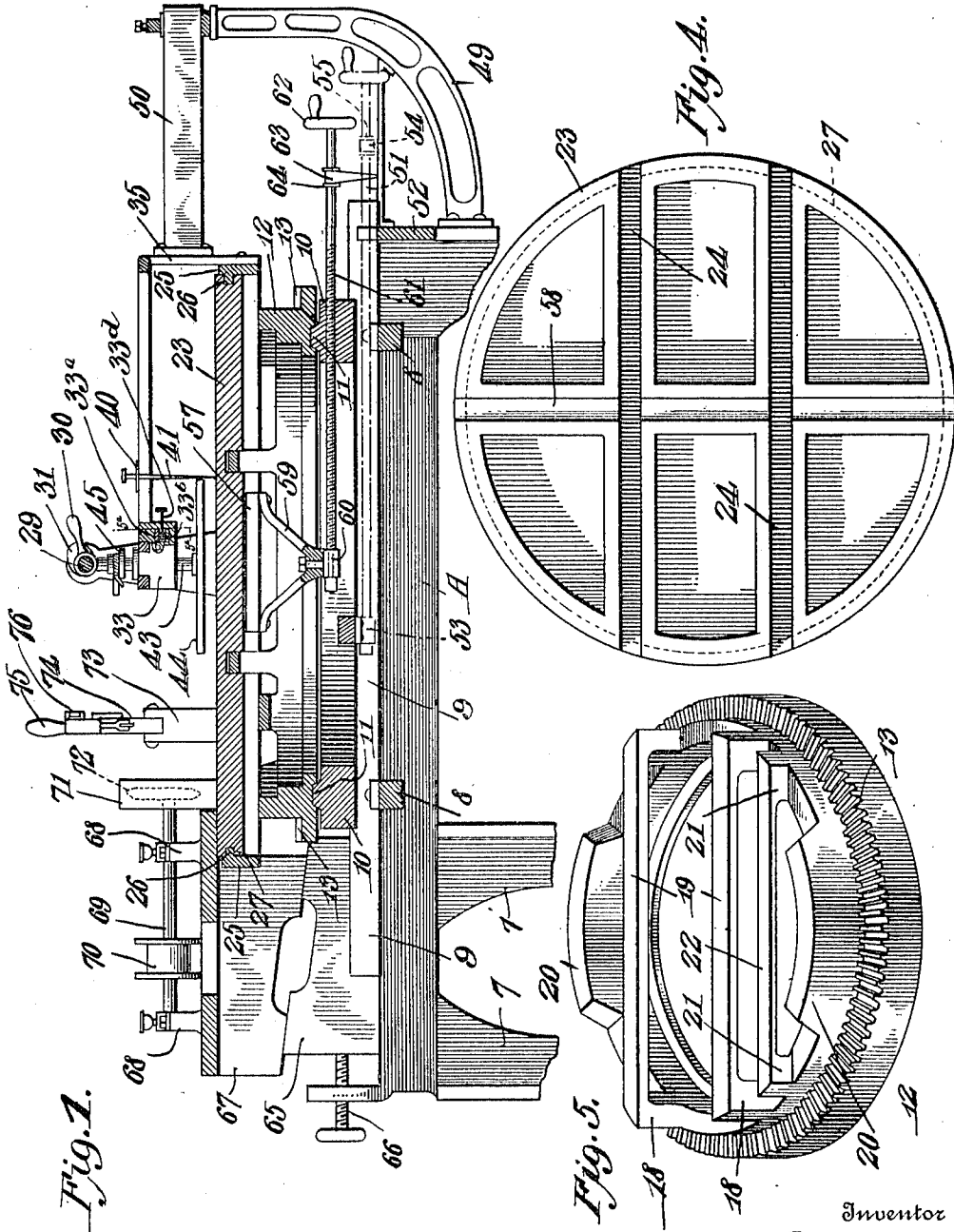


W. E. BROWNE.
 OVAL BEVELING MACHINE.
 APPLICATION FILED MAY 3, 1910.

1,001,346.

Patented Aug. 22, 1911.

4 SHEETS—SHEET 1.



Witnesses
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 Wm. Baggers.

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4 SHEETS-SHEET 2.

