(No Model.) 2 Sheets—Sheet 1.

G. P. LOOMIS.

WOOD TURNING MACHINE.

No. 251,907. Patented Jan. 3, 1882.

Fig. 1.

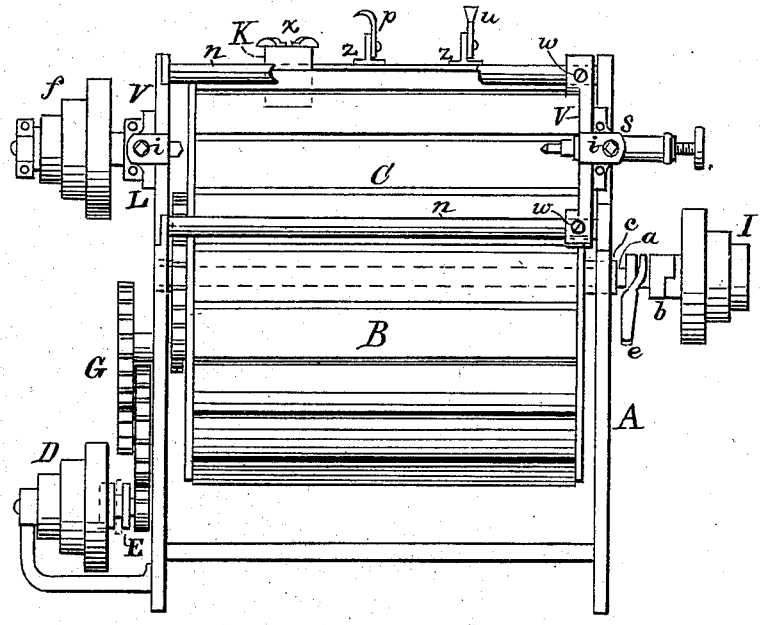


Fig. 2.

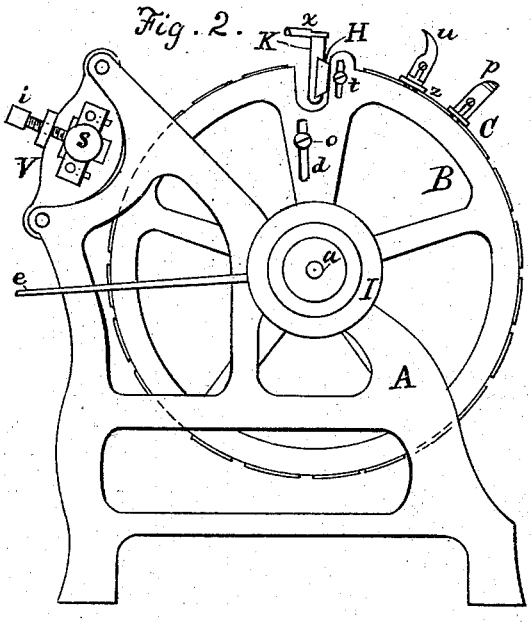
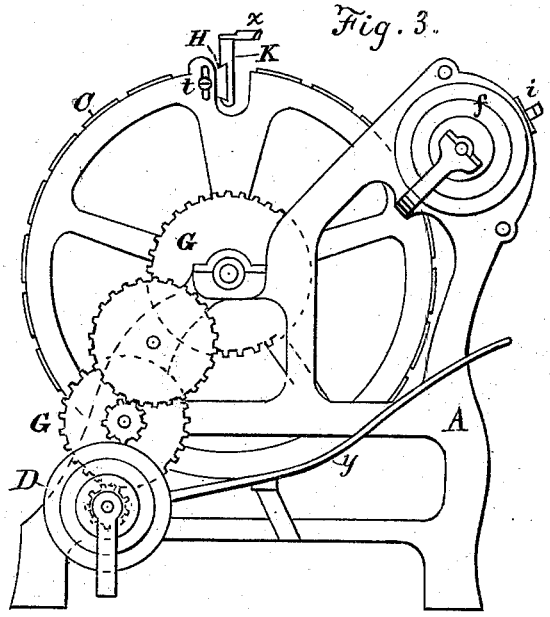


Fig. 3.



Witnesses:
W. Burris
G. B. Fowles.

Inventor:
George P. Loomis
By J. S. Kellogg
Attorney

(No Model.) 2 Sheets—Sheet 2.

G. P. LOOMIS.

WOOD TURNING MACHINE.

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Fig. 4.

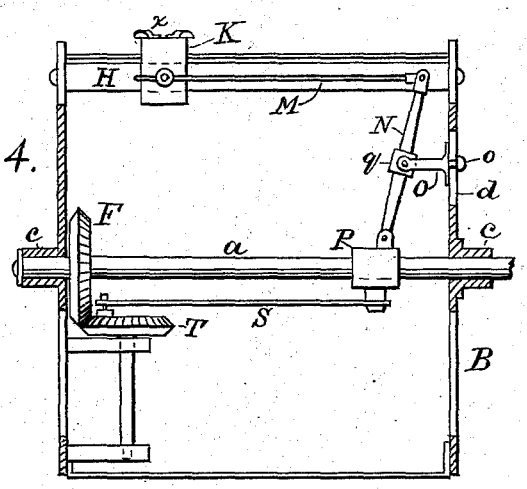


Fig. 5.

