

(No Model.)

2 Sheets—Sheet 1.

J. W. TURNER.

MACHINE FOR CUTTING WOOD DISHES.

No. 497,933.

Patented May 23, 1893.

Fig. 1.

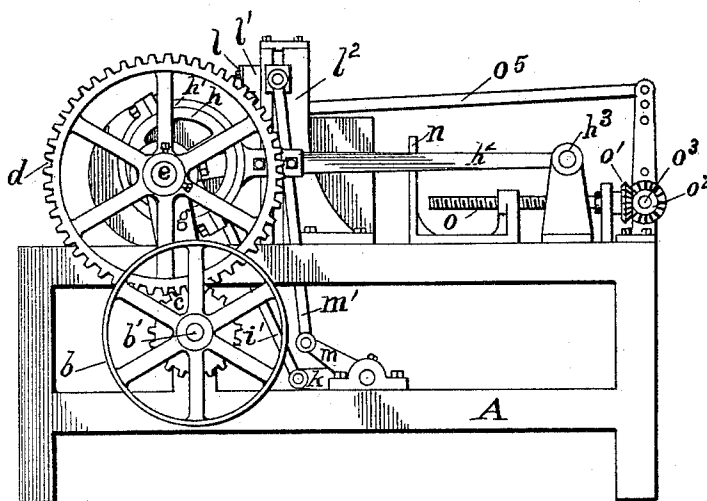
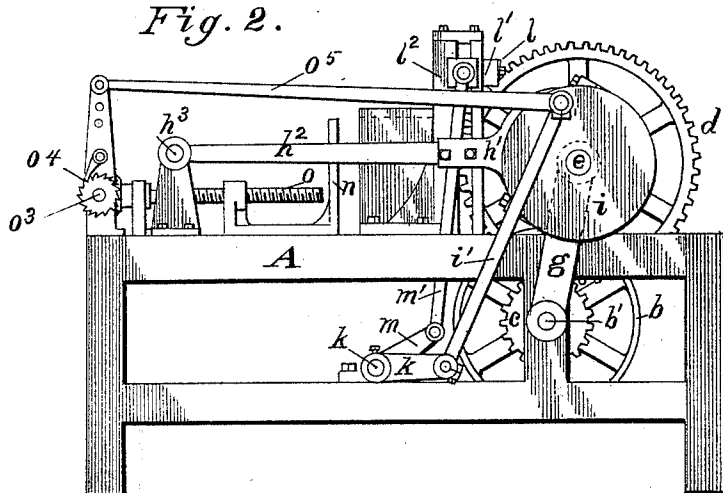


Fig. 2.



Witnesses.

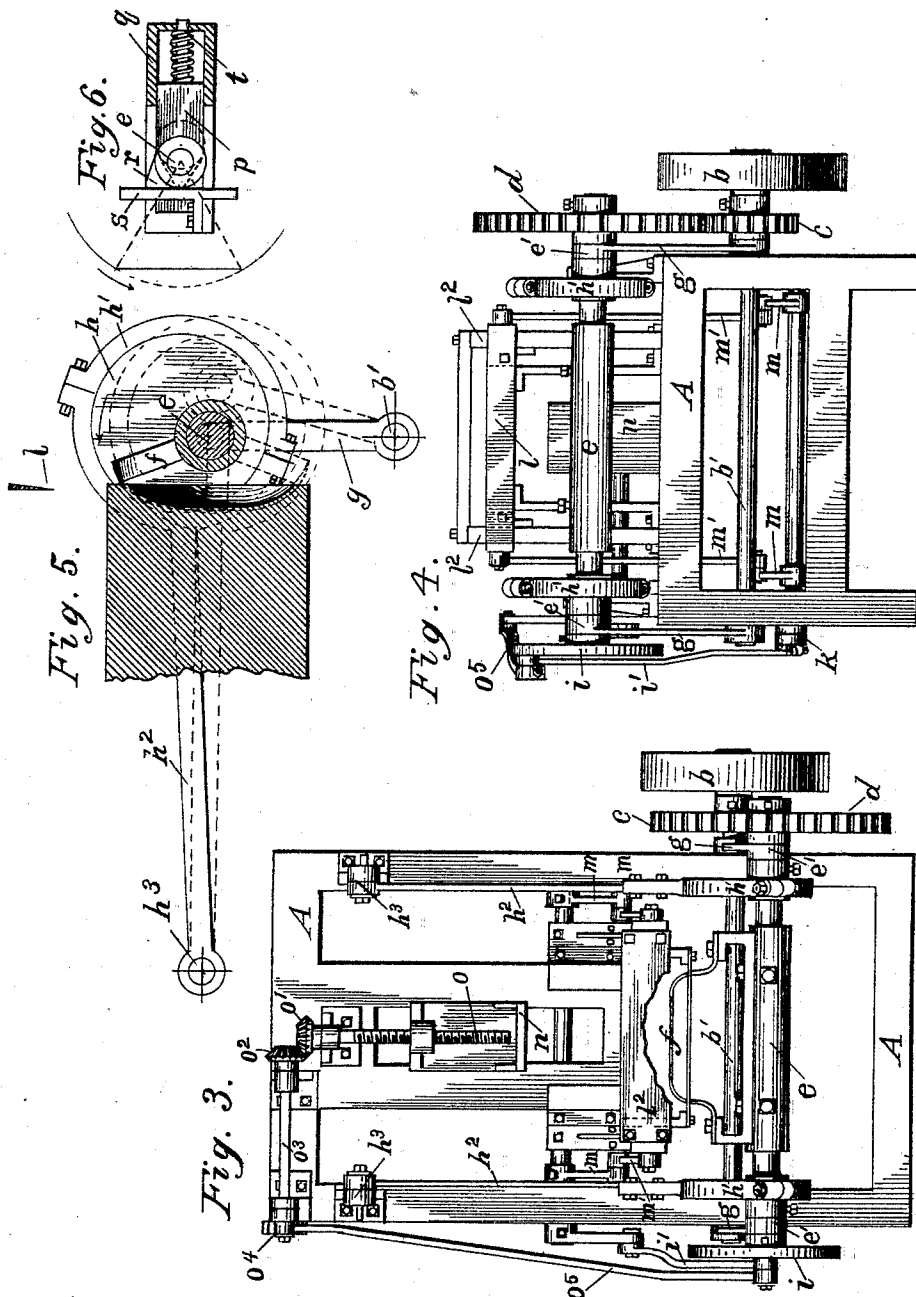
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By Aaron Hall,
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UNITED STATES PATENT OFFICE.