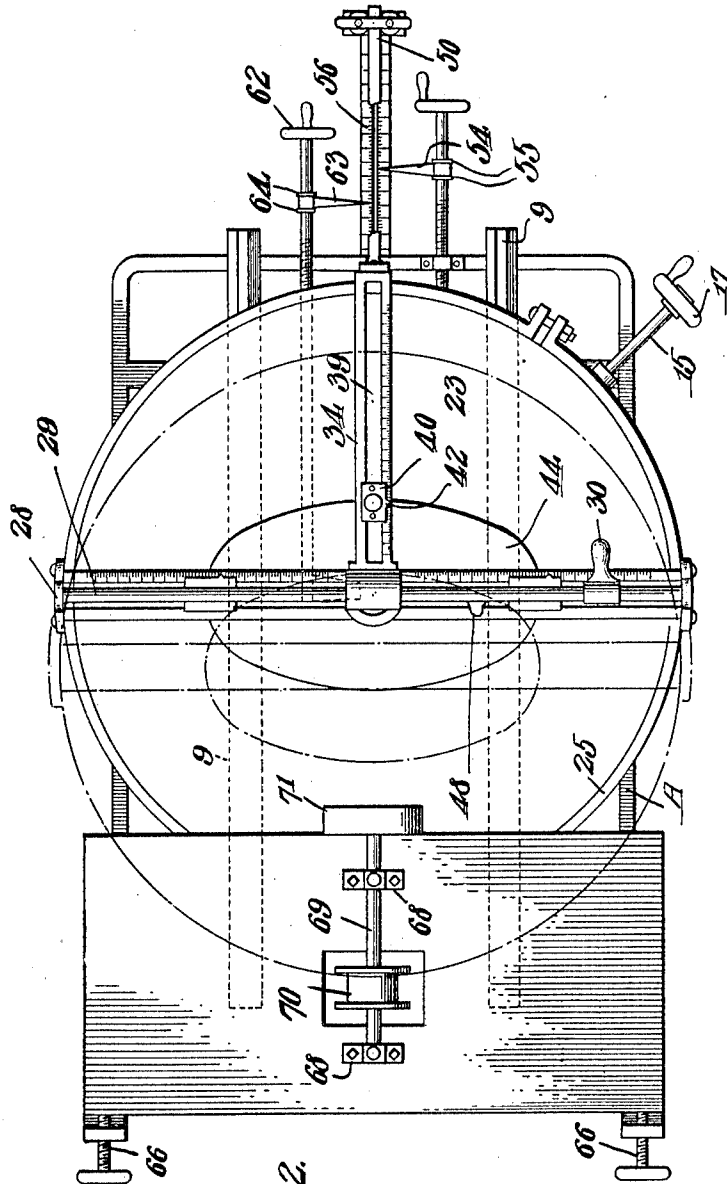


Fig. 2.

