No. 723,998. PATENTED MAR. 31, 1903.

J. H. FEAGAN.

DENTAL FLASK.

APPLICATION FILED JULY 31, 1902.

NO MODEL.

Fig. 1.

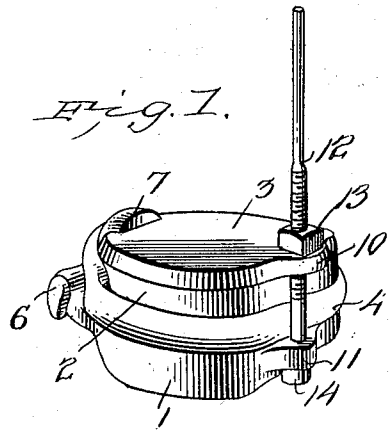


Fig. 2.

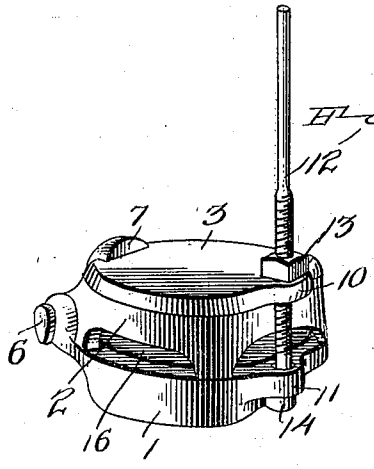


Fig. 3.

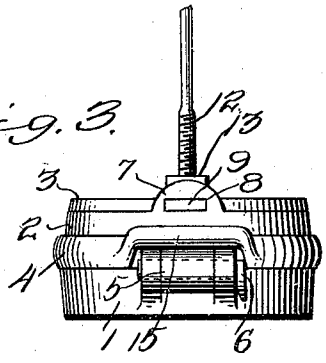


Fig. 4.

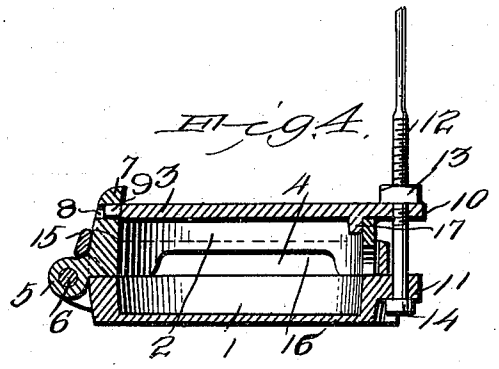
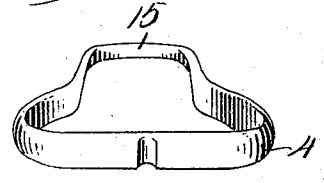


Fig. 5.



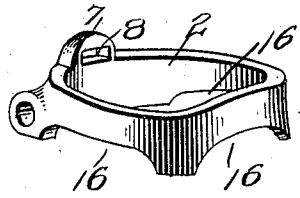
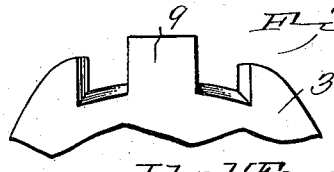


Fig. 6.

Fig. 7.



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UNITED STATES PATENT OFFICE.

JOHN HENRY FEAGAN, OF SPARTANBURG, SOUTH CAROLINA.

DENTAL FLASK.

SPECIFICATION forming part of Letters Patent No. 723,998, dated March 31, 1903.

Application filed July 31, 1902. Serial No. 117,887. (No model.)

To all whom it may concern:

Be it known that I, JOHN HENRY FEAGAN, a citizen of the United States, residing at Spartanburg, in the county of Spartanburg and State of South Carolina, have invented certain new and useful Improvements in Dental Flasks, of which the following is a specification.

This invention relates to dental flasks.

The objects of the invention are to obviate danger of cracking the teeth or of the pattern when closing the flask-sections; to obviate spoilage of plates by inclusion of too much rubber or by failure to include enough; to obviate waste of rubber by the provision of means to permit removal of any excess prior to vulcanization; to effect escape of gas and foul odors during the vulcanizing process, thus to obviate the presentation of porous plates and to render the air of an operating-room more pure; to adapt the flasks for use for vulcanizing rubber plates or for casting metallic ones, thereby rendering the provision of separate flasks for each of the above classes of work unnecessary, and, finally, in a simple, ready, and thoroughly feasible and practical manner to reduce the labor of making dental plates to a minimum and to insure perfect accuracy of fit when completed.