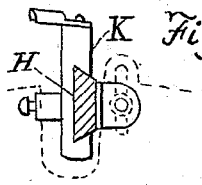


Fig. 6.

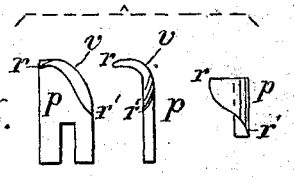


Fig. 8.

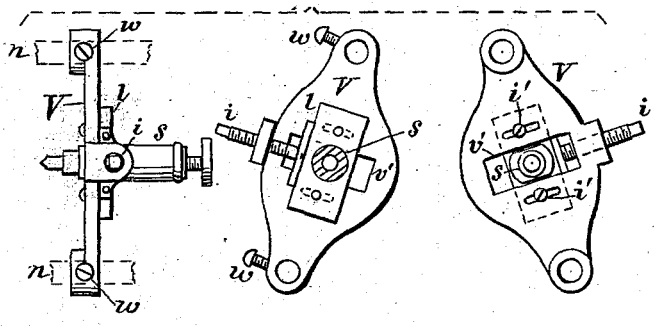
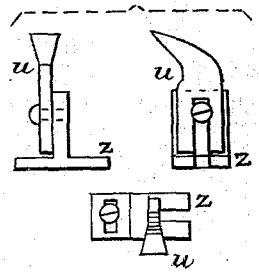


Fig. 7.



Witnesses:
W. Burris
G. B. Fowles.

Inventor:
George P. Loomis
By J. S. Kellogg
Attorney

UNITED STATES PATENT OFFICE.

GEORGE P. LOOMIS, OF UTICA, NEW YORK.

WOOD-TURNING MACHINE.

SPECIFICATION forming part of Letters Patent No. 251,907, dated January 3, 1882.

Application filed January 27, 1881. (No model.)

To all whom it may concern:

Be it known that I, GEORGE P. LOOMIS, a citizen of the United States, residing at the city of Utica, in the county of Oneida and State of New York, have invented certain new and useful Improvements in Wood-Turning Machines; 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 appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

My invention relates to machines for turning wood for all classes of furniture and various manufactures, the object being to produce a machine by which the wood may be turned for various articles and purposes in a rapid and accurate manner, much labor being saved thereby.

By means of my improved device large quantities of wood may be turned to any desired shape or form with great rapidity and superior finish.

I provide a slotted cylindrical head with sleeve-bearings to revolve in a suitable frame, to which is secured one or more lathes of peculiar construction. To the slotted head are adjustably secured several knives, various in form, to cut the timber as the head and the timber revolve. Also, connected with the revolving head is one or more guides, on which one or more heads bearing gouges or other cutting-tools reciprocate freely and at any desired speed without regard to the movement of the head, the movement of the heads bearing the gouges being effected by mechanism within the revolving head. An independent shaft passes through the center and through the sleeves forming the bearings of said head. On said shaft is a traveling case coupled to one end of a pivoted rocking lever, the other end of said lever being connected by a rod with the gouge-bearing head which moves on the guide. Motion is imparted to said traveling case by means of a rod connecting it with a crank-gear wheel, which engages with a gear-wheel on the said independent shaft. The latter and the revolving head are provided with clutch mechanism and driving-pulleys to communicate with power and to discontinue operation as desired.

In the drawings referred to, Figure 1 represents a front elevation of a machine having my improvements. Fig. 2 is a side elevation of the same, showing the right-hand side of the machine. Fig. 3 is a side elevation of the left side of the machine. Fig. 4 is a detached sectional view of the revolving head, the mechanism within being shown. Fig. 5 represents a sliding head bearing cutting-tools. Fig. 6 represents a finishing-knife in front, side, and top views. Fig. 7 represents a roughing-knife attached to standard in front, side, and top views. Fig. 8 shows an edge view and views of the outer and inner sides of the adjustable plate which holds the tail of the lathe.

Referring to the drawings, A designates the frame, on which is mounted the cylindrical revolving head B, having the slotted casing C, usually formed of horizontal pieces secured to the heads or ends of the revolving head, as shown. The head B has tubular projections or sleeves *c* to form its bearings in the frame A, within which it revolves. To communicate power and slowly rotate the head B, the cone-pulley D, with clutch E and intermediate gearing, G, are provided, motion being readily imparted and discontinued by means of the clutch E and lever *y*.

An independent shaft, *a*, passes along the center of the head B and through the hollow bearings *c*, said shaft being provided with a cone-pulley, I, and clutch *b* with lever *e*. On said shaft *a* slides a traveling case, P, having lugs, one of which is connected with the lower end of rocking lever N, pivoted to the arm O, the upper end of said lever connecting by means of rod M with the sliding head K on the horizontal guide H. The projecting arm O is secured to the end of the head B, and is made adjustable vertically by means of a slot, *d*, and screw *o*, so that the stroke of rocking lever N may be regulated as desired by increasing or lessening the stroke. The lever N passes through an aperture in the block *q*, held by the arm O, which permits the regulation of stroke last mentioned.