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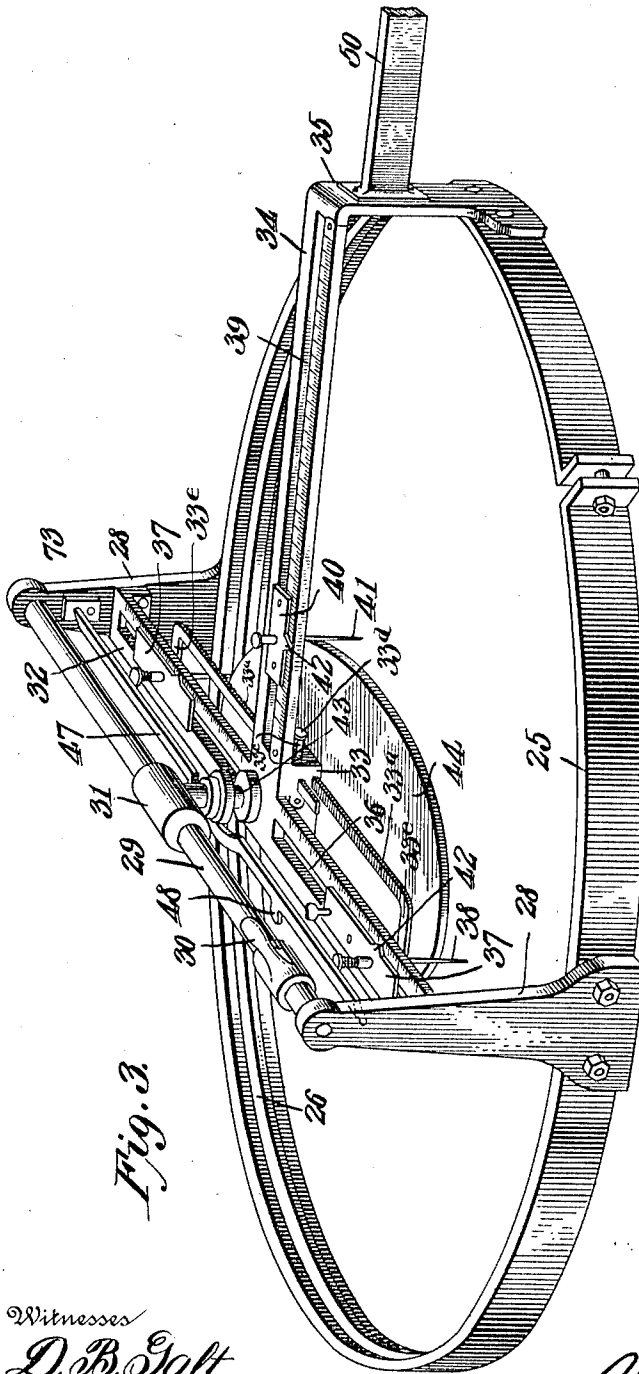


Fig. 3.

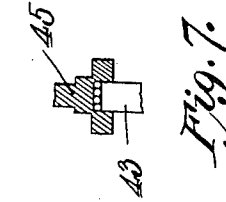


Fig. 7.

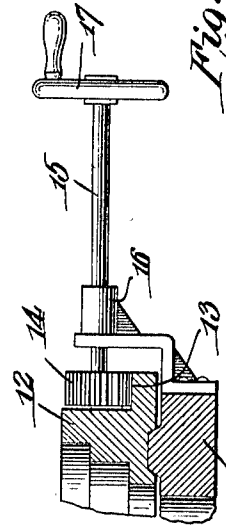


Fig. 6.

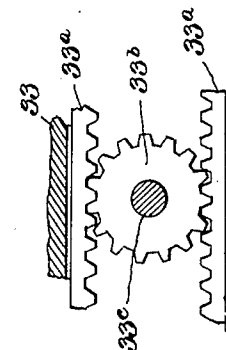


Fig. 5a.

