Crown, bar, and bridge-work : new methods of permanently adjusting artificial teeth without plates / Isidore E. Clifford and R. E. Clifford.

Crown, Bar, and Bridge-work.

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With the Author's Compliments

O/r

CROWN, BAR, AND BRIDGE-WORK:

NEW METHODS

OF

PERMANENTLY ADJUSTING

Artificial Teeth without Plates.

BY

ISIDORE E. CLIFFORD AND R. E. CLIFFORD.

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PREFACE.

THE object of the following pages is to explain a system of preserving Decayed, and supplying Artificial Teeth, which has been for some years in use most successfully in America, but has hitherto not been introduced into England. The system is in many ways more cleanly, durable, and satisfactory than the old-fashioned methods. We have, therefore, prepared this account to explain to the Medical Profession, and those interested in the subject, the advantages of the system of Dentistry known as CROWN, BAR, AND BRIDGE-WORK. If the explanations be found too curt or incomplete, we can only rely for apology on the exigencies of active practice.

ISIDORE E. CLIFFORD.
R. E. CLIFFORD.

8 GROSVENOR STREET, W.

Crown, Bar, and Bridge-work.

THE necessity of the preservation of the teeth for health, comfort, and appearance, need not here be dilated upon. To those who do not value their teeth these pages are not addressed, they are submitted to those who desire to take advantage of the most elegant, cleanly, and satisfactory operations in dentistry. Such patients have hitherto had to be satisfied with what ordinary English dentists did for them, putting up with discomfort and inconveniences because they thought that these were necessary adjuncts of anything artificial, and because they did not know of the existence of the methods about to be explained.

For the last thirty years in England dentistry has

made little or no progress; but in America it has been slowly and steadily improving year by year, culminating in recent years in very great improvements. These have been introduced in order to overcome the several disadvantages connected with the ordinary methods of treating decayed teeth and adjusting Artificial ones. Experience has drawn up a long indictment against the use of plates and fastenings, the chief of which may be summed up in the following enumeration.

Disadvantages of Old Methods.

Teeth decayed beyond a small cavity are useless and are usually extracted, unless a very lengthy operation is performed to save them. All roots are useless, except those of front teeth, which can be pivoted. Pivot teeth, *i.e.*, teeth fastened to the roots with a pivot, pin or screw, are only temporary operations, rarely lasting more than a year or two. They do not preserve the root to which they are attached, and in which decay extends until the pivot loosens. Then, they are not cleanly, since particles of food can collect between root and tooth; they are never so strong nor firm as "crowned" teeth on the new method,

since in addition to the pivot the crown fits over the root like a cap and has an external grasp of it, so that it is hermetically sealed. Roots decayed too far for pivoting can be crowned. Artificial teeth fastened with plates or wires to the other teeth take up unnecessary room in the mouth. They are in the way of articulation, singing, &c., interfere with the sense of taste, and involve the trouble of being constantly removed for cleaning. After meals, particles of food always collect under them until they are cleaned. Though often cleaned they are rarely thoroughly clean, and always injure the teeth to which they may be fastened, or any part of any tooth the fastenings or plate may touch (*a*). They are dangerous, as they are easily broken, displaced, or even swallowed. The constant removal of plates injures and loosens the teeth by which they are held. The fastening and plates assist detection; and, finally, they frequently require altering as the mouth alters, and are a constant trouble and expense.

In opposition to this long list of objections it has been proved that the methods described in these

(*a*) It must, however, be stated that they rarely injure inside lower front teeth.

pages obviate most of them, and at the same time present special advantages of their own, as may be seen from the following explanation:—

Advantages of Crown, Bar, and Bridge-work.

Simple CROWNS cover and save the worst teeth or roots in any part of the mouth; by hermetically sealing them they permanently prevent decay; they are painless in their application; they do not necessitate the lengthy and tedious operation of large gold fillings, and prevent any future pain or trouble; and when plates are being worn these may be attached to a crowned tooth without injuring it. Crowned roots or teeth are thoroughly useful for mastication. When teeth are replaced on this method, the small cap on the root prevents them decaying, and does not allow particles of food, or the secretions of the mouth to get between the root and tooth. If fixed properly they are as strong, firm, and durable as natural teeth.

BAR-WORK (where no roots remain and only a few teeth are required) saves the necessity of a plate and all its accompanying annoyances, discomforts, and disadvantages. It consists of attaching artificial teeth

to the natural ones by means of a bar which is fixed with gold into cavities in the latter, any decay in any position of a natural tooth being made use of for this purpose. When, however, no cavities exist, the injury caused by a competent operator cutting a small retaining point for the bar in a healthy tooth is immediately repaired, and the tooth runs no more risk than if it had not been touched, and suffers far less injury than is caused in a very short time by a fastening for a plate. In very many cases where a few artificial teeth are wanted they can be interposed between natural teeth by the aid of a ring cemented round, or a cap fastened to the latter, doing away with the necessity of cutting any portion of a sound tooth. Bar-work is also used for securing permanently any loose tooth or teeth; by this means they are prevented from lengthening or parting, in fact, Bar-work is the only way to treat teeth loosened by receding gums or absorption of the bone, enabling these teeth to be used with comfort and power.

Though BAR and BRIDGE-WORK can never be taken out but by a dentist, it can be thoroughly cleaned in the mouth with the other teeth, no particle of food can pass under nor adhere to them more than to natural

teeth, they are the exact size of natural teeth, and take up no more space in the mouth. Hence they are not in the way of articulation, singing, &c., do not interfere with the sense of taste, do not injure any teeth, in fact, they support the teeth to which they are attached. They are as thoroughly efficient as natural teeth for mastication, are not dangerous, as they cannot move, nor be swallowed; there being no plates nor fastenings they cannot possibly be detected. When once fixed they are with ordinary care permanent, cannot require altering, and prevent the mouth from changing its shape. Even a complete set can be fixed in this way, provided three or four properly placed roots or teeth exist in the mouth. All these operations are painless and expeditious; when only single crowns are required, they rarely take more than an hour to make and adjust. But though so simple in its application, Crown-work is difficult for the dentist, requiring special mechanical skill and delicate manipulation, beyond that usually employed for ordinary dental work. It is probably for this reason that the dentists of England have fought shy of bestowing the necessary time and trouble to become proficient in this new and difficult work. The difficulty is still further increased for the dentist when Bar and Bridge-work is required. Much

time must be bestowed by the most skilled operator, and this necessitates increased expense for these operations. We have mentioned these facts as they seem to us to include all the disadvantages connected with Crown, Bar, and Bridge-work. It may be added that there are just a few cases where Bridge-work is not applicable.

