DR. J. W. CLOWES' IMPROVEMENTS IN DENTISTRY.

Our present engravings illustrate a notable improvement in the art of dentistry, of which Dr. J. W. Clowes, of 667 Fifth Avenue, New York City, is the author.

The object of the invention is to provide a simple and effective means by which missing teeth may be artificially restored, and broken, loose, and dilapidated natural teeth may be preserved from decay and helped to become mutually supporting to each other.

The invention consists in fillings inserted in cavities in approximate faces of contiguous teeth, said fillings resting directly upon the gums, and being formed of a single body of material connecting the teeth so that they mutually support each other. It also consists in fillings of plastic material inserted in cavities in approximate faces of the teeth and extending between and across the teeth and down upon and closely contacting with the gums.

The plastic material which the author has so far found to be best adapted for the purpose of his invention is the ordinary dental amalgam ; but he does not limit himself to this material, as any other suitable plastic material may be used which sufficiently hardens and solidifies after it is put in place.

Our engravings are taken from a recent case that occurred in Dr. Clowes' practice. Fig. 1 shows the condition of the patient's upper teeth prior to treatment. It will be noticed several of the most important teeth are gone, and the task Dr. Clowes sets for himself, in such cases, is to restore to the gums the missing dentures, the use of plates being avoided.

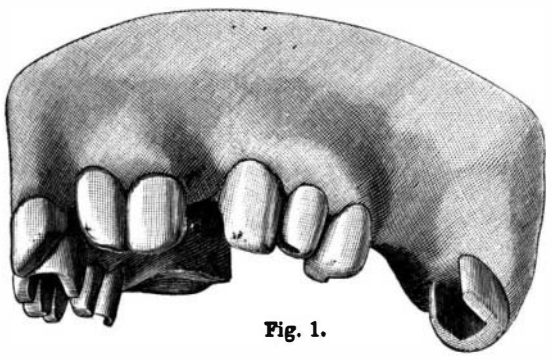

Fig. 1.

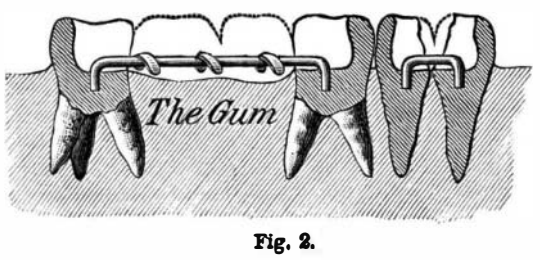

Fig. 2.

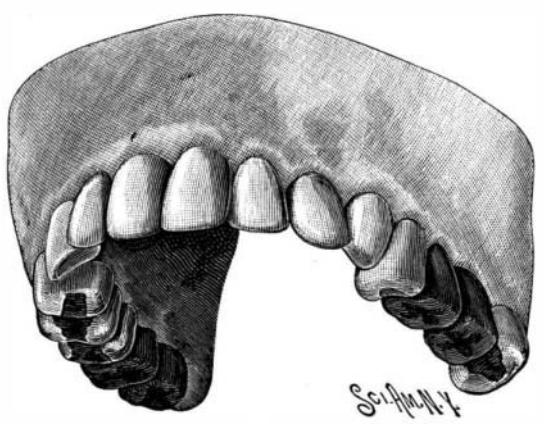

Fig. 4.

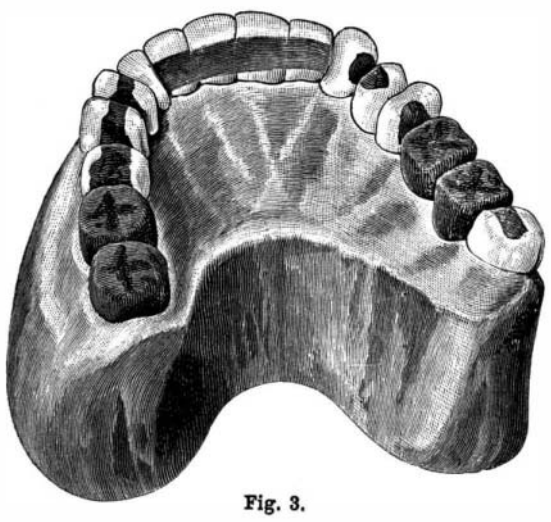

Fig. 3.

