

INTERNATIONAL TOOTH CROWN CO. V. RICHMOND AND OTHERS.

*Circuit Court, D. Connecticut.*

February 21, 1887.

1. PATENTS FOB INVENTIONS—PATENTABILITY—INVENTION.

An improved method of inserting and supporting artificial teeth, whereby former unsuccessful methods are altered, and a successful form of attachment supplied, is an invention a patent for which will be sustained, although the former methods, and the failure of the same, may have pointed out the way, and been utilized for perfecting the improvement.

2. SAME—APPLICATION—ABANDONMENT.

Where an application for a patent is refused, and a controversy thereupon ensues with the officials of the patent-office with respect to the same, in which the examiner suggests that instead of a reconsideration, and approval of an amended application, a new application be made, with certain modifications, and a new application is accordingly filed, differing from the first in the omission of superfluous matter, and changing the description in some particulars, and a patent is thereupon granted, such new application will be regarded as a more convenient way of prosecuting the first, and the two considered as parts of a continuous proceeding. Hence the allegation of two years' public use in contesting the patent will be referred to the date of the first application, and not the second.

3. SAME—PATENTABILITY—MECHANICAL SKILL.

Where a method of making and inserting artificial tooth crowns is practiced and demonstrated for years, a mere mechanical change in such method, which has no patentable novelty in itself, is not an invention for which a patent will be sustained.

In Equity. Bill for injunction to restrain infringement of letters patent, and for accounting.

*Dickerson & Dickerson*, for complainants.

*J. Kimberly Beach* and *S. J. Gordon*, for defendants.

Before WALLACE and SHIPMAN, JJ.

WALLACE, J. The complainant is the owner of four patents, relating to improvements in the dental art, all of which are alleged to be infringed by the defendants. This suit is brought for an injunction and accounting. The first of the patents in suit was granted to James E. Low, March 15, 1881, upon an application filed December 20, 1880. The subject is an improvement in dentistry, whereby artificial dental surfaces may be permanently fixed in the mouth in place of lost teeth, without the use of plates or other means of deriving support from the gum beneath the artificial dentition. The patentee refers in his specification to the pre-existing state of the art as follows:

“Heretofore artificial teeth have invariably been supported entirely by the gum, and usually upon a plate fitted to the gum, and, in the case of upper teeth, to the roof of the mouth. Clasps or attachments to the adjacent teeth have been employed for the lower jaw to retain the artificial teeth in proper relation to the adjacent teeth, but said attachments have never been designed or adapted to sustain the pressure upon the artificial teeth in mastication without aid from the gum. The use of plates or other methods of supporting

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the artificial teeth by the gum is highly objectionable, because—*First*, they necessarily cover the cutaneous surfaces which health requires should be uncovered; *second*, they occupy a space within the mouth, and are uncomfortable;

*third*, they require frequent removal for the purpose of being cleansed; *fourth*, they accumulate offensive matter next the skin, and therefore promote disease. The use of clasps to retain the teeth, with very small supporting plates, has very generally been abandoned for the upper jaw, because the injury to the teeth by the clasp is supposed to be more objectionable than the discomfort and other disadvantages attending the use of the suction plate.”

He points out the general advantages of his invention as follows:

“All the objections to the presence of artificial dentition mentioned above are obviated by my improvement, which leaves the cutaneous surfaces uncovered, and supports the artificial dentition by its attachment to the adjacent natural teeth, and the same method of attachment is equally applicable to both the upper and lower jaw.”

The general description of his improved method is as follows:

“A band of gold, or other suitable metal, is first prepared, and accurately fitted around the tooth adjacent to the vacant spaces to be supplied with an artificial tooth. This band is firmly secured in place by cement, which effectually excludes Water or the fluids of the mouth, and is thus permanently attached to the tooth, so that it cannot be removed without an operation directly for that purpose. It is sometimes sufficient to prepare one of the adjacent teeth in this way; but, generally, it is desirable to prepare the adjacent teeth on each side of the vacant space. It will always be advisable to do so if the vacant place is to be occupied with more than one tooth. The artificial block to fill this vacant place may comprise one or more teeth, as the case may require, and, if desired, may be moulded in a single block. The lower surface adjacent to the gum is cut away at the back, and only descends to contact with the gum along its front edge, so as to prevent the appearance of an open space between the artificial teeth and the gum. The artificial block is provided with protecting lugs or pins of suitable metal, and may thereby permanently be secured by screws or otherwise to the permanently fixed bands around the adjacent fixed natural teeth. The small area covered by the bases of the artificial teeth, and its non-contact with or pressure upon the gum, renders the deposition of secreted or foreign matter from the food unlikely, and easily removable with the brush, or by water forced under the artificial teeth in the process of rinsing the mouth. It sometimes happens that a tooth has elongated to such an extent that there is not space between its crown and the opposite gum for the insertion of a regular tooth, and in such a case as that I sometimes supply an artificial dental surface, composed of one or more metallic bars, extending from one permanent tooth, to the next, and secured at their end to the band.”

