

(No Model.)

J. B. GRAVES.

DENTAL MODEL.

No. 270,566.

Patented Jan. 9, 1883.

Fig. 1.

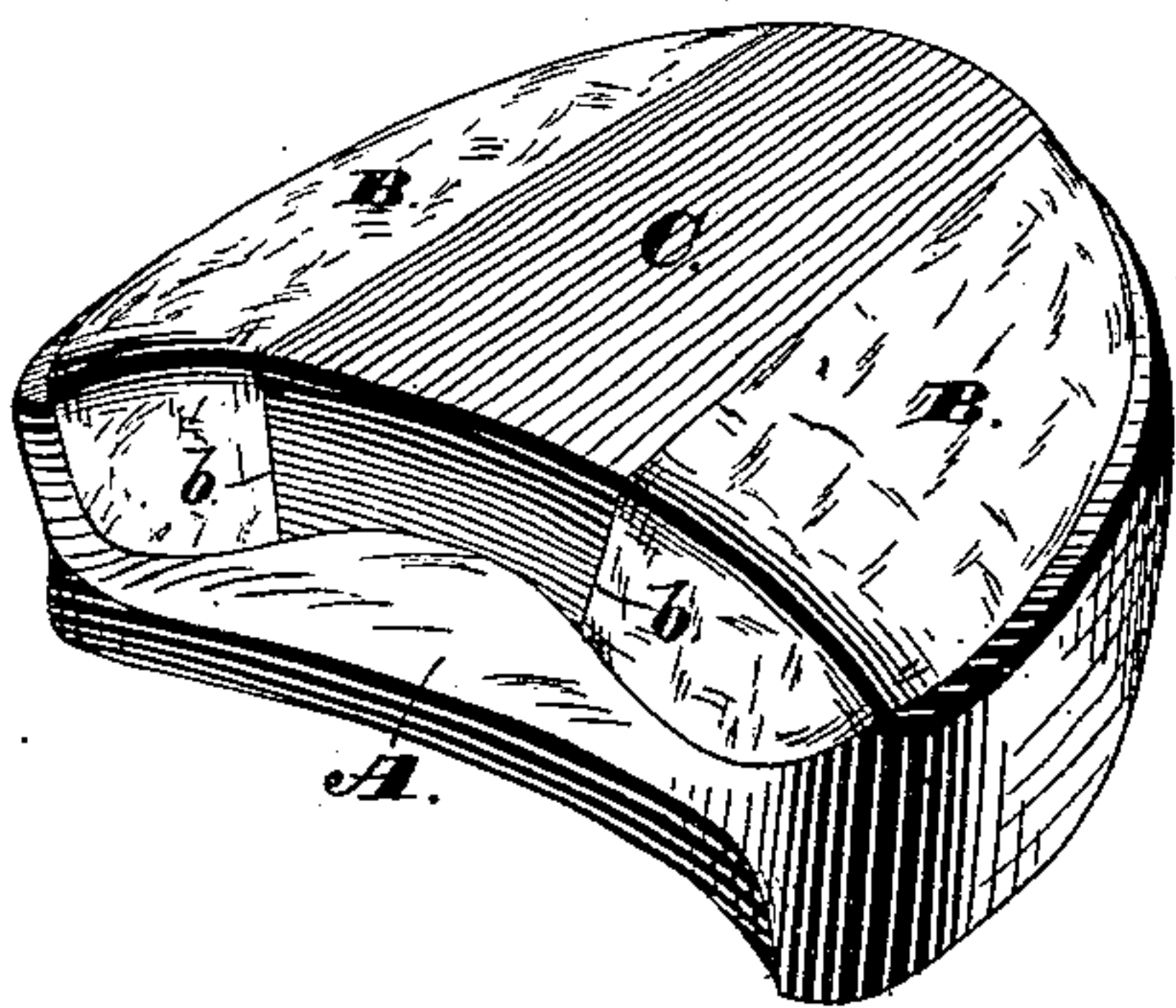


Fig. 2.

