May 11, 1926.

P. A. HARRIS

1,584,092

DENTAL IMPRESSION TRAY

Filed May 16, 1925

Fig. 1.

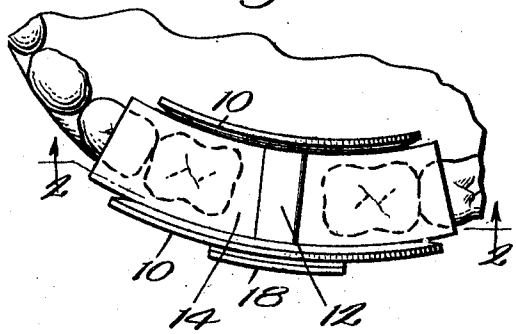


Fig. 2.

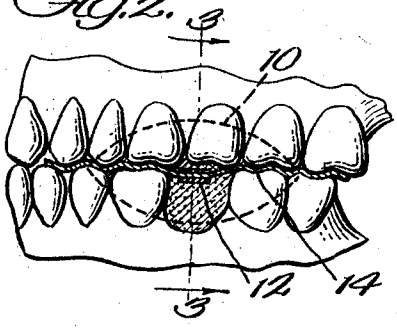


Fig. 3.

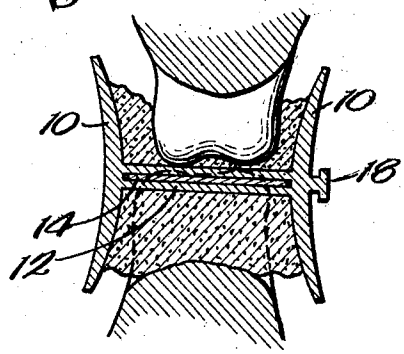


Fig. 4.

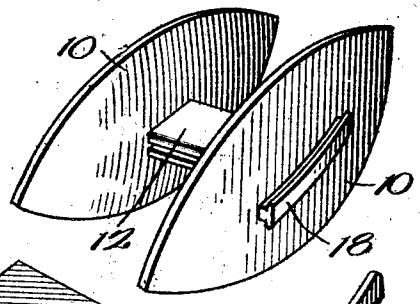
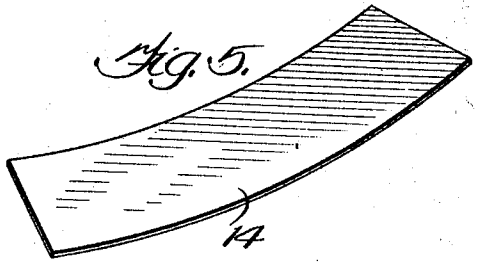


Fig. 5.



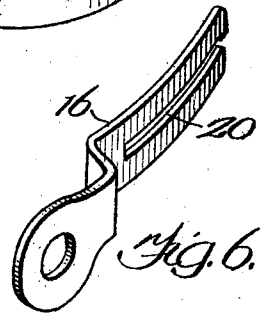
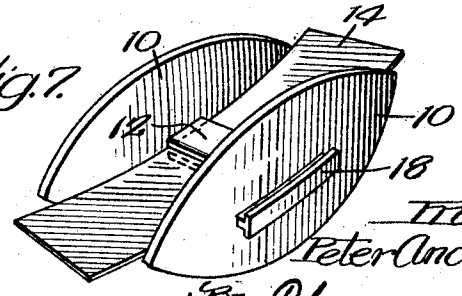


Fig. 6.

Fig. 7.



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Patented May 11, 1926.

1,584,092

UNITED STATES PATENT OFFICE.

PETER ANDREW HARRIS, OF CHICAGO, ILLINOIS.

DENTAL IMPRESSION TRAY.

Application filed May 16, 1925. Serial No. 30,715.

My invention relates to dental impression trays designed to be used as an aid where a tooth or teeth are missing and a restoration of any kind is desired. The object of my invention is to provide a tray by the use of which the operator may obtain simultaneously an impression or mold of both the upper and lower teeth and may also obtain the "bite," that is, the occlusion or relation of the upper and lower teeth when the jaws are closed. Heretofore where a restoration was to be made, for example, if a bridge was to be made, the operator took an impression in plaster of the row of teeth from which the tooth was missing and he also took an impression or "bite" in wax, the latter for the purpose of obtaining the occlusion of the upper and lower rows of teeth. A cast was then made from the plaster mold after which it was secured to one jaw of the articulator, usually by means of plaster. The "bite" was then fitted in place over the cast, after which its exposed surface was filled with plaster to obtain a cast of the coacting teeth. At the same time enough plaster was added to secure this second cast to the second jaw of the articulator. Then the wax was melted out, whereupon the operator had the tooth form of both sets of teeth and also had the relation between them. This, of course, involved several operations and considerable waste of material. As a result of my invention some of the steps of the old method are dispensed with, and there is a saving of material, especially of the wax, which is not required when my tray is used.

I accomplish my objects by the construction illustrated in the accompanying drawings, in which—

Figure 1 is a top view of a portion of the lower jaw of the patient, showing the space of a missing tooth and my tray in place.

