(No Model.) 2 Sheets—Sheet 1.

DE WITT C. SMITH & S. E. SMITH.

WOOD TURNING LATHE.

No. 321,763. Patented July 7, 1885

Fig. 3.

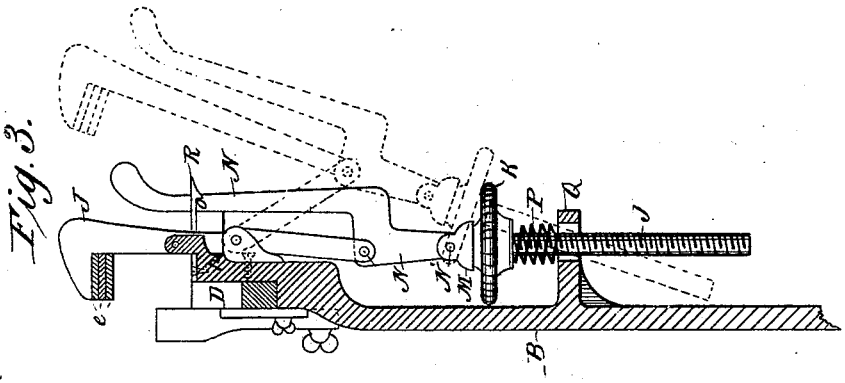
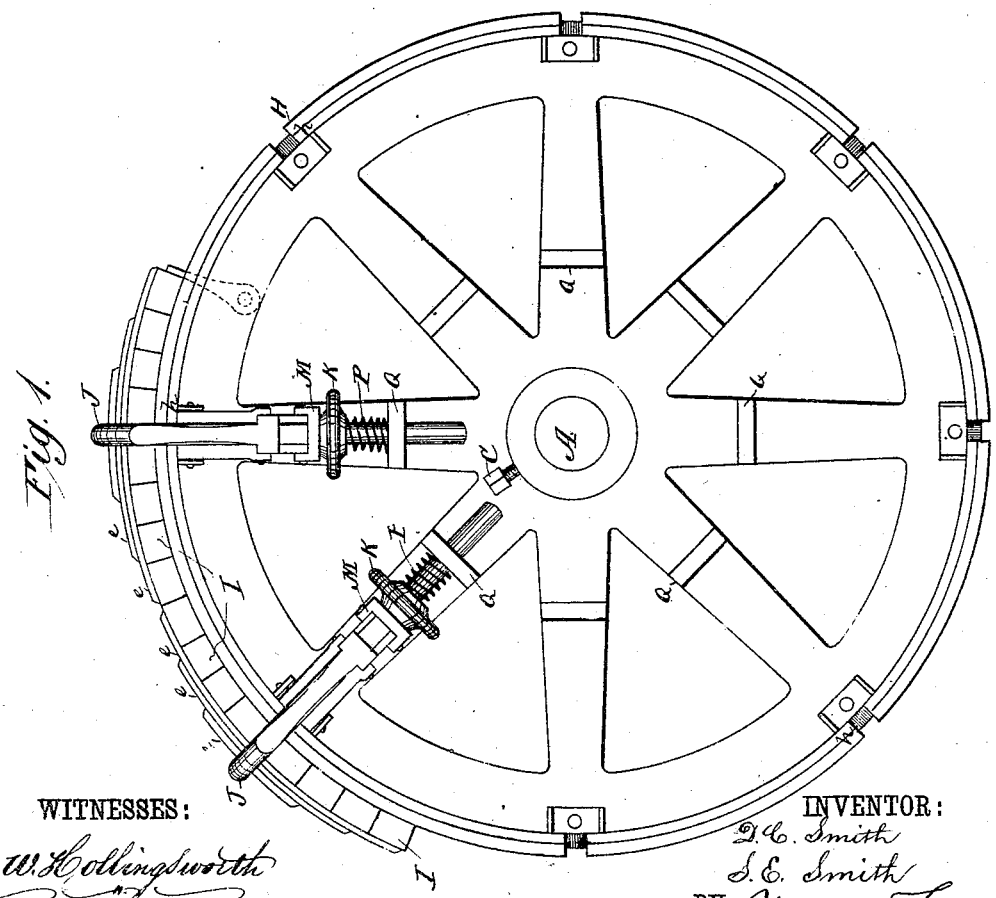


Fig. 1.