JACOB W. TURNER, OF VAN WERT, ASSIGNOR TO THE OVAL WOOD DISH COMPANY, OF DELTA, OHIO.

MACHINE FOR CUTTING WOOD DISHES.

SPECIFICATION forming part of Letters Patent No. 497,933, dated May 23, 1893.

Application filed July 27, 1891. Serial No. 400,840. (No model.)

To all whom it may concern:

Be it known that I, JACOB W. TURNER, a citizen of the United States, residing at Van Wert, Van Wert county, Ohio, have invented certain new and useful Improvements in Machines for Cutting Wood Dishes, of which the following is a specification.

My invention relates to the manufacture of seamless or jointless veneer wood dishes, such as are furnished by grocers as a convenient means for carrying small quantities of butter, berries, lard and the like. These dishes are designed merely for temporary use, being so cheap that when once used they are thrown away or destroyed. Heretofore these dishes have been manufactured by cutting or scooping them, as a veneer, from the face of a block of wood, by means of a revolving or oscillating curved knife attached at its ends to a revolving or oscillating shaft. Dishes produced in this manner have been concavo-convex, and in cross section a segment of the circle described by the knife in its rotation or oscillation about the axis of its shaft. These dishes, while carried in the hand, answer their purpose admirably, but when placed upon a table a slight touch will cause the dish to rock and its contents to be spilled.

The object of my invention is to obviate the objection here pointed out by providing a method and mechanism by which dishes of the character referred to may be cut with flat or nearly flat bottoms. I attain this object by means of the mechanism and operation of parts hereinafter described, and shown in the accompanying drawings, made part hereof, in which—

Figure 1, is a side elevation of my machine; Fig. 2, an elevation of opposite side; Fig. 3, a plan view; Fig. 4, a front end view; Fig. 5, a sectional view of knife, knife-shaft and block, together with diagram of cam and its motion; and Fig. 6, a sectional view and diagram of motion of knife and its shaft in the modified form of machine, hereinafter referred to.

In the drawings A is the frame or table upon which my machine is mounted.

b is the driving pulley, upon the shaft of which, b', is gear-wheel c engaging gear-wheel d on shaft e.

Attached to shaft e is a curved or bent dish-

cutting knife f, the longitudinal shape of which conforms to the contour of the dish to be cut. Shaft e is journaled in boxes e' upon the upper ends of oscillating bars g which are journaled, at their lower ends, upon shaft b'. 55

Fixed to shaft e are cams h which revolve in cam-straps h'. These cam-straps are provided with arms or extensions h², pivoted at their extremities in boxes h³. Shaft e, at its end opposite its driving-gear, is provided with crank-plate i, connected by means of connecting-rod i' with crank and crank-shaft k. 60

l is a facing-knife by means of which the block of wood from which the dishes are cut is faced off or reduced by the thickness of the dish after each stroke of the dish-cutting knife. Facing-knife l is attached to sliding-blocks l' which reciprocate vertically in housings l². Sliding blocks l' and their attached knife are actuated by crank m (on crank-shaft k) and connecting-rod m'. 65

A convenient form of mechanism by which the block may be fed forward intermittently a distance corresponding to the thickness of the dish to be cut before the operation of the knives, consists in a sliding head-plate n, moved by feed-screw o, having miter gear-wheel o', engaging gear o², on shaft o³, which is actuated by pawl and ratchet o⁴, connected with crank i, by means of connecting-rod o⁵. 75