Figure 2 is a side elevation of the teeth and tray shown in Figure 1, the near side of the tray being cut away on the line 2—2 Figure 1.

Figure 3 is an enlarged sectional view on the line 3—3 Figure 2.

Figure 4 is a perspective view of the tray from which the parting plate and handle have been removed.

Figure 5 is a perspective view of a parting plate.

Figure 6 is a perspective view of the handle; and

Figure 7 is an assembly view in perspective showing the tray with the parting plate in place.

Like numerals denote like parts throughout the several views.

In the form selected to illustrate the invention the tray has two side plates or flanges 10 connected approximately mid length and approximately mid height by a cross bar 12. By preference these flanges are elongated horizontally and tapered toward the end for the convenience of the patient. The flanges are preferably curved to conform in general to the upper and lower rows of teeth adjacent to the space where the restoration is to be made. For this reason it will be understood that the shape of the flanges will be somewhat different for different portions of the mouth. In the form illustrated the flanges are adapted for teeth at the side of the jaw.

The cross bar 12 is horizontally slotted to receive and support a parting plate 14 shown separately in perspective in Figure 5 and in position in Figure 7. The width of the bar, that is, the horizontal dimension lengthwise of the flanges is less than the space afforded by the missing tooth or teeth, as illustrated in Figures 1 and 2. Where two teeth are missing the cross bar may, of course, be wider than in those cases where the patient has but a single tooth to be restored.

According to my invention the parting plate is quite flexible, thus enabling it to permit the teeth to close practically as completely as if it were absent, the action being illustrated in Figure 2. I have found that a suitable parting plate or partition may be obtained by using sheet celluloid approximately 1 or 2 m. m. thick.

It will be evident that the parting plate is removable and that it may be mounted in the tray by merely inserting it through the slot in the cross bar. Thus the device is sanitary and may be readily taken apart for cleaning purposes.

It is desirable that a handle 16 be provided to assist the operator in positioning the tray in the mouth of the patient. This is preferably removable and for this purpose I have formed a keyed block 18 on the outer flange of the tray and have provided

a slot 20 in the handle for cooperating with it. Thus the handle may be applied by merely sliding it into engagement with the block, after which the tray will be firmly supported by the handle. The handle may be removed by merely withdrawing it from the block.

To illustrate the practical operation of the tray, let it be assumed that the patient has but a single molar missing in the lower jaw, as shown in Figures 1 and 2. The parting plate 14 will be inserted into the slotted cross bar 12, the ends usually projecting somewhat in the manner shown. A quantity of plaster is then placed in the tray both above and below the parting plate so that an impression may be made of both the upper and lower teeth. The operator then places the tray in the patient's mouth in such position that the cross bar 12 will come within the space left by the missing tooth. The patient is then asked to bite firmly, that is, to exert enough pressure not only to produce impressions in the plaster but to force the parting plate to follow closely the contour of the teeth. This act upon the part of the patient will bring the articulating teeth practically into contact with each other, and the impressions in the plaster both above and below the parting plate will be practically the same as if the parting plate were absent. Incidentally, the cross bar 12 will sink out of the way of the tooth above, descending into the space formerly occupied by the missing tooth.

After the plaster has set sufficiently the tray with its contents is removed from the mouth of the patient. The operator now has two plaster molds which are rigid in distinction to the yielding nature of a wax "bite", and these molds not only give the correct form of both sets of teeth but they also give the relation which they occupy relatively to each other. These molds are then placed in an articulator while still in position in the tray and enough plaster or other suitable moldable material is introduced not only to make a cast from each, but also to secure the casts to the articulator. After the plaster has set, the articulator is swung open and the tray and molds removed, whereupon the operator has casts of the two sets of teeth, giving not only their true form but also their occlusion and articulation. The two casts separate readily because of the "draft" or divergence of the sides of the tray, and the presence of the parting strip.

Thus as a result of my invention the method of obtaining casts in place in an articulator is greatly simplified and the amount of material required much reduced. No wax "bite" is required, and instead of requiring the patient to make two impressions at different times—once in plaster and once in wax—he is required to make an impression but once, that is when he bites into the plaster in my double tray. Moreover the final casts are usually more accurate and less care is required when my tray is used because the wax used by the old method always remains more or less plastic and cannot so well be relied upon, whereas with my tray the operator works only with plaster which is rigid.

While I have mentioned plaster as a proper molding compound it will be understood that other molding materials or compounds may be substituted with like effect. In certain work with my tray even wax may be employed for while wax of itself is not as durable or rigid as plaster, nevertheless as a result of its being mounted in my tray the side flanges will brace the wax and assist it to maintain its form. I do not wish to be limited, therefore, to the use of rigid plaster for my tray makes it more practical to use wax than in the case of the trays heretofore known.

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

1. A dental tray having sides and a cross bar connecting them, said bar being horizontally slotted, and a flexible partition passing through the slot and being supported by said bar.

2. A double dental tray having sides which diverge toward the bottom and toward the top to afford draft, a thin sheet of celluloid separating the upper and lower portions of the tray and means for holding said sheet in position in the tray.

In witness whereof, I have hereunto subscribed my name.

PETER ANDREW HARRIS.