

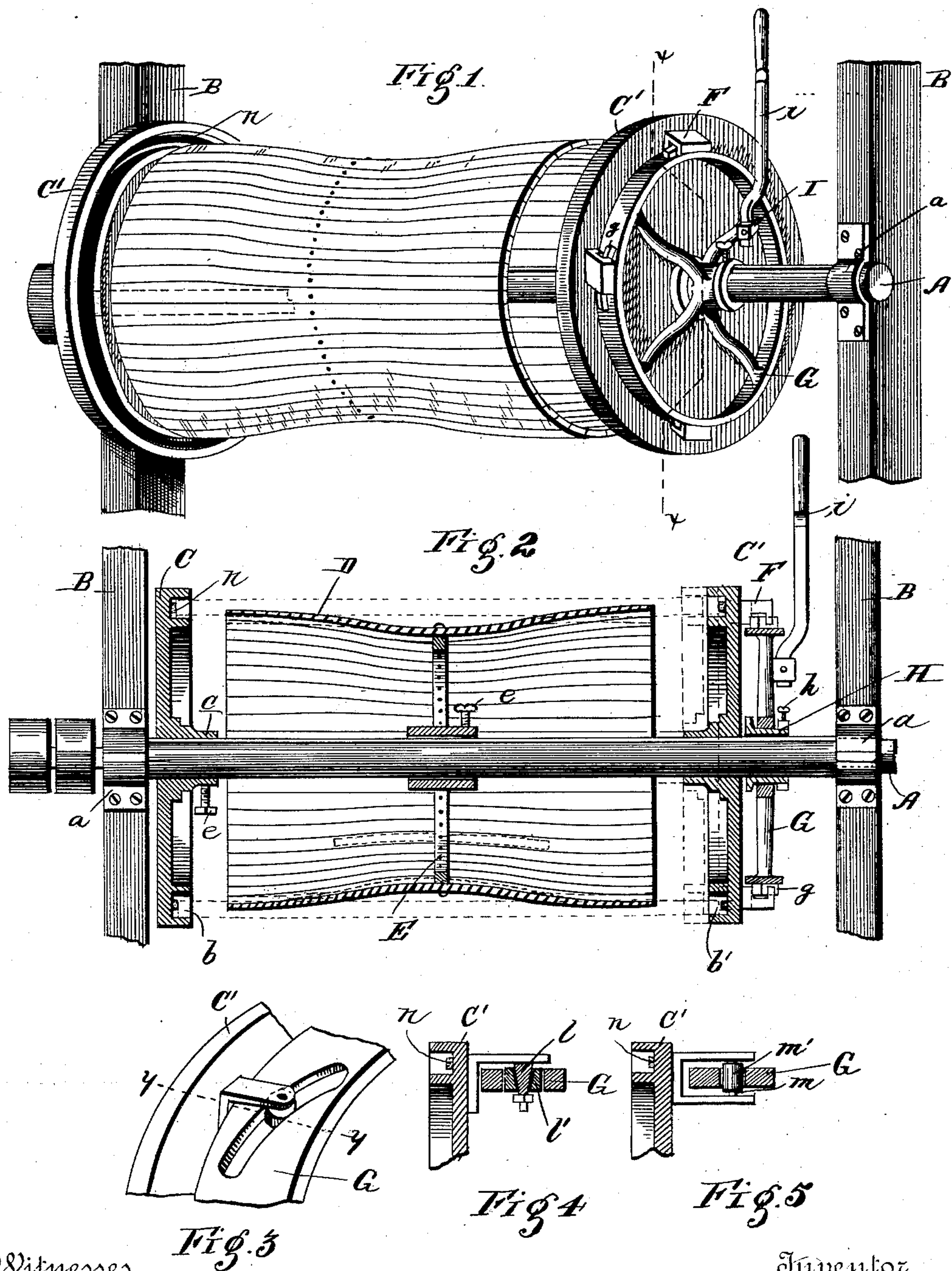
(No Model.)

W. H. DYER.

MACHINE FOR TURNING BALUSTERS.

No. 371,130.

Patented Oct. 4, 1887.



Witnesses

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# UNITED STATES PATENT OFFICE.

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## MACHINE FOR TURNING BALUSTERS.

SPECIFICATION forming part of Letters Patent No. 371,130, dated October 4, 1887.

