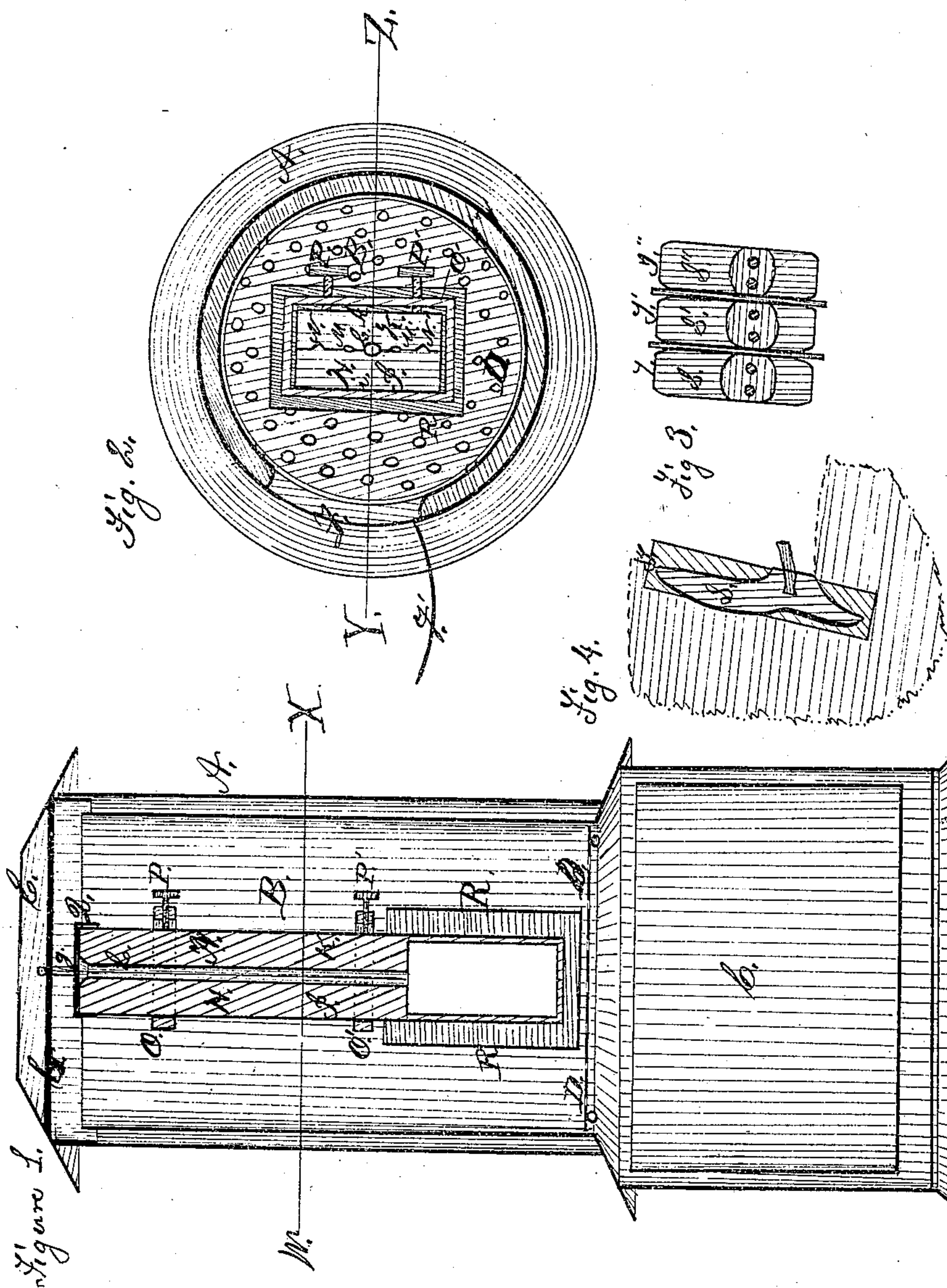


Loomis & Moll,

Dental Mold.

No. 102019.

Patented Apr. 12. 1870.



Witnesses:—
Samuel Jacob Wallace,
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Inventors:—
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United States Patent Office.

JAMES ALANSON LOOMIS, OF CARTHAGE, ILLINOIS, AND CHARLES FREADRICK MOLL, OF SAN FRANCISCO, CALIFORNIA.

Letters Patent No. 102,019, dated April 19, 1870.

IMPROVEMENT IN DENTAL APPARATUS FOR CASTING PLATES FOR ARTIFICIAL TEETH.

