 1895, Serial No. 572,318) provision is made for uniting the component parts of
15 stained-glass windows, mosaics, and other objects by the electrodeposition of a frame which extends between the adjacent edges of the component parts and also around the perimeter of the object as a whole. The present invention comprehends improvements on the principle of that invention, and these improvements are, first, a metallized support of wax or other material for the component parts of the object during the process of electro-
20 deposition of the frame; second, building up the frame by a combination of an electrodeposited shell, base, or foundation and a filling of material which is itself electrically conductive or may be rendered so, or which may
25 be inert or neutral, and yet have the capacity of amalgamating or intimately mixing or uniting with or adhering to the electrically-deposited shell and the component parts of the object to be framed, or which may serve simply as a packing or filling.

30 Having thus stated the principle of our invention, we will proceed now to describe the best mode in which we have contemplated applying that principle and then will particularly point out and distinctly claim the part or improvement which we claim as our invention.

35 In the accompanying drawings, illustrating our invention, in the several figures of which like parts are similarly designated, Figure 1 shows in plan view a simple design for a stained-glass window arranged upon a metallic or metallized conductor and the latter sustained upon a non-conducting support. Fig.
40 2 is a cross-section of the same, showing the building up of the frame. Fig. 3 is a cross-

section of a fragment on a larger scale or exaggerated, showing one form of composite framing. Fig. 4 is an exaggerated cross-section of a fragment showing another form of composite framing. Figs. 5 and 6 are similar views illustrating the two steps of still another modification. Fig. 7 shows three different supports constructed to facilitate the removal of the framed object.

60 In carrying out our invention we proceed as follows: We take a support *a* of wood or other non-conductor or of any other material that is or may be made non-conductive of electricity and having sufficient rigidity to support the object to be framed, and this support is covered with a film or layer of wax *b* or other substance of sufficient tenacity and adhesiveness to hold the pieces of glass or other stuff to be framed or to which such pieces may be affixed in a removable manner. The pieces of glass or other stuff to be framed are then applied to the layer *b*, with spaces *c* between their adjacent edges, and then a frame, composed of movable or fixed members *d*, is arranged upon the support around the assembled pieces to be framed and separated therefrom by spaces *e*. Plumbago or other electrically-conductive substance in powdered form is then dusted over the whole surface, so as to get a layer of the conducting substance in all of the spaces, the surplus being brushed or washed off from the exposed faces of the glass or other stuff to be framed. The whole is then placed in an electrolytic bath and proper connections made with the source of electricity and deposition of the electrolyte in the spaces progresses until the spaces are practically filled to the face of the object. (See Fig. 2.) To hasten the action, we may first put the object in a sulfate of copper or other suitable bath and precipitate a preliminary filling foundation or shell by the addition of iron filings and then remove the object to the electrolytic bath and proceed with the deposition in that way, or we may provide a shell or foundation in either of the ways above mentioned and then fill up the spaces to the top or nearly to the top with copper or other metallic filings of suitable conductivity, and then, if desired, surface-finish by electrodeposition or otherwise, (see

Fig. 3,) or we may fill up the spaces with alternate layers of electrodeposited metal and suitable filling, (see Fig. 4,) or we may use as a filling suitable cements in a plastic condition, such as Portland or hydraulic cement, or we may employ solder in connection with the electrodeposited metal or the electrodeposited metal and filling. The filling when of a plastic or fusible form may form the outer surface of the framing without additional surfacing.

Still another manner of carrying out our invention is illustrated in Figs. 5 and 6. In Fig. 5 the pieces of glass or other material are arranged upon the wax, and the spaces between the pieces are partly filled up with filings or metallic powder, and then a deposit of metal in the electrolytic bath is made upon the filings and up to and beyond the surface of the pieces, after which we remove from the support and wash out or otherwise detach the loose filling, and then place upon the support in reversed position and again deposit until the spaces are full. In this way, if need be, the edges of the deposit may be made to overlap the pieces of glass on both sides where the pieces to be united are of substantially equal height.

In the practice of our invention we esteem it of importance that whatever the nature of the material used for filling the first regard must be had to the rigidity of the framing when finished. This is of vital importance, especially in stained-glass windows and mosaic-work where the object is exposed to the elements. The use of a filling expedites and reduces the cost of the process.

By the use of the movable members *d* the framing may be extended in even lines around the perimeter of the object, as indicated by the spaces *e*, Fig. 1, and as shown at *f*, Fig. 2.

We do not limit our invention to its use in connection with bits of glass or other materials such as are used in stained-glass windows and mosaic-work; but we mean to include as within our invention objects as well of regular as of irregular form. Our invention is applicable also to the manufacture of globes and shades for gas and electric lights.

The vital point of our invention is the provision of a rigid homogeneous or essentially homogeneous framing. After the framing has been formed the object so framed may be removed from the layer *b* by the decomposition of such layer by means of a suitable reagent, or by melting off the layer, or in any other suitable or convenient way. The layer *b* forms, therefore, simply a fugitive or temporary conducting-surface. In order to facilitate the removal of the object from the wax, we may provide the support with any suitable ledges—such as tacks *g*, strips *h*, or pieces *i*—inserted in or laid upon the surface of the support, as shown in Fig. 7, and apply the wax to the support to a greater height than these added pieces or projections, so that

when the wax is melted off down to or a little below the outer edges of these added pieces the framed object will rest upon the said added pieces free of the wax and may be readily removed.