The specification states that the patentee does not propose to limit himself to the details as shown in his specification and drawings, but considers that his invention includes “the permanent attachment of artificial teeth by securing them to continuous bands permanently attached to adjoining teeth supported upon natural roots, and supporting said

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artificial teeth by said attachments, without dependence upon the gum beneath said artificial tooth.”

The claims of the patent are as follows:

“(1) The herein-described method of inserting and supporting artificial teeth, which consists in attaching said artificial teeth to continuous bands fitted and cemented to the adjoining permanent tooth, whereby said artificial teeth are supported by said permanent teeth without dependence upon the gum beneath. (2) An artificial tooth cut away at the back, so as not to present

any contact with the gum except along its front lower edge, and supported by rigid attachment to one or more adjoining permanent teeth, substantially as and for the purpose set forth.”

It is entirely clear that the invention described in the patent was not only new and useful, but was an improvement in the dental art of considerable merit. The former methods of supporting artificial teeth referred to in the patent were not designed to secure a permanent attachment of the artificial teeth to the natural teeth, but were intended to secure a removable attachment; the theory of many dentists being that a rigid attachment was undesirable and impracticable, as uncleanly, and also as liable to produce inflammation of the natural teeth. The methods which had been employed to secure a permanent or rigid attachment of the artificial to the natural teeth were well calculated to excite the distrust and opposition of intelligent dentists. One of these is described in an article of which W. H. H. Eliot was the author, published in March, 1844, in the *American Journal of Dental Science*. This describes an artificial denture consisting of three teeth fastened upon a backing of metal. The extreme teeth, or the ones at each end of the artificial denture, are provided each with a pin. These pins are to go into holes drilled in the prepared roots of natural teeth, and in this way the denture is to be held in place. A slight bearing surface is formed by plates which are to bear upon the smooth ends of the natural roots remaining in the gum. This denture simply consists of teeth held in by pivots, and connected by a bar or backing of metal. Another of these methods is described in the United States patent to Benjamin J. Bing of January 23, 1871. This method consists in attaching artificial teeth to metallic bars, which bars at either end are to be secured to natural teeth by forming cavities in the natural teeth, inserting the ends of the bars in the cavities, and then filling the cavities with gold.

The objection to the use of plates or other methods of supporting the artificial teeth by the gum are sufficiently pointed out in the patent, and the objections to methods like those of Eliot and Bing for supporting the artificial teeth by a permanent attachment to natural teeth, or the roots of such teeth, are obvious. Where pivots are inserted in the teeth to secure a rigid attachment, as in the Eliot method, they become loosened in the process of mastication, and the teeth are liable to be split by sidewise wrench or motion. Such methods as Bing's tends to the destruction of the adjacent natural teeth, the strain and motion in mastication loosening the metal fillings, and requiring a reattachment of the denture from time to time, to the increasing injury of the natural teeth.

By the method of the patent, a plate is dispensed with when some natural teeth remain, and, instead of the artificial teeth being loosely clasped to the adjacent natural teeth, they are attached with strength and permanency, and are not forced into contact with the gum during the strain of mastication. By being firmly fixed upon bands of metal secured rigidly and permanently, by cement or otherwise, upon the adjacent natural teeth which

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they surround, the denture has an easy and efficient bearing, the gum escapes injury; and the strain of mastication