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(No Model.) 2 Sheets—Sheet 2

DE WITT C. SMITH & S. E. SMITH.

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Fig. 2.

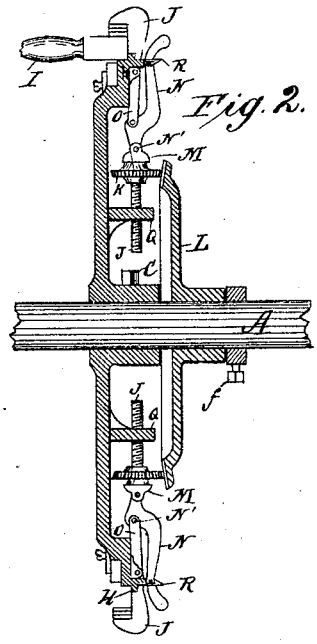


Fig. 4.

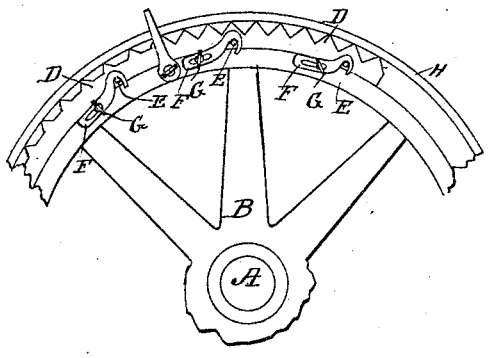


Fig. 5.

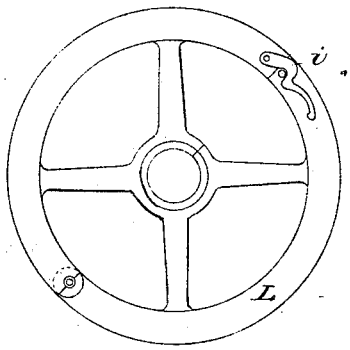


Fig. 6.

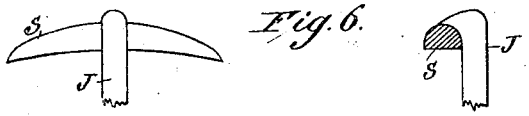


Fig. 7.

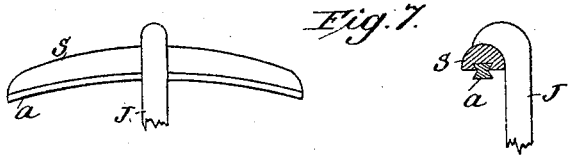


Fig. 8.

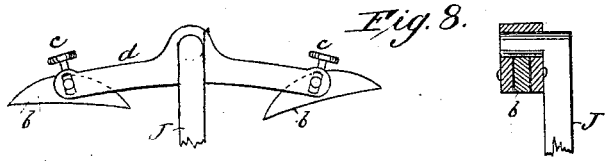
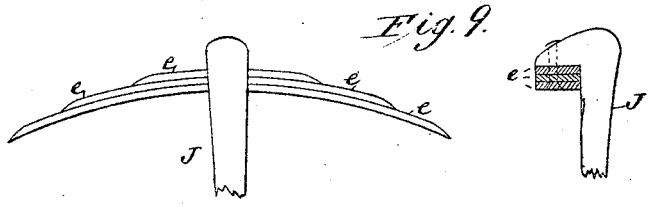


Fig. 9.



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UNITED STATES PATENT OFFICE.