It will thus be seen that Crown, Bar, and Bridge-work is the nearest reproduction of natural teeth that art can supply, and besides gives an inducement to retain the natural teeth as long as possible in order to render useful whatever remains of them.

A most erroneous impression exists in the popular mind which is not removed by the ordinary members of the profession. It is thought that if a tooth be diseased or decayed to any considerable extent, it must necessarily be extracted. It seems, therefore, necessary, before entering into details of the new method, to lay special stress on the following facts, which form the fundamental principles of conservative dentistry.

It has been conclusively proved that no tooth, however badly decayed, need be extracted, unless it is quite loose. Competent operating can save every tooth, whether it be aching, its nerve exposed, or even if there be an abscess beneath it. With skill and care these

operations can be performed painlessly in almost all cases. Every tooth, however badly decayed, can be filled with gold. (*a*) The nerve of any tooth can be painlessly treated in such a manner that it shall never be a source of trouble (whether hidden under a filling or a crown); it is only a question if it be worth the time, trouble and expense. The old-fashioned dentists would either extract the tooth or fill it with cement, but modern good operators build these teeth entirely with gold, a thoroughly successful operation if done properly, but it frequently takes many hours, and is therefore more expensive than Crown-work.

Thus, every decayed tooth can be permanently saved, and may be made useful for the purposes of the Methods we are about to explain. Decayed teeth or roots are utilised either for (1) attaching a CROWN, (2) fixing a BAR, or (3) as supports for a BRIDGE. It is impossible to represent by illustrations all the varieties of applications of this work, but we have endeavoured to place before the reader a number of

(*a*) As to teeth not being able to bear the pressure, &c., &c., these are excuses made by dentists, either because they are unable to do the operation, or because they will not take the trouble, or do not like to inform their patient that it would be a very expensive matter to build up the tooth with gold.

typical instances to which most cases of artificial teeth can be referred.

I.—CROWN-WORK.

The simplest form of tooth crown consists of a hollow cap made either of platina or gold, exactly the shape of the original tooth; it is used when back teeth out of sight are badly diseased. After the decay has been carefully removed, and the nerve properly treated, the cavity is filled with cement, and the crown placed over all, and also attached with cement. As the crown is fitted just under the free margin or edge of the gum, in actual contact with the tooth in every part, no saliva or external cause can affect the cement which protects the tooth.

It is now fully recognised that all decay in teeth is induced solely by external causes. As these are excluded, decay is permanently prevented, and, at the same time, the metal crown is thoroughly efficient for mastication. The very worst teeth, and even roots, can in this manner be painlessly treated, crowned, and preserved as useful members. When, however, the crown is likely to show, the front of it is made of porcelain, exactly the same as a natural tooth in appearance, so that there is no way of

detecting what has been done without carefully examining the inside of the tooth.

Thus if even only a root be left, instead of wearing an artificial tooth on a plate fastened to other teeth, it should be fixed as the diagrams show. Even roots that have been covered for years by ordinary artificial teeth made with plates, can, in most cases, be crowned and the plate discarded. Another use for crowns is in their application to front teeth that project or stand in a wrong position, or are decayed, discoloured or stunted. The natural crown (the part projecting from the gum) can be painlessly cut off level with the gum, and a new crown of any size, shape, or colour, permanently attached in any position to the remaining root. The question might naturally arise as to whether pain and trouble might not go on or commence at some future time in a root or tooth hidden under a crown. But such an idea may be dismissed from the mind, as decay is impossible, under any circumstance, if the tooth has been properly treated, and the root, by this means, hermetically sealed.

The accompanying diagrams will sufficiently explain the process.

PLATE I

Taking first the ordinary case of a badly diseased molar (or masticating tooth). This would, in the hands of an ordinary dentist, be extracted at once, or, at the best, filled with amalgam or cement "to last as long as it could." But, in a very few years, or even months, it would have to be extracted through the inability of the dentist to prevent further disease. On the other hand, the application of a crown permanently restores it to its original efficiency, and prevents any future trouble, or the possibility of decay spreading from the affected tooth to any other.

Fig. 1.—The crown is shown before adjusted to the tooth; in Fig. 2 it will be observed that the crown is cemented to the root. This operation would take about an hour from beginning to end.

In Fig. 3 a decayed bicuspid (4th or 5th tooth from the centre of the mouth) is shown in two positions, with and without the crown. In this case the crown is enamel in front where it is visible, and is provided with a gold or platinum masticating block at the back, out of sight, so that it can be used like a natural tooth. In the case of the front teeth (Fig. 4), the shape being different (as shown in Fig. 5), there is no necessity for any block, as these teeth are only used for cutting food, and not for mastication.

II.—BAR-WORK.

Bar-work consists in attaching artificial teeth to natural teeth or crowns by means of a bar or spurs, which are fixed in cavities either existing in the teeth or made for the purpose. It very frequently happens that the cavities in which the bar or spur is to be inserted already exist in adjoining teeth. But if necessary, a sufficient portion of the tooth can be painlessly removed for this purpose and replaced with gold, without in any way lessening the power of mastication or causing any additional risk of decay.

The accompanying diagrams do not require very detailed description. It will be sufficient to point out that Fig. 6 represents the side of a lower jaw, with one tooth missing, which is replaced by a bar-tooth (Fig. 7), so adjusted that the mouth regains its original form (Fig. 8). Fig. 9 gives the plate which was previously worn by the patient from whose mouth Fig. 6 was drawn. Another ordinary case is represented in Fig. 10, in which an absent front tooth is replaced by a bar-tooth (Fig. 11), more than fulfilling the purposes effected by the cumbrous plate previously worn represented in Fig. 12.