The Schedule referred to in these Letters Patent and making part of the same

To all whom it may concern :

Be it known that we, JAMES ALANSON LOOMIS, of Carthage, Hancock county, Illinois, and CHARLES FREADRICK MOLL, of San Francisco city, San Francisco county, California, have invented a new and useful Improvement in Casting Dental Plates; and we do declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon, in which—

Figure 1 is a central vertical section of the apparatus.

Figure 2 is a horizontal section on line *w-x* of fig. 1.

Figure 3 is a view of a portion of the teeth, as in the mold.

Figure 4 is a section of part of mold at right angles to same.

This invention relates to devices for casting dental plates, and has in view the following objects, namely:

First, to construct a casting-furnace, by which the flask may be heated to the required temperature, and the fire suddenly withdrawn, to allow it to cool unequally.

Second, to form a composition for the mold, which shall endure a very high degree of heat, without shrinkage.

Third, to form a flask whose lower part shall be sufficiently open to allow the instantaneous escape of gas, and prevent blowing, while at the same time it is protected, by a surrounding iron vessel, filled with ashes or non-conducting material, from being heated up too violently.

Fourth, to prevent the heat from escaping too rapidly at the top of the flask, and to retain the metal in the sprue in a fluid state.

Fifth, to combine with a removable fire a flask, which shall be suspended, so as to avoid any necessity for manipulation.

A is the furnace, containing fire-chamber B, and ash-box C, and a movable bottom, D, by removing which the fire may be dropped into box C, and removed at the end of the process of casting.

The furnace has also a movable top, C, and a door, F, in the side.

A cross-rod, G, in the top of furnace, supports the flask in the fire, which is suspended by parts *g*.

The flask H is made of heavy iron, in two parts, I K, which fit together with guides, beads, or other means for securing exact fitting of the parts.

The flask is long, vertically, with the dental mold at the bottom, to give head to the melted metal to force it into the mold, to form a fine and solid casting.

To secure this fully, the flask and mold are heated

in the furnace to a fine red or white heat before the casting, and the fire removed afterward, to allow the whole to cool slowly.

The part of the flask above the mold is of massive metal, to retain a large amount of heat, to keep the sprue L of metal, which descends through it to the mold, melted during the cooling and contraction of the metal in the mold, so as to fill up this mold, as the contraction goes on.

The metal is poured into the passage L, to fill the mold, and there are side passages M M' on the sides, to allow escape of air and gas from the mold.

At the sides the two parts I and K fit together with beads N N', to secure accuracy of fit, and cut off escape of metal at the sides.

The clamps O O', with their set-screws P P', hold the two parts together.

The flask has a cover, Q, to fit the top before and after casting.

A protector, R, containing ashes or other material, surrounds the bottom of the flask around the mold, to save it from too direct action of the heat.

The mold is formed in the hollow part of the flask at its lower end.

The two flat sides *i k* at that point are of open or barred work, through which the material of the mold is introduced in molding.

The mold is made of a material to withstand the high heat, consisting of plaster of Paris with from one-half to four-fifths of calcined bone or shell-dust, molded somewhat similar to plaster molds for ordinary rubber-work, but with some modifications and care to suit the peculiarities of the material and of the metal.

The teeth are ground and waxed up on wax, tin, or gutta-percha plate, as for rubber-work, but when "gum-teeth" are used, between each two teeth or blocks of teeth S S, there is inserted a thin strip of sheet metal or other material, as shown in figs. 3 and 4, which, being removed before casting, leaves small spaces between the teeth, so that the contraction of the metal in cooling can bring them together, thus providing for the contraction.

The wax above the gums of the teeth should not project above the points of the teeth, so that the metal, in contracting, might catch on the points and do injury.

The teeth may be cast on the plate or attached afterward.

We prefer pure aluminum, and the casting directly onto the teeth. Care and experience will aid in securing success.

We perforate the mold with small holes on the two sides, to give escape to air and gas, the sides of the

flask *i k* being made of open barred work, to facilitate this and give openings for it.

What we claim is—

1. The furnace A, having hinged grate resting on two removable rods, and a device for attaching a flask, and a removable vessel beneath, to receive the whole contents of the fire, as set forth.

2. A dental casting-mold, formed of calcined bone and plaster, in the proportions specified.

3. A vertical flask, H, with sprue above and open bar-work below, as set forth, in combination with the surrounding protector R, as and for the purpose described.

4. A vertical flask, H, and protector, each relatively constructed as set forth, combined with a detachable metal cap, *m m*, as and for the purpose described.

5. A suspended flask, H, having cap thereon, and constructed as set forth.

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Witnesses:

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