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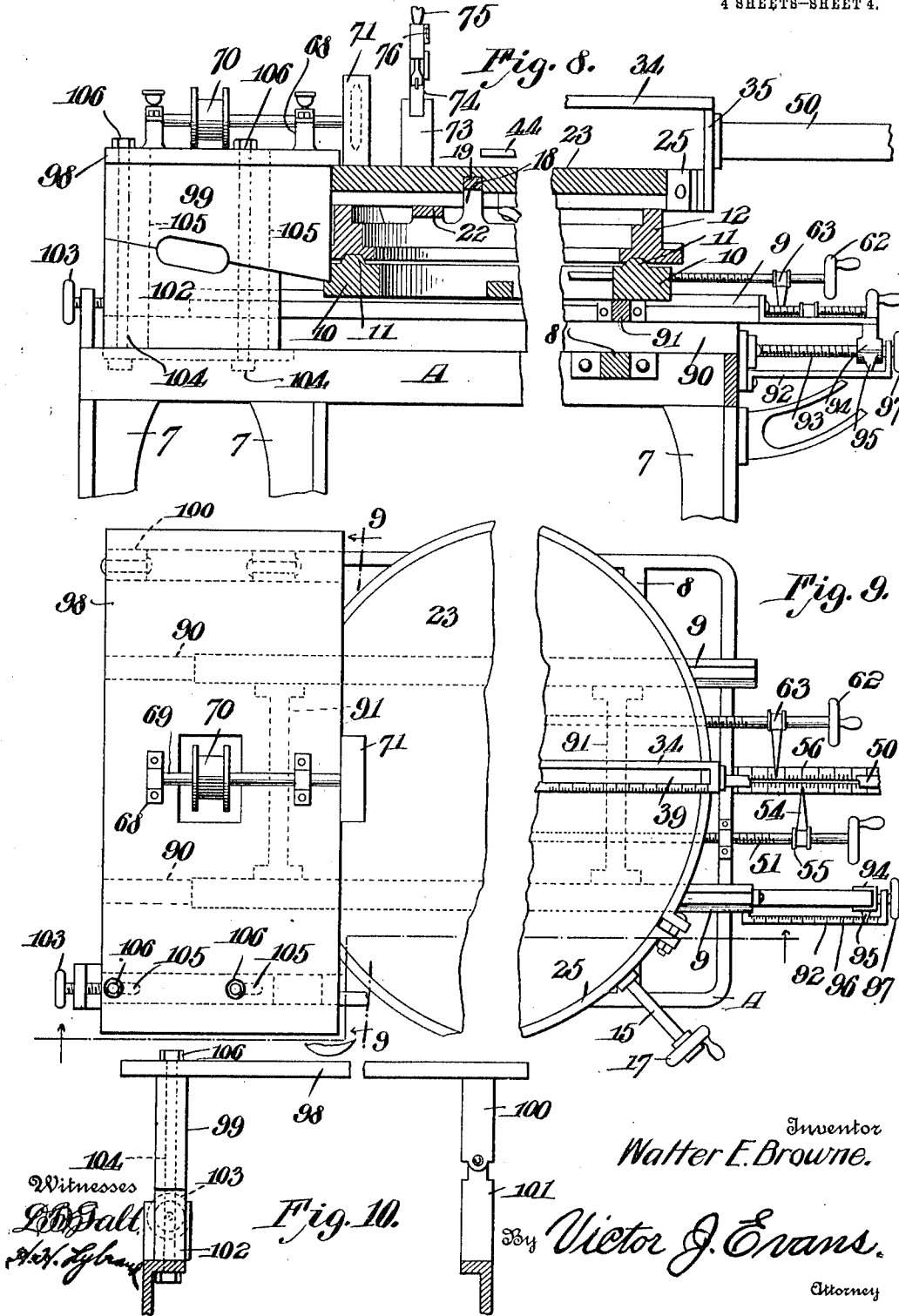
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4 SHEETS—SHEET 4.



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UNITED STATES PATENT OFFICE.

WALTER E. BROWNE, OF DALLAS, TEXAS.

OVAL-BEVELING MACHINE.

1,001,346.

Specification of Letters Patent.

Patented Aug. 22, 1911.

Application filed May 3, 1910. Serial No. 559,155.

To all whom it may concern:

Be it known that I, WALTER E. BROWNE, a citizen of the United States, residing at Dallas, in the county of Dallas and State of Texas, have invented new and useful Improvements in Oval-Beveling Machines, of which the following is a specification.

This invention relates to machines for beveling the edges of oval or elliptical metal plates, and it has for its object to construct a machine of this class which will possess superior advantages in point of simplicity, durability, ease of operation and general efficiency.

With these and other ends in view which will readily appear as the nature of the invention is better understood, the same consists in the improved construction and novel arrangement and combination of parts which will be hereinafter fully described and particularly pointed out in the claims.

In the accompanying drawings has been illustrated a simple and preferred form of the invention; it being, however, understood that no limitation is necessarily made to the precise structural details therein exhibited, but that changes, alterations and modifications within the scope of the invention may be resorted to when desired.

In the drawings,—Figure 1 is a longitudinal vertical sectional view of a machine constructed in accordance with the invention. Fig. 2 is a top plan view of the same. Fig. 3 is a perspective detail view showing the frame band wherein the rotary bed of the machine is supported, and parts connected with and supported by said band, the bed of the machine having been removed. Fig. 4 is a plan view showing the bed of the machine detached and in inverted position. Fig. 5 is a perspective view of the master wheel upon which the bed is supported. Fig. 5^a is a sectional detail view, enlarged, taken on the line 5^a—5^a in Fig. 1. Fig. 6 is a sectional detail view showing the means for rotating the master wheel. Fig. 7 is a sectional detail view of the upper portion of the spindle carrying the presser disk and the cap of said spindle. Fig. 8 is a longitudinal sectional elevation illustrating a modification, some parts being omitted. Fig. 9 is a top plan view also illustrating said modification. Fig. 10 is a sectional view taken transversely through the frame on the line 9—9 in Fig. 8.

