No. 817,943. PATENTED APR. 17, 1906.

P. W. WALTZ.

WOOD TURNING MACHINE.

APPLICATION FILED AUG. 22, 1905.

3 SHEETS—SHEET 1.

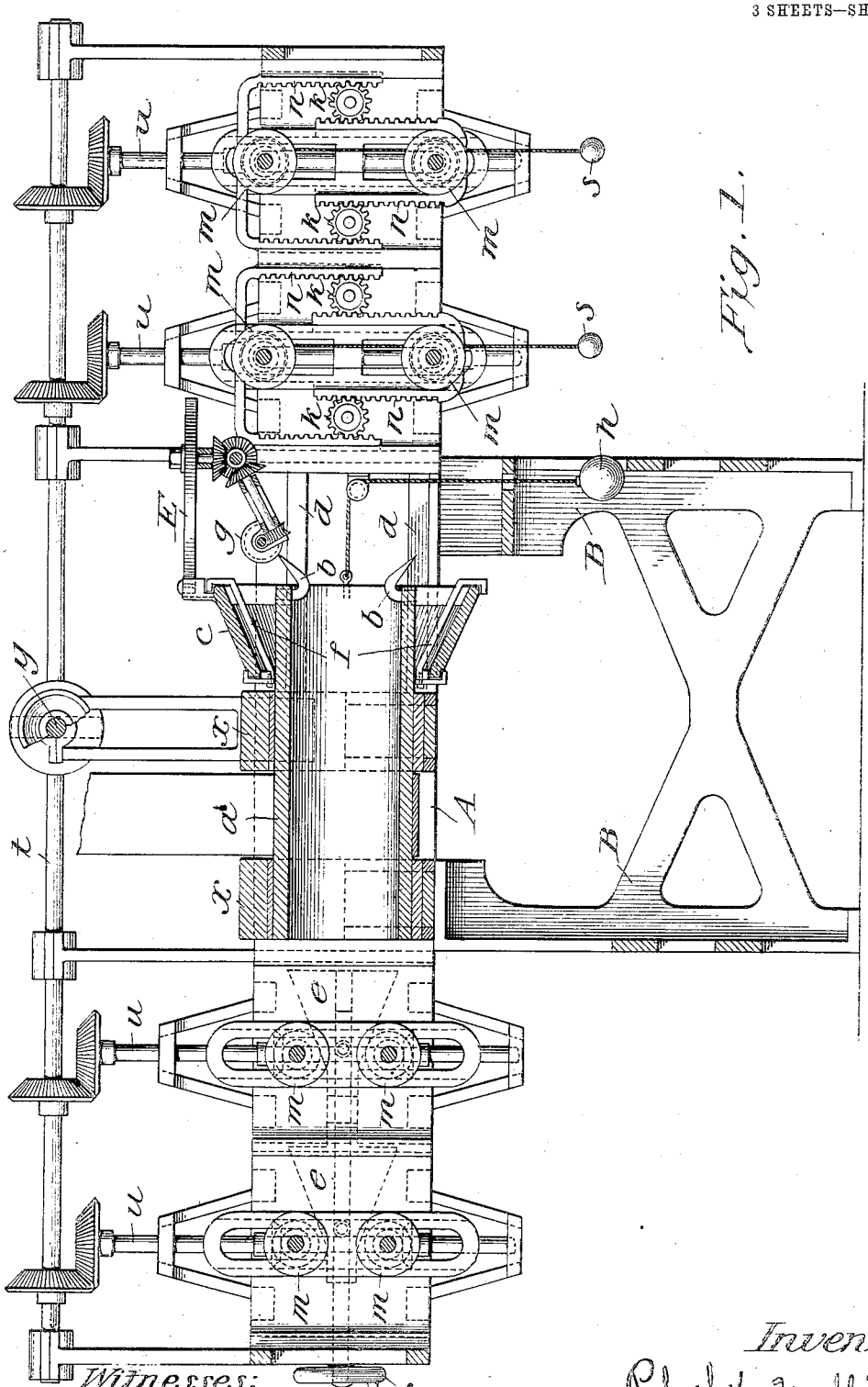

Fig. 1.