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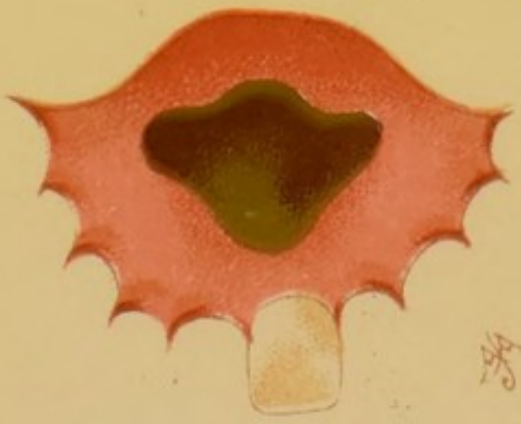

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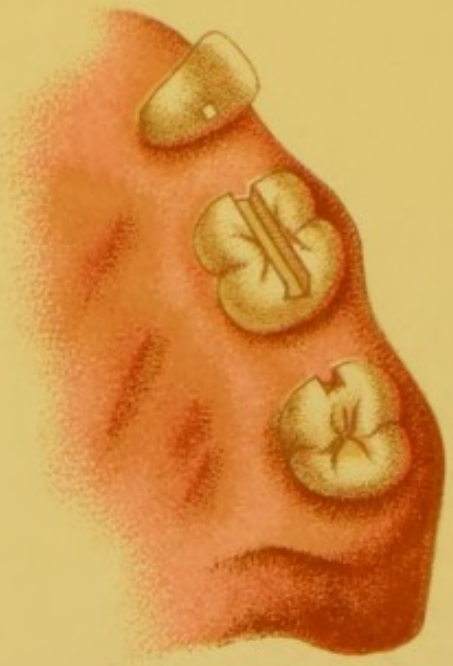
PLATE 2.



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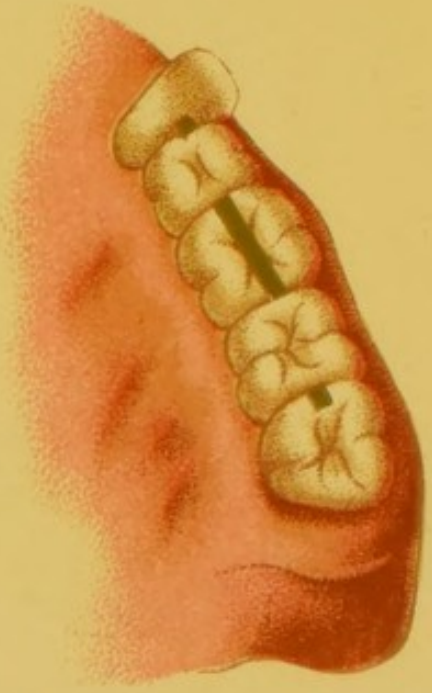

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PLATE 3

Bar-work can be equally well applied for replacing two or three teeth (Figs. 13 to 15).

When it becomes necessary to file or remove any portion of a healthy or decayed part of a tooth, such operation can be performed quite painlessly by means of an admirable invention recently made in France. A stream of hot dry air, at high pressure, is directed upon the tooth, and, in an extremely short time, so thoroughly dries and mummifies the tooth that the nervous matter cannot transmit any sensation.

When it is not desirable to cut even the smallest cavity in a tooth in order to apply the bar, a simple and efficacious method exists by which this may be avoided. A narrow gold or platina ring is made to fit exactly round the tooth to which the artificial one is to be attached, and this is cemented on to the tooth after being soldered to the artificial one. The accompanying diagrams show the process (Figs. 16 to 18).

It may be remarked that this method differs essentially from the bands employed in a plate attachment. Being cemented to the tooth, nothing can collect under it to induce decay, nor is there any friction on the tooth.

III.—BRIDGE-WORK.

Bridge-work consists in attaching (1) two artificial teeth to one tooth or root; (2) three or more artificial teeth to two teeth or roots; or (3) a whole set of teeth to three or four teeth or roots. When extra strength is required, as is often the case with bridge-work, a platinum pin is fixed in the crown; this passes into the cavity in the root which was previously occupied by the nerve, and is cemented there.

(1) The simplest case where this method of work is efficacious is shown in Fig. 19, where two teeth are missing, one being even without a root. A crown is made for the decayed lateral or front-tooth to which the artificial tooth is attached. Fig. 20 shows the size of the tooth and crown, which are seen fixed in their places in Fig. 21.

(2) In a more extensive case (Fig. 22), where five teeth are missing on one side of the mouth, and two roots only remain, a bridge is made (which is shown upside down in Fig. 23), and being permanently fixed in its place (as in Fig. 24), answers every purpose of natural teeth, and at the same time avoids the necessity of an uncleanly and cumbrous plate.

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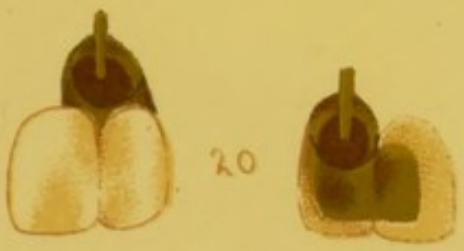

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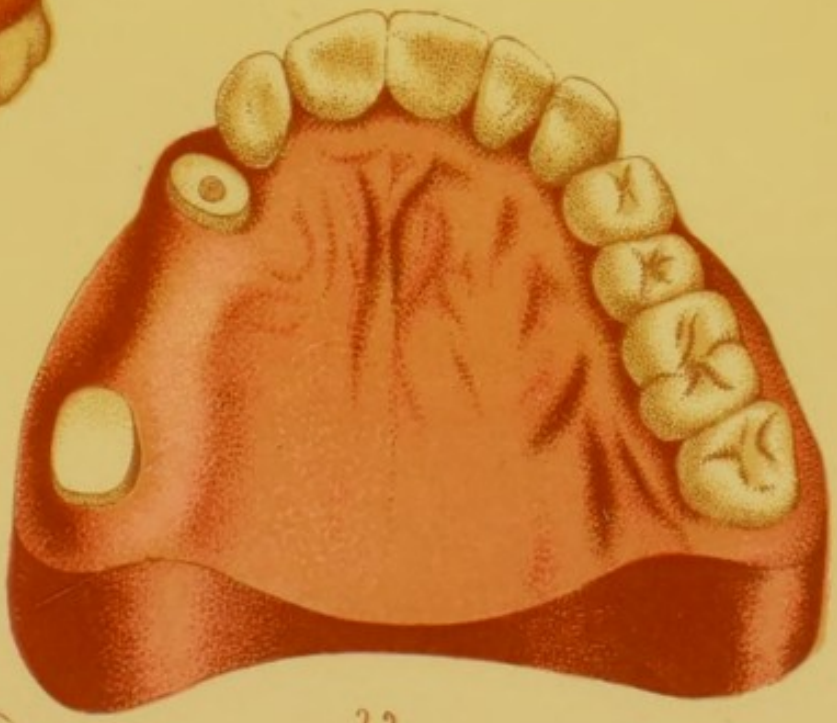

