

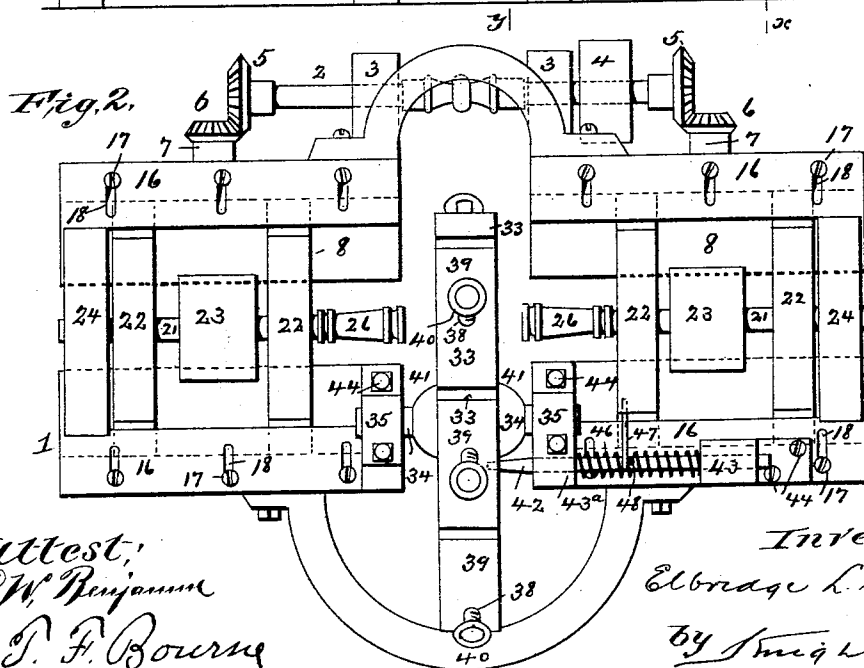
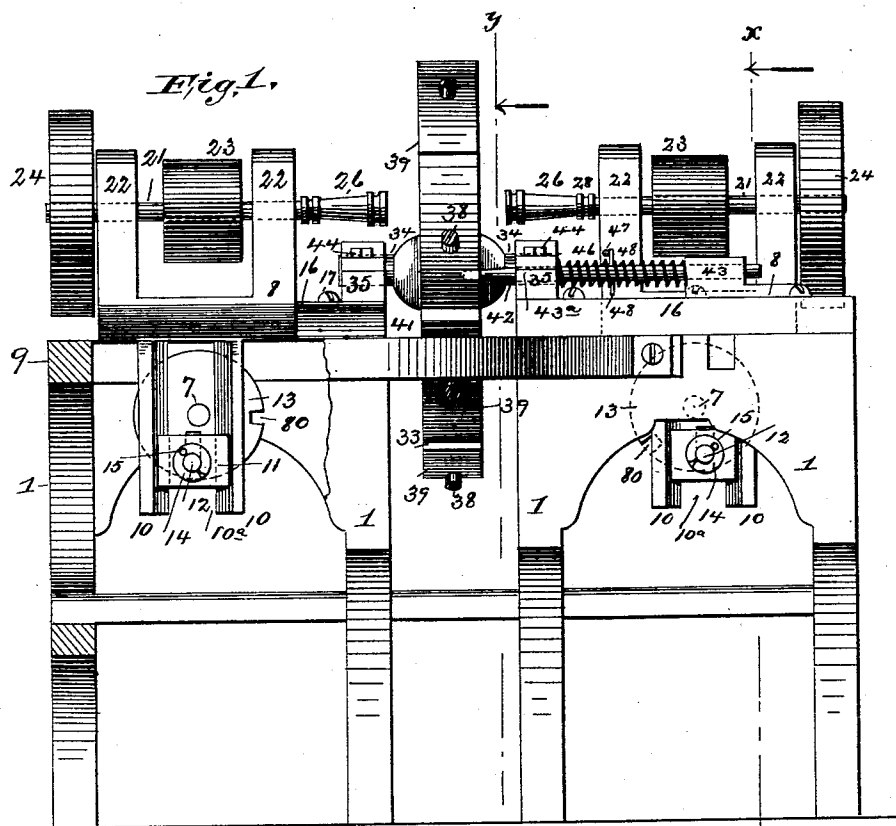
(No Model.)