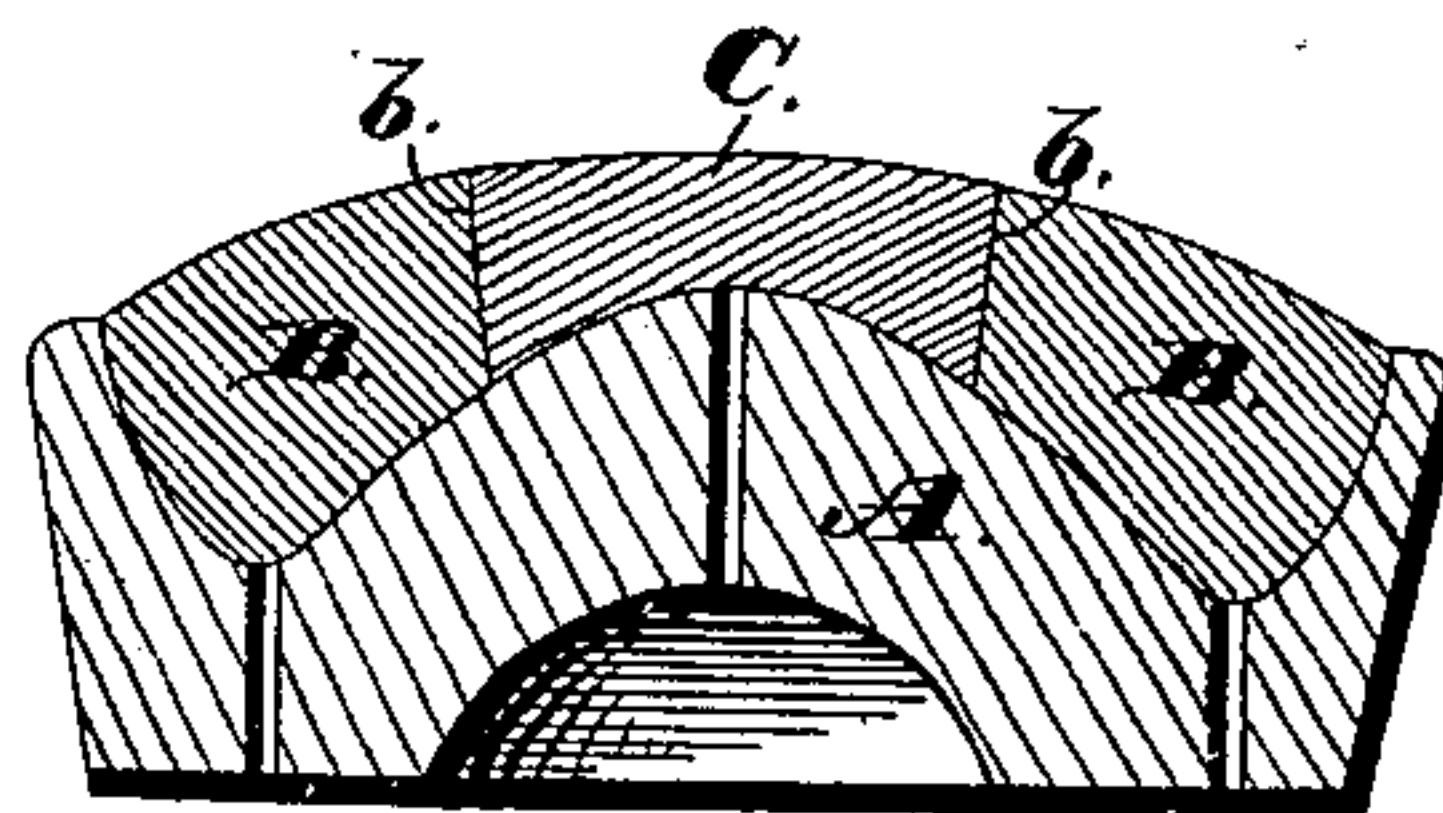


Fig. 3.

