

(No Model.)

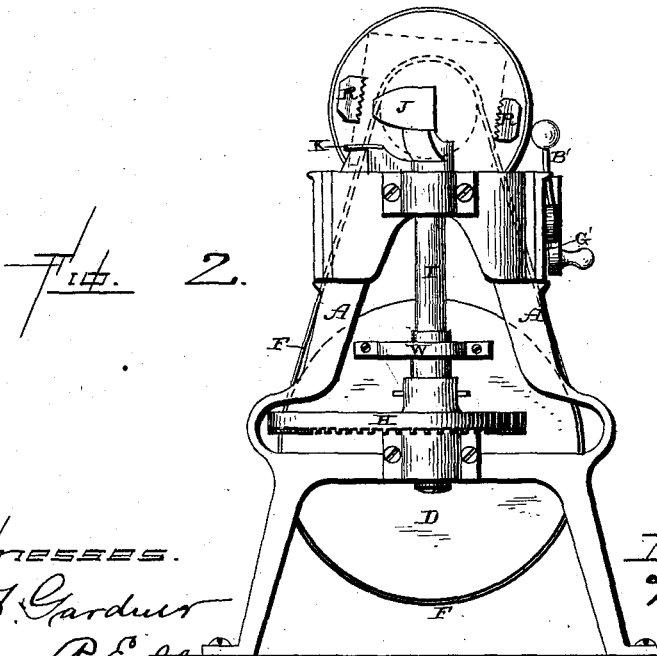
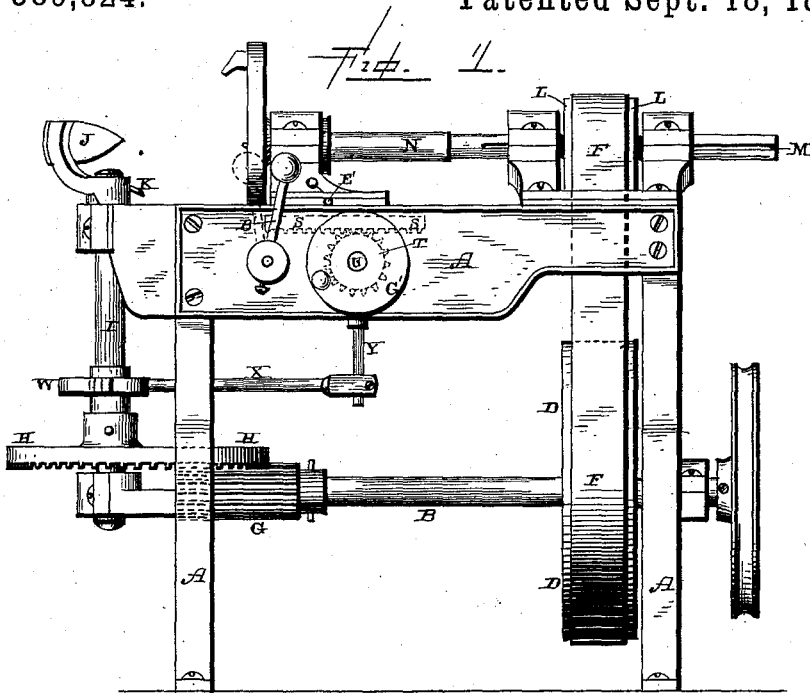
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W. S. SHOTWELL.

LATHE FOR TURNING WOODEN DISHES.

No. 389,824.

Patented Sept. 18, 1888.