DE WITT C. SMITH AND SPENCER E. SMITH, OF ST. PAUL, MINNESOTA.

WOOD-TURNING LATHE.

SPECIFICATION forming part of Letters Patent No. 321,763, dated July 7, 1885.

Application filed April 13, 1885. (No model.)

To all whom it may concern:

Be it known that we, DE WITT C. SMITH and SPENCER E. SMITH, citizens of the United States, residing at St. Paul, in the county of Ramsey and State of Minnesota, have invented certain new and useful Improvements in Lathes, of which the following is a description.

This invention relates to that class of lathes which are used for turning many-sided forms, such as octagon stair-posts, &c.; and it has for its object to provide means whereby a sufficient number of timbers, whether large or small, to fill the circumference of the carrying-wheel, may be all held securely thereon to be faced by the turning of the wheel; means for quickly clamping or releasing all the timbers at once, and means for removing the clamps from the path of the timbers, so that the same may be readily placed or removed.

To this end our invention consists in the construction and combination of parts, hereinafter described and claimed, reference being had to the accompanying drawings, in which—

Figure 1 is an end elevation of a wheel, showing a portion of our invention. Fig. 2 is a longitudinal section thereof. Fig. 3 shows details of the longitudinal section enlarged. Fig. 4 is an inner face view of a portion of a wheel. Fig. 5 shows a parted beveled gear-wheel, and Figs. 6, 7, 8, and 9 show different modifications of the clamp-shoes.

A represents an axle or shaft. B is an iron wheel secured thereon by means of a set-screw, C. There are two such wheels on each shaft, to be set a distance apart on the shaft suitable to the length of the posts to be turned, and the following description of one wheel is applicable to both.

D represents a series of segments secured upon the inner face of the rim of the wheel, in a corner groove thereof, by means of pins E, projecting from the segments, and slotted hooks F, secured to the wheel by thumb-screws G. These segments are suitably notched on their outer faces to form seats to hold the timbers I, which are laid on them, from slipping around the wheel, the seats corresponding in each case to the angles of the timbers, and prepared to form posts with any number of sides, and the segments may contain one or more seats each, different segments being used for different styles of posts. The slots for the thumb-screws G are to permit the hooks to be adjusted to slight variation in the locality of the pins E.

H is a flange of the wheel, to serve as a gage by which the ends of the posts may be fixed even or in any relative position to each other that may be desired.

J represents a series of radial hooks, of which there may be eight or more to each wheel B, fitted to swing into and out of radial slots in the outward-projecting rim *h* of the wheel. Each hook is screw-threaded along its lower end to engage a nut, K, which is circular and toothed on its circumference, to be engaged by a beveled gear-wheel, L, whereby all the nut-wheels K may be revolved at once.

M is a base-piece resting on the nut K and supporting a lever, N, which is bifurcated to straddle the shank of hook J, and is pivoted to the base at N′.

O is a pair of links pivoted at one end to the lever N and at the other end to the wheel B, by which means the hook J is very firmly drawn down toward the rim of the wheel upon the timbers I by the act of raising the lever N to the upright position shown in Fig. 3 from the position there shown in dotted lines.

P is a spring acting between a portion, Q, of the wheel B and the nut K to raise the hook J. The portion Q may be a mere bracket supported upon an arm of the wheel B, or it may be a circular rim. The opening in the portion Q through which the shank of hook J passes is elongated in the direction of the shaft A, to permit the hook to be swung outward from the rim of the wheel, as shown in dotted lines, Fig. 3, for the purpose of placing or removing posts I.

R is a spring-catch upon the wheel, adapted to hold the lever N while in service. The two pivots of the links O and the pivot N′ being thrown into line by the lever N in the act of clamping the posts, the greatest power is brought to bear at the moment of final rest, and there is little tendency to throw the lever out of line by service.