To actuate the traveling case P the latter is connected by a rod, S, with bevel-crank gear T, supported within the head B and meshing with a bevel-gear wheel, F, on shaft *a*, as shown.

L indicates the head-stock of the lathe, provided with suitable bearings for the cone-pulley

f, and *s* indicates the tail-stock, both the head and tail being made adjustable toward the revolving head B in the following manner: Each stock is formed with or has rigidly fastened thereto a plate, *l*, which sets against the larger plate V, the head or tail projecting through a slot, *v'*, in said plate V, to which the plate *l* is adjustably secured by means of screws *i'* passing through slots in plate V, as shown, so that by means of the adjusting-screws *i* the stocks are moved in the slots *w'*. For the head-stock the plate V is usually fixed to the frame A, and the plate *l* is provided with suitable bearings for the shaft of the cone-pulley *f*. For the tail-stock *s* the plate V is movable and adjustable on the horizontal guides *n* toward or from the head L, as required, and fixed in position by means of the screws *w*.

The gouges *x* are adjustably secured to the head K, which moves on the guide H, the latter being vertically adjustable at either end of the head by means of the slots and screws *t*. The cutting-knives *u* and *p* are adjustably fastened to the standards *z*, which are adjustably secured to the head B by means of bolts passing through slots in the base of standard *z* and through the slots in the head. The base of each standard, as shown, has two slots at right angles with each other, and the knives being also adjustable on the standards, all necessary adjustment is obtained. The knives *u* are roughers or deep-cutting knives and the knives *p* are finishing-knives, the blades being bent to the right or left to suit the work required. The cutting-edge *v*, extending from *r* to *r'*, (see Fig. 6,) makes a smooth cut. The finishing-knife *p*, being formed, as shown, to present to the revolving wood a diagonal and curved edge, is deemed to be the best for the purpose of finishing. This knife *p*, as shown in the drawings, is bent over laterally, and has its edge so formed that it does not cut directly against the timber, but at an angle, so that cutting begins at the heel, and, extending to the toe of the blade, makes a draw cut, thus causing the least possible tearing of the grain of the wood. For cutting grooves or depressions two of the knives *p* may be used, said knives being bent in opposite directions and arranged and adjusted on the cylinder so that one-half of the groove is formed by the cutting of each knife from the outer to the center line of the groove.

The operation of the machine is as follows: The gouges being properly adjusted on the head K and the other cutting-tools on the head B, the timber to be turned is placed in the lathe in the usual manner. Power is applied by belting on pulley *f*, which causes the timber to revolve. As power is applied to the pulley D motion is imparted to the head B through the intermediate gearing, causing the head to revolve. Power being applied to pulley I, motion is transmitted through shaft *a*, gear-wheel F, crank-gear T, and rod S to the reciprocating case P on shaft *a*, the said case P, by means of rocking lever N and rod M, imparting a like reciprocating movement to the sliding head K on the guide H. The cutting-tools are so adjusted and arranged that in operation the gouges *x* first reach the revolving wood, the angles of the same being cut away and the wood cut by said gouges to any desired depth. Next follow a number of the knives *u*, which are intended to remove the surplus wood and cut the timber nearly to the desired size and shape, and lastly come the finishing-knives *p*, which should make a light cut, the finishing being effected by using a number of such knives of the shape required, and the work is thus completed in a superior manner by one revolution of the head.

The starting and stopping of the operation of the shaft *a* and its connections are readily effected by means of clutch *b* of pulley I and shifting-lever *e*, and by means of clutch E of pulley D and shifting-lever *y* motion is readily imparted to the revolving head B, and discontinued as desired.

I claim—

1. In a wood-turning machine, a slotted revolving cylinder or head for cutting-tools having one or more horizontal guides, H, adjustably secured thereto, and traveling heads bearing cutting-tools and operated by suitable mechanism, substantially as set forth and described.

2. In a wood-turning machine, the revolving head having tubular bearings, through which passes an independent shaft, *a*, having gear-wheel F, in combination with a crank-gear, T, properly supported within the revolving head and connecting with case P, and the rocking lever N, connected with head K, substantially as set forth and described.

3. In combination with the revolving head, the guide H, adjustably fixed thereto, the sliding head K, carrying cutting-tools, and connecting with a rocking lever held by an adjustable arm, O, said lever connecting with case P on shaft *a*, having gear-wheel F, and the crank-gear T, connected by rod S with case P, substantially as set forth.

4. In combination with the slotted revolving head, the knife-bearing standard *z*, having slots in its base, said slots extending in different directions, as and for the purpose set forth.

5. In a wood-turning machine, a lathe having a head or tail stock provided with a plate, *l*, and adjustable on a slotted plate, V, by means of screws *i* and *i'*, the said plate V being mounted on horizontal guides *n* and adjustable thereon, as herein set forth.

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

GEORGE P. LOOMIS.

Witnesses:
DANIEL L. DAVIS,
M. GARTLAND.