Corresponding parts in the several figures are denoted by like characters of reference.

The frame A of the improved machine is provided with legs or supporting members 7, and said frame is provided with cross bars 8 upon which longitudinally disposed track rails 9 are supported. Suitably mounted for longitudinal slidable movement upon the rails 9 is a base 10 having a circular track 11 upon which the master wheel 12 is supported for rotation in an approximately horizontal plane, said master wheel being constructed with a gear wheel 13 engaged by a pinion 14 upon a shaft 15 supported for rotation in a bearing 16 upon the slidable base 10 and having a hand wheel whereby it may be turned for the purpose of rotating the master wheel.

The master wheel 12 is provided with upwardly extending lugs 18 serving to support a pair of transversely disposed parallel cross bars 19 which, by the lugs 18, are raised some distance above the level of the wheel proper. Said wheel is also provided adjacent to its edge with upwardly extending shoulders 20 and with lugs 21 supporting a cross bar 22, the upper faces of the said cross bar 22 and of the shoulder 20 being disposed in the same plane which is below the plane of the upper faces of the cross bars 19.

The master wheel 12 serves to support the bed 23 of the machine which consists of a circular disk or table provided upon its underside with transverse grooves 24 arranged in parallel relation and engaging the cross bars 19 of the master wheel, the shoulders 20 and cross bar 22 of which afford supporting means for the under face of the bed which may be provided with flanges engaging said supporting means. It will be readily seen that the grooves 24 must be of sufficient depth to admit the cross bars 19. The bed or table 23 is surrounded by an annular frame band 25 provided upon its inner face with a circumferential rib 26 engaging a groove 27 in the edge of the bed or table which latter is capable of rotating within the band 25, while said band may be regarded as being supported by the rib 26 engaging the table.

The frame band 25 is provided at diametrically opposite sides with upstanding brackets 28 supporting adjacent to their upper ends a rock shaft 29 having a handle 30

and an eccentric cam 31. The brackets 28 are connected together by a cross bar 32 which is provided intermediate its ends with a box-like casing 33, said cross bar being also connected by a longitudinally disposed bar 34 with an upstanding bracket 35 upon the frame band 25, the latter bracket being located about midway between the brackets 28 and adjacent to one end of the machine.

The bar 32 is provided intermediate its central portion and the ends thereof with slots 36 wherein slides 37 carrying spring-supported centering pins 38 are adjustably mounted. The bar 34 is likewise provided with a longitudinal slot 39 wherein a slide 40 carrying a centering pin 41 is adjustable. The bars 32 and 34 are provided adjacent to the slots in said bars with suitable scales toward which pointers 42 upon the respective slides are directed for the purpose of exactly indicating the position of the centering pins with relation to the axis of a shaft 43 which is supported for rotation in the bearing block 33, said shaft carrying at its lower end a presser plate or disk 44. The upper extremity of the shaft engages a cap 45 which is equipped with a ball bearing to enable the shaft to rotate without being subjected to undue friction. The upper extremity of the cap 45 lies in the path of the eccentric cam 31 upon the rock shaft 29, so that by turning said rock shaft, the cap 45 and the shaft 43 carrying the disk 44 will be forcibly moved in a downward direction. Means may be provided for automatically lifting the shaft 43 with its accessories, but such means are not absolutely necessary, and none have been shown.

The casing 33 is provided with slots or apertures through which rack bars 33^a are guided, the toothed faces of said rack bars being opposed to each other so that both will be engaged by a pinion 33^b upon a short stem or shaft 33^c which is supported for rotation in the casing 33, said stem being provided with a head or handle 33^d whereby it may be readily rotated for the purpose of moving the rack bars 33^a in opposite directions. Said rack bars are provided at their outer ends with arms 33^e lying in the path of and adapted to engage the pins 38 which may thus be simultaneously moved outward to any desired position. If desired, the arms 33^e may be apertured for the passage of the pins which may then be moved either inwardly or outwardly with said arms and rack bars.

