March 12, 1946. E. R. STRAYER 2,396,619

ORTHODONTIC IMPLEMENT

Filed Jan. 10, 1944

FIG. 1.

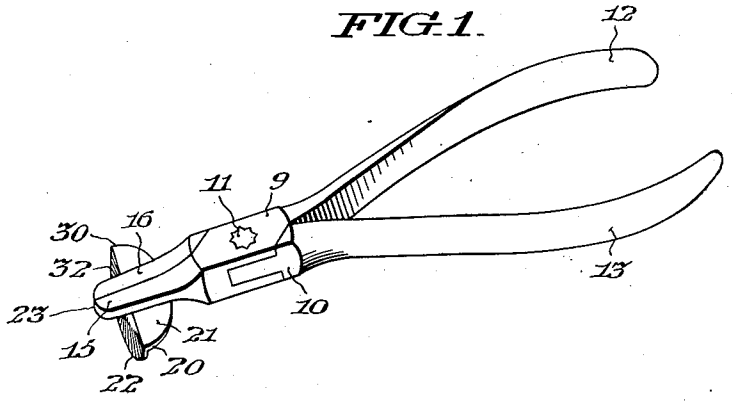


FIG. 2.

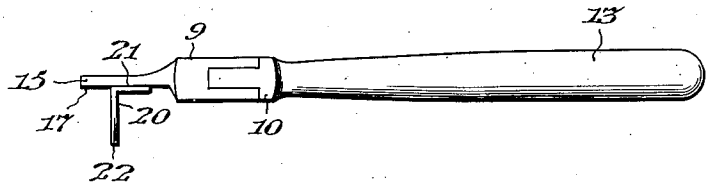


FIG. 3.

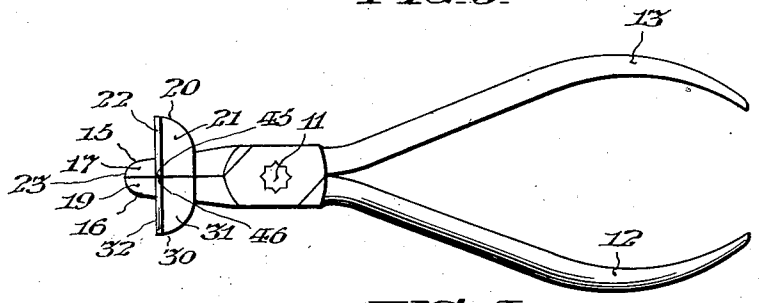


FIG. 5.

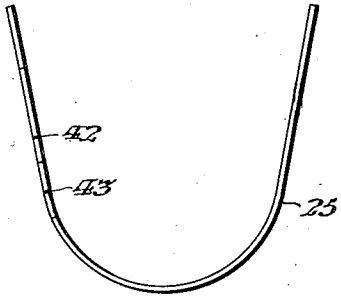


FIG. 4.

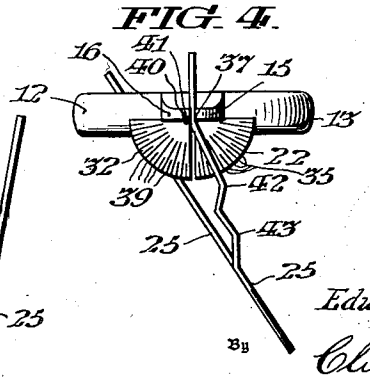
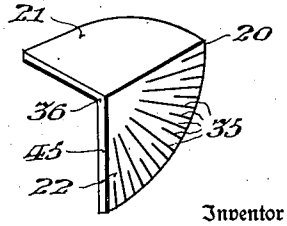


FIG. 6.



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2,396,619

ORTHODONTIC IMPLEMENT

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Application January 10, 1944, Serial No. 517,689

2 Claims. (Cl. 81—15)

My invention relates particularly to that class of orthodontic implements that are adapted to form an arch-bar by providing bends therein at such predetermined regions that are indicated by the malposed teeth of the dental arch to be corrected.

It is highly essential in preforming an arch-bar that the relatively adjacent regions of the arch-bar bear such definite angular relation as is best suited to the correction of position of the particular malposed tooth of the dental arch that each individual region is adapted to be attached for corrective purposes, whether it be for tilting, rotating or other positioning of such tooth.

The principal objects of my invention are to provide bending pliers with circularly graduated means serving as a guide by which the relatively angular adjacent regions of the arch-bar may be alined while being held between the opposed beaks of said pliers to effect the bending action whereby the desired shape of the preformed arch-bar is produced.

Other objects of my invention are to provide each of the relatively opposed beaks of a pair of wire bending pliers with transversely extending webs, the forward surfaces of which coincide with a common transverse plane when said beaks are in their normally closed position, and in which position said webs cooperate to provide a continuous forward plane surface.

Further objects of my invention are to provide the respective beaks of a pair of bending pliers with plane surfaces to which angle plates may be conveniently secured with their forward webs disposed in spaced relation to the forward end or nose of said beaks and in a common transversely extended plane when said beaks are in their normally closed position.

