No. 649,655. Patented May 15, 1900.

G. BRENNER.

WOOD TURNING LATHE.

(Application filed Apr. 23, 1897.)

(No Model.) 2 Sheets—Sheet 1.

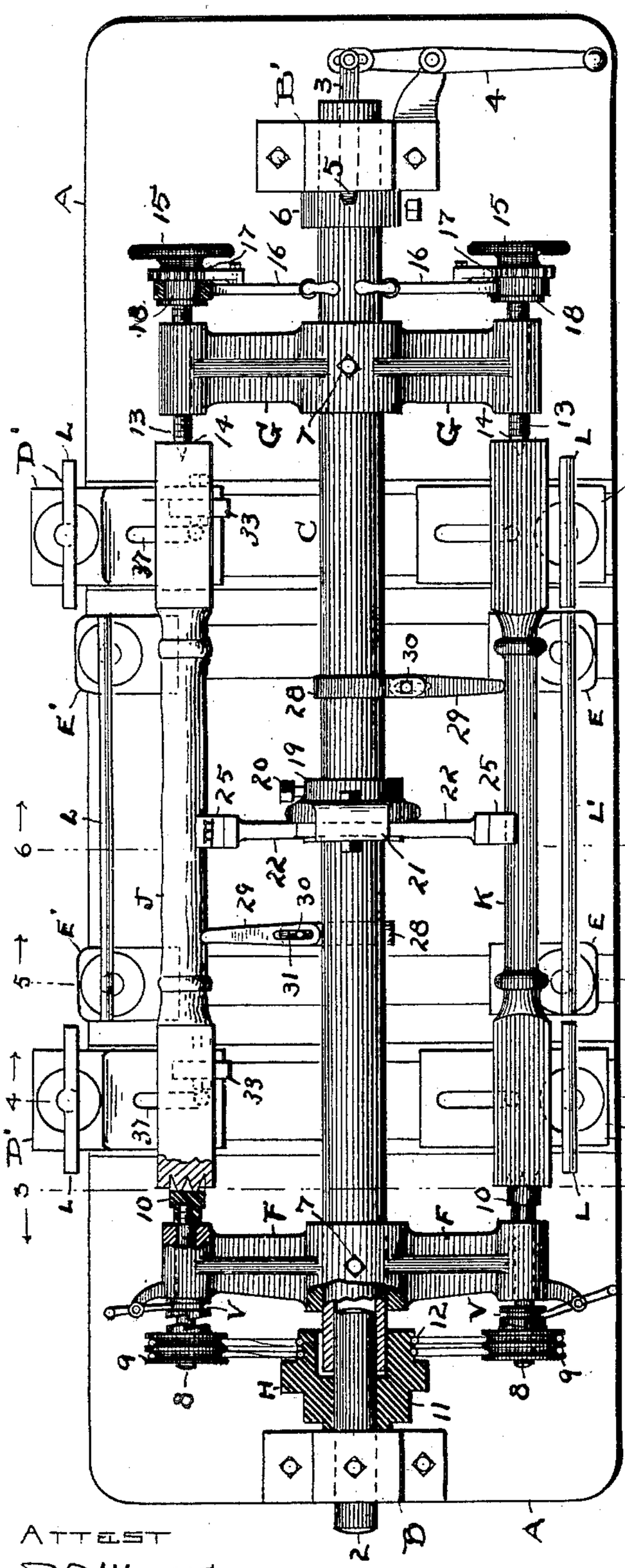

Fig. 1.