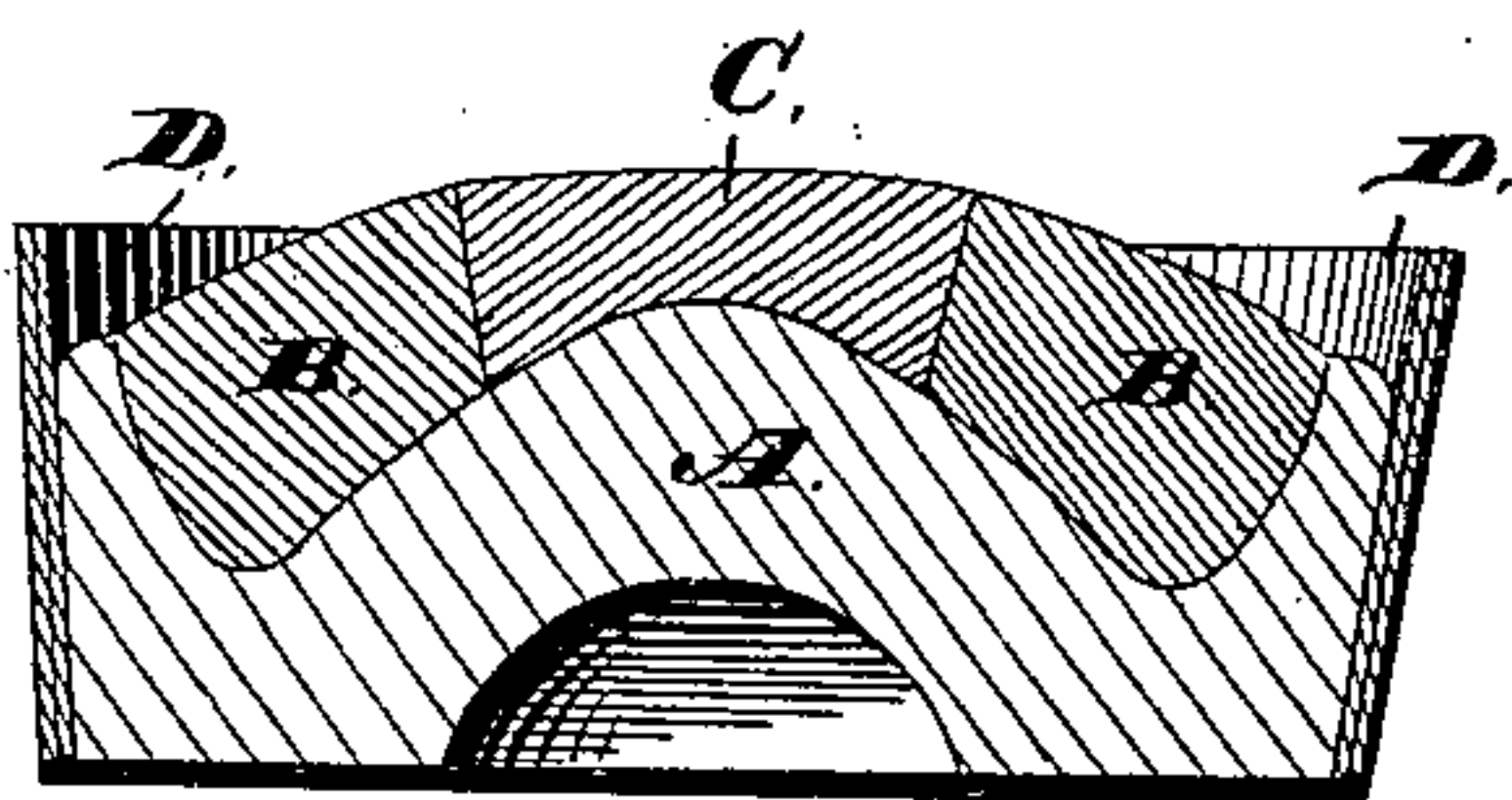


Fig. 4.