My invention includes a pair of wire bending pliers having each of the beaks thereof provided with a transversely projecting web preferably in the form of a quadrant which together afford a semicircular common plane surface, when said beaks are relatively closed, which surface is provided with radially extended scribe lines, with any one of which a wire may be caused to conform when engaged between said beaks, so as to produce a bend therein of any desired degree.

Specifically stated, my invention comprehends a pair of pliers whose beaks each provide a flat surface relatively disposed in a common longitudinally extended plane, to which surface one flange of an angle bracket is secured while the other flange projects outwardly therefrom; the outwardly projecting flanges of the respective brackets provide a semicircular transversely disposed plane surface having scribe lines radiating from the inner edges of the closed beaks and affording guides with a wire engaged between said beaks which may be alined when bent.

My invention also includes all of the various novel features of construction and arrangement as hereinafter more definitely specified.

In the accompanying drawing, Figure 1 is a perspective view of a pair of pliers conveniently embodying my invention; Fig. 2 is a side elevational view of the pliers shown in Fig. 1; Fig. 3 is a plan view of said pliers showing the beaks and the transversely disposed scribed webs in normally closed position; Fig. 4 is an end elevational view of said pliers as viewed from the left of Fig. 1, but showing the beaks slightly separated and holding an arch-bar engaged therebetween; Fig. 5 is a plan view of the arch-bar shown in Fig. 4; and Fig. 6 is a perspective view of one of the angle brackets which affords the scribed webs as shown attached to the respective beaks of the pliers illustrated in Figs. 1 to 4 inclusive.

In said figures, the relatively movable members 9 and 10 forming the pliers are pivoted at 11 and respectively have the rearwardly extending handles 12 and 13, and the forwardly projecting opposed beaks 15 and 16. The beak 15 is provided with the plane under surface 17 and the beak 16 is similarly provided with the plane under surface 19 which surfaces are disposed in a common horizontal plane.

The beak 15 is provided with the scribed guide which may preferably be in the form of the angle bracket 20 having the horizontally extended flange 21 which may be conveniently engaged with the plane under surface 17 of said beak 15, as shown in Figs. 1 to 4 inclusive, by solder, welding or other suitable means, in such position, see Figs. 1 to 3, that its depending flange or web 22 will be suitably spaced from the forward end or nose 23 of the beak 15 as to afford sufficient length of the beak to readily engage the arch-bar 25 in the manner indicated in Fig. 4.

Similarly, the beak 16 is provided with the scribed guide in the form of the angle bracket 30 having the horizontally extended flange 31 which may be engaged with the plane under surface 19 of said beak 16 in such position as to cooperate with the angle bracket 20, so that when said beaks 15 and 16 are in their normally closed positicn the depending flange or web 32 of the bracket 30 and the flange or web 22 of the bracket 20 will

be coincident with a vertical plane disposed transverse to said beaks 15 and 16.

As shown in Figs. 4 and 6, the depending flange or web 22 may preferably be in the form of a quadrant and has its forward surface scribed with lines 35 radiating from the angle 36 of said quadrant, which angle, it will be noted, is coincident with the lower inner edge 37 of the beak 15 about which the arch-bar 25 is bent, as indicated in Fig. 4.

Similarly, the depending flange or web 32, as best shown in Fig. 4, is in the form of a quadrant and has its forward surface scribed lines 39 radiating from the angle 40 of said quadrant, which angle is coincident with the lower inner edge 41 of the beak 16 about which the arch-bar may be reversely bent, as indicated at 42 and 43 on said arch-bar in Fig. 4.

It may be here noted that when the beaks 15 and 16 are disposed in their normally closed position, as indicated in Figs. 1 and 3, the adjacent edges 45 and 46 of the webs 22 and 32 will also close together and form a semicircular guide plate whose composite surface forms a plane transverse to the beaks 15 and 16, and whose outer edges substantially conform to a portion of a circle, so that the operator may maintain his bending grasp on the arch-bar as close as possible to the point of bending of said arch-bar irrespective of the angular position of the bent portion of said arch-bar.

I do not desire to limit my invention to the precise details of construction and arrangement as herein set forth, as it is obvious that various modifications may be made therein without departing from the essential features of my invention as defined in the appended claims.

Having thus described my invention, I claim:

1. A pair of wire bending pliers having opposed beaks, each being provided with a guide plate spaced from the forward end thereof and closely adjacent thereto and disposed in a plane transverse to said beaks, and graduations on each of said guide plates extending radially from the point of intersection of said plate with the inner edge of said beak and serving to determine the angle of bend of wire held between said beaks.

2. A pair of wire bending pliers having opposed flat-faced beaks, each being provided with a guide plate extending at right angles from the face thereof, each of said guide plates having a curved outer edge and having graduations extending radially from the point of intersection of said plate with the inner edge of said beak and serving to determine the angle of bend of wire held between said beaks.

EDWARD RAY STRAYER.