is transferred to the natural teeth. When the artificial teeth employed have their surface adjacent to the gum cut away at the back, and only descend to contact with the gum along the front edge, another advantage results; because the small area covered by the bases of the teeth precludes such an accumulation of food or other foreign matter between the gum and the denture as cannot be readily removed. It is not contested that Low was the first to devise and perfect the improvement described in the patent; but it is urged that, in view of the prior state of the art, as described by the publications referred to, and as also described by the publications of Lintott, Scott, Fowell, and others, the improvement of Low did not involve invention. The references to the publications of Lintott, Scott, and Fowell are not of sufficient importance to require comment. Undoubtedly Low was materially assisted in perfecting his invention by his observations of the artificial crown of Dr. Richmond, and it is, not unlikely that the invention derives its chief value from its adaptability to use with the Richmond crown. It may not have involved a high order of inventive faculty to work out the conception, by connecting such crowns by a bar or bridge bearing an artificial tooth or teeth. Nevertheless, the fact remains that Dr. Low was the first to accomplish successfully what skillful dentists like Dr. Rich did not believe to be practicable, and to demonstrate how the objections which were supposed to be so serious, to the method of rigid attachment could be obviated. It is not difficult, after the fact, to show by argument how simple the achievement was, and, by aggregating all the failures of others, to point out the plain and easy road to success. This is the wisdom after the event that often confutes invention, and levels it to the plane of mere mechanical skill. The ingenious argument in this case has not satisfied us that there was no invention in the improvement of Low.

The defense is relied on that the invention had been in public use for more than two years before the application for the patent. The proofs show that operations were performed, by Low during the latter part of the year 1877, in which he inserted the dentures of the patent in the mouths of patients. As the application upon which the patent was granted was not filed until December 20, 1880, the defense would be established were it not for the fact that Low had made an application which was filed in the patent-office January 6, 1879, which had never been abandoned, for substantially the same invention. That application contained some matters foreign to the subject of the second application, but, so far as it related to the inventions covered by the claims of the patent, it did not differ from the second application, except in a single particular. The specifications of the patent states that non-contact of the artificial tooth or denture carried by the bridge with the gum, or the absence of pressure upon the gum, is one of the advantages of the invention; while it was stated in the first application to be necessary "to carefully fit the base of the tooth or block to be inserted to the jaw, and, when secured, it should be so pressed

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down as to leave no space beneath it for the admission of food.” The statement in the first application is not inconsistent with the method of the patent, which consists in attaching



the artificial tooth or the denture to bands, and supporting them by the adjoining permanent teeth, "without dependence upon the gum beneath." So long as this essential feature of the invention is retained, it is quite immaterial whether the artificial dentition "is so pressed down as to leave no space beneath it for the admission of food," in the language of the specification, or whether it is in positive non-contact with the gum. When the artificial denture is in non-contact with the gum, cleanliness is facilitated, and the suggestion which was first made in the second application was therefore a useful One. But it did not change the invention in essentials. Although the tooth or denture is pressed down so close to the jaw that food cannot lodge between it and the gum, it is still supported by the adjoining tooth or teeth, and not by the gum. As was Stated in the first application, "the yielding surface on which it rests will readily conform to the tooth or block, and any pain at first induced by the pressure will disappear."

There is nothing to indicate that Low intended to abandon his first application. His application was refused, correspondence ensued with the patent-office, and finally Low made a personal visit to the office, had an interview with the examiner, and convinced the examiner that the invention which was the subject of the application was meritorious and novel, and one for which he was entitled to a patent. During the controversy with the patent-office various interpolations had been made in the first application, and the examiner suggested that Low had better make a new application, and thereupon the second application was drawn up. So far as relates to the present invention, the new application differed from the first merely in omitting some superfluous matters, and in changing the description in reference to the character of the contact between the denture and the gum. There was no act on the part of Low which was equivalent to a withdrawal of his first application, or to an acquiescence in its rejection. He merely made a new application as a more convenient way of presenting the original application for the final action of the office, after he had been assured that the rejection of his first application would be reconsidered, and a patent would be granted for the present invention. Both applications are to be considered as parts of one continuous proceeding, and the two years within which the invention could not be publicly used without invalidating the patent did not begin to run until January 9, 1879. *Godfrey v. Eames*, 1 Wall. 317; *Smith v. Goodyear, etc., Co.*, 93 U. S. 500; *Graham v. Geneva Lake, etc., Co.*, 11 Fed. Rep. 138.

The second claim includes, with the elements of the first class, the features of a tooth cut away at the back. Thus construed, the defendants infringe both claims of this patent.