3 Sheets—Sheet 1.

E. L. SCRIBNER.
LATHE.

No. 580,227.

Patented Apr. 6, 1897.



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T. F. Bourne

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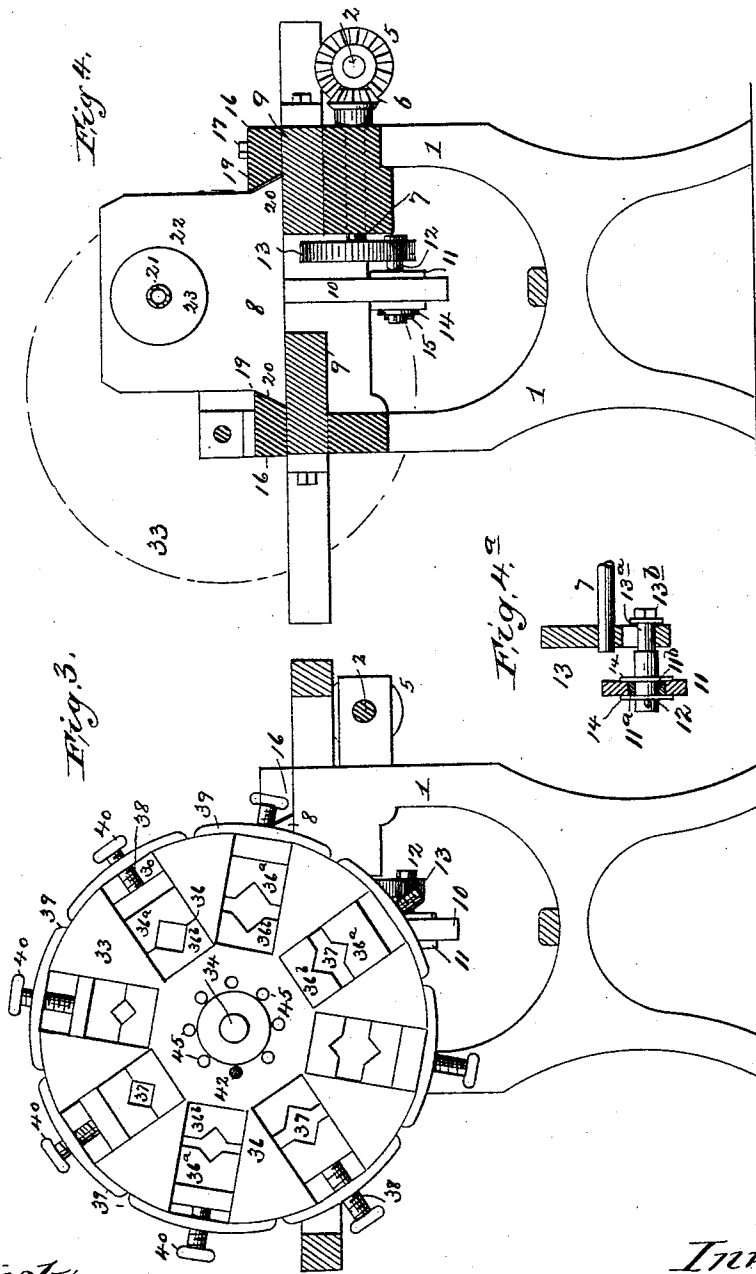
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3 Sheets—Sheet 2.

