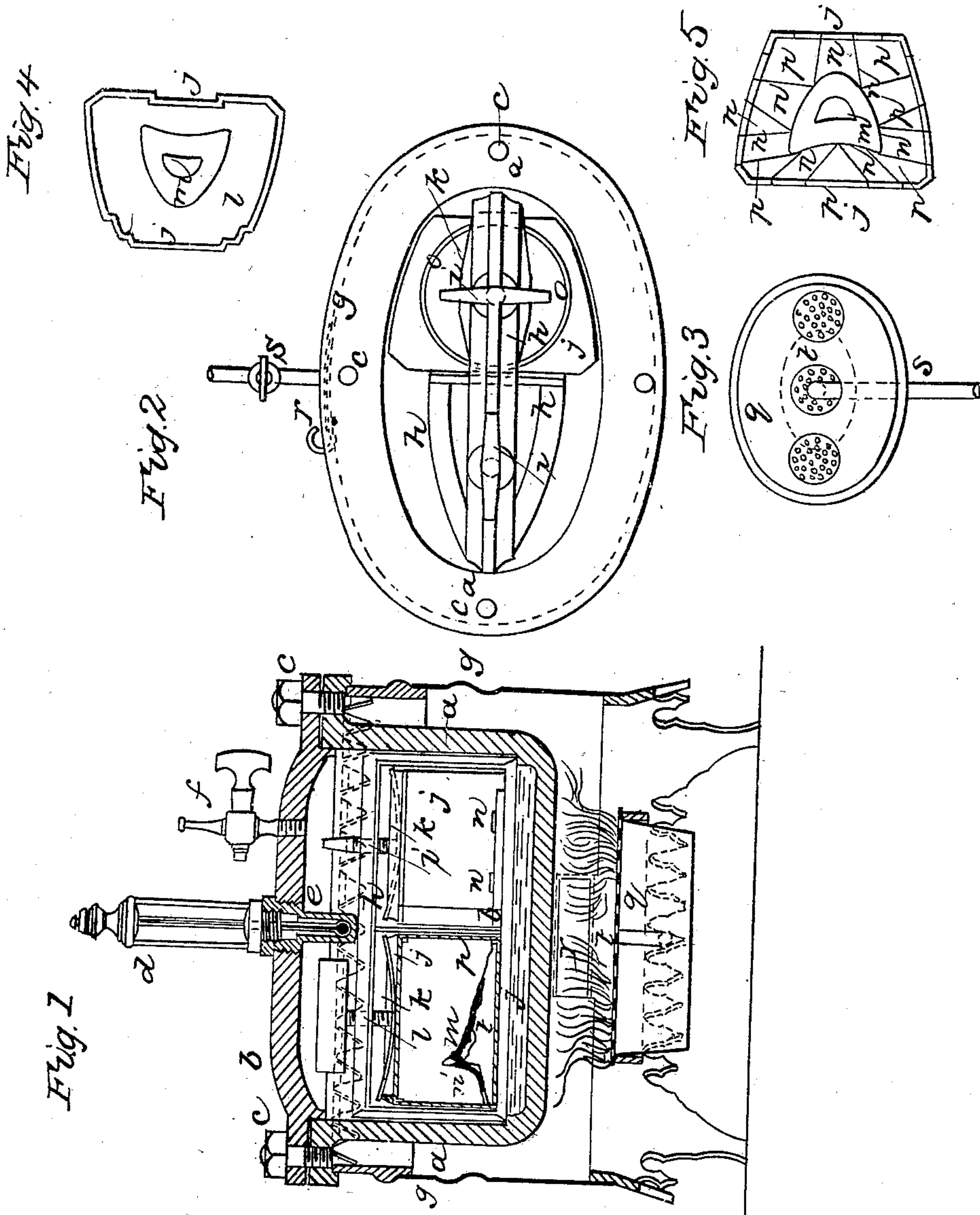


J. L. McDERMUT.
Vulcanizing Apparatus for Dentists.

No. 44,541.

Patented Oct. 4, 1864.



Witnesses
Daniel Farnum
M. S. Barnum

Inventor
John L. McDermut.

UNITED STATES PATENT OFFICE.

JOHN L. McDERMUT, OF NEW YORK, N. Y.

IMPROVED VULCANIZING APPARATUS FOR DENTISTS.

Specification forming part of Letters Patent No. 41,511, dated October 4, 1864.

To all whom it may concern:

Be it known that I, JOHN L. McDERMUT, of the city, county, and State of New York, have invented a new and useful improvement in machines or apparatus for vulcanizing india-rubber plates or pieces mounted with artificial teeth in sets, whereby I secure uniformity in temperature and hardness of the two plates or pieces required for a set of teeth for dental purposes and at one operation, a result never before obtained in dental practice; and I do hereby declare the following to be a full and clear description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The same letters refer to the same parts in the different figures.

Figure 1 is a sectional elevation showing the entire apparatus in detail, as in operation, one flask being shown in section and the other complete. Fig. 2 is a plan view with the cover removed. Fig. 3 is a plan view of the bottom of the gas or heating apparatus, which is seen in operation in Fig. 1. Fig. 4 is a plan view of the bottom part of the flask and cast, shown in section in Fig. 1. Fig. 5 is a plan view of the upper part of the flask and cast reversed and showing the channels for the escape of the surplus rubber packed in the mold to be so cut out of the plaster-cast as to embrace the entire circumference thereof and affording an easy escape all around the edge of the piece, thus insuring the closing of the flask and the proper thickness to the plate.

