My invention relates to an apparatus for grinding artificial dentures. Its object is to automatically grind the working surfaces of artificial teeth in a manner approximating the wear exhibited by natural teeth so that perfect co-relation between the upper and lower dentures is established and increased efficiency and comfort given, and any defects which may have occurred during construction in the relationship between the working surfaces of the upper and lower teeth will be eliminated. My apparatus comprises a base upon which are secured two uprights; an approximately horizontal arm hinged at its rear end to the two uprights, having at its front end an adjustable upright rod and having intermediate thereon its ends an inverted shallow cup-like depression; and an approximately horizontal platform slideable upon the tops of small pillars rising from the base and held thereto by a headed stud and having intermediate thereon its ends a shallow cup-like depression positioned beneath the inverted cup-like depression on the horizontal arm, such platform having at its rear end two slotted arms that engage the bottom ends of the two uprights and having cut in its under surface at its front end a circular socket that fits neatly over an eccentric disc upon the top of a vertical shaft carried by the base and operated by a bevel gear drive. In order that my invention may be the more clearly understood I will describe the same with reference to the accompanying drawings in which:

Fig. 1 is a perspective view of my apparatus complete.

Fig. 2 is a central vertical section of same, and Fig. 3 is a plan view of the movable platform.

In the drawings 1 represents the base upon which are rigidly secured two uprights 2, one at each side at the rear. The base has screw holes by means of which it can be fixed to a table or elsewhere during operation. An approximately horizontal arm 4 is hinged by its rear end to the two uprights 2—2, while its forward end is perforated to carry a slidable rod 5. A thumb screw 6 upon the forward end of the arm 4 engages the rod 5 and allows of its adjustment up or down relative to the forward end of the arm. The lower end of the rod 5 normally rests upon the base 1.

Upon the base 1, supported on pillars 8 is a platform 9 which is slidable in a horizontal plane upon the tops of such pillars. It is held down thereon by a headed stud 10 screwed into the base and engaging a slot near the rear centre of the platform; the slot being of sufficient size to permit of the free oscillating movement of the platform. It is actuated by an eccentric disc 15 upon the top of a shaft 19 carried by the base 1 and neatly engaging a circular socket 11 at the forward end of the platform.

In addition to being engaged by the headed stud 10 the platform engages the two rear uprights, it having two rearwardly projecting slotted arms 12 the slots being so cut that for all positions of the eccentric there is no side play in the rear of the platform.

The eccentric disc 15 is formed upon the top of a vertical shaft 16 supported in the base 1 and is operated by a bevel pinion 17 upon its shaft engaging a bevel wheel 18 upon a horizontal shaft 19 also supported in the base, the latter shaft having upon it a crank handle 20. The centre of the eccentric is offset preferably about 3/64 of an inch, but may be somewhat more or less.

The platform 9 moves in a horizontal plane, sliding on the tops of the small pillars 8 which are an integral part of the base, and is kept down accurately on these pillars by the headed stud 10 projecting from the base through the elongated oversized hole in the platform.

Both the arm 4 and the platform 9 have large shallow cup-like depressions intermediate their ends, the one 7 on the arm facing downward and that 13 on the platform facing upward, and into these depressions the upper and lower artificial dentures respectively are fixed. The dentures are held in place in the depressions by means of plaster of Paris and by removable pins 22 and 23 preferably of stainless steel which pass through the walls of such depressions and hold the plaster therein.

The operation of the apparatus is as follows:

The upper and lower artificial dentures are fixed together with wax in the exact relationship which exists when they are in the patient’s mouth.

They are now fixed to the apparatus with plaster of Paris, the upper denture to the horizontal arm 4, and the lower to the platform 9 in such a manner that the median line of the dentures when viewed from the front corresponds with the median line of the apparatus when also viewed from the front, and the general plane of the chewing surfaces of the dentures (occlusal plane) is parallel with the plane of movement of the platform.

When setting the dentures in the apparatus the platform is in its rearmost position.
When the plaster is set the wax is removed from the dentures so that the one can move independently of the other.

The adjustable rod 5 is now loosened, and then fixed with its end about 1/2-inch clear of the base 1. This allows the weight of the upper denture to be the arm 4 to come on the lower denture, and also limits the extent of the grinding. The grinding ceases when the end of the rod contacts with the base.

Carborundum paste is now spread over the chewing surfaces of the teeth, and the handle 20 is turned. This imparts a motion to the lower denture similar to that used in natural chewing with the result that perfect chewing surfaces are quickly worn on the artificial teeth and any errors in their relationship eliminated.

The range of movement is small so that the various cusps and indentations present on the teeth are not worn away, but each cusp wears in the opposing teeth a depression in which it is accurately ground. In fact the whole of the working surfaces become a series of miniature pestles and mortars with the result that efficiency is markedly increased.

What I claim as my invention is:

1. An apparatus for grinding artificial dentures comprising a base, front and rear pillars projecting from said base, an arm hinged to said rear pillars for holding the upper denture, a horizontal platform for holding the lower denture, mounted on said pillars, the mounting for the rear of said platform comprising extensions on said platform having open ended slots therein, fitting about said rear pillars to permit sliding movement of said platform on said pillars, means to hold the horizontal platform down upon the base and means for slidingly moving said platform on said pillars whereby the front end of the platform follows a circular path.

2. Apparatus as in claim 1 wherein said hinged arm has means at the front thereof cooperating with said base to limit the movement of said front toward said platform.

3. For grinding artificial dentures an apparatus comprising, a base, a horizontal arm to hold the upper denture hinged at its rear end to the base, means whereby the amount of drop of the forward end of the arm toward the base can be regulated, a horizontal platform to hold the lower denture slidable upon the base and having in its rear longitudinal slots capable of backward and forward movement about pins on the base, means for imparting to the forward end of the platform an eccentric motion, and means for holding the dentures upon the arm and upon the platform respectively comprising cup-like depressions one above the other that on the arm facing downward and that on the platform facing upward.

4. An apparatus for grinding artificial dentures comprising, a base, a horizontal arm hinged at its rear end to the base and having intermediate its ends an inverted cup-like depression, an adjustable upright rod upon the forward end of the arm adapted to contact with the base, an approximately horizontal platform slidable upon the tops of small pillars rising from the base and having intermediate its ends a shallow cup-like depression positioned beneath the inverted cup-like depression on the horizontal arm, two slotted arms at the rear end of the platform capable of backward and forward movement about pins on the base, and means for imparting to the forward end of the platform an eccentric motion.

5. In an apparatus for grinding artificial dentures as set forth in claim 4 a headed stud passing into the base through an elongated hole in the slidable platform for holding the platform to the base.

6. In an apparatus for grinding artificial dentures as set forth in claim 4 means for operating the platform comprising, a disc positioned eccentrically upon a shaft at right angles to the plane of motion of the platform, a bearing in the base for the shaft, and a circular socket in the platform to take the disc.

7. In an apparatus for grinding artificial dentures as set forth in claim 4 means for operating the platform comprising, a disc eccentric upon a shaft at right angles to the plane of motion of the platform, a bearing in the base for the shaft, a circular socket in the platform to take the disc, a second shaft supported in a bearing in the base and having bevel gears between it and the first shaft, and a handle upon the second shaft.

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