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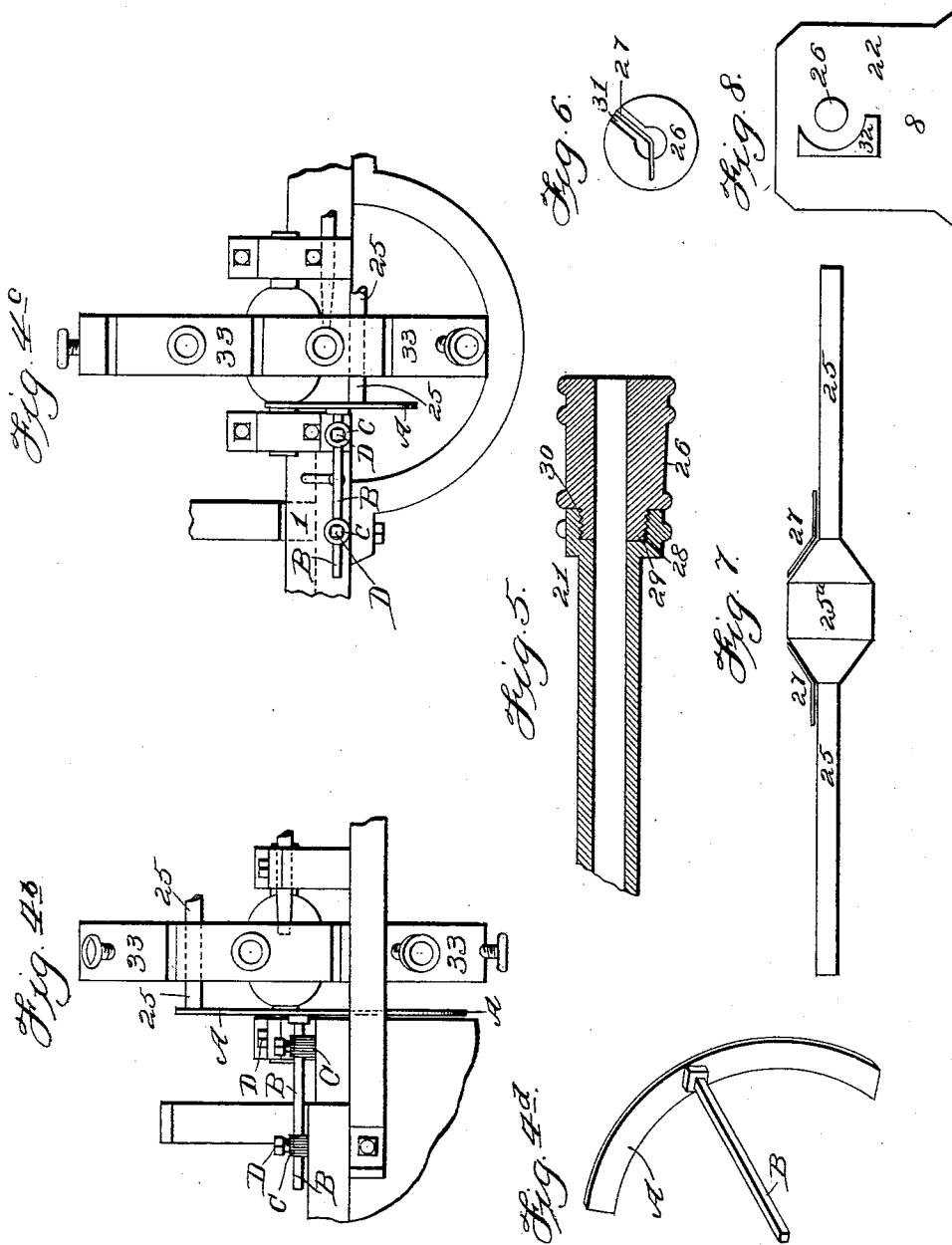
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E. L. SCRIBNER.
LATHE.

3 Sheets—Sheet 3.

No. 580,227.

Patented Apr. 6, 1897.



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SPECIFICATION forming part of Letters Patent No. 580,227, dated April 6, 1897.

Application filed October 4, 1893. Serial No. 487,173. (No model.)

To all whom it may concern:

Be it known that I, ELBRIDGE LLEWELLYN SCRIBNER, a citizen of the United States, residing in Amesbury, county of Essex, State of Massachusetts, have invented certain new and useful Improvements in Lathes, of which the following is a clear and exact specification.

My invention relates more particularly to wood-turning lathes, and more especially to means for turning spindles of different lengths and different sizes of stems; and it has for its object the production of a machine that is simple in construction, inexpensive to manufacture, positive in its varied motions, and efficient in all particulars, whereby spindles can be readily turned in different designs and sizes in a most economical manner.

The invention consists in the novel details of improvement and the combination of parts that will be more fully hereinafter set forth, and then pointed out in the claims.

Referring to the accompanying drawings, which form a part of this specification, Figure 1 is a partly-broken front elevation of my improved lathe. Fig. 2 is a plan view thereof. Fig. 3 is a vertical cross-section on the line *y y*, Fig. 1. Fig. 4 is a similar view on the plane of the line *x x* in Fig. 1. Fig. 4^a is a sectional detail view hereinafter explained. Fig. 4^b is a detail view of the stock-holding wheel, showing guard A in position. Fig. 4^c is a plan view thereof, and Fig. 4^d is a perspective view of said guard. Fig. 5 is a longitudinal section of the shaft 21 and cutter-head 26. Fig. 6 is an end view of said cutter-head, showing knife in position. Fig. 7 is a diagrammatic view of a spindle and its stemming-knives. Fig. 8 is an end view of the traveling carriage 8, showing guard 32.