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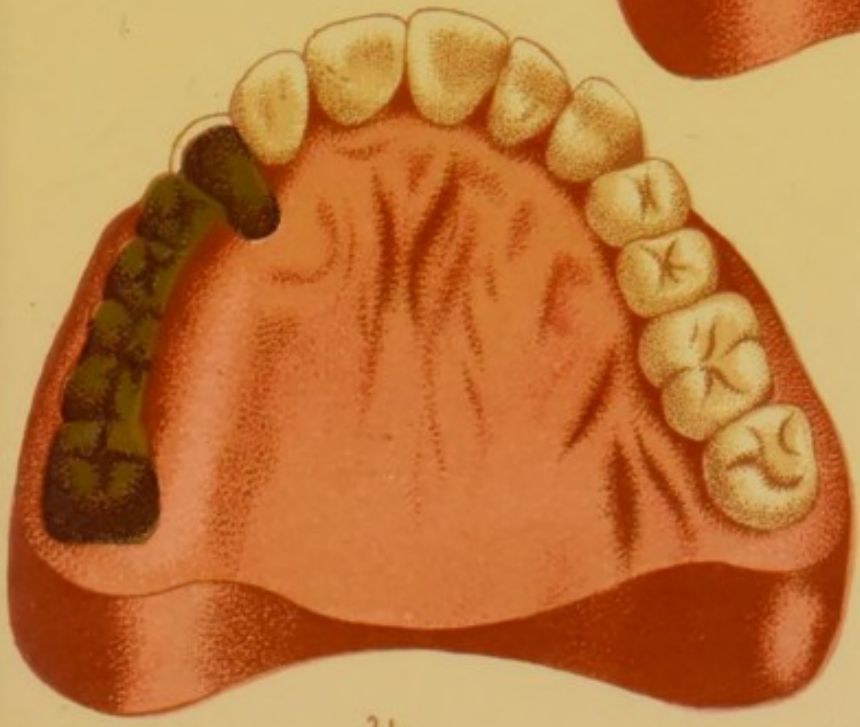

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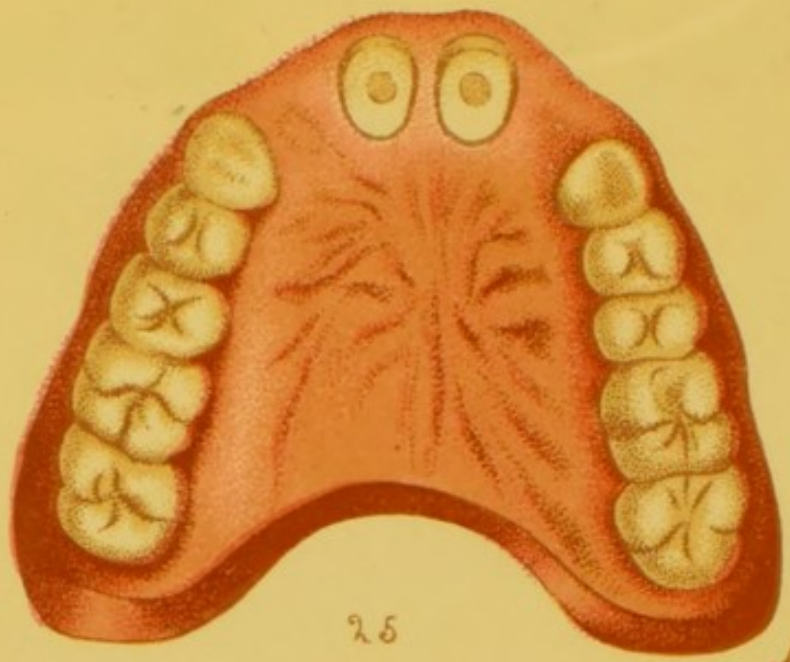
PLATE 4



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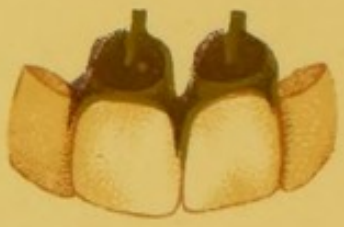

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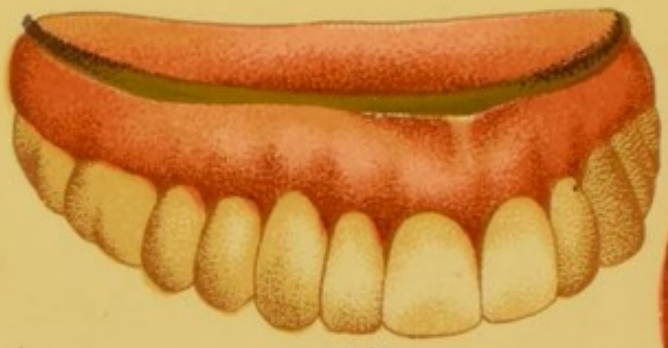