While we have referred to wax as the medium interposed between the support and the object to be formed, we wish to be understood as not limiting our invention thereto, since pieces may be otherwise attached to the support. We wish further to observe that the finishing of the product may be accomplished either in a single application in the electrolytic bath or by a second application—that is to say, after a sufficient deposit has been made by exposure in the electrolytic bath and the temporary conducting-surface removed the product may be exposed again to the electrolytic bath and both sides of the product subjected to the action of the bath for the additional or further deposit of metal on the exposed deposited surfaces—and by this means ledges may be made to overhang the edges of the pieces or sections of glass, &c.

The use of a metallic or metallized or other conductive support for the pieces or sections of glass, &c., is obviously necessary when the filling is electrodeposited and we esteem it valuable, if not necessary, in the case of a precipitated metal, inasmuch as it affords a surface to which the precipitated metal may adhere. In precipitating a first film a metallic foundation is afforded and the subsequent electrodeposition takes place at once all over the article, whereas without the precipitated first film the electrodeposit grows much more slowly and spreads over the entire object only gradually.

What we claim is—

1. The method of mounting tile-like sections which consists in arranging the sections in the desired manner on a support with spaces between the sections, the support being provided with a conducting-surface along the spaces between the edges of the sections, exposing the whole in an electrolytic bath until the interstices between the sections are filled with the deposit formed, then continuing the exposure until the deposited metal is in the form of an I-beam.

2. The method of framing sections of glass and other material, which consists in providing a wax-like support with a conducting-surface, arranging the sections on such surface in the desired relation and with spaces between them, exposing the whole in an electrolytic bath until the interstices between the sections are filled with the deposit made on the exposed conducting-surfaces, then melting off or otherwise detaching the support.

3. The method of framing sections of glass and other material, which consists in providing a body of wax to which the glass may be temporarily applied, and having a conducting-surface, arranging the objects on such surface in the desired relation and with spaces

between them, exposing the whole in an electrolytic bath and depositing in the spaces the material of the electrolyte, and then removing from the bath and melting off or otherwise detaching the wax, substantially as described.

4. The method of framing sections of glass and other material, which consists in providing a fugitive body to which the glass may be temporarily applied, and having a conducting-surface, arranging such fugitive body upon a support having non-fugitive projections below the surface of the fugitive body, arranging the objects to be framed on such surface, and in the desired relation, and with spaces between them, exposing the whole in an electrolytic bath, and depositing in the spaces the material of the electrolyte, and then removing from the bath and displacing the fugitive body down to or below the outer edges of the non-fugitive projections on the support, substantially as described.

5. The method of framing pieces of glass or other substance, which consists in providing a temporary support for such pieces, arranging the pieces on such support in the desired relation and with intervening spaces, providing a metallic or metallized foundation in said spaces, removing the object from the bath and then filling or partly filling the spaces above such foundation with a suitable material and confining it between the foundation and the pieces, and then removing from the temporary support, substantially as described.

6. The method of framing pieces of glass or other substance, which consists in providing a temporary support for such pieces, arranging the pieces on such support in the desired relation and with intervening spaces, forming a metallic or metallized foundation in said spaces, removing the object from the bath, then filling or partly filling the spaces above such foundation with a suitable material, finishing the surface of the filling by electrodeposition of metal, and then removing from the temporary support, substantially as described.

7. The method of framing pieces or sections of glass or other material, which consists in providing a removable conducting-surface, placing thereon the pieces or sections in proper relation and with intervening spaces, depositing a metallic foundation in said spaces, then filling the spaces with alternate layers of metallic filings and electrically-deposited

metal, and then removing the removable conducting-surface, substantially as described.

8. The method of framing pieces or sections of glass, which consists in providing a removable conducting-surface and a suitable support therefor, placing on such surface the pieces or sections in proper relation with intervening spaces, surrounding the object thus formed with a frame between which and the object a space is left, and then building up the framing in said several spaces by the electrodeposition of a suitable metal, and then removing the conducting-surface, substantially as described.

9. The method of framing pieces or sections of glass or other material, which consists in providing a temporary conducting-surface, placing thereon the pieces in proper relation and with intervening spaces, exposing in the electrolytic bath and depositing metal in the interstices, removing the conducting-surface so as to expose both sides of the product, and forming ledges on the exposed surfaces of the deposited metal to overhang the edges of the glass or other pieces, by a further exposure in the electrolytic bath, substantially as described.

10. The method of framing pieces or sections of glass or other material, which consists in providing a temporary support having a conducting-surface, and arranging thereon the pieces or sections in proper relation and with intervening spaces, exposing the object in an electrolytic bath and depositing the metal in such spaces against the conducting-surface, removing the object from the bath and support, and again exposing in the bath, substantially as described.

11. As an improved article of manufacture, a stained-glass window, or other object, having a frame or framing composed of a foundation of electrodeposited metal arranged between the edges of the pieces or sections which form parts of the window or other object and within the plane of their faces, and a superstructure of finely-divided filling material bound in between the foundation and the said pieces or sections, substantially as described.

In testimony whereof we have hereunto set our hands this 29th day June, A. D. 1897.

JULIUS TALUAU.

HENRY W. SCATTERGOOD.

Witnesses:

WM. H. FINCKEL,
PHILIP F. LARNER.