Witnesses.
 R. J. Gardner
 Edm. P. Ellis

Inventor
 W. S. Shotwell
 per
 J. A. Lehmann
 atty

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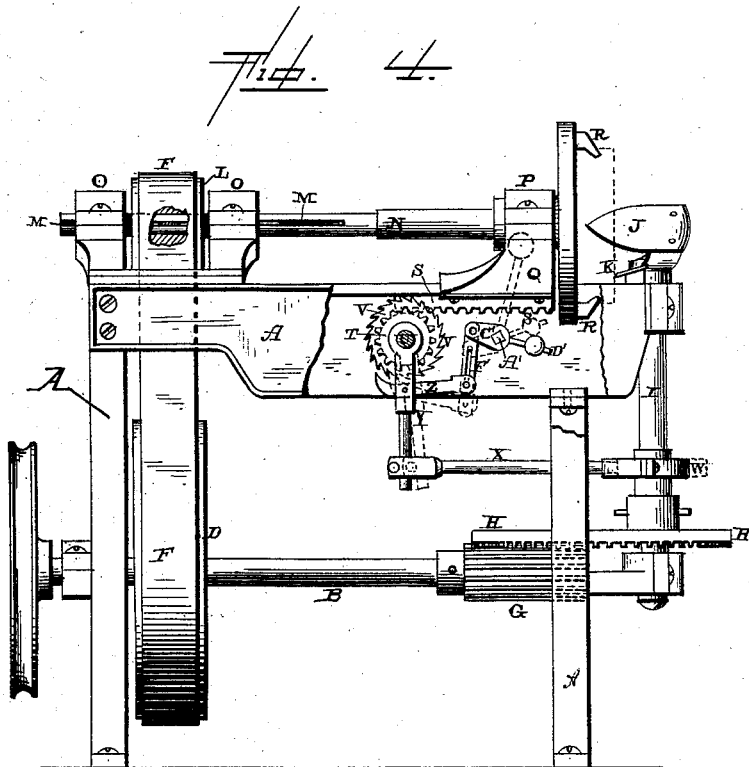
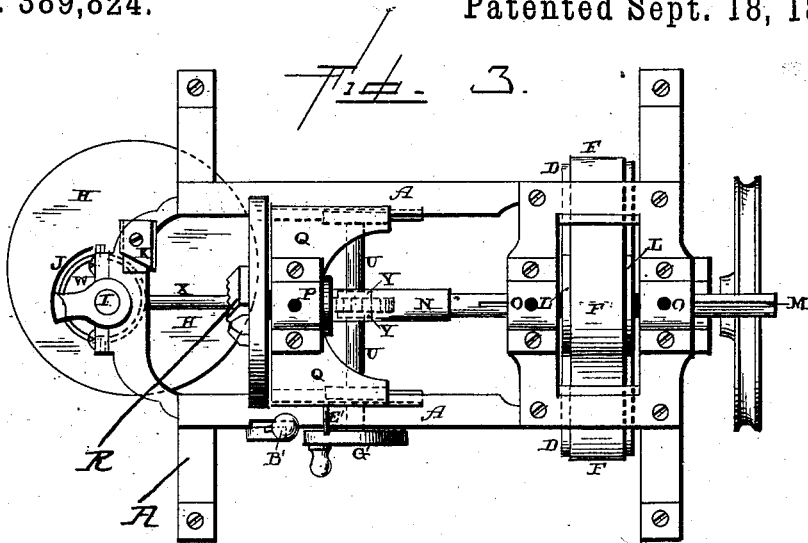
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UNITED STATES PATENT OFFICE.

WALTER S. SHOTWELL, OF GRAND RAPIDS, MICHIGAN.

LATHE FOR TURNING WOODEN DISHES.

SPECIFICATION forming part of Letters Patent No. 389,824, dated September 18, 1888.

Application filed February 21, 1888. Serial No. 264,827. (No model.)

To all whom it may concern:

Be it known that I, WALTER S. SHOTWELL, of Grand Rapids, in the county of Kent and State of Michigan, have invented certain new and useful Improvements in Lathes for Turning Wooden Dishes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in lathes for turning wooden dishes; and it consists in the combination of an endwise-moving rapidly-revolving shaft, which has a chuck secured to its end for holding the block from which the dishes are cut, a sliding carriage which moves the chuck forward toward the knife or cutter, and an automatically-operating mechanism for feeding the carriage, chuck, and shaft forward, with a revolving knife, and mechanisms for driving both the shaft and the knife, as will be more fully described hereinafter.