Cavities in the contiguous teeth, shown at the left in Fig. 2, are excavated and prepared for receiving fillings in the usual way with undercuts and anchorages to insure a firm hold of the filling in the teeth, and the plastic material, such as amalgam, is inserted in the teeth, so as to fill the cavities and the space between the teeth, which amalgam is also moulded upon the surface of the gum between the teeth, so as to press firmly thereon between the teeth, and the plastic material of the filling is shaped to conform to the natural contour of the teeth, but without actual division of the filling material between the teeth, the filling when completed appearing as shown in dotted lines at the left of Fig. 2. When the material of the filling solidifies and hardens, the teeth will be rigidly connected and locked together, so that they cannot spread apart, and the filling will be in close contact with the gums and will completely close the space between the teeth, so that food cannot enter between the teeth or between the filling and the gum. By this method of locking the teeth together, if before treatment one of the teeth should be loose, as is frequently the case, it becomes locked to the sound tooth and is held firmly in its proper place.

When the natural teeth are absent between two decayed teeth, having cavities in adjacent places, as shown at the right in Fig. 2, the said cavities are prepared for receiving plastic fillings in the usual way and the fillings are inserted, and the body of plastic material of which the fillings are formed is extended in one body across the space between the two teeth and moulded and firmly pressed upon the face of the gum, connecting the teeth, as shown in Fig. 2, and forming a rigid body of material, which, in addition to this use as a support and connection for the teeth, may be used for the purpose of mastication, and this material may be moulded or carved in imitation of natural teeth, as shown by the dotted lines in Fig. 2. This body of material is firmly locked to the teeth, and forms, not a bridge, but a causeway between the said teeth.

In forming the fillings care is taken to mould them firmly upon the gums, so as to form a perfect contact therewith. The gum is thus made partly to support and to carry the prolongations of the fillings of the teeth, while the close contact of the teeth with the gum and the naturally elastic or expansive quality of the gum operate to exclude and expel particles of food or deleterious matter from between the gums and the plastic fillings that are kept in contact with the gums.

In the example of three adjoining decayed teeth, which it is desired to fill and lock firmly together, the cavities are excavated in the form of grooves extending through the teeth and the cavities are prepared in the usual manner, and the plastic filling is inserted, so as to close the cavities and conform to the contour of the natural teeth, and the material of the filling is, as before described, moulded firmly upon the gum between the teeth and is made to close the spaces between the teeth and form a body of the filling material which extends continuously through the teeth and along and upon the gum between the teeth, thus locking the teeth firmly together. For the further strengthening of the teeth and to further assist in locking them together, a hooked bar, similar to that already described, is inserted in the outer teeth of the series, and the filling is pressed upon and around the bar as in the other case, which thus becomes inclosed within the filling and adds strength thereto, as before described.

In the case of absent front teeth, grooves are made in the backs of the adjacent natural teeth, and a bar is inserted therein, extending from tooth to tooth. Artificial teeth, grooved at the back, are fitted to the bar, and the grooves are closed with the plastic filling, which thus incloses the bar and locks both the natural and the artificial teeth together in the firmest manner. This is illustrated in Fig. 3, which is an inverted interior view of the patient's mouth, after the entire work has been completed, the dark, shaded portions representing the improved fillings. Fig. 4 illustrates the external appearance of the patient's teeth after treatment by the Clowes method. The contrast between Fig. 1, which shows the original condition of the patient's dentures, and Fig. 4, showing the completed work, is very striking.

In discovering the peculiar use and application of amalgam, as herein set forth, a grand stride has been made in dental science. That any foreign substance could be pressed and immovably fixed without irritation upon so delicate a tissue as the human gum has heretofore been considered impossible and unworthy of professional consideration ; but thorough and long-continued tests have proved the practice to be highly beneficial and preservative. We may add that Dr. Clowes is one of our ablest and most experienced dental practitioners, and that further information respecting the subject we have presented may be obtained from him.

The Edible Passion Flower.
(*Passiflora edulis*).