With these and other objects in view, as will appear as the nature of the invention is better understood, the same consists in the novel construction and combination of parts of a dental flask, as will be hereinafter fully described and claimed.

In the accompanying drawings, forming a part of this specification, and in which like numerals of reference indicate corresponding parts, there is illustrated one form of embodiment of the invention capable of carrying the same into practical operation, it being understood that the elements therein exhibited may be varied or changed as to shape, proportion, and exact manner of assemblage without departing from the spirit thereof.

In the drawings, Figure 1 is a view in perspective of a flask constructed in accordance with the present invention, showing the same entirely closed. Fig. 2 is a similar view with the shut-ring removed. Fig. 3 is a view in front elevation. Fig. 4 is a view in longitudinal vertical section. Fig. 5 is a perspective detail view of the shut-ring. Fig. 6 is a similar view of the ring of the flask. Fig. 7 is a fragmentary detail view of the forward end of the cap viewed from the under side.

Before describing the present invention a short explanation will be given of the flasks in ordinary use in order that the advantages of the present device may be more readily appreciated.

The ordinary flask in common use consists of three parts—a bottom or pan section, a middle or ring section, and a top or cap section—and these parts are held assembled for use in any preferred manner.

For the purpose of brevity the above-named parts will be hereinafter designated the "pan," the "ring," and the "cap," respectively.

In making a set of teeth a plaster-of-paris cast of the mouth is first obtained, and when set wax is applied to it in quantity equal to the thickness that the plate is to be made, and the teeth are then set in the wax in the positions they are to occupy in the plate when finished. The pan is then filled with plaster-of-paris batter and the model or pattern just described is pressed down into the batter, with the teeth upward, until the batter rises flush with the gum edge of the wax plate, and the plaster is then smoothed off evenly all around between the pattern and the flask, and after it is perfectly set is varnished. The ring is now associated with the pan and is filled full of plaster batter, after which the cap is positioned. When the plaster batter in the ring has thoroughly set, the flask is placed in hot water for a sufficient length of time to soften the wax, and the pan and ring are then separated, after which the wax is all removed and the cast washed with boiling water, leaving the teeth embedded in the plaster. Dental vulcanized rubber is now packed over the cast in quantity corresponding to the amount of wax used, as near as can be approximated; but through fear of not getting enough rubber, which will result in complete spoilage of the plate, too large a quantity is frequently employed, and when the flask-sections are being screwed together the excess is expressed or squeezed out between the said sections, thus preventing their close assemblage, the result being

the presentation of a plate having a greater thickness than desired or one thicker on one side than on the other, either of which renders it unfit for use. Further, in the attempt to force the flask-sections together the teeth and cast are often cracked and the plate seriously damaged or completely ruined, and any excess of rubber is vulcanized, and thus spoiled for further use.

The above objectionable features are completely obviated in the flask of the present invention, which consists of four sections—a pan 1, a ring 2, a cap 3, and a shut-ring 4. The sections 1 and 2 are connected at their front by a hinge 5, the butts of which are held associated for use by a removable pin 6. (Clearly shown in Fig. 3.) The cap 3 may be associated with the ring 2 in any preferred manner to permit ready separation when desired, in this instance by providing the ring with a lug 7, having an orifice 8 to be engaged by a pintle 9, carried by the front side of the cap. The pan and cap are each provided with a vertically-orificed ear 11 and 10, respectively, to be engaged by a clamping-rod 12, carrying a nut 13, adapted to be seated upon the cap, and thus clamp all of the sections rigidly together, the lower end of the rod being provided with a head 14, as usual. The rod 12 projects some distance above the cap to present a handle or grip to facilitate handling of the flask. The shut-ring 4 is made of a size to fit closely around the ring and to bear upon the hinge and the ear of the pan, its front portion being provided with a yoke 15 to fit over or around the hinge 5, as clearly shown in Fig. 3.

The ring 2, which constitutes one of the essential features of the present invention, has its front and sides cut away to present gates 16, of which in this instance three are shown, the front or hinge-carrying portion of the ring being devoid of a gate, as the hinge would interfere with its proper operation and as its employment is not necessary in practice. These gates subserve the very important function of permitting removal of the plaster-of-paris around the cast, of allowing escape and detachment of excess rubber, and of permitting inspection of the interior of the flask to ascertain whether a sufficient quantity of rubber is *in situ*.