The object of my invention is to produce a machine for cutting the dishes directly from the end of a block of wood, and in which the block is made to rapidly revolve, so that the knife will exert a drawing cut upon the wood, and thus shave it from the end of the block without any loss of material, as well as to produce more finished dishes and at a less expenditure of power.

Figure 1 is a side elevation of a machine embodying my invention. Fig. 2 is an end view of the same. Fig. 3 is a plan view. Fig. 4 is a side elevation taken from the opposite side of Fig. 1 and showing a portion of the frame removed.

A represents a suitable frame-work of any desired construction, and in which the driving-shaft B is journaled in suitable boxes prepared therefor. To the outer end of this shaft B is secured the driving-pulley, and to the shaft inside of the frame is secured the large driving-wheel D, from which the driving-belt F extends for the purpose of operating the endwise-moving shaft which carries the chuck and the block of wood from which the dishes are to be cut. To the opposite end of this

shaft B from the driving-wheel is secured the long pinion G, which operates the eccentric-wheel H, secured to the lower end of the vertical shaft I. This wheel H has its teeth formed upon its lower edge, and owing to its shape it causes the shaft I to have a slow motion while the knife J is cutting a dish from the block of wood, and a rapid motion while the knife is returning for another cut, but is doing no work. A long pinion is necessary, so as to give the wheel H a continuous rotary motion.

Secured to the upper end of the shaft I is the knife J, which is made pointed at its front end, is sharpened at its lower edge, so as to cut or shave the dish from the end of the rapidly-revolving block of wood, and which is concave upon its outer side and concave upon its inner one, as shown. While the knife is shaving the dish from the block the teeth upon the widest part of the eccentric-wheel are in gear with the pinion, and while the knife is moving around through that part of the circle in which it performs no work the teeth upon the narrowest side of the eccentric-wheel are in gear with the long pinion, so as to cause the shaft I to revolve most rapidly. The knife J is made V-shaped, so that it will have a sharp point to penetrate the wood, and its lower edge alone is sharpened, because the cutting is done at this point only.

Secured upon the end of the frame in which the shaft I is journaled is a horizontal knife or cutter, K, against which the edge of the block of wood is forced as it is being fed forward to have the knife cut another dish, and this knife trims the edge of the block so that it will be perfectly square instead of being sharp, as would otherwise be the case. This knife K dresses the edge of the block each time that the dish has been cut from it.

The driving-belt F imparts a rotary motion to the pulley L, which is provided with a feather, so as to fit in the groove M, which is formed in the side of the endwise-moving shaft N. This pulley L has only a rotary motion, while the shaft N has both a rotary and an endwise movement, for the purpose of both causing the block from which the dishes are to be cut to revolve rapidly in front of the knife and at the same time feed the block for-

ward as fast as the dishes are cut from it. The feather and spline in the pulley and the groove M in the shaft N cause the pulley and shaft to revolve together, but at the same time allow the shaft to have an endwise movement through the pulley. The shaft N is journaled in the boxes O, placed at each end of the pulley L, and in the box P, which is formed upon the sliding carriage Q. To the inner end of the shaft N is secured the chuck R, of any suitable construction, and by means of which the block of wood from which the dishes are to be cut is both held and made to rapidly revolve.

The lower edges of the carriage Q, inside of the frame A, are provided with racks S, which mesh with the pinions T, placed upon the shaft U. At the center of the shaft U is placed the ratchet-wheel V, by means of which the shaft U and the pinions are made to revolve for the purpose of feeding the carriage forward, so as to present a fresh surface of the block of wood to be acted upon at each revolution of the knife. As the block of wood is forced forward a certain regulated distance, the knives sweep around and its sharp point penetrates the block and exerts a constant drawing cut upon it, while the block is made to rapidly revolve, and thus the dish is shaved or cut from the block without the slightest loss of material, and as each dish is sliced or cut from the block by a drawing cut, each one is perfectly finished while being cut.