The brackets 28 afford bearings for a suitable eccentric rod 47 having a thumb piece 48, whereby it may be actuated to depress the spring actuated centering pins 38. The frame of the machine is provided with a laterally extending bracket 49 which is slotted adjacent to its upper end for the passage of an arm 50 extending from the

bracket 35 of the frame band 25, which latter is thereby held against rotation without interfering with the lateral movement of said frame band and the parts connected therewith when the base of the machine is moved longitudinally upon the supporting rails 9. Such longitudinal adjustment may be effected by means of an adjusting screw 51 operating in a bracket 52 which is supported upon the frame of the machine, the inner end of said adjusting screw being swiveled in a bearing 53 which is firmly connected with the base in any convenient manner. The longitudinally movable adjusting screw 51 is provided with a pivotally supported pointer 54 held against longitudinal movement by means of collars 55, said pointer being directed toward a scale upon an arm 56 which extends laterally from the frame.

A center of rotation for the bed or table 23 of the machine is provided by a bar 57 slidably engaging a diametrical groove 58 formed in the underside of the bed or table, where it intersects the parallel grooves 24, which latter are disposed equidistantly on the center or axis of the table, the groove 58 being obviously at right angles to the groove 24. The guide bar 57 is provided with a bracket 59 swiveled upon a block 60 in which latter is also swiveled the inner end of a horizontally disposed adjusting screw 61 which extends through a threaded aperture in the base 10, said rod being provided at its outer end with a hand wheel 62, and said rod being also equipped with a pivotally supported pointer 63 arranged between collars 64, whereby it is held against longitudinal displacement upon the rod. The pointer is directed toward a scale upon the arm 56 in like manner as the pointer 54.

The frame of the machine supports adjacent to one end a supporting member 65 which is longitudinally adjustable by means of screws 66 and which has an upper inclined face upon which a bench 67 having a correspondingly inclined bottom face is adjustably mounted. The bench 67 is provided with bearings 68 wherein a shaft 69 is supported for rotation, said shaft being provided with means such as a pulley or band wheel 70 for receiving motion from the source of power, and said shaft carrying also a suitably constructed beveling cutter which is housed within a casing 71, it being understood that a cutter of any approved construction may be shown, as indicated in dotted lines at 72 in Fig. 1 of the drawings.

A bracket 73 rising from the frame band 25 carries a hingedly supported arm 74 equipped with a handle 75, said arm being for the purpose of carrying an engraving tool 76 which may be of any suitable and approved construction.

In the operation of this machine the

plate which is to be beveled is placed upon the bed or table 23 where it is centered by means of the centering pins 38 and 41, after which it is clamped securely upon the bed by means of the presser plate 44 carried by the shaft 43 which is moved downwardly by the action of the eccentric cam 31 upon the rock shaft 29. While the plate is thus mounted in position, the table of the machine is moved outward upon the cutter by means of the adjusting screw 51, whereby the base carrying the master wheel and the table is moved longitudinally of the frame. After the plate has been centered and secured upon the table, the latter is restored to a position where the edge of the plate will be engaged by the beveling cutter, the latter being adjustable with reference to the work by moving the bench 67, and the centering bar or slide 57 is now adjusted by means of the screw 61; it being, of course, understood that absolutely perfect adjustment may be made owing to the presence of the pointers 54 and 63 directed toward the scales upon the arm 56. The master wheel is now rotated by means of the hand wheel 17, thus causing the bed or table to rotate in a horizontal plane, the axis of rotation being, however, gradually shifted as the work progresses, owing to the trammel construction of the underside of the bed or table 23 which is movable in two directions guided by the cross bars 19 and the slide 57, which latter by making the groove 58 in the underside of the table sufficiently shallow, will be cleared by the correspondingly elevated cross bars 19 as the operation progresses. The entire circumference of the elliptical or oval plate will thus be gradually presented to the beveling cutter, whereby the edge is beveled, as will be readily understood. After the completion of the beveling operation, the engraving tool carried by the pivotally supported arm 74 may be brought into requisition for the purpose of forming concentric elliptical lines upon the face of the oval plate.

