(No Model:)

W. B. MANN.

DENTAL VULCANIZER.

No. 342,618. Patented May 25, 1886.

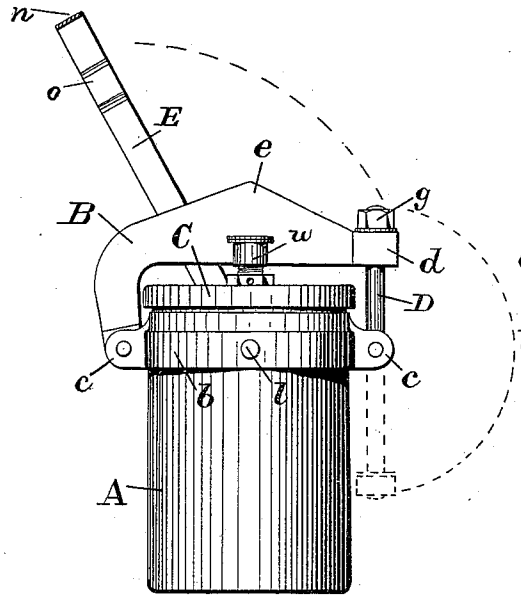

Fig. 1.

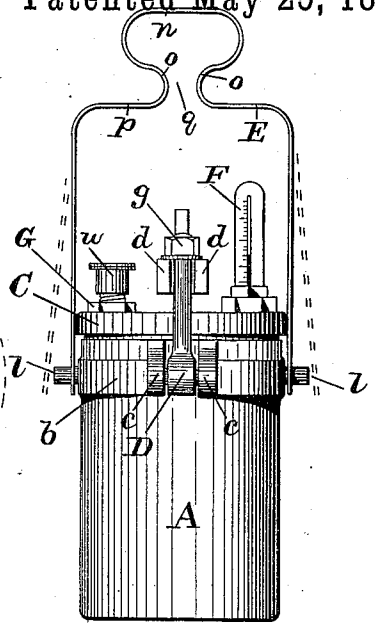

Fig. 2.

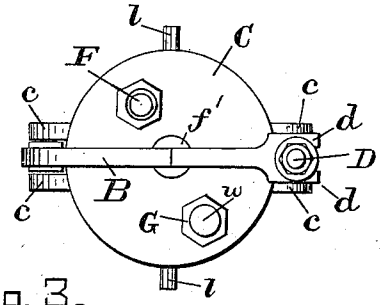

Fig. 3.

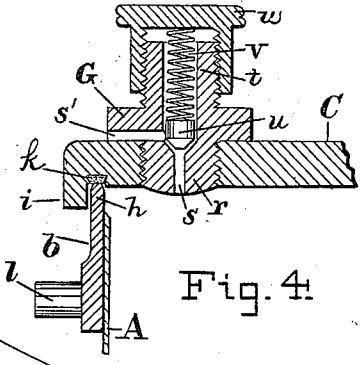

Fig. 4.

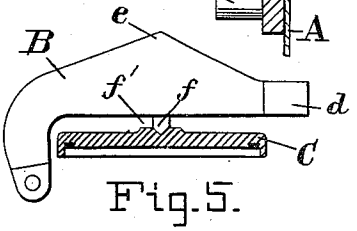

Fig. 5.

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UNITED STATES PATENT OFFICE.

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DENTAL VULCANIZER.

SPECIFICATION forming part of Letters Patent No. 342,618, dated May 25, 1886.

Application filed December 21, 1885. Serial No. 186,253. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM B. MANN, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Dental Vulcanizers, of which the following is a specification.

My invention relates to certain improvements in dental vulcanizers, the object being to provide a more convenient apparatus for vulcanizing dental plates and other small articles.

In the accompanying drawings, which illustrate the invention, Figure 1 is a side elevation of the vulcanizer, the bail being shown in section. Fig. 2 is a front elevation of the vulcanizer. Fig. 3 is a top view of the vulcanizer. Fig. 4 is a sectional view of the valve and cover. Fig. 5 is a view of the clamping-lever and a sectional view of the cover.

The letter A designates the metal retort, to which a rim-collar, *b*, is securely attached at the top. At diametrically-opposite sides this collar has pairs of ears, *c*, and to one pair of the ears a clamping-lever, B, has one end pivoted. At the pivoted end the clamping-lever is shaped to admit of a portion near the extremity having position at the side or the vertical part of the retort and cover C, while another portion extends horizontally across the cover. It will thus be seen that the pivoted clamping-lever has movement in a vertical plane, as indicated in Fig. 1 by the curved broken line. This clamping-lever is the cover-holding device. The free end of the clamping-lever has a fork or bifurcation, *d*, and midway between its two ends the lever is of increased breadth in the vertical direction, as at *e*, whereby its strength is increased. The lever is provided on its lower side and at the center with a presser-foot, *f*, which bears on the center, *f'*, of the cover. To the other pair of ears *c* a bolt, D, is pivoted. The free end of this bolt is screw-threaded and provided with a nut, *g*. When the clamping-lever B has the horizontal position, its fork projects just above this bolt, which latter may be swung up and take position in the fork or between the bifurcated ends *d* thereof. By turning the bolt-nut *g* the free end of the clamping-lever will be drawn down, and thereby the presser-foot *f* will bear on the center, *f'*, of the cover and hold it tightly on the rim of the retort.

The clamping-lever pivoted at one end and the bolt to fasten the other end comprise a simple, convenient, and very easily operated device for securing the retort-cover.

To hold the retort firmly and prevent it from moving around when a wrench is applied to the bolt-nut *g*, the bail E, hereinafter described, is used. When the bail is turned so that its arms extend in a horizontal position from the trunnions *l*, it will hold the retort and prevent its movement while the nut *g* is being tightened. This is important, especially when the retort is hot.