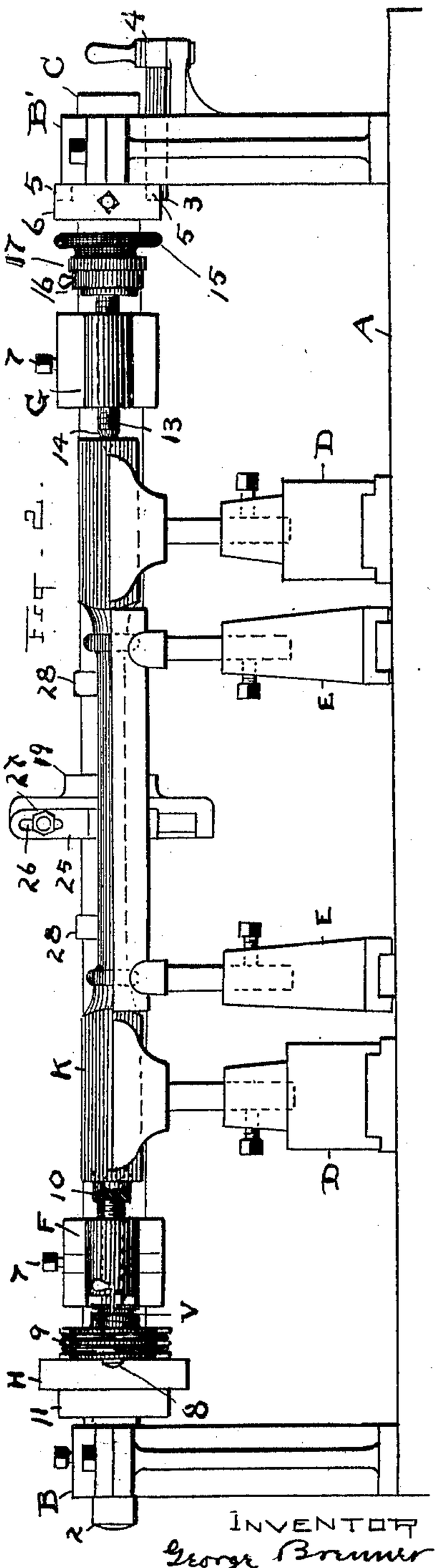

Fig. 2.

Attest
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Fig. 4.

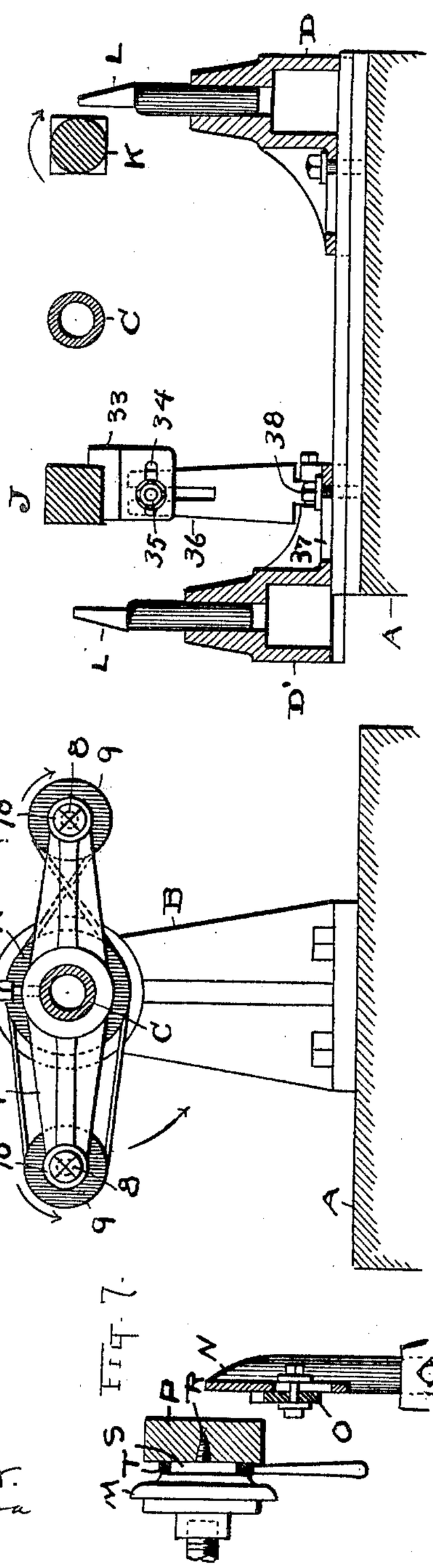

Fig. 6.