Witnesses:
Henry W. Oppermann
William J. Hanlon

Inventor,
Philip Will. Waltz

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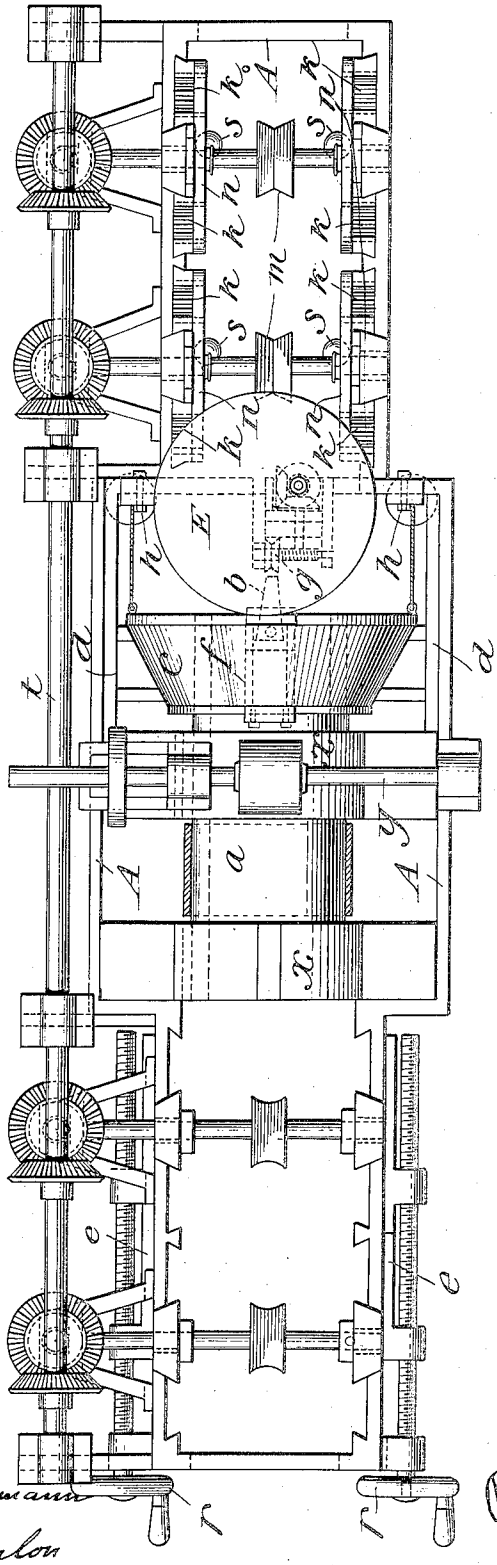
3 SHEETS—SHEET 2.

Fig. 2.



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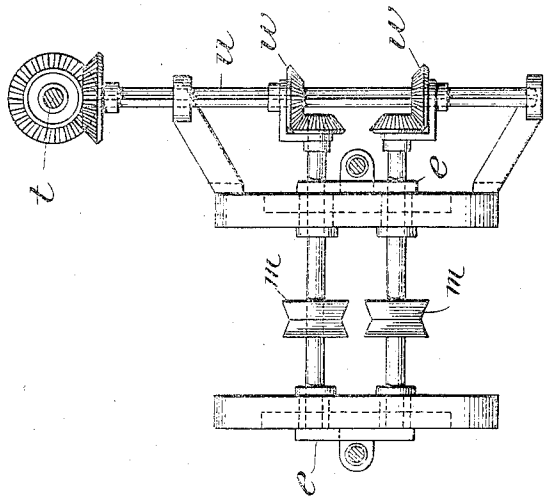

Fig. 4.