It may be considered advisable especially for certain classes of work to move the entire bed of the machine including the supporting rails 9 longitudinally with reference to the beveling cutter which is supported upon the bench 67. To enable such adjustment to be conveniently effected I provide the modification illustrated in Figs. 8, 9 and 10 under which an additional set of rails, here designated by 90, are interposed between the rails 9 and the supporting frame, said rails 90 being in this instance supported upon the cross bars 8 of the frame, while the rails 9 are connected together by cross bars 91, as shown in dotted lines in Fig. 9. The frame is provided adjacent to the end of one of the rails 90 with an arm or bracket 92 affording the bearing for an

adjusting screw 93 which operates in a box 94 connected with the structure including the rails 9, said box being equipped with a pointer 95 directed to a scale 96 upon the arm or bracket 92. A hand wheel 97 is provided for convenient manipulation of the adjusting screw. It will be seen that by this simple arrangement the rails 9 and the entire superstructure connected therewith is capable of longitudinal adjustment upon the frame and that the extent of such adjustment may be readily determined. When this modification is resorted to, it is preferred also to remodel the bench 67 which supports the beveling tool and the supporting means therefor. Under the construction illustrated in Figs. 1 and 2, the bench is provided with an inclined bottom engaging a correspondingly inclined top face of a supporting member 65. Under the present modification the bench, here designated 98, is equipped with supporting flanges 99 and 100, the former of which has an inclined bearing face, while the latter has a straight face, as clearly seen in Fig. 10, said flange being hingedly connected with a supporting flange 101 rising from the table. Secured adjustably upon the table is a supporting member 102 having an inclined upper face corresponding with the inclined face of the flange 99, said supporting member being adjustable by means of a set screw 103. Bolts 104 are also provided, said bolts extending through slots 105 in the adjustable supporting member 102 and upwardly through the top of the bench 98 where tightening nuts 106 are provided. It will be seen that by loosening the nuts 106 the supporting member 102 may be readily adjusted to raise or lower one end of the bench, thus effecting a very minute adjustment of the beveling tool carried by the bench. After the proper adjustment has been effected, the parts may be secured very firmly by tightening the nuts 106.

In the operation of the machine constructed with the modifications just described, the width and length of the oval are first determined by the pointers 63, 54; the plate is clamped under the presser head, and now the adjusting screw 93 is turned by the hand wheel 97 to move the entire bed of the machine including the rails 9 and the parts supported thereon to the proper position with reference to the beveling tool. It is preferred that a lug or stop be attached to the scale so that the bed of the machine will not move beyond the desired predetermined point, and the master wheel is now put in rotation. The bed is now taken from the cutter head, and the engraving tool is let down, and the master wheel is again put in rotation and as many lines as may be desired may now be engraved, and the plate is then removed. It will thus be seen that

owing to the presence of the auxiliary track the entire movable base of the machine may be moved to or from the relatively stationary bench carrying the bevel tool without re-setting or changing the size.

From the foregoing description, taken in connection with the drawings hereto annexed, the operation and advantages of this invention will be readily understood by those skilled in the art to which it appertains. The machine is simple in construction, and it will be found to be thoroughly efficient for the purpose for which it is provided.

Having thus described the invention, what is claimed as new, is:—

1. In a machine of the character described, a movably supported base having a circular track, a master wheel having elevated parallel cross bars, a table having grooves engaging said cross bars and an additional shallow intersecting groove, a slide engaging said intersecting groove to clear the cross bars of the master wheel, and screw means for adjusting the slide with reference to the base.

2. In a machine of the character described, a master wheel supported for rotation, a circular table supported upon said master wheel for orbital movement with reference thereto, said table having an annular groove, a frame band surrounding the table and having a rib engaging the annular groove, and a vertically movable presser plate connected with and carried by the frame.

3. A base, a master wheel supported for rotary movement thereupon, a table supported upon the master wheel for orbital movement with reference thereto, a frame band connected with the table, and plate clamping and centering means connected with and supported by the frame band.

4. A base having a circular track, a master wheel supported for rotation upon the track and having elevated cross bars, a table having transverse grooves slidably engaging the cross bars and an additional relatively shallow intersecting groove, an adjusting screw operating in the base, a block swiveled upon said screw, and a slide supported upon and having swivel connection with said block, said slide engaging the relatively shallow groove in the underside of the table to form an axis of rotation for the latter.