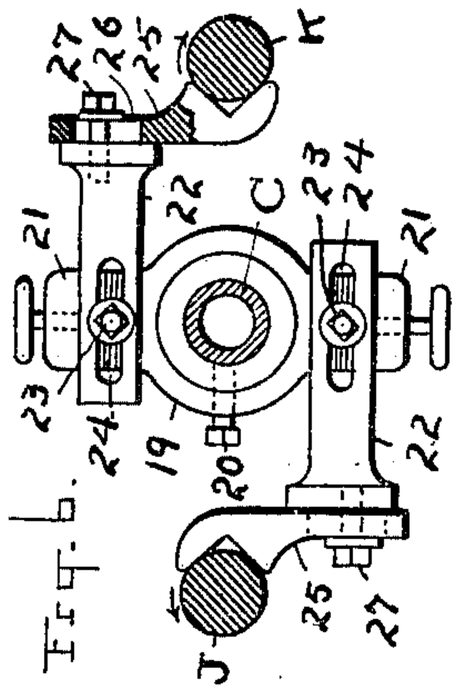

Fig. 7.

Fig. 5.

Fig.

ATTEST

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UNITED STATES PATENT OFFICE.

GEORGE BRENNER, OF CLEVELAND, OHIO.

WOOD-TURNING LATHE.

SPECIFICATION forming part of Letters Patent No. 649,655, dated May 15, 1900.

Application filed April 23, 1897. Serial No. 633,494. (No model.)

To all whom it may concern:

Be it known that I, GEORGE BRENNER, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Wood-Turning Lathes; and I do declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to wood turning-lathes; and the invention consists in means for increasing the output of hand turning-lathes and facilitating the working thereon, substantially as shown and described, and more particularly pointed out in the claims.

In wood-turning lathes, wherein the turning is all done by hand, and especially on large and heavy work, as in porch-pillars or the like, it is customary and necessary for the operator to have an assistant, whose aid materially helps him in facilitating the output of the work; but as both are obliged to work on the same piece of work while it is under process of completion I find that one hampers the other because of the different character of the work that each of them is called upon to do and that better results can be had if each were to do his work independent and removed from the other, but in such relative position that the assistant, who first does the rough turning, can quickly hand over his roughed pattern to the skilled operator for the more finished and exacting work. I seek to attain this object by the construction as shown in the accompanying drawings, in which—

Figure 1 is a plan view of my improved device, and Fig. 2 a side elevation thereof. Fig. 3 is a cross-section taken on line 3 3, Fig. 1, and looking to the left. Fig. 4 is a cross-sectional view taken on line 4 4, Fig. 1, and looking to the right. Fig. 5 is taken on line 5 5, and Fig. 6 on line 6 6, Fig. 1, and each of these several sectional views show the mechanism on their respective lines, but the mechanism beyond is omitted to avoid confusion. Fig. 7 is a side elevation, partly in section, of a chuck or face-plate with a block of wood thereon and the tool-rest in position as in use.

The base or bench A is of any suitable form or construction and is designed to carry the bearing-supports B B′ of the central shaft C, its immediate mechanism, and the various tables D D′ E E′ for the tool-rests L L′. The shaft C is supported at one end on the rigid shaft 2, fastened in bearing B, and at the other end in bearing B′ and is free to be rotated when the locking-bar 3 is withdrawn by the aid of pivoted lever 4 from the sockets 5 in the rigid collar 6 on shaft C. This shaft C is held locked and rigid at all times unless it is desired to shift the work from one side of the bench to the other, and this is done when the assistant has turned out his work in the rough and the skilled operator is ready to finish the same.