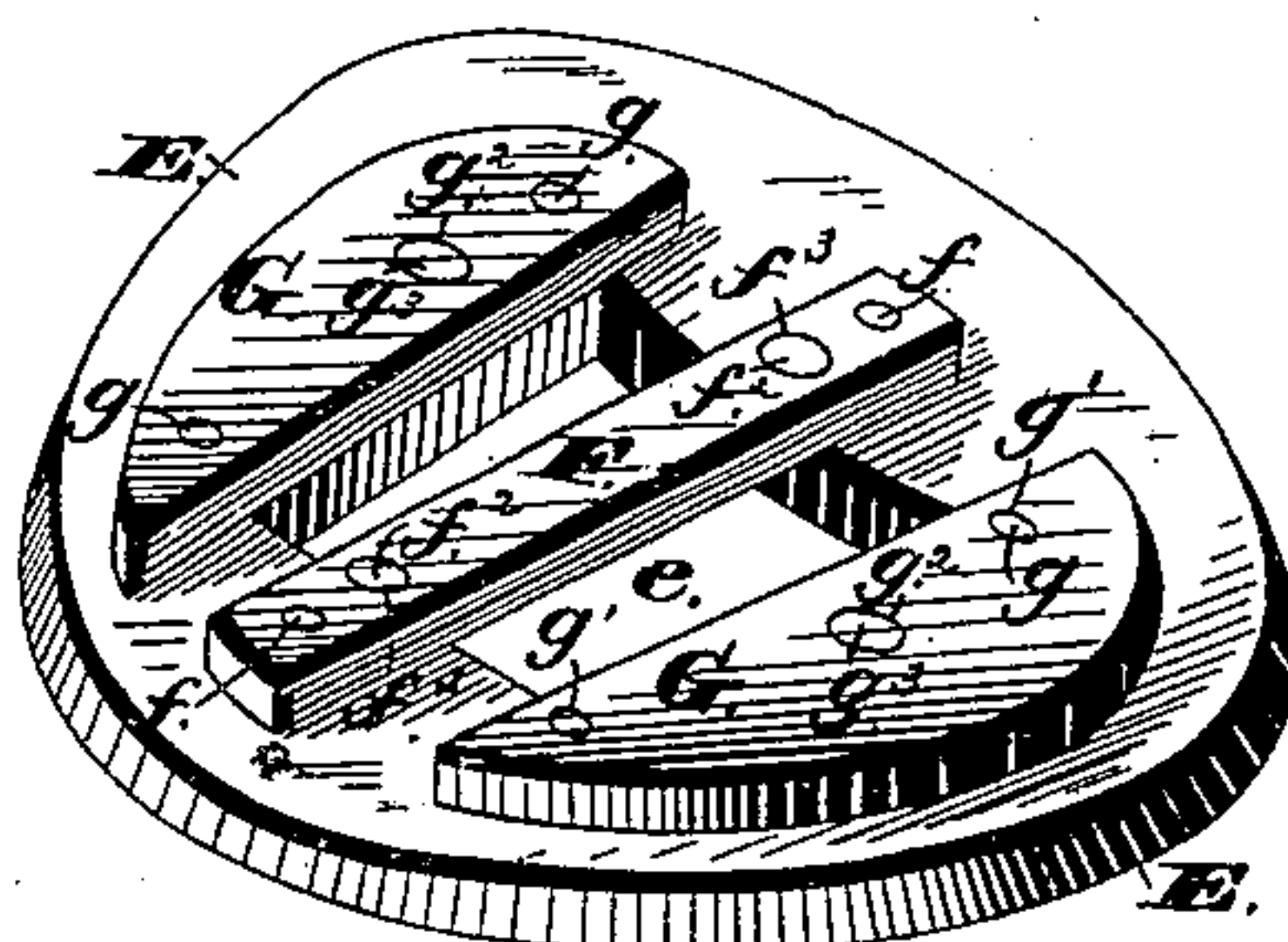


Fig. 5.