5. A frame having track rails, a base movable upon said rails and having a circular track, a master wheel supported for rotation upon said track, a table supported adjacent to the master wheel for orbital movement with reference thereto, an adjusting screw operating in the base, a block swiveled upon the screw, a member swiveled upon the block, said member having slidable connection with and constituting an axis of rotation for the table, a pointer pivotally con-

nected with the adjusting screw, and a scale coöperating with said pointer.

6. A laterally movable base having a circular track, a master wheel supported for rotation upon the track, a table supported for rotation with the master wheel and for orbital movement with reference thereto, a swiveled member slidably engaging the table, an adjusting screw for adjusting the swiveled member with reference to the base, an adjusting screw for adjusting the base with reference to the frame, pointers upon the adjusting screws, and scales coöperating with the pointers.

7. In a machine of the character described, a circular table supported for rotation and for orbital movement, said table having an annular groove in the edge thereof, a frame band surrounding the table and having a rib engaging the groove, brackets rising from the frame band at diametrically opposite sides, a cross bar connecting said brackets, a disk-carrying spindle supported for rotation and for vertical movement with reference to the cross bar, and a suitably supported cam for forcing the spindle downward in the direction of the table.

8. A circular table supported for rotation and for orbital movement, a frame band rotatably connected with and supported by said table, means for obstructing the rotation of said frame band, a presser plate or disk carried by the frame band and movable vertically with reference to the table, and plate centering means carried by the frame band.

9. In a machine of the class described, an annular frame band, a rotary table within said frame band and supporting the latter, means supporting the table for orbital movement, means for obstructing rotary movement of the frame band, brackets rising from the latter, a cross bar connecting said brackets, a disk-carrying spindle supported for rotation and for vertical movement in the cross bar, a cam supported above the spindle to force the latter in a downward direction, slides movable in the cross bar, spring-actuated centering pins carried by said slides, and means for pressing the pins downwardly against the action of the springs.

10. In a machine of the character described, a table supported for rotation and for orbital movement, a frame band surrounding and connected with said table, brackets rising from said frame band, two of said brackets being located at diametrically opposite sides and one bracket being located intermediate the first two brackets, a cross bar connecting the diametrically opposite brackets and having slots therein, a slotted bar connecting said cross bars with the intermediate bracket, an arm extending laterally from the intermediate bracket, ob-

structing means disposed in the path of said arm to obstruct rotary movement of the frame band, a disk-carrying spindle connected rotatably and for vertical movement
 5 with reference to the cross bar, slides movable in the slots of the cross bar and of the bar connecting said cross bar with the intermediate bracket, spring-actuated centering pins connected to said slots, a cutting tool,
 10 and means for effecting lateral adjustment of the table and related parts including the supporting and operating means of said table with reference to the cutting tool.

11. In a machine of the character described, the combination with a relatively stationary tool carrying bench, of a slidably supported base having a circular track, a master wheel supported for rotation upon said track, a table supported for orbital
 15 movement adjacent to the master wheel, an auxiliary track upon which the base is slidably supported for movement toward and from the tool-carrying bench, and means for rotating the master wheel and for transmitting motion from the latter to the table.
 20

12. In a machine of the character described, the combination with a relatively stationary tool carrying bench, of a frame having longitudinal track rails, auxiliary

rails slidable thereupon for movement toward
 30 and from the tool carrying bench, a base slidably supported upon the auxiliary rails and having a circular track, a master wheel supported for rotation upon said track, a
 35 table supported for orbital movement adjacent to the master wheel, and means for rotating the master wheel and for transmitting motion from the latter to the table.

13. In a machine of the character described, the combination with a relatively stationary tool carrying bench, of a movably supported base having a circular track, auxiliary rails upon which the movable base is
 40 slidably supported for movement toward and from the tool carrying bench, a master wheel supported for rotation upon the circular track and having cross bars supported in parallel relation, a table having grooves
 45 engaging the cross bars and an additional relatively shallow intersecting groove, and
 50 a movably supported slide engaging said intersecting groove.

In testimony whereof I affix my signature in presence of two witnesses.

WALTER E. BROWNE.

Witnesses:

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