The shaft C really supports a double lathe, one at each side, by means of supporting-arms F and G. Arms F are located at the left, and they support the chuck and driving mechanism for each lathe, and arms G are at the right and support the mechanism upon which the work is held and revolved. Supporting-arms F and G are each rigidly fastened to shaft C by set-screw 7, and arms F have a bearing at the outer end of each, in which a shaft 8 is free to revolve when driven by belts from the main pulley H to the pulleys 9 and the clutch V at the end of shafts 8. The inner end of shafts 8 project beyond the bearing and this end is screw-threaded. The chucks or centers 10, which hold the work, are screwed on these projecting ends and various sizes and forms are used, according to the character of the work.

In Fig. 7 I show a modified form of chuck for making rosettes, &c., with means for centering the work and also means to quickly remove the finished product.

The main pulley H is held upon and is free to rotate on the rigid shaft 2, and it has belt-faces 11 for power connection, and grooved faces 12 for the belts which transmit the power to the pulleys 9 on shafts 8.

The arms G are located on the right end of shaft C, and each arm has a bearing which supports a screw-spindle 13, upon the end 14 of which the work is designed to be supported and rotated.

To turn the screw-spindle 13, so as to bring the end 14 into engagement with the work, hand-wheel 15 is used as well as lever 16 and pawl and ratchet 17. The lever is free to rotate on part 18 of spindle 13 and is used when

increased power is desired to force point 14 into the work.

At about the center of the shaft C a collar 19 is fastened by set-screw 20, and this collar has vertical extending arms 21, upon which horizontal arms 22 are adjustably fastened by a bolt 23, working in slot 24. A vertical arm 25, having a slot 26 and a notched end, is adjustably fastened by bolt 27 to the end of horizontal arm 22 and shown more clearly in Fig. 6. This arrangement of parts affords an adjustable means for supporting the work at the center while it is rotating and under process of completion. When pillars six and ten feet long are being turned, I find that a rest at or about the center of the work prevents undue vibration and gives better and more true results in turning.

Upon shaft C and at each side of collar 19 I show a band 28 and an adjustable arm 29, clamped between the ends of the band by bolt 30. The arm 29 has a slot 31, through which the bolt passes and by which the arm is adjusted back and forth and which is designed to be set and used as a gage to determine the amount of stock to be cut away from any desired point on the work. As seen in Fig. 5, the end of arm 29 is resting on pillar J, and when the stock has been turned down to the diameter as shown in dotted lines the end will slip by and fall to a vertical hanging position from shaft C, thus informing the operator that the desired depth of cut has been reached. One or more of these gage-arms can be used, as desired.

In Fig. 1 two pillars are shown in position, pillar J being partly turned in the rough and pillar K being in about its completed form. To do this turning, rests L L′ must be had for supporting the chisels and the other wood-working tools of the operators, and these rests are supported on sliding tables D D′ and E E′.

In Figs. 1 and 4 the rest L of table D is shown in working position for the tool of the operator; but the table D′ on the opposite side is shown with the rest L′ thereon as being removed from pillar J. When the pillars are first placed in position and before the chuck 10 and the spindle-point 14 engages the ends of the pillar, (which is originally perfectly square in cross-section,) the exact center of the pillar must be obtained to turn the pillar true. To find the true center immediately and without any loss of time, an adjustable centering device 33 is attached to each table D′, and consists of part 33, upon which the square pillar is laid. The part 33 has a horizontal slot 34, and a bolt 35 passes through this slot and through a vertical slot in an arm 36, pivoted to the table. This construction enables me to adjust part 33 in any vertical or horizontal position that I desire, and after setting the same to a desired size of pillar I can always find the true center of any number of like sizes. When the assistant desires to place a new pillar in place, he draws the table D′ to the position as seen in Figs. 1 and 4, the slot 37 and bolt 38 limiting the movement, and the part 33 is then in place to rest the pillar thereon. The spindle 13 is screwed up, chuck 10 is engaged, and the table and part 33 are pushed back, the arm 36 drops to one side, and the tool-rest is then in position and the pillar is free to be rotated for the operator to work thereon. The tool-rests L′, between rest L, are mounted on sliding tables E E′ and are constructed to hold a long rest or bar L′ the whole length of the work.