My invention consists, first, in constructing my vulcanizing-vessel in an oblong, oval, or other shape adapted to receive a double clamping-frame or two single arms for containing two flasks or molds for vulcanizing two mounted plates or pieces for a set of teeth side by side on the same level, so that each piece will be under the same influences of temperature during the process of vulcanization, and thereby insuring equal hardness in each—a result which cannot be obtained in flasks placed one upon the other, as heretofore used in all vulcanizing-vessels known for dental purposes.

And my invention also consists in adapting a double clamping-frame or two single ones to the interior of an oblong, oval, or other shaped vulcanizing-vessel, and of arranging within

said frames and vessel two flasks for containing each a plate or piece of india-rubber mounted with artificial teeth to be vulcanized side by side under like influences of temperature, each of said clamping-frames being fitted with a set-screw to give tension to a flat or other spring between the cover of each flask and the top of the clamping-frames, for the purpose of closing the flasks together when the rubber becomes soft or plastic during the vulcanizing process.

And my invention also consists in forming channel-ways in the plastic cast or body of the mold around the entire circumference and embracing the whole edge of each piece for the escape of the surplus rubber under the pressure of a spring under tension by a set-screw in the clamping-frame, the action of the springs being to close the flasks together as soon as the rubber is softened by the heat in vulcanizing, by the surplus rubber flowing out into the channel-ways, and thus insuring the exact thickness required for the plates or pieces, and preserving the articulation. This result has never before been obtained, while with this form of channel-ways and springs never failed of complete success.

My invention also consists in constructing a solid metallic case in two parts, inclosing the tube and bulb, the lower part inclosing the bulb to be inserted within the steam-chamber of the vulcanizing-vessel through the cover thereof, so that the steam will entirely surround the bulb and insure true indications of the temperature within, while the metal case effectually protects both the tube and bulb whether the thermometer be or be not connected with the vulcanizer. The upper part has a slot or opening in the side exposing the tube to view, so that the mercury may be seen and the indication of temperature known.

The drawings represent in detail and in section all the parts of the apparatus, and I refer to them and to the letters of reference marked thereon, to enable others to construct and use the same, as follows:

A shows the body of the vulcanizing-vessel; b, the cover with the thermometer and steam-escape screwed into it; c, the bolts; d, the upper part of the thermometer, with a slot exposing the mercury in the tube; e, the lower part, showing the bulb-chamber and bulb

within the steam-chamber and the method of connecting the same with the cover; *f*, the steam-escape; *g*, the stand or frame for holding the vulcanizing-vessel and heating apparatus; *h*, the double clamping-frames; *i*, the set-screws; *j*, the flasks; *k*, the springs resting on the rings or ledges *o* on the top or cover to the flasks *j*, the same being under tension by the set-screws *i*; *l*, the under part of the flask and mold; *m*, a mounted piece in the mold. *n* shows the channel-ways for the escape of the surplus rubber; *o*, the rings on the cover of the flasks; *p*, the plastic cast, or that portion of it which forms the joint after the channel-ways *n* are cut out, as shown in full in Fig. 5. *q* shows the heating apparatus or the sliding door to the same; *t*, the center piece for distributing the gas under the vulcanizing-vessel. *s* shows the gas-pipes with a stop-cock for regulating the heat. *q* shows the heating apparatus reversed in Fig. 3, exhibiting the air holes or openings through which the perforations are seen in the top plate, and also an oval center piece (not perforated) against which the gas is delivered and distributed, as shown in Fig. 1, said center piece being seen by the dotted lines. Fig. 5 shows the upper part of the flask and mold reversed, with the channel-ways *n* cut out of the plaster-cast, leaving the portion marked *p* to form the joints between the flasks.

It will be seen that the channels are so cut as to embrace the entire edge of the piece, the joints *p* being cut to a point at or before it reaches the edge of the piece, and thus affording a free escape for all the surplus rubber into the channels, so that the flasks will close up by the automatic pressure of the springs as soon as the heat renders the rubber soft and pliable, and before the same can be vulcanized, and thus rendering it certain that the proper thickness is obtained when the flasks are closed.

To prevent oxidation of the iron from the action of the sulphur, I enamel the whole interior surface, which is entirely effectual.

Having thus fully described my invention, and the method of using the same, what I claim as new, and which I desire to secure by Letters Patent of the United States, is—

1. An oblong, oval, or other shaped vessel adapted to receive two flasks arranged in one double or two single clamping-frames, side by side on the same level, and so as to place two vulcanite plates or pieces for a set of artificial teeth under like influences of temperature during the process of vulcanization, in contradistinction to a cylindrical vessel, for placing two flasks one upon the other, substantially as described and shown.

2. The combination of an oblong, oval, or other shaped vessel with a double clamping-frame or two single ones adapted to the interior thereof, and with two flasks and molds for a set of artificial teeth mounted on plates or pieces of india-rubber to be vulcanized, and with springs and set-screws, the whole to be arranged, combined, and operated substantially as and for the purposes described and shown.

3. The form of the channel-ways cut out of the plaster-cast for the free escape of any surplus rubber placed within the molds, substantially as and for the purposes specified and shown.

4. The method of constructing a thermometer with an inclosed bulb-chamber to be inserted within the steam-chamber of a vulcanizing or other vessel, as and for the purposes described and shown.

JOHN L. McDERMUT.

Witnesses:

DANIEL BARNUM,
M. S. BARNUM.