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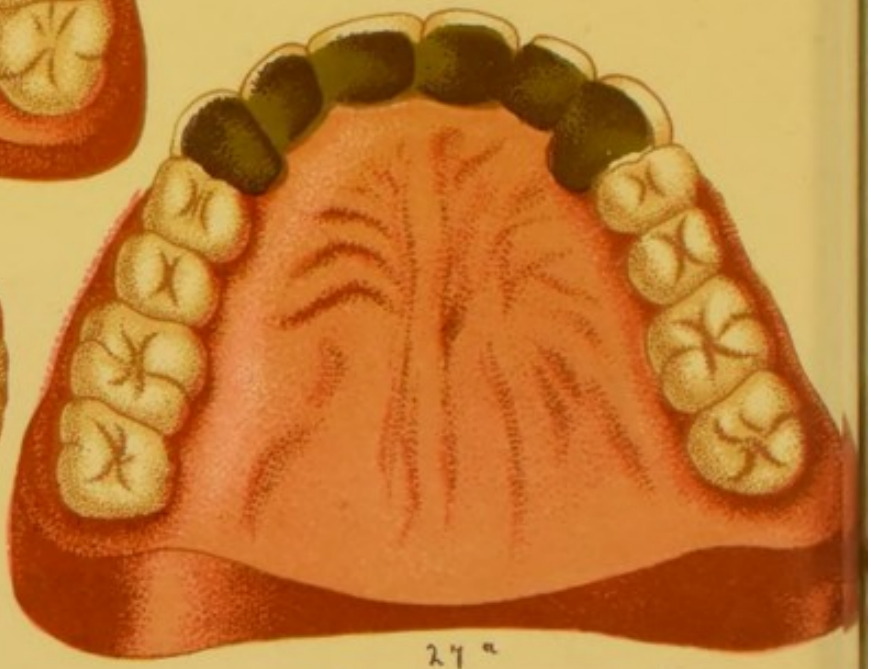

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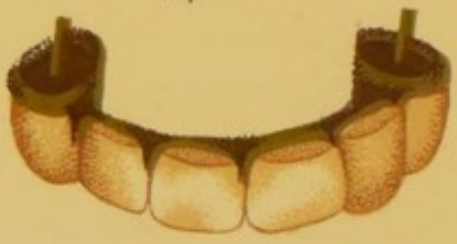

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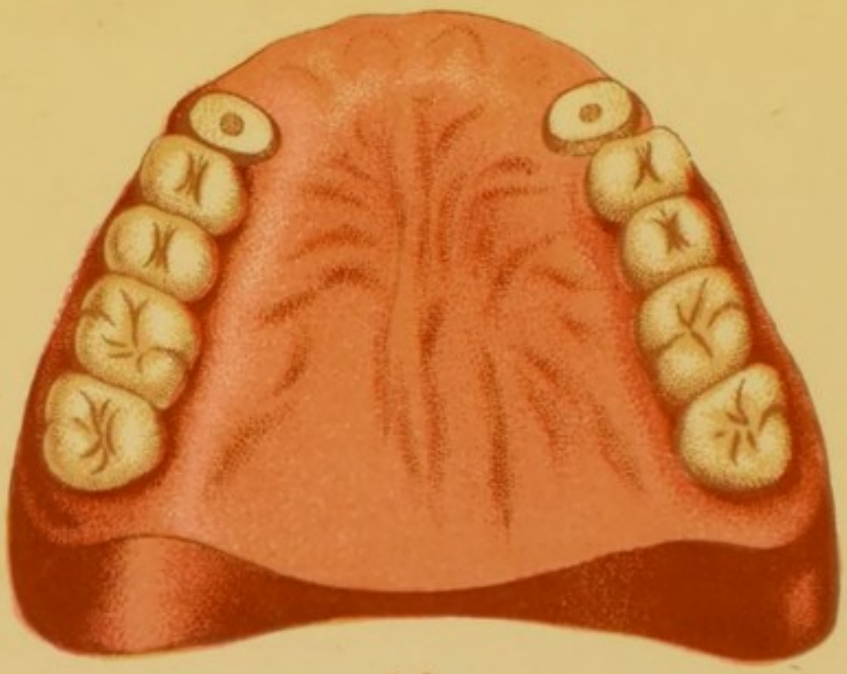

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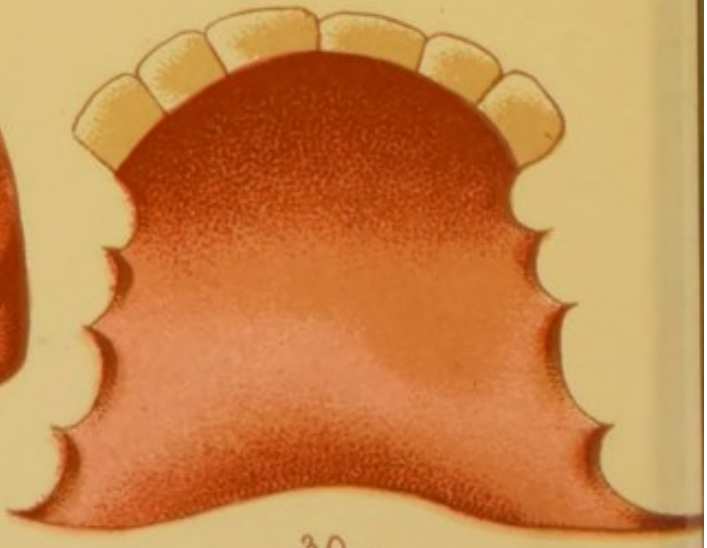

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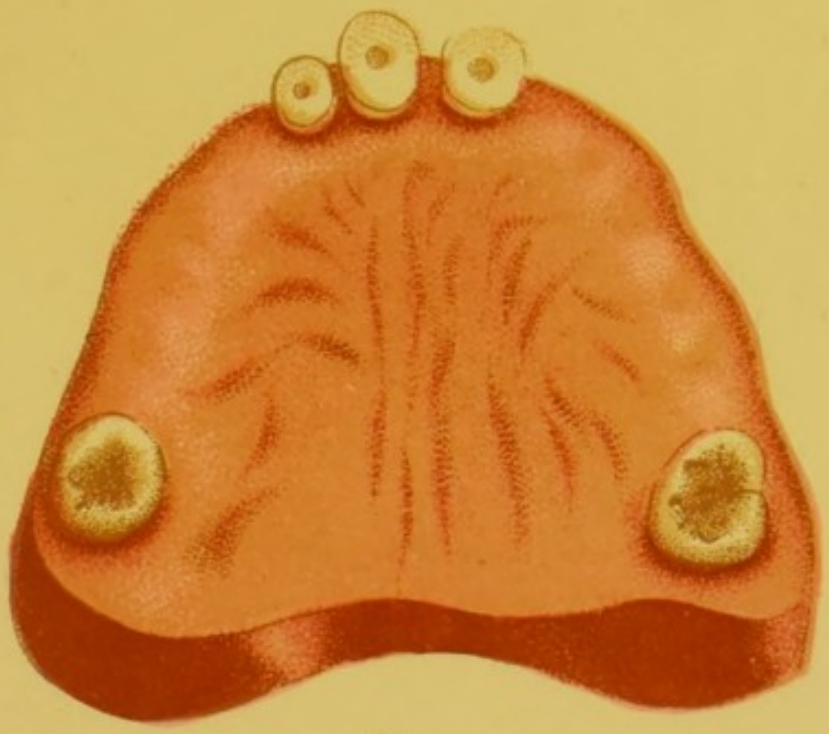
PLATE 5

The method is equally applicable when front teeth are missing, an example of which is shown in Figs. 25 to 27, the first of which represents a mouth in which four front teeth are missing, two of the roots of which remain and are utilised for supporting all four new teeth. These constitute the bridge figured in Fig. 26 and shown in place in Fig. 27.