All the parts described are constructed to admit of adjustment—that is, if various sizes and lengths of pillars or the like are changed the different parts can be adjusted to accommodate the change. Arms G can be moved back or forth to any position on shaft C, the collar 19 and its parts can be adjusted and moved on shaft C, and the tables and the rests are all adjustable.

In turning small work, as in rosettes or the like, a chuck M, as seen in Fig. 7, is used, and a rest N, having an adjustable part O, determines the position of the block P for centering before it is fastened on the screw R of the chuck. The chuck has a reduced neck S, and a ring T, having a handle, rests around this neck and serves to pry the block off screw R when the turning has been completed.

To operate the lathes independent of one another, a suitable friction-clutch V is used to throw shaft 8 into engagement with pulleys 9, but I could dispense with this if I so desired.

The method and utility of using a double and reversible lathe as described are as follows: The skilled operator and his assistant stand and work on opposite sides of the bench and the assistant places the square pillars on parts 33 for centering, fastens them in place, and then turns them in the rough for the skilled workman to finish. When the skilled workman is ready to take the work, the shaft C is unlocked at the collar 5 by lever 4, and the arms F and G and their respective parts, with the pillar or work in position, are given half a turn with shaft C and is then locked by lever 4 and bar 3. This movement has reversed the position of the work in each lathe, and where the roughed work was on the assistant's side it is now on the skilled workman's side, and he then finishes the job while assistant prepares another pillar for him. It will thus be seen how both the assistant and skilled workman can help and facilitate the work for each other, as well as save time and increase the output of the work.

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

1. A bench and a rotatable shaft, bearing B′ and rigid shaft 2 supporting said shaft, main pulley H on said shaft 2 and collar 6 on said rotatable shaft, locking-bar 3 and lever 4 for said collar, arms F and G on said rotatable shaft, chucks 10 and shafts 8 there-

for supported in the arms F at opposite sides of the rotatable shaft, pulleys 9 for shafts 8 and clutch mechanism for said pulleys and shafts, and screw-spindles 13 in the opposite ends of arm G to support and center the work, substantially as described.

2. In wood-turning lathes, a central rotatable shaft C sleeved on a rigid support at one end and supported in a bearing at the other end, locking mechanism for said shaft, arms F and G rigidly fastened on said shaft, a rotating chuck and shaft supported at the ends of the arm F, a pulley and clutch mechanism for each clutch-shaft, and screw-spindles in the ends of arms G to center and support the work, substantially as described.

3. In wood-turning lathes, a bench and shaft, supports comprising a rigid shaft and a shaft-bearing mounted on said bench, a rotatable shaft supported to turn on said rigid shaft, a loose pulley on said rigid shaft, locking mechanism for said rotatable shaft, arms F and G rigidly supported on said rotatable shaft, chuck mechanism in the ends of arms F, means to drive said mechanism through said loose pulley, and screw centering-spindles mounted in the ends of arm G, in combination with adjustable tool-rests at each side of said bench, substantially as described.

4. In wood-turning lathes, a bench and a rotatable shaft, a bearing and a rigid shaft on said bench supporting said rotatable shaft, a main pulley on said rigid shaft, a locking collar and bar for said rotatable shaft, arms F and G rigidly fastened to said rotatable shaft, chuck-shafts supported in the ends of said arm F, pulley and clutch mechanism on said chuck-shafts, belts connecting the main pulley and clutch-pulleys, and screw centering-spindles in the ends of arms G, in combination with adjustable tool-rests at each side of the bench, and means to keep the work steady, substantially as described.

Witness my hand to the foregoing specification this 16th day of April, 1897.

GEORGE BRENNER.

Witnesses:
H. T. FISHER,
R. B. MOSER.