Application filed June 4, 1887. Serial No. 240,244. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM HENRY DYER, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Machines for Turning Balusters; and I do 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 the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to polygonal lathes or machines for turning polygonal bodies, such as square balusters, fence-pickets, and ornamental posts for various purposes.

The object of the invention is the production of a machine which will be simple in construction, compact in its organization, and efficient in its operation, and which will accommodate a maximum number of sticks compared with its size, in that the sticks are contiguous, and will adapt itself to sticks of different thicknesses, whereby balusters of the same length but of varying breadths can be turned at one and the same operation and of the same pattern.

The improvement consists in having combined with the shaft on which is mounted the two head plates or disks between which the sticks are clamped a series of narrow springs arranged approximately parallel with and in a circle about said shaft, forming substantially a cylinder or drum of springs, which is located between the head-plates and supported at or near the middle of its length by a disk or other device placed on the shaft, whereby said disk forms a fulcrum for the several springs composing said cylinder or drum, to tilt about and distribute the strain equally throughout the entire length of each individual spring; in provisions for shifting and holding said cylinder of springs at a point midway between the head-plates when the machine is adjusted for sticks of a different length; in means for mechanically moving one of said head-plates along the shaft a limited distance to release or clamp the sticks, as the case may be, and instrumentalities whereby the head-plate-moving devices

are adjusted on the shaft and held in an adjusted position when the machine is set for sticks of a different length.

The improvement further consists in the novel and peculiar construction and combination of parts, which will be more fully hereinafter set forth, claimed, and shown in the annexed drawings, in which—

Figure 1 is a perspective view of an organization or machine embodying my invention; Fig. 2, a vertical central sectional view about on the line X X of Fig. 1; Fig. 3, a perspective detail view of a modification; Fig. 4, a sectional view on the line Y Y of Fig. 3, and Fig. 5 a detail view of a further modification.

The shaft A, the uprights B, to which the shaft is journaled in suitable bearings, *a*, and the head-plates C and C', mounted on the shaft, are of usual construction and arrangement, and are shown simply as a means for illustrating the application of my invention. The head-plates are provided near their periphery, on their adjacent sides, with the annular channels or grooves *b* and *b'*, respectively, for receiving the ends of the sticks. The bottoms of such grooves or channels are provided with rubber gaskets *n* or other yielding packing to compensate and allow for any slight variation in the length of the sticks and hold them firmly against longitudinal movement during the operation of the machine.

Between the head-plates is located a series of narrow springs, D, arranged approximately parallel with and in a circle about the shaft, forming a cylinder of springs, which is supported at its middle by the disk E, to which the individual springs are secured at their middle, and which forms a fulcrum for them to tilt about, whereby the strain will be equally distributed on the springs on each side of the disk. The springs in longitudinal section or edge view curve upwardly and outwardly from a point midway their length, so that the cylinder or drum formed by a number of them is contracted at its middle and flared at each end. The springs, which are made of any material suitable for the purpose, wood being preferred on account of its lightness, may be composed of one or more layers, and are very narrow, so that one or more may act on a stick and insure an outward pressure thereon.



to hold it firmly against the outer walls of the grooves or channels. The disk C is provided with a sleeve or hub, *c*, which embraces the shaft, and is adjustably held thereon by the set-screw *e*.

The head-plate C' is provided at intervals with lugs F, which are notched on that side facing the shaft and receive the cams or inclined ribs or ways *g*, extended from the rim of the cam wheel or disk G, mounted on the shaft H, adjustably secured to the shaft by the set-screw *h*. The cam-wheel is adapted to move in a fixed vertical plane, and the ribs or ways *g*, being inclined to the plane of motion of said wheel and being in engagement with the head-plate C', effect a lateral movement of said head-plate to or from the head-plate C, according as said cam-wheel is moved to the right or left, as will be readily comprehended. The cam-wheel has a socket, I, in which is fitted the lever *i* to assist in turning the cam-wheel in the desired direction. The lever is removable and adapted to be laid aside out of the way when not in use.

Instead of the inclined rib, the rim of the cam-wheel may be provided with slots at an incline to the path of its motion, as shown most clearly in Fig. 3, and the lug may have a portion fitted in said slot. This portion may be the tapering arm *l*, supported at one end only, having the roller *l'* mounted thereon, as shown in Fig. 4, or the arm *m*, supported at each end and having the roller *m'* journaled thereon, as shown in Fig. 5.