Another instance is shown in Figs. 28 to 30, in which originally six teeth were missing and are replaced by a bridge (Fig. 27) attached to two roots Fig. 30 shows the ordinary removeable artificial plate which would otherwise have been worn. The front view in this case, as in the preceding one, is represented in Fig. 27, and the back view in Fig. 27A.

(3) In cases where every tooth is lost, provided a few suitable roots remain, a perfect set of teeth may be fixed by means of Bridge-work. Fig. 31 shows a mouth with every tooth missing, and only five roots standing. Fig. 32 represents the bridge made for this case, Fig. 33 the mouth with bridge permanently fixed. Here success was obtained without any plate covering the palate after a plate had been worn uncomfortably for many years.



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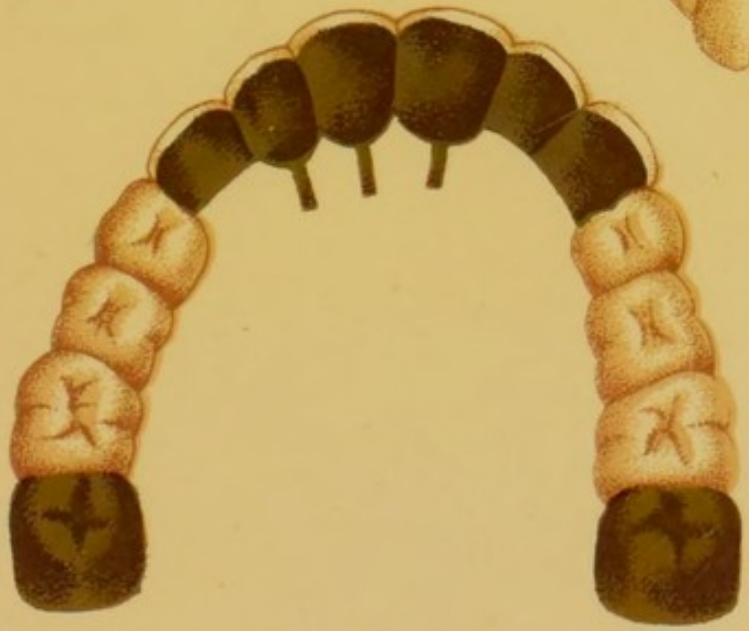

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PLATE 6

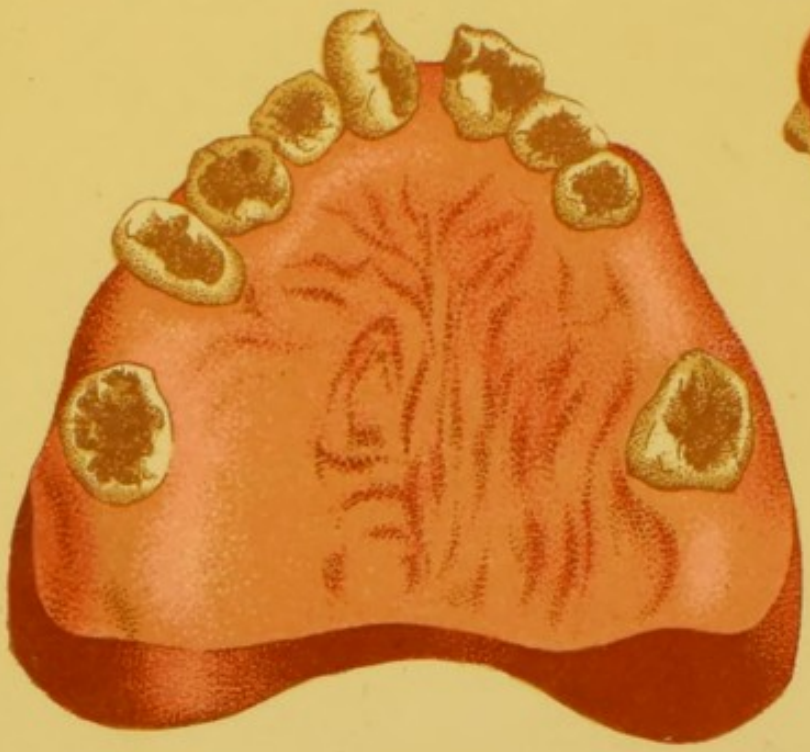

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PLATE 7

Fig. 34 is a case where, by the use of crowns and bridges, the mouth was restored as in Fig. 35. In this case the patient had been strongly advised to have every tooth extracted and a plate made, but, by the aid of combined Crown and Bridge-work, the mouth was restored to a state of comfort which it had never before experienced.

We take the liberty of publishing the model of the mouth of a friend and most eminent dentist (Fig. 36), as we are sure he is never suspected of being in any way indebted to art, and yet to our knowledge he has worn a bridge case for over ten years (Fig. 37). The reader will observe eight teeth attached to the two roots, and a gold crown fixed on the third (Fig. 38) for extra powers of mastication.