Considering the merits of this excellent fruit, the ease with which it can be grown, its ornamental properties in leaf, flower, and fruit, its adaptability for planting in almost any aspect—in sun or shade—and its freedom from insect pests, it is astonishing that it is not much more extensively cultivated for the sake of its fruit, which makes a valuable addition to a dessert. We have been for years growing it here for this purpose, and have it planted on the back walls of the vineries, which, in most instances, unfortunately, are left unfurnished with anything either ornamental or useful—bare, glaring, whitewashed walls. When planted in moderately light and not over-rich, well-drained soil, with the roots confined within reasonable limits to check over-luxuriance of growth, we find that this passion flower thrives and crops well, even in such unfavorable positions ; but our demand far exceeding the supply from these, we have devoted, in addition, a house (an old pine stove) entirely to several plants, and full well do they repay us for such accommodation, by bearing enormous crops of fine, luscious fruit. These specimens are trained vine-like up the rafters, and the bearing shoots allowed freedom to festoon and hang down—a grand picture in green and purple. We find a kind of long spur-pruning answer well for them. Fertilizing the blooms is also necessary to secure a crop, and we shade lightly when in bloom (if planted in a sunny aspect), to prevent the reproductive organs from burning and drying up before fructification takes place. Moderate heat is suitable, and water rather sparingly until a full set is insured, when, if the soil is well drained, ample supplies of both liquid manure and clear water alternately must be given them unstintingly to swell up heavy crops. The only insect pest that we find at all troublesome is thrip, fumigating being the antidote. To summarize the mode of culture : 1. Plant in light, well drained soil. 2. Grow on in moderate heat. 3. Confine the roots within reasonable limits. 4. Fertilize the blooms for a crop. By so doing, success is a certainty I believe. I may add that several American gentlemen who visited here last spring and others have commenced experimenting in cultivation of the edible passion flower out of doors in the Southern States and elsewhere, with a view of growing it for export, etc.—*J. Roberts, The Gardeners' Magazine.*

Recent Tests of Nickel Steel Armor Plates.

Experiments made on October 12 at the Annapolis proving ground have again confirmed the superiority of nickel steel over ordinary steel for armor plates. The tests were made to determine the value of nickel steel for a protective deck. The targets were made of two superposed 1½ inch plates, placed almost horizontally, presenting angle of only 2° to the line of fire. A 6 inch rifle was used, with a 100 lb. armor-piercing projectile.

When fired at the target of ordinary steel, the target was perforated, and the projectile, which was broken, passed through both plates and through two feet of wood and eight feet of earth composing the backing. The velocity of the projectile was 1,780 feet per second. When fired at the nickel steel target, the velocity of projectile was 1,873 feet, but it glanced off the target without rupturing either plate, but was itself smashed to pieces. Its effect on the target was a small crack 5 inches long in one plate and an indentation between 3 inches and 5 inches deep.

The demonstration of the superiority of nickel steel over ordinary steel for armor plate suggests that it may have other valuable uses in the arts. A wide field for metallurgical research is here afforded. In this connection it seems strange that the world has waited so long for the discovery of the qualities of nickel steel to be made. For more than twenty years the open hearth steel process has been in successful use, producing the purest known varieties of carbon steel, and during all this time it would have been an easy matter to make experiments on alloying this steel with other elements, and to determine the physical qualities of these alloys ; yet it has been only within a year or so that such experiments have been seriously attempted. During these twenty years, millions of money have been spent in Europe in the manufacture of compound armor plate, viz., wrought iron with a steel face, all of which has now to be abandoned in view of the superiority of nickel steel, while the much simpler method of making a steel plate with a simple alloy has remained undiscovered. The time is ripe for further researches into the qualities of other alloys of steel. There are unlimited possibilities of the discovery of valuable qualities in numerous alloys yet untried ; and it should be a matter neither of great difficulty nor of great expense for any open hearth steel works to make the experiments which may result in such discoveries.—*Eng. and Min. Jour.*

A Stoker's Explanation of the Steam Engine.

"This 'ere furnace, gen'lmen, heats that 'ere water, and that 'ere water is in this 'ere biler ; and that there pistern rod is moved up and down by the steam from this 'ere biler ; and them 'ere pisterns acts upon them rods, which turns the axles of the paddles, and the paddles their selves in consequence."—*From Pickwick Abroad, by G. W. M. Reynolds.*