A steam-tight fit is made between the rim of the retort A and the cover C, as follows: The rim *h* is thinned a little by beveling each edge, and is made true by subjecting it to the operation of turning in a lathe. The cover has a flange, *i*, which takes around the rim *h*, and an annular groove is cut in the lower face of the cover, (see Fig. 4,) just inside of the said flange, and this groove is filled with lead or other soft metal to form a packing, *k*. The lead packing of the cover is seated on the rim *h* of the retort. This kind of a packing is good and durable where the cover is tightened down by pressure exerted only upon the center of the cover, as in this case, where the presser-foot *f* is the only device thus employed. Being only at the center, the pressure is equal or uniform all around, and thereby the lead packing is not injured by having greater pressure at one point than another. While operating with apparatus of this kind, the retort A is set within the casing of a suitable heating-furnace, being suspended therein by its collar *b*. The retort thus becomes very hot, and while heated it is necessary to lift it from the furnace, and frequently, while hot, it is required to be repeatedly handled. A convenient device attached to the retort for lifting it while hot is therefore important. Two trunnions or lugs, *l*, project from the collar *b*, one being diametrically opposite the other. A bail, E, has the lower ends, *m*, of its arms adapted to couple onto or engage with the trunnions, and thereby serve for lifting the apparatus. This bail may have its ends hook-shaped, or may have eyes to slip onto the trunnions. If eyes are employed, the bail may be attached to the trunnions or de-

tached by spreading the two arms of the bail, as indicated in Fig. 2 by broken lines.

The hand-grasp is denoted by the letter *n*, and just below the said hand-grasp each arm of the bail curves inward toward the other, as at *o*, and then outward, as at *p*, thereby leaving a narrow space, *q*, between the two inward-curved parts. A useful result is obtained from this construction. When a person's hand is on the grasp part *n*, one or two fingers of the same hand may reach below the inward-curved parts *o*, and then be forced up the space *q* between them, thereby causing the lower ends of the arms of the bail to spread and release themselves from the trunnions, as above set forth. It will be seen that each arm of the bail takes position on an opposite side of the retort and cover, and thereby avoids any interference with the clamp which holds the cover, as well as the other cover attachment—such as thermometer and safety-valve, hereinafter mentioned. A thermometer, F, is suitably seated in the cover, and is employed for the usual purpose and in the well-known way in this class of apparatus. It is also employed here in connection with the safety-valve as the guide by which to adjust the latter, as hereinafter specified.

A safety-valve of special construction is employed to relieve the retort of excessive steam-pressure. This valve is designated by the letter G. It consists of four parts—

First. A base, G, which is seated upon the top of the cover C, and has below it a screw-threaded knob, *r*, which enters a hole in the cover. A vent, *s*, opens vertically through the knob, and thence leads laterally, as at *s'*, through the base. Above the base and attached to it is a tubular neck, *t*.

Second. A plug-valve, *u*, is seated in the tubular neck and controls the vent *s*.

Third. A spring, *v*, occupies the tubular neck and bears on the plug-valve.

Fourth. A screw-cap, *w*, covers the tubular neck and bears on the spring.

By this construction, it will be seen, a greater or less pressure may be exerted on the plug-valve, as desired. It may be set to blow off at any desired pressure.

In vulcanizing dental plates it is desired that the heat shall not go above 320° Fahrenheit, and by the aid of the thermometer the screw-cap valve *w* may be set so that the plug-valve will lift by the internal pressure created by that degree of heat.

As the retorts are to be made strong enough to withstand the pressure in question, they cannot be exploded by accidentally allowing the heat to become greater.

It is obvious that certain features of my invention may be used without regard to the others. For instance, the clamping-lever B and pivoted bolt D may be used regardless of the trunnions and bail. It is also plain that certain changes may be made without departing from my invention. For instance, the fork or bifurcation in the lever may be dispensed with, and the bolt D, instead of being pivoted to ears on the collar, may be attached to the end of the lever B and have its lower end take position between the ears *c* on the collar, and there fastened by nut or otherwise. In other words, the relative position of the bolt, its pivot end, and nut end may be reversed.

The usual casing which supports the retort and the lamp for heating it are not deemed necessary to show.

Having described my invention, I claim and desire to secure by Letters Patent of the United States—

1. A vulcanizing apparatus having in combination a retort, a cover for the retort, a clamping-lever having one end pivoted to the retort and extending across the cover, and a bolt to fasten the other end of the lever, as set forth.

2. A vulcanizing apparatus having in combination a retort, a cover for the retort, a clamping-lever having one end pivoted to the retort and extending across the cover and provided at the other end with a fork or bifurcation, and a bolt pivoted to the retort and adapted to take position in the said fork or bifurcation, as set forth.

3. A vulcanizing apparatus having in combination a retort, a cover for the retort, a clamping-lever having one end pivoted to the retort and extending across the cover and provided at its lower side and at the center with a presser-foot, and a bolt to fasten the other end of the lever, as set forth.

4. A vulcanizing apparatus having in combination a retort, a cover for the retort, a cover-holder pivoted to the retort, and which, when turned up, extends horizontally across the said cover, and provided at its center with a presser-foot, which bears on the cover and holds it down on the rim of the retort, as set forth.

5. A vulcanizing apparatus having in combination a retort provided with trunnions, a cover for the retort, a cover-holder, a threaded bolt and nut for pressing the cover tightly on the rim of the retort, and a bail having its ends coupled with the trunnions, as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

WM. B. MANN.

Witnesses:
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JNO. T. MADDOX.