Upon the shaft I is formed an eccentric, W, and this eccentric operates the rod X, which in turn moves the reciprocating pivoted frame Y, which is suspended from the shaft U, and in which the pawl Z is pivoted. As the shaft I revolves, the eccentric W causes the rod X to have a horizontally-reciprocating motion, and this motion imparts to the pawl through the pivoted swinging frame a reciprocating motion, so as to cause it to engage with the ratchet V and thus feed the carriage forward.

Projecting horizontally through the side of the frame is a partially-revolving rod or shaft, A', which has secured to its outer end a weighted rod or lever, B', and to its inner end a crank, C', and a weighted arm or rod, D', extending in a line with the crank. The weighted handle or lever B' is intended to be struck by the projection E' upon the side of the carriage when the carriage has reached the end of its stroke, and thus cause the weighted lever to operate the shaft A' and raise the crank C' at its inner end. The weighted rod or arm D' also assists in operating the shaft A' and holds the crank C' in a raised position. When the projection E' strikes the weighted rod or lever B', it has only to move it past its center of motion, and then the weight upon its upper end and the weighted rod or arm D' cause the shaft to partially revolve in its bearings and raise the crank C'. Between the end of the crank C' and the end of the pawl Z is a slotted connecting-rod, F', and by means of which the rear end of the pawl can be raised so that its

front end will not engage with the ratchet-wheel. As long as the crank is turned downward, the rear end of the pawl is held at such an angle that its front end engages with the ratchet-wheel; but as soon as the crank is raised upward the front end of the pawl is lowered to such an angle that it will not operate the ratchet-wheel, and then all feeding forward of the grooved shaft N at once ceases. The slot in the connecting-rod F' allows the front end of the pawl to be depressed by contact with the ratchet-wheel as the pawl is being moved backward to get a fresh hold upon the ratchet-wheel. When it is desired to move the carriage rapidly back and forth by hand, the wheel C' upon the end of the shaft U is operated.

Having thus described my invention, I claim—

1. The combination of the revolving shaft, journaled at one end upon the frame and carrying the block from which the dishes are cut, a sliding carriage in which one end of the shaft is journaled, a feed mechanism for feeding the shaft forward, and a mechanism for causing the shaft to revolve, with a revolving knife, a shaft to which the knife is secured, and a mechanism for causing the shaft to revolve, substantially as described.

2. The combination of the horizontally-revolving knife, a shaft to which the knife is secured, and a mechanism for operating it, with a rapidly-revolving endwise-moving shaft carrying the block of wood from which the dishes are to be cut, a mechanism for revolving the shaft, and an automatic feed for moving the shaft forward at the same time that it is made to revolve, so as to present the block to the action of the knife, substantially as set forth.

3. The combination of the vertical shaft I, having a horizontally-revolving knife, J, secured to its upper end, and a suitable mechanism for causing the shaft to revolve, with the endwise-moving rapidly-revolving shaft N, which carries the block from which the dishes are to be cut, and an automatic feed, substantially as shown, for moving the shaft forward, the block being presented to the action of the knife while the block is rapidly revolving, substantially as specified.

4. The combination of the driving-shaft provided with a pinion, G, the shaft I, provided with an eccentric-operating wheel, the horizontally-revolving knife secured to its outer end, and the stationary knife for trimming the edge of the block, with the revolving endwise-moving shaft which carries the block of wood, and an automatic feed, substantially as shown, for moving the block forward, substantially as shown.

5. The combination of the carriage having the shaft N journaled therein and provided with a chuck or device for holding the block of wood, the racks upon its lower edges, the pinions for engaging with the racks, the shaft upon which the pinions and the ratchet-wheel

are placed, the ratchet-wheel, the pivoted re-
ciprocating frame carrying the pawl, which
engages with the ratchet, an eccentric-rod for
operating the pawl-frame, a connecting-rod for
5 supporting the rear end of the pawl, a cranked
shaft, a rod or lever for moving the cranked
shaft, and a projection on the carriage for
striking against the rod or lever, and thus

stopping the feed of the block forward to the
knife, substantially as described. 10

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

WALTER S. SHOTWELL.

Witnesses:

JOHN B. GRIMES,

LEONIDAS G. WOOLLEY.