The next patent in suit which may be most conveniently considered is No. 277,941, granted May 22, 1883, to Cassius M. Richmond, assignor, etc. The application for this patent was filed December 1, 1882. This patent is for the invention known in the dental profession as the "Richmond Tooth Crown." A patent was granted to Richmond dated

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February 10, 1880, for an artificial tooth crown, and the present invention is said to be for an improvement upon the tooth crown therein described;

but it is in fact for a radically different tooth crown. The invention relates to an improved method or device for attaching such crown to the roots or stumps of natural teeth remaining in the mouth, the object being to provide an artificial crown of improved construction, to be adjusted and secured to the root of the natural tooth in a permanent, practical, and artistic manner, so that the tooth, when finished, will present a natural appearance, and be capable of the same service as a sound natural tooth. After the natural root or stump has been cut off or ground preferably on a level with the gum, and a hole is drilled therein into which a pin is to be subsequently inserted, a metallic ferrule is then fitted upon and shaped to the prepared root of the tooth. A suitable crown is then selected to be applied, to the root; color, size, and shape being consulted in order to make it conform in appearance to, and as a substitute for, a natural tooth. The artificial crown is provided with a metallic back or attachment, which has holes through it to allow the passage of the pins, which are firmly imbedded into porcelain. The root and crown having been so prepared, the crown is placed in position, and attached to the ferrule by wax sufficiently to hold the crown firmly in position to allow of the removal of the ferrule. Then a suitable pin, designed to be inserted in the hole drilled in the root, is embedded in the wax. The prepared crown is then invested or protected by a suitable cover of marble dust and; plaster, leaving the wax portion exposed. This investiture will hold the parts in the position which they are to occupy when placed in the mouth. The wax is then melted from the pin and crown, and replaced by a suitable gold solder, which may be blown in a blow-pipe, and fused around the pin. This solder will unite with the pin extending into the root, the ferrule, the, pin extending into the porcelain, and the porcelain backing, making a solid metal backing to the crown, and firmly holding all the parts together. The prepared crown is then slipped upon the prepared root, and cemented thereon; the ferrule, when placed in position, projecting along the very margin of the gum sufficiently to protect the root from decay, and to conceal the ferrule from view. The specification contains the following statement;

“It will be seen that when this denture is applied to a root, the end of the root is entirely protected from the injurious action of the fluids of the mouth, and is hermetically sealed, being covered by a closed cap. This inclosing cap is of the greatest importance, because otherwise decay must necessarily take place by reason of the action of the fluids of the mouth on the exposed dentine, and the denture would become useless. By this arrangement, therefore, both the end of the root, and so much of the same as might otherwise be exposed to the fluids of the mouth, are hermetically sealed, and the root is thus protected from the injurious effect which would otherwise result from the action of the fluids. It is obvious that this part of my invention, namely, the sealing cap on the end of the root, may be used with other kinds of dentures and other arrangements of artificial crowns besides those shown herein, and that, when properly applied, the root is

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completely protected. As shown in figures 2, 4, and 7, the flange of the cap should project beneath the gum, and allow the gum to extend to the porcelain crown. The freedom of the gum from permanent attachment with the end of the root allows this band to be placed in position

without causing irritation. I do not limit myself to the precise method of attaching this inclosing cap to the root, as other methods might be employed; but the one here shown is the simplest known to me. The caps hereinbefore described are so constructed, as set forth, as to cover and inclose the prepared end of the root, wholly excluding the juices of the mouth therefrom, and preventing the decay that would otherwise result.”

The claims of the patent are as follows:

“(1) The combination of a prepared root, having its natural terminal contour near the margin of the gum, with an inclosing cap attached thereto for supporting an artificial denture, substantially as described. (2) The combination of a prepared root, having its natural terminal contour near the margin of the gum, with an inclosing cap attached thereto, and with an artificial porcelain or other crown supported by said cap, substantially as described. (3) The combination of a prepared root, having its natural terminal contour near the margin of the gum, with an inclosing cap attached thereto, the said cap being attached to the root by a pin or suitable attaching contrivance passing upward, and into a suitable cavity in the root, substantially as described. (4) The combination of a tooth crown, a metallic backing soldered to said crown, and a pin firmly soldered to said artificial backing, and secured to and passing through a ferrule adapted to surround the root, substantially as described (5) The combination of the crown, G, provided with suitable attaching pins, E, the backing plate, D, and the metallic backing, N, united to ferrule, B, and pin, Z, substantially as described. (6) The combination of the crown, C, metallic backing, N, united to protecting plate, D, and pin, Z, the root, A, and cement, J, uniting the pin, Z, to the root, substantially as described.

