

No. 886,140.

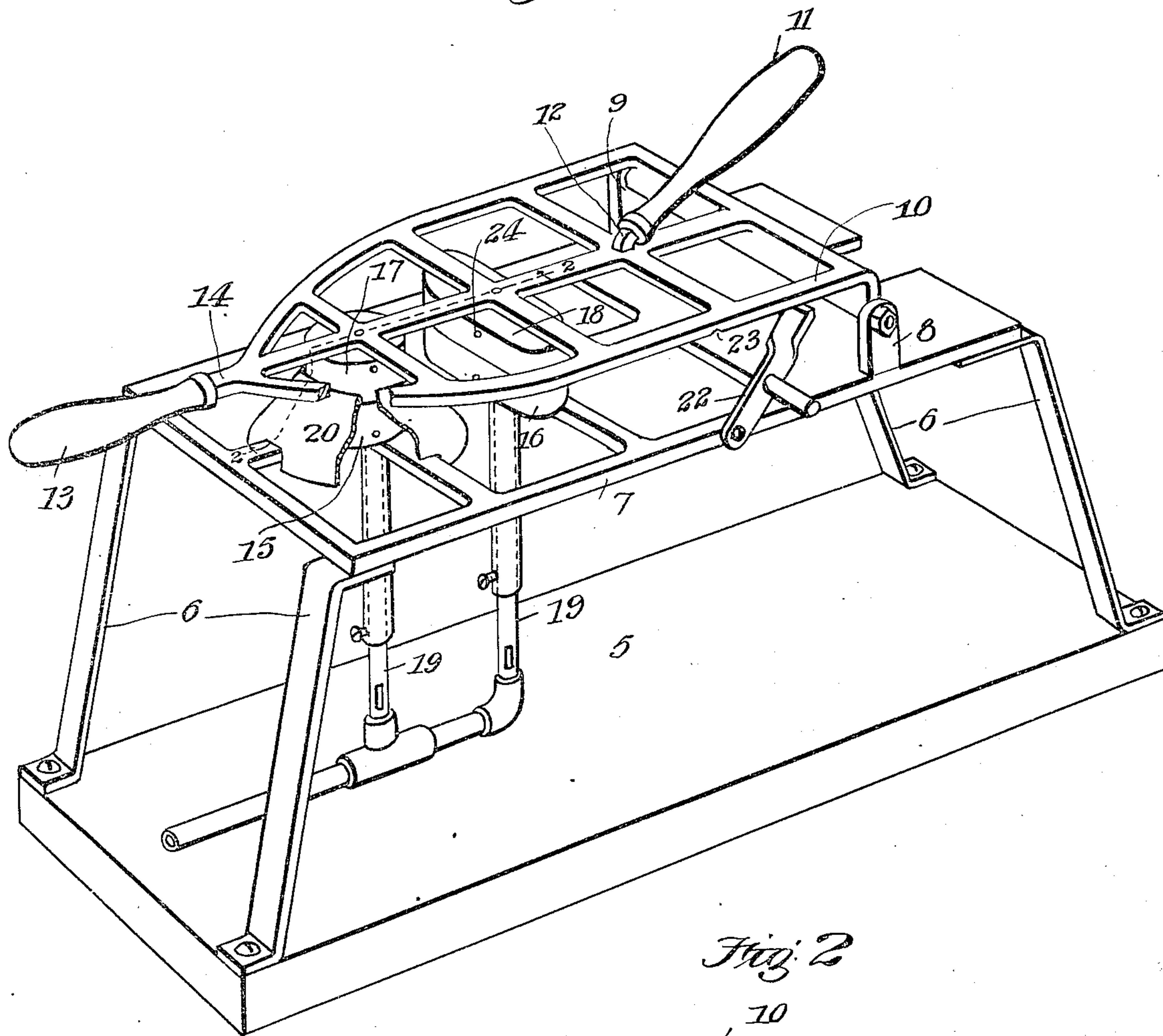
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J. A. LENTZ.