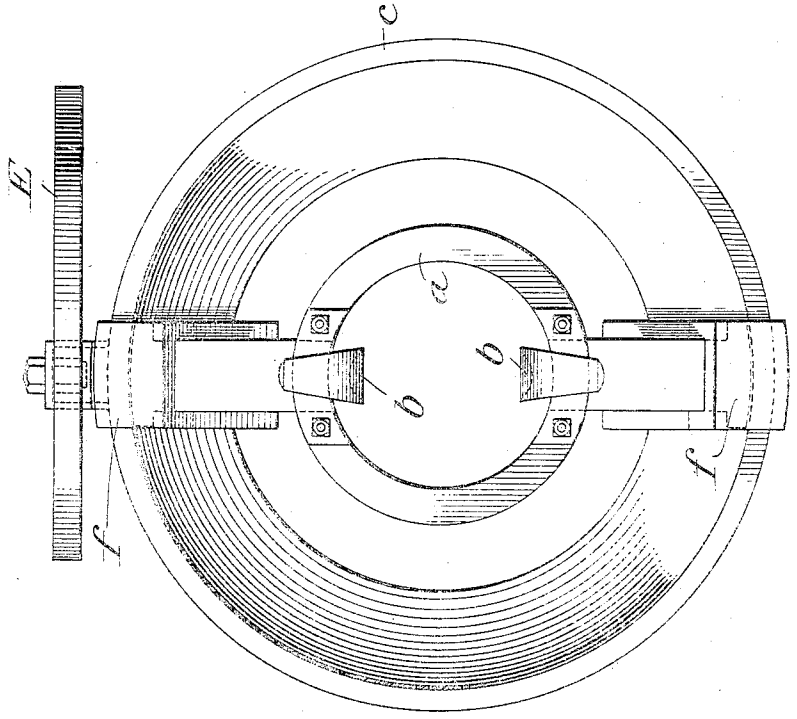

Fig. 3.

Witnesses:
Henry W. Offermann
William J. Gordon

Inventor,
Philip Will Waltz

UNITED STATES PATENT OFFICE.

PHILIP WILL WALTZ, OF VALLEJO, CALIFORNIA.

WOOD-TURNING MACHINE.

No. 817,943. Specification of Letters Patent. Patented April 17, 1906.

Application filed August 22, 1905. Serial No. 275,331.

To all whom it may concern:

Be it known that I, PHILIP WILL WALTZ, a citizen of the United States, residing at Vallejo, county of Solano, State of California, have invented a new and useful Wood-Turning Machine, of which the following is a specification.

My invention relates to improvements in wood-turning machines in which revolving knives operate at a high speed in a circle inside of a conical sleeve which reciprocates, governed by a camp; and the objects of my improvements are, first, to produce a spar round and tapered or round and parallel; second, all other kinds of work that require round taper or round parallel, such as awning-stanchions, boat-hook handles, flagstaffs, veranda-pillars, &c. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a vertical section of the entire machine. Fig. 2 is a plan view of the entire machine. Fig. 3 is an end view of the reciprocating cone and revolving knives. Fig. 4 is an end elevation of either end of Fig. 1, showing the manner in which the feed-rollers operate.

Similar letters refer to similar parts throughout the several views.

A is the frame of the machine; B, the legs or standards of the machine. In the body A turns the cylinder *a*, which carries the knives *b b*, which are arranged and slide radially in recesses in the front end of sleeve or cylinder, being held in such recesses by cap-plates *b'* and revolve around in the conical sleeve *c*. The conical sleeve *c* reciprocates in the frame A on slides *d d* and is operated by the cam E.

As shown in Fig. 4, when the conical sleeve *c* reciprocates on the slides *d d* the knives *b b* will close and spread, as required by the style of work, and at the same time will revolve around the conical sleeve *c c* at a high speed, carrying the guides *f f*, which hold the knives *b b* in firm position. Said guides *f f* are bars or plates arranged inside the sleeve *c* and having their ends carried around the ends of the sleeve to connect them and the knives to the sleeves and are slotted or made in spaced pairs to receive the outer ends of the knives, which have heads or lateral ears on their outer ends to lie between said bars or plates and the inside of the sleeve, so that the knives are moved positively endwise or radially in both directions through the guiding-recesses in sleeve *a* as sleeve *c* is reciprocated by cam E, which engages a radial projection *c'* on sleeve *c*. Said radial projection is grooved to permit the inclosing ends of guides *f* to pass through as said guides and knives revolve with sleeve *a*.