It is not open to doubt that this patent describes an invention in dentistry of the greatest utility and value. The invention enables an artificial tooth to be placed upon a natural root, which can only be distinguished from the natural tooth by the most critical examination, which is as serviceable while it lasts as a natural tooth, and which is very durable. The Richmond crown not only supplies the place of a natural tooth for the purposes of use, so as to be a perfect substitute for a lost tooth, but it can be so artistically made as in many instances to be an improvement in appearance upon the natural tooth. Nevertheless, if the patent can be sustained as valid to any extent, it can only be upheld by placing a very narrow limitation upon the claims.

Without referring, at present, to the prior state of the art at the time Dr. Richmond conceived the inventions of the patent in 1880, and of the present patent, it suffices to say that everything which is the subject of the fourth, fifth, and sixth claims of the present patent had been in prior public use for more than two years prior to the application for the patent, and was public property prior to the year 1880; and, if the remaining claims are valid, it is only because an inclosing cap, by which the end of the root is hermetically sealed, and, thus protected from the action of the fluids of the mouth, is an element of

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each claim. The inventor himself had abandoned all the rest of his invention to the public. As early as in December, 1876, Dr. Richmond had inserted a denture in the mouth of a patient in San Francisco involving the principle of the patent. That denture differed from the artificial tooth crown of the

patent Only because the inclosing ferrule or band was not a cap which covered the end of the root, and did not extend so far under the gum of the patient as to wholly conceal the gold surface. The denture, as then inserted by him, was a complete practical success, and, so far as is known, still remains in use in the mouth of the patient. In the years 1878 and 1879 Dr. Richmond practiced the invention extensively in many of the large cities of the United States, and demonstrated to hundreds of dentists in public clinics and private practice the method of preparing and inserting his artificial tooth crowns. The method was practiced with differences of detail, but was always the same in essentials. The root was always, prepared in the way pointed out in the patent, and the denture always consisted of a ferrule or band accurately fitted to surround the root, to which was soldered a crown with a porcelain front, having a pin extending into the root, the whole being cemented on the root in One piece. Sometimes a loose floor of platinum or gold was packed inside the band, behind the backing of the porcelain front, so as to make a floor above the solder when the crown was invested in position, and the solder blown in; and sometimes, instead of a loose floor; a half floor was joined to the band, extending partly over the end of the root, forming a cap embracing part of the exposed end of the root, and the solder was then blown in under this cap. When made in either of these ways, the denture consisted of a porcelain tooth, attached to a ring of gold at its upper part, and, where the porcelain itself met the ring, there was no solid floor to the ring, but the porcelain itself impinged upon the ring.

Among those to whom Dr. Richmond taught the invention was Dr. Gaylord; a dentist, one of the defendants in this cause. Two original dentures made by Dr. Gaylord, and inserted in the mouths of patients, one in April, 1879, and other in May 1879, have been produced in evidence, and identified; and the fact that these tooth crowns were made and inserted at those dates, and were practical and successful operations, and that, with a single exception, both were in all respects the tooth crowns of the patent, inserted according to the method of the patent, is clearly established. It is conceded by the expert for the complainant that if these dentures had been made with a ring or ferrule, having a complete floor embracing the exposed end of the root, they would be the tooth crowns of the patent. One of them has a half floor of platinum back of the porcelain, under the ring, intended to partially inclose the exposed end of the root, and the other has a partial floor, made of loose gold foil, stuffed behind the porcelain, before the solder was flowed through the back of the crown. It is insisted that when the crown is constructed in this way it does not have the inclosing cap of the patent, and consequently, the end of the root is not hermetically sealed. The controversy as to this patent is thus narrowed to the question whether "the substitution of a complete floor over the end of the ferrule, so as to wholly inclose the end of the natural root, in the place of a partial floor, involves sufficient invention to sustain the patent.

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It is to be observed that in one sense the end of the root is hermetically



sealed according to the method of the patent, whether covered with the closed cap or not. The specification states that the prepared crown is slipped upon the prepared root, and cemented thereto. As the invention was practiced by Dr. Richmond from 1876, enough cement was placed inside the recess of the prepared crown to exude at the margin of the gum, when the crown was forced on the root, to fill up the space, and to make a solid contact, when hard, between the root at all the parts exposed and the crown beneath and the ring surrounding the root. The cement not only serves to hold the crown firmly in its place upon the root, but forms a hermetically sealed inclosure of the root.