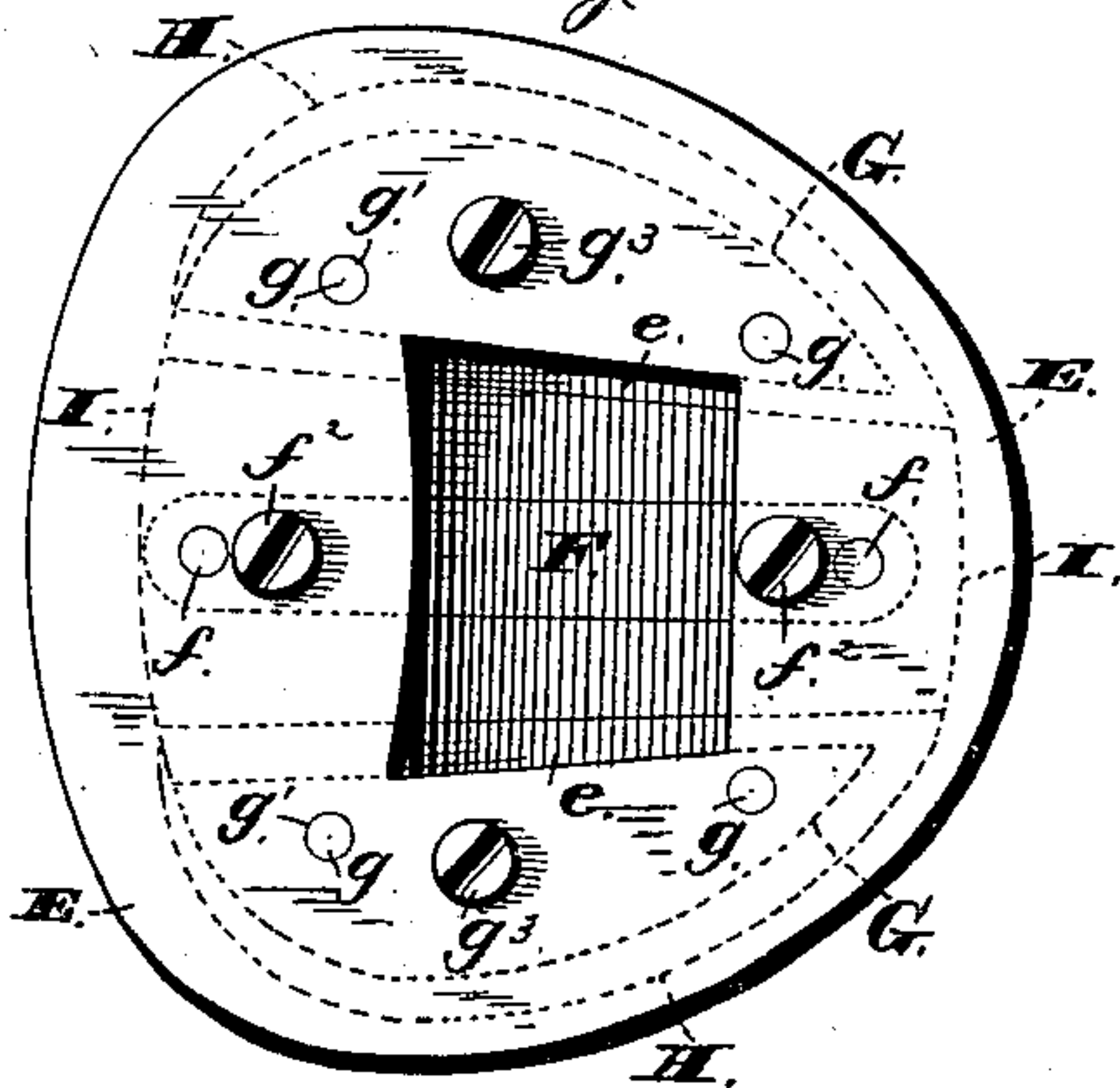
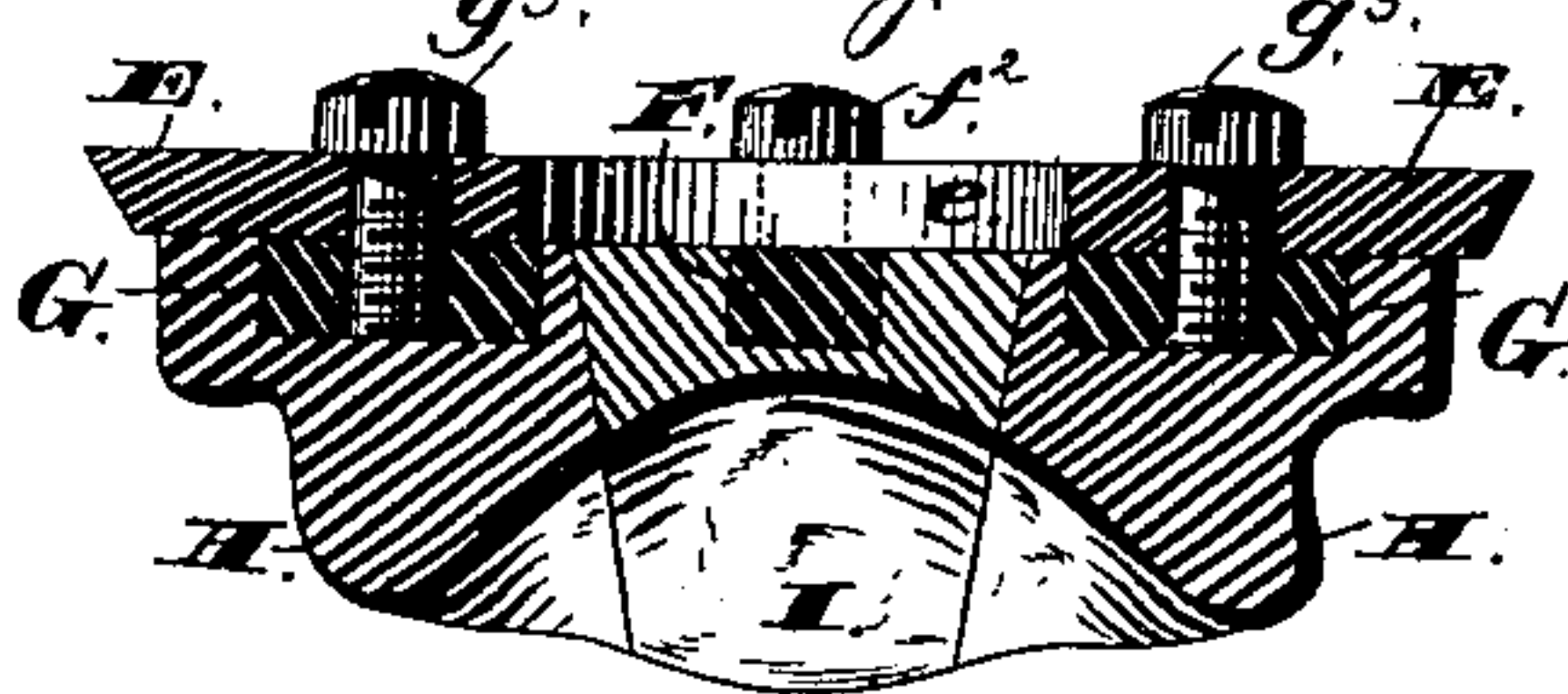