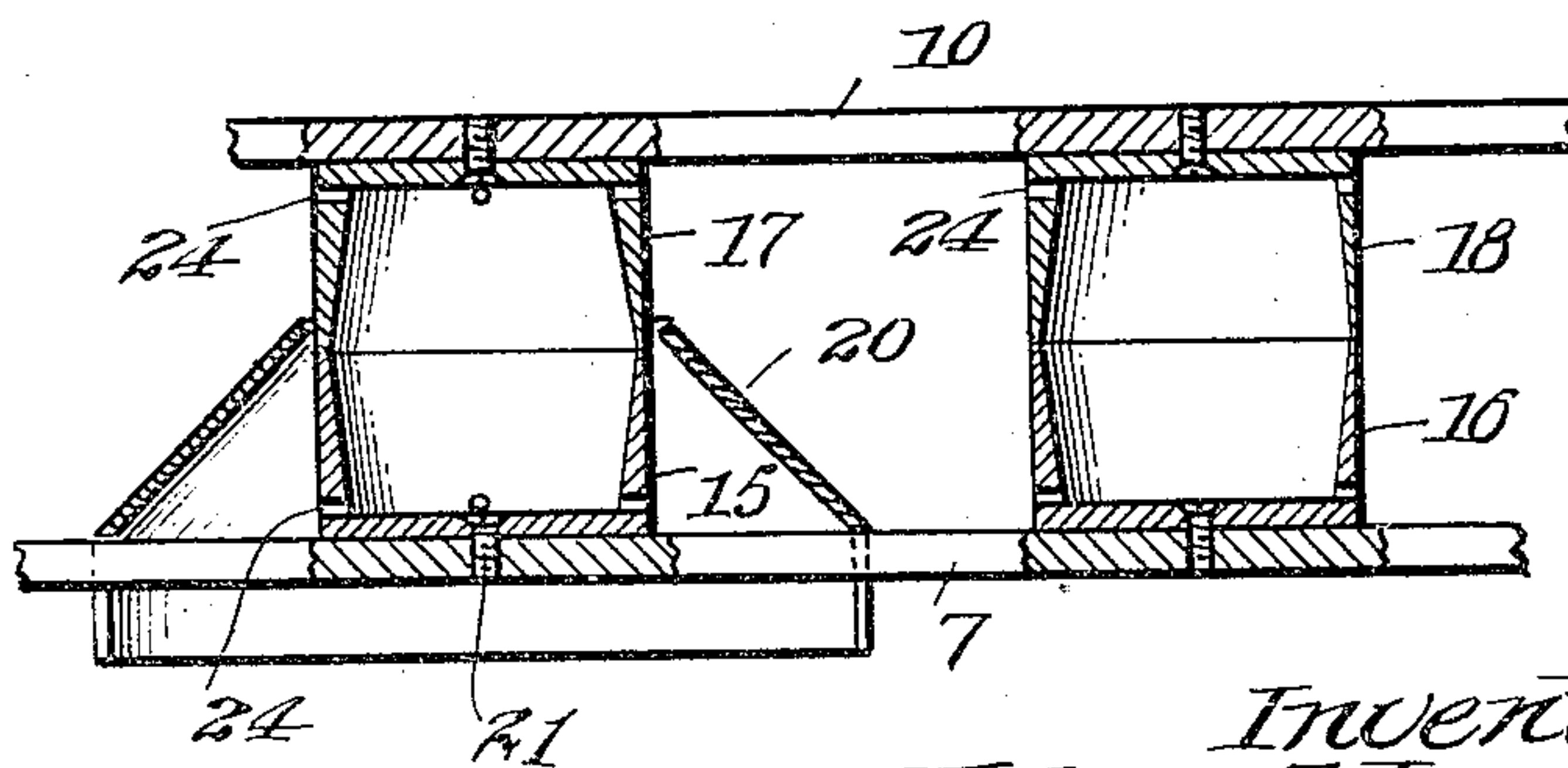
APPARATUS FOR FORMING DENTAL STRUCTURES.

APPLICATION FILED MAR. 16, 1907.

*Fig. 1*



*Fig. 2*



Witnesses  
M. A. Jones

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# UNITED STATES PATENT OFFICE.

JOHN A. LENTZ, OF PHOENIX, ARIZONA TERRITORY.

## APPARATUS FOR FORMING DENTAL STRUCTURES.

No. 886,140.

Specification of Letters Patent.

Patented April 28, 1908.

Application filed March 16, 1907. Serial No. 362,657.

*To all whom it may concern:*

Be it known that I, JOHN A. LENTZ, a citizen of the United States, residing at Phoenix, in the county of Maricopa and Territory of Arizona, have invented new and useful Improvements in Apparatus for Forming Dental Structures, of which the following is a specification.

My invention relates to an apparatus for forming metallic dental structures, such as is described in United States Letters Patent No. 833,883 issued to me October 23rd, 1906; and an object thereof is to provide an apparatus by means of which I am enabled to practice my improved patented process in an economical and efficient manner. I accomplish this object by means of the apparatus described herein and illustrated in the accompanying drawings, in which:—

Figure 1.—is a perspective view of my complete machine with parts broken away. Fig. 2.—is an enlarged partial longitudinal central section taken on line 2—2 of Fig. 1.