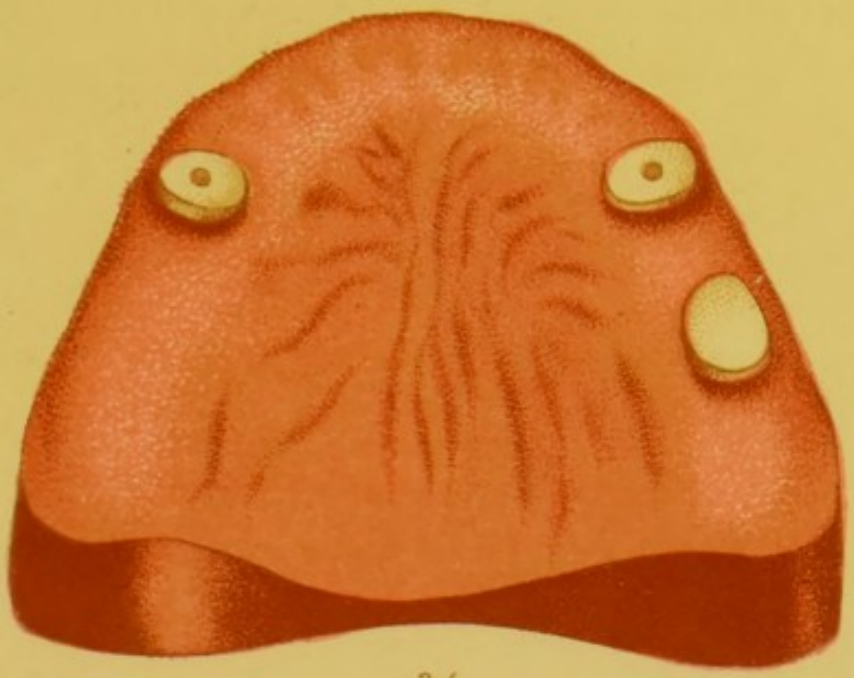

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PLATE 8

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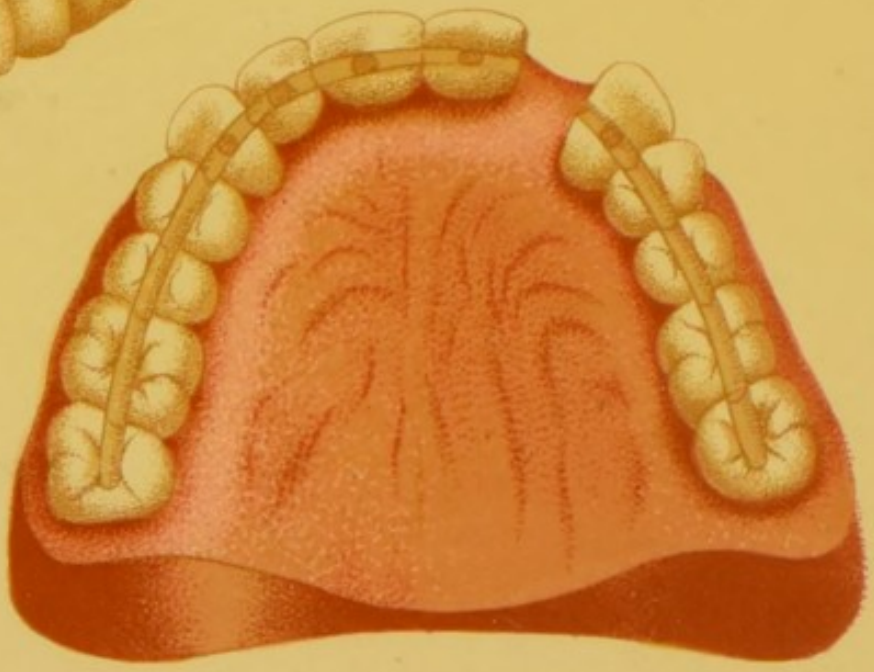

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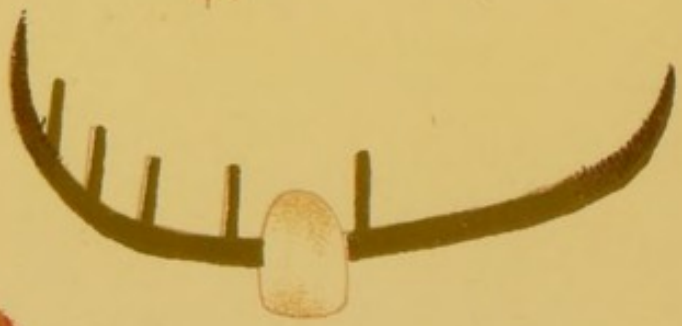

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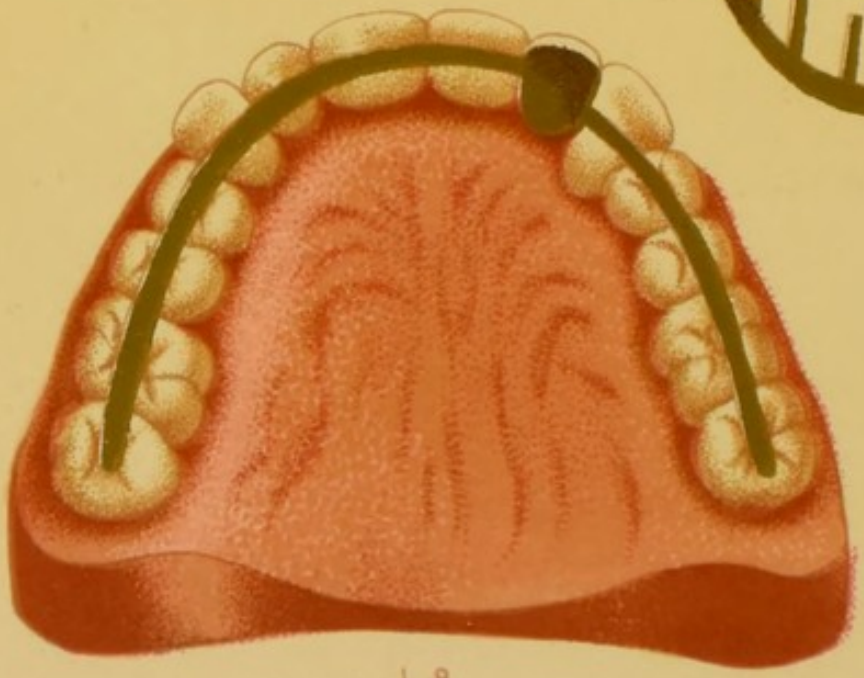

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PLATE 10

IV.—BARS FOR LOOSE TEETH.