Fig. 6.



WITNESSES

Gas. E. Hutchinson.
Geo. W. Seymour

INVENTOR

John B. Graves
By H. A. Seymour.
Attorney.

UNITED STATES PATENT OFFICE.

JOHN B. GRAVES, OF LEBANON, TENNESSEE, ASSIGNOR OF ONE-HALF TO
WILLIAM H. BENNETT, OF SAME PLACE.

DENTAL MODEL.

SPECIFICATION forming part of Letters Patent No. 270,566, dated January 9, 1883.

Application filed August 10, 1882. (No model.)

To all whom it may concern:

Be it known that I, JOHN B. GRAVES, of Lebanon, in the county of Wilson and State of Tennessee, have invented certain new and useful Improvements in Dental Models; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

My invention relates to metallic dental models, and to processes for forming the same.

Heretofore metallic models on which to swage metallic plates, or mold plates from plastic material, to serve as bases for artificial teeth or palatine obturators, have been cast solid in one piece. In most instances there are under-cuts on such models, produced in casting the latter by protrusions or fullness of the alveolar arches, which render it impossible to remove a plate formed upon the model without changing the shape of the plate by bending, and thus impairing it.

The object of my invention is to obviate the objection above noted by forming the model in sections, whereby it may be removed from the plate without bending or impairing the latter.

The invention consists in the process and devices hereinafter fully described, and pointed out in the claims.

In the drawings, Figure 1 is a perspective view of an impression taken from the mouth and filled with wax and a central core of plaster-of-paris. Fig. 2 is a transverse vertical section of Fig. 1. Fig. 3 represents the impression surrounded by paper. Fig. 4 represents a perspective view of the section-plate and retainers, and Fig. 5 is a reverse plan view of the completed model secured to the supporting-plate. Fig. 6 is a transverse vertical section of Fig. 5.