The operation of my machine is as follows: A block of wood of suitable size, steamed in the usual manner, is placed in the machine in front of sliding head-plate n and is clamped to the feeding mechanism, by the usual clamps. (Not shown in the drawings.) The intermittent rotation of feed-screw o caused by the pawl and ratchet in its driving-gear, advances the block so that the edge of knife f, at each revolution, engages the face of the block, cutting out at first preliminary chips, which constantly increase in size, as the block advances, until the chips reach the size of the desired dish, at which point the block has been advanced by the screw far enough to be engaged by the facing-knife l, which now, after each stroke of the dish-cutting knife, faces off the block, by the thickness of the dish, thus keeping all of the succeeding dishes of uniform size until the block is used up. If knife-shaft e rotated about a 80 85 90 95 100

constant axis, the dish produced would be concavo-convex, segmental in cross-section, and would present the objections heretofore pointed out; but shaft *e*, carrying dish-cutting knife *f*, has two motions: first, its constant rotation on its axis, and second, a simultaneous motion bodily toward and from the face of the block to be cut, as well as vertically. The first motion is imparted through pulley *b* and gear-wheels *c* *d*, and the second motion is obtained by means of cam and cam-straps *h* *h'*. The motion of knife-shaft *e* toward and from the dish-block is permitted by the oscillation in a vertical plane of the pivoted supporting arms *g* upon which shaft *e* is journaled, the upper gear-wheel *d* rolling upon lower gear-wheel *c*; and the vertical motion of the knife-shaft is permitted by the oscillation vertically of pivoted arms or cam-strap extension *h*, the resultant of these vertical and horizontal oscillations being, substantially, the movement of the shaft in a straight line. The knife-shaft *e* and knife *f* are set in such relation to cams *h* that the knife, as it enters the block, describes the arc of a circle of which shaft *e* is the center, forming one side of the dish. The cams now cause the knife shaft to recede from the block so that the knife, as it continues its revolution, travels forward in a right line, or nearly so, forming the flat or nearly flat bottom of the dish. The knife now again describes an arc of its original circle, emerges from the face of the block, and the remaining side of the dish is completed; that is to say, a complete dish is separated from the block and the interior of the next succeeding dish is formed. (For illustration of the movement of the dish-cutting knife, and the cams and the effect of the same upon the block and dish, see Fig. 5.)

Instead of mounting shaft *e* upon oscillating arms *g*, and pivoting eccentric *h* *h'*, as described, as the equivalent thereof the journal-box *p* at each end of the shaft *e*, may (as shown in Fig. 6.) be fitted to slide and reciprocate in housings *q*. In this modification of my device the cam or eccentric consists of lug *r* projecting radially from shaft *e*, which lug, as the shaft revolves, comes in contact with fixed shoulder *s*, causing the shaft to recede (as shown by the dotted shaft outline) until half the knife-stroke is accomplished, then permitting the shaft to return during the completion of the remaining half stroke of the knife, thus causing the knife to deviate from its circular path into a straight line, and giving, substantially, a flat bottom to the completed dish. The return of the knife-shaft and its bearings to their original position, after the completion of the first half of the cut, is insured by the pressure of a spring *t*, interposed between the end of the housing *q* and sliding journal-box *p*.

In carrying out my method of making flat bottomed dishes, the use of the facing-knife may be dispensed with as the block may, by an independent manipulation be shaped to correspond with the outline of the upper edge of the completed dish, and the feed of the block to the dish-cutting knife may be adjusted so that the knife will engage the block upon its margin instead of upon its face, thus insuring uniformity in the size and shape of the dishes produced. The use of the facing-knife is, however, preferable.

In a machine for carrying out my invention it is not essential that the dish-cutting knife should describe a complete revolution, as my machine may, obviously, be so modified that the dish-cutting knife will travel to and fro or oscillate about the axis of its shaft; in other words, the knife may cut out a dish and then go back to its starting point preparatory to its next stroke instead of describing a complete revolution.

To those skilled in the art there will suggest themselves other arrangements of the knife-shaft and cams, or mechanism equivalent to the cams, by which the segment of the circle described by the continuously revolving knife during its cut, may be elongated to the segment of a flattened ellipse, either by the movement bodily of the dish-cutting knife and its shaft, or of the block itself, and I do not, therefore, limit my invention to the exact form of mechanism here shown for causing the knife *f'* to traverse such a path.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A machine for cutting flat-bottomed wood dishes, comprising in its construction a suitably bent or curved dish-cutting knife, a rotating shaft carrying said knife; pivoted arms supporting said shaft; a cam upon said shaft adapted to give a reciprocating motion to said shaft while revolving; pivoted cam-straps engaging said cams, means, substantially as described, for facing off the block between the successive strokes of the dish-cutting knife, and means, substantially as described, for feeding the block forward between the successive cuts of the dish-cutting knife, all substantially as and for the purpose specified.

2. In a machine for cutting flat-bottomed wood dishes, a knife-shaft having a suitably bent or curved dish-cutting knife and cams, (*h*), in combination with pivoted arms (*g*) supporting said shaft, and pivoted cam-straps, (*h'*) engaging said cam, substantially as shown and described, for the purpose specified.

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Witnesses:

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HENRY C. BOESCHE.