Bars also effectually secure teeth that have become loose from separating, weakness, recession of gums, or Rigg's disease (*a*), and prevent them from becoming elongated or projected. Grooves are cut in the inside of such teeth and a bar fixed in them and fastened into neighbouring teeth; even if three or four loose teeth be fastened together in this way they all support one another, and not only appear quite tight but eventually become so, by the gum growing up close to them, and, with proper treatment, the bone becomes healthy, which it could not do whilst the teeth were moving about and irritating the gums and bony attachments. The simplest form of this bar is for fastening one loose tooth, as shown in Fig. 39.

(*a*) Rigg's disease, or Pyorrhœa Alveolaris, is a disease of the bone round the roots of the teeth, which gradually exfoliates in small granules, and, as it recedes, carries with it the gum and loosens the teeth.

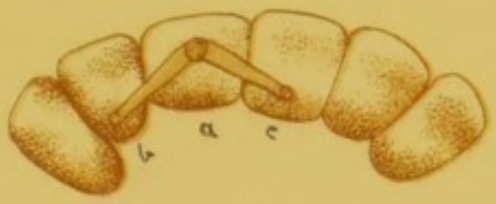
The appended illustrations will explain the process.

Fig. 39.—The middle tooth is loose; a groove is cut in all three teeth.

Fig. 43.—The bar of square platina (actual size).

Fig. 44.—The bar is placed in all teeth and filled above and below with hard gold. The tooth is immediately held tight, and eventually becomes so.

Fig. 42 shows a case where an elongated front tooth required to be held in position. A, B, and C have a groove cut in them; a Bar, as in diagram 40, is fixed in all three teeth, which are then filled with gold. B and C are none the worse, and A is held permanently fastened; the point of it can then be filed and made the proper length, from which it cannot alter (Fig. 44).



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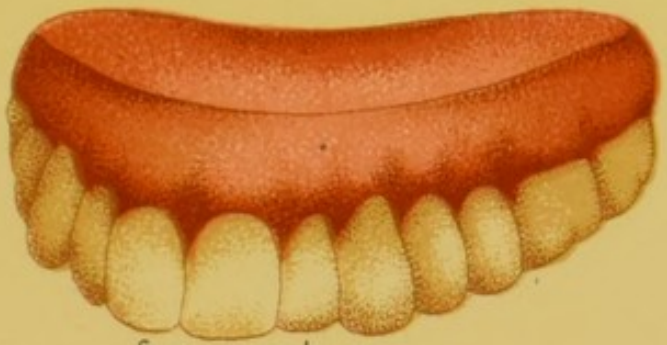

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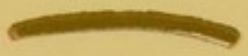

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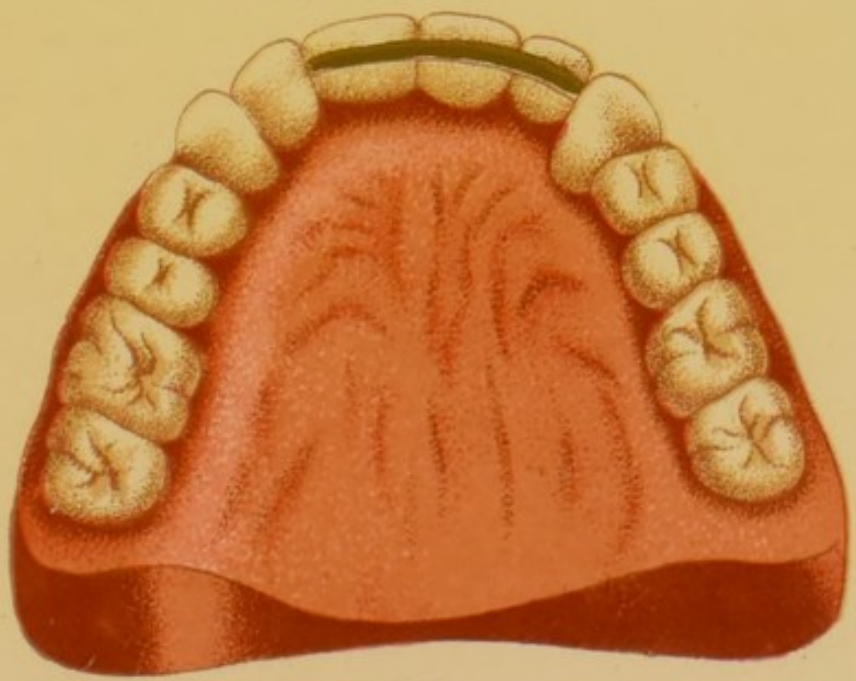

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PLATE 9

Again, Bars made for fastening loose teeth are often used as supports for replacing missing teeth. One of the most extensive cases of this kind was done a year ago for a young lady of about twenty-three years of age. All the teeth being loosened, the result of Rigg's disease, the affected teeth were cut, as shown, and secured with a gold bar, to which the artificial tooth was attached. Figs. 45 to 48.

This work can be combined in all its forms. Bars can be fixed to crowns, either for fastening loose teeth or supporting artificial ones at some other part of the mouth.

Crown, Bar, and Bridge-work can be combined and applied in so many various ways that it is impossible to do more than give a general idea of a few typical cases. Wide experience has shown that by a little ingenuity and careful manipulation an almost infinite number of combinations can be formed of these different methods by which they may be made to apply to almost every case that can come before a competent operator.

It requires very little power of prophecy to foretell that the methods explained in the preceding pages must inevitably win their way into general use owing

to the manifest advantages they possess over the older systems. If they have not hitherto received the attention they merit from the dental profession, this fact must be attributed to the many difficulties that have been thrown in the way of their general introduction. At the present moment attempts are being made in America to patent these processes, and thus to secure the full benefit of Crown, Bar, and Bridge-work to a closed circle of monopolists. In England, the few dentists who have known of these processes have been kept from adopting them by a natural conservatism which made them prefer familiar methods instead of learning late in life a new and more difficult kind of work. Though presenting more difficulties to the dentist, the new work is much more beneficial for the patient; and in both countries the interests of the public have been too much overlooked; in England especially the general public has been kept almost in entire ignorance on the subject. If the preceding pages aid in removing the obscurity that has hitherto rested on these processes, their object will have been effected, and no slight step will have been taken towards the introduction of what we confidently anticipate will be the dental system of the future.

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