In the accompanying drawings the numeral 1 indicates a frame which may be of any suitable construction.

2 is a main driving-shaft, suitably journaled in bearings 3 on frame 1 and provided with a driving-pulley 4. (See Fig. 2.) The shaft 2 carries miter-gears 5, that mesh with corresponding gears 6, secured on shafts 7, suitably journaled on frame 1, and shown extending at right angles to shaft 2.

The shafts 7 communicate longitudinally-reciprocating motion to carriages or sliding

heads 8 8, guided to travel on the bed 9 of frame 1, and for this purpose the carriages or heads 8 carry depending standards or arms 10, arranged in pairs, as shown in Fig. 1, having a space 10^a between each pair, as shown. The inner walls of the standards or arms 10 are preferably beveled or in V form to receive between them the sliding bearing-blocks 11, whose outer edges correspond to the form of the inner walls or faces of standards or arms 10 to permit the blocks 11 to travel freely in space 10^a. The blocks 11 are carried by crank-pins 12, connected with shafts 7, and shown carried by disks 13, screwed on shafts 7, (see Figs. 1, 4, and 4^a,) washers 14 and split pins 15 being shown holding crank-pins 12 and blocks 11 together. By this means, as the shafts 7 turn, the blocks 11 will travel between arms 10, and thus the carriages or heads 8 will be reciprocated along bed 9. By preference the disks 13 have slots 13^a to receive the pins 12, which latter are adjustably held in position by nuts 13^b, so that pins 12 can be adjusted more or less from shafts 7. Thus the movement of carriages 8 8 can be regulated more for different lengths of stock to be cut. (See Fig. 4^a.) Thus is formed what I term a "motion within a motion."

11^a is a collar on pin 12, revolving within a bearing 11^b in block 11 and on pin 12.

The traveling carriages or heads 8 are removably carried on the bed 9, and for this purpose said bed is shown provided with longitudinal rails 16, that are held on bed 9 by screws or bolts 17 and made laterally adjustable, said screws entering transverse slots 18 in the rails 16. The inner sides of rails 16 are shown undercut or beveled at 19 to engage the outwardly-beveled lower sides 20 of carriages or heads 8, (see Fig. 4,) whereby said heads are properly guided on the bed 9.

The carriages or traveling heads 8 carry the knives for cutting the stems of spindles, and for this purpose hollow shafts 21 are journaled in bearings 22 on carriages 8. The shafts 21 carry driving-pulleys 23 and preferably are provided with balance-wheels 24 for holding and storing power against any check to shafts 21 when in motion. The shafts 21 are adapted to receive the ends of the spindles 25 of the stock to be worked up. The hollow shafts 21 carry hollow cutter-

heads 26, having suitably-shaped cutters or knives 27, which rotate around the spindles 25, which latter are held stationary. The arrangement of the cutter-heads 26 and knives 27 is shown in Figs. 5 and 6. The shafts 21 and cylinder-heads 26 may have suitably-sized bores and are detachably connected together, and for this purpose the shaft 21 is shouldered at 28 and internally threaded at 29 to receive threads 30 on cutter-heads 26. The cutter-heads 26 are radially slotted at 31 to receive the angled knives or cutters 27, as shown in Fig. 6.

32 is a guard which may be carried by carriages 8 and placed near cutter-heads 26, as shown in Fig. 10, so that the shavings from the spindles will be caused to fall away to the rear of the machine. The guard 32 is preferably semicircular, as shown, to keep the shavings from scattering.