Where a set of teeth is to be made with the flask of this invention, the course of procedure outlined at the beginning of this specification is observed, except that when filling the ring with the plaster batter it must be associated with the pan by the pin 6 and the shut-ring is positioned, as shown in Fig. 1, to close the gates. The plaster batter is then poured in until the ring is filled to overflowing, and the cap is then secured in position by pushing the pintle 9 into the orifice of the lug on the ring and forcing a lug 17 on the under side of the cap downward against the rear outer wall of the ring, as clearly shown in Fig. 4. After the batter in the ring is set sufficiently not to flow out at the gates the shut-ring 4 is removed and the plaster batter in the ring is allowed to set perfectly. The pan and ring are then separated and the wax removed from the cast in the same manner as that before described. A sharp instrument is now taken and the plaster is removed from the gates and is trimmed to a feather-edge up to the teeth, so that when the pan and ring are again brought together a space of about one-eighth of an inch will be presented between the two members of the cast, so that the latter may be distinctly seen from the rear. When the rubber is placed *in situ*, as before described, the nut 13 is tightened with the thumb and finger and the flask is set in boiling water for five or ten minutes to effect softening of the rubber, after which it is removed and the nut is screwed down with a wrench, thereby accurately assembling the flask-sections. The excess of rubber will be squeezed or expressed into the gates 16 without the necessity of exerting sufficient force to crack either the teeth or the cast or to affect them in any way, and such excess may be removed with a pair of pliers and saved for further use, leaving a neat clear cut and accurate plate in the flask. If a doubt exist that sufficient rubber has not been included, this can readily be determined by inspecting the rear of the flask, and, if such be the fact, to remedy this the flask may be slightly opened and additional rubber inserted within the cast. When undergoing vulcanization, the gates permit ready and free escape of the hydrosulfuric gas which accumulates in the rubber, thereby reducing to a minimum the liability of the presentation of a porous plate and resulting in a brighter-colored and tougher vulcanite. Further, by the provision of the gates the water in the vulcanizer is permitted to come into contact with the plate, thereby absorbing the gas above referred to and effectively preventing the escape of offensive odors from the vulcanizer, and as the cast is not strained when the flask-sections are assembled and as the plate is not warped by the gases being locked in the flask a perfect fit will result.

The provision of the clamping-rod 12 is of importance, as it presents a ready and positive means to permit lifting of the flask when being placed within or removed from the vulcanizer.

In addition to being used in the manufacture of rubber plates the flask of this invention is adapted for use in the making of cast-metal plates, thereby serving a double function and obviating necessity of the employment of a separate flask for each class of work.

In making fusible-metal plates the teeth are prepared and placed *in situ* within the flask, as above described, except that the plaster is removed only from the rear gate to form a sprue. The flask is heated up to, say, 400° Fahrenheit and is stood upon its front

end and is held in position by the clamping-rod and the melted metal is poured into the flask through the rear gate, it being understood, of course, that the sections of the flask are securely fastened together by the clamping rod and nut.

It will be seen from the foregoing description that although the improvements of this invention are of exceedingly simple character they will result in the presentation of a thoroughly efficient and desirable flask and one that in use will be found in a ready and practical manner to obviate defects heretofore inherent in flasks in common use.

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

1. In a dental flask, a ring provided at its lower edge with gates.

2. In a dental flask, a ring having its lower edge provided with gates disposed at its sides and rear.

3. In a dental flask, a ring provided on its lower edge with gates, in combination with means for closing the gates.

4. In a dental flask, a ring provided on its lower edge with gates, in combination with detachable means for closing the gates.

5. A dental flask comprising a pan, a ring provided on its lower edge with gates, and a cap detachably associated with the ring.

6. A dental flask comprising a pan, a ring provided on its lower edge with gates, a cap detachably associated with the ring, and means for closing the gates.

7. In a dental flask, a pan provided with a perforated ear, a ring-section detachably connected with the pan and provided with gates and with an orificed lug, a cap provided with means for engaging the orificed lug and with a perforated ear, and a clamping-lug engaging the ears of the pan and the cap and projecting above the latter to present a means for handling the flask.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses:

JOHN HENRY FEAGAN.

Witnesses.
A. P. CUDD,
J. K. HOTTAL.