Referring to the drawings, 5 designates a suitable base, to which is secured frame supporting legs 6. Base plate 5 may be omitted if desired. Secured to legs 6 is a bottom frame 7 which is provided at its rear with bearing lugs 8 and 9, in which is pivotally mounted the rear end of top frame 10. Frames 7 and 10 are preferably of skeleton form, so as to insure lightness of construction, and top frame is provided with handles 11 and 13 which are preferably formed of a heat insulating material and are secured to shanks 12 and 14 preferably formed integral with top frame 7. The purpose of these handles is to facilitate the handling of the top frame during the operation of the apparatus, and also to control the relation of the two frames.

Rigidly secured to bottom 7 and projecting upwardly therefrom are base cups 15 and 16 of different configurations to provide for different classes of work. Rigidly secured to the top frame and projecting downwardly therefrom are cover cups 17 and 18 which register with the base cups 15 and 16. These base and cover cups hold the investment material during the different stages of the process as described in my patent before referred to. Burners 19, preferably of the Bunsen type, are secured to the base plate beneath the cups for the purpose of supplying heat to the work in the cups.

A heat concentrator, comprising a tapered sheet metal shield 20 is secured on the bottom frame in a suitable manner, so as to surround the respective base cup that is to be used, whereby the heat from the burner located beneath that cup after impinging against the bottom of the cup is converged so as to point under the cover cup instead of becoming dissipated as it otherwise would. By this construction it will be seen that I have provided a simple and efficient apparatus for accomplishing the purposes already stated, for when the top frame is turned back so that the cup faces are upward, convenience is afforded for filling either cup with investment material for proper placement therein of any dental part to be included in the completed structure, or any dental form to be subsequently removed, or both, and also for trimming up the investment when hardened. The cup, thus prepared, when brought into register with the other cup filled with soft investment will form in the latter a mold which, with reference to the completed structure, will be a complement to the mold or dental part (or both) in the other cup, the investment material being hardened and cups separated and the form to be replaced by metal having been removed, it is evident that the requisite of a separable registrable mold, with any parts to be included in proper relation, has been attained, and that by proper application of heat and the consequent fusion of a metallic button in the base cup mold, the registering of the cups will effect the desired objects. It will also be understood that these cups may be formed integrally with the frame, or be removably secured by bolts 21 or otherwise to the top and bottom frames so that larger or smaller cups, or cups of a different configuration than those shown in the drawings may be substituted as desired.

A pivoted catch 22 secured to the bottom frame is adapted to engage notch 23 in the top frame to hold the top frame slightly elevated above the bottom frame when desired. This is desirable while drying out and heating up the material in the cups before assuming control of the upper frame by one of the handles. Ports 24 are provided in the sides of the cups to permit air caught below the investing compound while filling the cup to be forced out of such ports instead of being forced through the investing compound, and also to securely hold the investing com-



pound during the subsequent steps of the process.

A typical operation of my device is as follows:—An investment material is placed in the cup in which a form is embedded which it is desired to reproduce in metal. This form is placed so as to project downwardly into the base cup when the two halves are placed in register with each other, and the base cup having been previously filled with investment material in a plastic state, an impression of the form is left in the base cup. The form is then removed from the upper cup and leaves an impression therein the exact counter part of the form. Metal is then fused and the cavities in the investment material filled with the same and allowed to cool when a metal duplicate of the original form is obtained. The fusion of the metal is accomplished in the base cup by means of the heating means shown.

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

1. An apparatus of the class described, comprising two frames pivotally secured together; oppositely disposed mold retaining cups rigidly secured to the opposing faces of each of said frames; and a heat retaining shield secured to the lower frame and sur-

rounding the lower mold retaining cup, and means to heat said lower cup.

2. An apparatus of the class described, comprising two frames pivotally secured together; oppositely disposed mold retaining cups rigidly secured to the opposing faces of each of said frames, said cups provided with a plurality of ports; a heat retaining shield secured to the lower frame and surrounding the lower mold retaining cup; and means to supply heat to the retaining cups.

3. A dental structure holding machine, comprising two open work frames pivotally secured to each other at one end; mold retaining cups having ports near the bottom thereof secured to said frame on their opposing faces, the tops of said cups being adapted to register when in operative relation to each other; a heat concentrating shield removably secured to the bottom frame and surrounding the bottom cup; means to supply heat to the bottom of said cups; and means to hold said top frame elevated above said bottom frame.

In witness that I claim the foregoing I have hereunto subscribed my name this 5th day of March, 1907.

JOHN A. LENTZ.

Witnesses:

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JETTIE B. ROBERTS.