But it is insisted by the experts for the complainant, and by some of the witnesses who have applied the invention practically, that, unless the ring has a solid metallic floor, the porcelain where it joins the ring cannot be so closely united that the juices of the mouth will not enter at the joint; that the solder flowed in behind the porcelain will not effectually close this joint; and that in consequence the cement inclosing the root will be soon dissolved, and destroyed by the secretions of the mouth. It is alleged that, if the minutest hole or perforation is left in the floor of the inclosing cap, the cement is exposed to the secretions; the secretions of different mouths vary wonderfully in their destructive action; and that while in some cases the cement might resist for years, in others it would fail speedily; and thus that the practical value of the invention depends most materially upon the inclosing cap.

Inasmuch as Dr. Richmond had for years been practicing the invention without a closed cap, and introducing his artificial crown everywhere to the profession as a perfect substitute, when inserted upon a natural root, for the natural tooth, it may be doubted whether the mechanical change of covering the ring with a solid floor, thereby converting it into a cap, was introduced by him so much for its utility as it was. For the purpose of suggesting novelty, and enabling him, and those with whom he had become engaged, to obtain a patent. The change was not made until others had, become pecuniarily interested with Dr. Richmond in his inventions. Then it was suggested that the reason of the failure of several crowns which had been inserted for patients was that they were defective because they were open at the end of the cap inclosing the end of the root at the point where the porcelain came in contact with the cap. Thereupon the closed cap was adopted. No experiments were apparently necessary, but the defect was remedied as soon as it was suggested. It is testified that the effect of this change was greatly to increase the strength of the artificial crown, and assist in protecting the root from the leverage of the pin by lateral pressure, as well also has to protect more efficiently the cement from the action of the secretions of the mouth. On the other hand, the testimony indicates that, since the closed cap has been adopted, it is not exclusively used by those who are authorized to practice the invention under the patentees; and, although it is perhaps generally preferred,

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the impression left by the proofs is that there is considerable exaggeration in the opinion that

attributes to the closed cap the peculiar efficacy which has been assigned to it.

If Dr. Richmond had been the first to make a closed cap for a use cognate to that to which it was applied by him, the question whether there was any invention in making the change might be resolved in favor of the Complainant. But it was not new in the art to use a closed cap in order to hermetically inclose the root of a tooth. This sufficiently appears by reference to a publication in the Missouri Dental Journal, in 1869, of the operation of Dr. Morrison. That publication describes an operation in which a gold cap is fitted upon the root of a lost or decayed tooth, so as to be adjusted accurately to the remaining portions of the tooth, and made to correspond in Configuration with the original tooth. The cap is filled with a thin paste of cement, and pressed to its place. Upon the root, the superfluous Cement being crowded out at the margin of the gum where the cap extends quite to the alveolus. Another instance of the use of caps having a tight metal floor to be inserted on the natural roots of teeth, and having a porcelain tooth crown soldered on the cap, is disclosed in the patent granted February 3, 1881, to John B. Beers, for an improvement in artificial crowns for teeth. In view of those references alone, it must be held that there was no invention in making the change which was effected by Dr. Richmond in the fall of 1881, by substituting the closed cap in the place of the cap with a partial floor, or without a solid floor. All that Richmond did was to close the band or ferrule with a bottom of gold, and build up his artificial Crown upon it, and the way to do this had been already pointed out.

The patent, cannot be sustained upon the theory that Dr. Richmond was experimenting with and improving his method of making and inserting artificial tooth crowns during the time intervening between his operation in San Francisco, in 1876, until at last, with the change to the closed cap made by him in the fall of 1881, he succeeded in perfecting an invention which up to that time had been inchoate or incomplete. During all this period he had; been demonstrating and practicing the invention in public to dentists throughout the United States, and in his private practice, with all the variations of mechanical detail. Those to whom he taught his method, for compensation, bought their instruction in Order to practice the invention in their profession. They did practice it, and it was put into successful use in all parts of the country; and it is now too late to deprive the public of what became rightfully theirs, by supplementing to the invention a mere matter of mechanical improvement which in itself had no patentable novelty.

The third patent in Suit is No. 277,933, granted May 22, 1883, to Alvan S. Richmond, assignor, etc., for an artificial denture. It is sufficient Co say of this patent that, in view of the inventions of Dr. C. M. Richmond and Dr. Low, the first and third claims embrace nothing which involves invention, and that carrying the metal of the bridge under the wearing surface of the porcelain does not impart patentable character to the third claim

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At the hearing of the cause we indicated sufficiently the reasons for considering the fourth patent, upon which the suit was brought, invalid for want of novelty, and it is unnecessary to enlarge upon them now.

A decree is ordered for an injunction and an accounting as to the first of the patents in suit. As to the others, the bill is dismissed. Neither party is awarded costs.