Heretofore it has been common to provide a hook, J, for each post I, thereby limiting

the number of posts that may be turned at once to the number of hooks that the machine has. Thus a machine adapted for turning large posts could turn no more small ones, even though there were plenty of room on the wheel for them; and the providing of so many hooks with all the attachments of each would make the machine very expensive. We have therefore devised means for holding an unlimited number of posts with a fixed number of hooks. To this end each hook is provided with a shoe, S, extending over the arc of the wheel represented by that hook. This shoe may be a solid segment, as in Fig. 6, whose inner arc fits the outer arc of the cylinder of posts; but this would fit an arc of one size of posts only. To adapt it to fit arcs of the different curves which are consequent to turning sets of posts of different sizes, all the posts at any one time on the wheel being necessarily of the same size, we interpose shoes which adjust themselves to the contour of the cylinder of posts. One style of shoe is a mere elastic cushion or packing, *a*, Fig. 7, secured on the inner face of the shoe S. Another style (shown in Fig. 8) is a series of centrally-pivoted shoes, *b*, made radially adjustable upon the supporting-arm *d* by means of slots and set-screws *c;* and another style, as shown in Fig. 9, is one or more leaf-springs, *e*, secured directly to the hook J.

The above or any equivalent device to extend over several posts may be used to adapt the hook J to hold a series of posts resting on an arc of the wheel B. The screw-nut K is used to set the different hooks J when a change is made in the size of posts to be turned, and by placing the clamp-pulley L upon the shaft A, and securing it by the hook *i* in engagement with all the wheel-nuts K, the screw-hooks J may be all set to the desired position at once, each being thereby moved an equal amount. The wheel L may be retained in engagement with the wheel-nuts K by a collar, *f*, secured upon the shaft A by a set-screw.

The wheel L may be revolved around the shaft by hand; or it may be braced from the floor to hold it stationary while the wheel B and the shaft are revolved to turn the wheel-nuts.

When the hooks are set and in service, the wheel L may revolve with the wheel B and not effect anything until operated, as and for the purpose stated.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. The combination of two wheels, B, having circumferential corner grooves in their adjacent sides, the segments D, fitted to said grooves and having angular seats in their outer faces, pins E, projecting from one side of each segment, slotted hooks F, and screws G, securing the hooks adjustably to the wheels, substantially as shown and described.

2. The combination of the wheels B, provided with radially-slotted rims *h* and radially-perforated brackets or rims Q, the hooks J, fitted freely in said slots and perforations, and the links O, pivoted at one end to the wheels and at the other end to some attachment of the hooks, and means for operating said hooks, substantially as shown and described, whereby the hooks may be swung to or from their seats in the rim *h*, for the purpose specified.

3. The combination of the wheels B, each provided with a radially-slotted rim, *h*, and a perforated bracket, Q, the hook J, threaded on one end, a screw-nut, K, engaging the said screw, a spring, P, between the nut K and the bracket Q, the base-piece M, resting on the said nut, the lever N, pivoted to the piece M, the links O, pivoted at one end to the wheel B and at the other end to the lever N, and the hook R, engaging the lever N, substantially as shown and described.

4. The combination of the wheel B, the radial hooks J, adjustably attached thereto, and the shoes S, attached to the hooks, each extending over an arc of the wheel, substantially as shown and described, whereby two or more posts may be held upon the wheel by each shoe, for the purpose specified.

5. The combination of the wheel B, the hooks J, fitted radially thereon, and elastic arc-shaped shoes secured to the hooks adapted to fit circles larger than the wheel, substantially as shown and described.

6. The combination of the shaft A, the wheel B, provided with the slotted rim *h* and perforated bracket Q, the screw-shanked hooks J, the circular toothed nuts K, screw-threaded upon the shank of the hooks J, and the clamp beveled gear-wheel L, fitted to engage the nuts K and the shaft A, as and for the purpose specified.

DE WITT C. SMITH.
SPENCER E. SMITH.

Witnesses:
ALVA L. ROE,
MARIUS THOMSON.