The stock from which the spindles are to be cut is to be carried between the cutter-heads 26, and for this purpose I have provided a wheel or disk 33, that is carried by an arbor 34, suitably journaled in bearings 35 on frame 1. The wheel 33 is provided with one or more clamping-jaws 36, eight sets of jaws 36 being shown in Fig. 3. These jaws consist of movable plates 36^a, carried in slots in the wheel to engage stationary plates 36^b, also suitably carried by said wheel. (See Fig. 3.) The meeting faces of plates 36^a and 36^b are suitably recessed at 37, being shown in rectangular form to constitute a square opening when the jaws are brought together, so as to firmly clamp and hold the stock to be stemmed. Part of the jaws 36 are preferably made thin and part thicker for holding stock, and for holding short and long centers, respectively, on the spindles to be made. The jaws or plates 36^a are moved by screws 38, that are swiveled to said plates and pass through threaded apertures on cap-plates 39, carried by the wheel 33.

40 is a hand-wheel on the screw-stems 38 for turning them. The wheel 33 is located in a space 41 between the two side parts of frame 1, (see Fig. 2,) whereby it is free to turn to carry the stock to the cutter-heads 26. The wheel 33 is firmly held while a jaw 36 is in line between the opposing cutter-heads by means of a suitable lock, shown consisting of a longitudinally-movable rod 42, that slides in bearings 43 on one of the rails 16, as well as in an aperture 43^a in a bearing-block 35, which bearings are made removable by screws or bolts 44, the bearings being shown mounted on rails 16. One end of rod 42 is shown tapered to enter countersinks or apertures 45 in the side of wheel 33, (see Fig. 3,) said aperture being so arranged that when the rod 42 is in one of the corresponding jaws 36 will be in line with the cutter-heads 26. The locking-rod 42 is pressed forward into aperture 45 by a spring 46, shown coiled on said rod and pressing at one end against bearing 43, and at its other end being suitably connected with

rod 42. The locking-rod 42 is moved from aperture or countersink 45 by the retreat of carriage 8, and for this purpose said carriage is shown provided with a projection or bar 47, that engages an extension 48 on rod 42, this trip being so arranged that when the carriage 8 retreats from the work, or from proximity to wheel 33, the part 47 will act on part 48 and draw the rod 42 from its aperture or countersink 45, and when the carriage again advances to the work will permit the rod 42 to enter another countersink 45 and thus again hold the wheel 33 in proper position for stemming purposes.

In order to furnish means for regulating the projection of the stock 25 from the wheel 33, I use a guide A, which is preferably curved in a circle corresponding to the circle of the jaws 36. (See Fig. 4^a.) This guide is adjustably carried by a bar or support B, shown carried on standards C or frame 1, screws D being used to hold said support in position.

By adjusting guide A toward or from wheel C the stock can be moved more or less from said wheel against said guide to determine the amount it shall extend for stemming.

From the foregoing it will be understood that the wheel 33 can hold several pieces of stock for spindles at one time, a new piece being placed in position while another is being cut by the knives or cutters 27 as they are brought to the work by the advancing carriages 8, each carrying a cutter-head 26 and knives 27, the wheel 33 being located between them. The stock to be cut can project from both sides of the wheel, and thus both ends of the stock can be simultaneously cut and to a corresponding gage. By this means the capacity of the machine is increased, as stops are not necessary, the cutting operations being substantially continuous. The knives 27 advance toward the center of the stock or spindle 25 and, according to their shape or angle, leave a center piece 25^a on the spindle 25.

The action of my machine is to begin cutting at the ends of the blank slowly and gradually and increase in speed toward the center. After the spindles are cut to the form shown in Fig. 7 they are put in a machine to finish the central portions, and for this purpose I prefer to employ a lathe such as described and claimed in my divisional application filed January 10, 1896, Serial No. 574,982.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

1. In a lathe, the combination of a pair of reciprocating carriages, the cutter-heads carried thereby, a rotatable disk or wheel located between said cutter-heads and provided with clamps to hold the stock to be cut, apertures or countersinks formed in the disk or wheel corresponding to said clamps, a spring-pressed rod supported upon the main frame and adapted to enter said apertures for holding the disk or wheel in the desired position,

and a suitable connection between one of said carriages and said rod for withdrawing the rod from an aperture by the movement of said carriage, substantially as described.

5 2. In a lathe, the combination of a main frame, a main shaft, cross-shafts geared to said main shaft, crank-wheels on said cross-shafts formed with crank-slots, crank-pins adjustably mounted in said slots, reciprocating carriages on said main frame, slotted

standards depending from said carriages, sliding blocks engaging the slotted standards and connected with said crank-pins, cutter-heads on said carriages, and means for holding stock between said cutter-heads, substantially as described. 15

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