My improved model is formed in the following manner: Take an impression, A, of the mouth, in wax or other suitable material, in the usual way. The inner or top portion of the impression is then coated with varnish or soap to prevent the adherence of the plaster thereto. Fill in the cavities at the sides of the impression with wax fillings B, which should be cut away on their inner edges to form inclined or beveled sides b, and the space between the two

opposite wax fillings should be wider at the back than at the front of the impression, and closed temporarily at its back end by a piece of wax to form a receptacle or mold for a central core, C, of plaster. The inner sides of the wax fillings should be oiled to prevent the adherence thereto of the central core, which is poured into the space between the wax fillings and allowed to set. After said central core is sufficiently hardened and "set" the wax fillings are removed from the impression A. The latter, with the central core in place, is then wrapped with paper or other equivalent material to form an outer flange, D, for the impression, extending sufficiently above the latter to insure the proper thickness of the metallic model.

E represents a supporting-plate, which I term a "section-plate." It is provided with a central opening, e, and a central bar or retainer, F, having depending pins f, adapted to enter perforations f' of the plate, and secured to the plate by screws f², passing through the plate and into screw-threaded perforations f³ of the retainer.

On each side of the plate E is removably secured a retainer, G, provided with depending lugs or pins g, adapted to enter holes g' of the plate, and a threaded perforation, g², to receive a screw, g³, to secure the retainer to the plate. The outer sides of these retainers G are preferably curved or rounded to correspond to the curvature of the plate.

After the paper has been applied to the impression A, as above explained, and as shown in Fig. 3, the central retainer, F, is removed from the plate E, and the latter is applied to the impression A, the side retainers, G G, projecting into the spaces previously occupied by the wax fillings, but not extending to the surface of the impression. Molten metal is then poured into said spaces through the central opening, e, of the plate E, on each side of the central core, C, and the metal will be cast around the retainers G G to form the sides H H of the model. The screws g³ are then removed to allow the section-plate to be removed. The central retainer is then secured to the plate. The plaster core C is then removed, and the plate E is placed upon the side retainers and screwed thereto, the central retainer pro-

jecting into the space previously occupied by the core C. Molten metal is then poured into said space through the opening in the plate to form the central section, I, of the model, which
 5 will be cast around the central retainer. The plate E is then removed, with the model-sections secured thereto, and the model is completed and ready for use. The plate for the teeth is formed by swaging it upon the model,
 10 if the plate is of metal, or by molding, if the plate is to be made from plastic material. After the plate thus formed is ready to be removed from the model the supporting-plate E of the latter is removed by removing the screws which se-
 15 cure it. The central section, I, is removed from the completed plate, and afterward the side sections, H H.

It will be apparent that with a model constructed in the manner thus described a perfect plate may be obtained, as the model may
 20 be removed without bending or injuring the plate. When it is desired to again use the section-plate and retainers the model-sections are melted off of the retainers, and the device
 25 is ready for a repetition of the above-described process.

It is evident that many slight deviations may be made from the construction of the devices above described. Hence I would have it un-
 30 derstood that I do not limit myself to the precise arrangement and construction above set forth, but reserve to myself the right to make such changes and alterations as may properly fall within the scope of my invention.

35 Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A process for forming dental models, consisting in first taking an impression of the mouth, then filling the cavities at the sides of
 40 the impression with wax and forming a central core of plaster, removing said fillings in the manner described, and casting the model in sections around bars or retainers, which lat-
 45 ter are secured removably to a supporting-plate, substantially as set forth.

2. A process for forming dental models, consisting in first taking an impression of the mouth, then filling the sides of said impression
 50 with wax, casting a central core of plaster-of-paris, or equivalent material, between said fillings, then removing the latter and surrounding the impression with paper or other mate-
 55 rial, and applying to the impression a section-plate having a central and side retainers, casting the side sections of the model, then removing the central core and casting the central model-section, substantially as set forth.

3. As a new article of manufacture, a dental model consisting of independent sections cast
 60 upon retainers, which latter are removably secured to a supporting-plate, substantially as set forth.

4. The combination, with the supporting-plate provided with a central aperture, of the
 65 retainers G G and F, removably secured to the plate, substantially as set forth.

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

JOHN B. GRAVES.

Witnesses:

ALEX. W. VICK,
 T. H. EATHERLY.