The cam E is operated by wheel *g*, riding on top of the wood passing through the machine. Said wheel *g* is fixed on a worm-shaft meshing with a worm-wheel on one end of shaft *g'*, both shafts being mounted in a swinging frame and shaft *g'* having a bevel-pinion at its opposite end meshing with another bevel-pinion on a horizontal shaft on which said frame swings to permit wheel *g* to bear upon the work. The last-named pinion meshes with a third pinion on a vertical shaft, which carries cam E.

The weight *h* is attached to a cord passing over a pulley and attached to sleeve *c* and holds said sleeve up against cam E.

The forward upper and lower feed-rolls *m* are mounted in vertically-sliding frames *n n'*. The frames *n'* for the lower rolls have rack-teeth on their outer edges, and the frames *n* for the upper rolls have arms extending downward on each side of the frames *n'*, with rack-teeth on their inner sides and spaced from the frames *n*, so that cog-wheels *k*, mounted on the main frame A and interposed between said arms and the frames *n'*, may gear with both racks and maintain the alinement of frames *n'* and *n* and equalize the movements of the upper and lower rolls to center the work and feed it on a horizontal line. The rolls are yieldingly connected and the lower rolls supported by cords connected at one end to the frames *n'*, passing under the lower roll-shaft, thence up and over the upper roll-shaft down to weights *s*.

The double wedge *l* is mounted to slide on the outside of the frame A and is used to set the rear feed-roller *m* for any size work required and is worked by the hand-wheel *r*, turning a screw threaded into wedge *l*.

On the feed-roll shafts are bevel-gears, meshing with bevel-gears splined to slide up and down on vertical shafts *u* (see Fig. 4) as the rolls move up and down. Said shafts *u* are bevel-geared to a longitudinal shaft *t*, which is driven from a transverse shaft *y*, having a pulley for driving said shaft, and at one end a friction-disk with which engages a friction-pulley splined on shaft *t* to permit said pulley to be slid toward or from the center of said friction-disk to vary the speed

with which shaft t and the feed-rolls are driven by shaft y.

The cylinder a is revolved by a belt that runs between the two cylinder-boxes x x.

I claim—

1. The combination with a revolving sleeve having knives mounted to move radially therein, of a conical sleeve mounted to slide axially of said first-mentioned sleeve and means to reciprocate the same, the knives being connected to the said conical sleeve to revolve therein but to be moved radially by the reciprocation thereof, by guides loosely engaging around the ends of said sleeve in which guides slide the outer ends of the knives said guides being spaced from said conical sleeve to receive therebetween heads on said outer ends of the knives.

2. The combination with a revolving sleeve carrying radially-movable knives and means reciprocating longitudinally of said sleeve for moving the knives radially, of means for reciprocating said means directly engaging the work and operated by the travel of the work past the same.

3. A lathe comprising in combination a sleeve carrying knives movable toward and from the center thereof, means comprising a cam for so moving the knives and a roller engaging the work and rotated by the travel of the latter and operating the said cam.

4. A lathe comprising in combination a sleeve carrying knives movable toward and from the center of said sleeve, means for so moving said knives comprising a part movable toward and from the center line of said sleeve to directly engage the work and adapted to be moved by the travel of the work past the same and means for transmitting such latter motion to the means for moving the knives toward and from the center of their sleeve and means for causing a relative rotation of the work and the knives carrying sleeve.

5. The combination with a hollow mandrel-lathe of upper and lower feed-rolls therefor and means for automatically yieldingly supporting and impelling them toward each other of equalizing means tending to preserve the vertical alinement of said rolls, comprising lower-roll-carrying slides having rack-teeth on opposite sides and upper-roll-carrying slides having arms depending on both sides of the lower-roll slides, and rack-toothed on their inner sides and toothed gears mounted rotatively on the main frame on each side of the lower-roll slides and engaging both sets of the rack-teeth on both the slides.

PHILIP WILL WALTZ.

Witnesses:
WILLIAM J. HANLON,
HENRY W. OPPERMANN.