Each of the head-plates or only one may be adjustable, as found most convenient, to adapt the machine to sticks of different lengths. In practice the two plates are adjusted far enough apart, which is somewhat less than the length of the sticks to be operated on, so that the sticks will have each end partially fitted in the grooves or head-plates, which is accomplished by inserting one end of the stick in the channel of one head-plate until the other end of the stick clears the rim of the other head-plate, when it is brought opposite the channel or groove therein by a slight depression, and is seated in said groove by moving the stick lengthwise sufficiently far till each end of the stick obtains a purchase on the outer rim of the head-plates. The springs are arranged to bear on the sticks and force them out in contact with the outer walls of the grooves or channels of the head-plates, thereby bringing the outer faces of the sticks flush with a circle corresponding with the outer walls of said grooves or channels, thereby adapting the machine for sticks of different breadths, as will be readily understood.

By having the springs arranged contiguous to each other a solid center or drum is formed between the head-plates, which breaks the light and prevents it shining through the spaces between the sticks, which is a great source of annoyance and injury to the eyes of the workman.

Having thus described my invention, what

I claim, and desire to secure by Letters Patent, is—

1. In a machine for turning polygonal bodies, the combination, with the shaft and the head-plates, of the springs extended between the heads and exerting a radial pressure at each end thereof, and the support interposed between the shaft and the springs, substantially as and for the purpose described.

2. The combination, with the shaft and the head-plates, of the support or disk mounted on the shaft between the head-plates, and the springs secured at or near their middle to said support and exerting a radial pressure at their ends, substantially as described, and for the purpose specified.

3. The combination, with the shaft and the head-plates, of the series of springs extended between the head-plates and arranged in a circle about said shaft, forming a drum and a support for the openings, substantially as and for the purpose set forth.

4. The combination, with the shaft and the head-plates, of a series of springs arranged in a circle about said shaft and forming a cylinder which is contracted at its middle and flared at its ends, and the support connecting said springs with the shaft, substantially as described.

5. The combination, with the shaft and the head-plates, of the support mounted on the shaft between the head-plates, means for adjustably securing said support on the shaft, and the springs extended between the head-plates and secured at or near their middle to said support, substantially as and for the purpose described.

6. The combination, with the shaft and the head-plates, of the support mounted on the shaft and adjustable between the head-plates, and the springs arranged in a circle around the shaft and secured at or near their middle to the support, forming a cylinder which is contracted at its middle and expanded at its ends, substantially as set forth.

7. The combination, with the shaft and the heads between which the sticks are clamped, of the cam-wheel mounted on said shaft and engaging with one of said heads for moving it laterally on its shaft for clamping and releasing the sticks, substantially as specified.

8. The combination, with the shaft and the head-plates mounted on the shaft and adapted to have the sticks clamped between them, of lugs extended laterally from one of the head-plates, and the cam-wheel placed on said shaft and free to revolve thereon in either direction, and provided with ways arranged at an angle to the plane of its motion and engaging with the lugs for moving said head-plate laterally, substantially as described, and for the purpose specified.

9. The combination, with the shaft and the head-plates mounted on the shaft, of the lugs extended laterally from one of the head-plates, and the cam-wheel engaging with said lugs, and means, substantially as described, for ad-



justing said cam-wheel along on the shaft and holding it at an adjusted position, substantially as and for the purposes specified.

10. The combination, with the shaft and the  
5 head-plates mounted on the shaft, of the cam-wheel provided with a socket and engaging with one of said heads, and the independent lever adapted to be inserted in said socket for moving said cam-wheel, substantially as specified.  
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11. The combination, with the shaft and the head-plates, of the sleeve mounted on the shaft, means, substantially as set forth, for adjustably securing said sleeve on the shaft, and the  
15 cam-wheel mounted on the sleeve and having inclined ways engaging with corresponding projections on one of the head-plates, substantially as described, for the purpose specified.

12. The combination of the shaft, the head-plates, the cylinder of springs adjustable along  
20 the shaft between the head-plates, the sleeve adjustably mounted on the shaft, and the cam-wheel mounted on said sleeve and having inclined ways engaging with corresponding  
25 projections on one of said head-plates, substantially as described, for the purpose specified.

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

WILLIAM HENRY DYER.

Witnesses:

WM. A. WIMSATT,  
A. B. DENT.