(No Model.)

M. E. TUCKER.

WOOD TURNING LATHE.

No. 313,839. Patented Mar. 10, 1885.

Fig. 1.

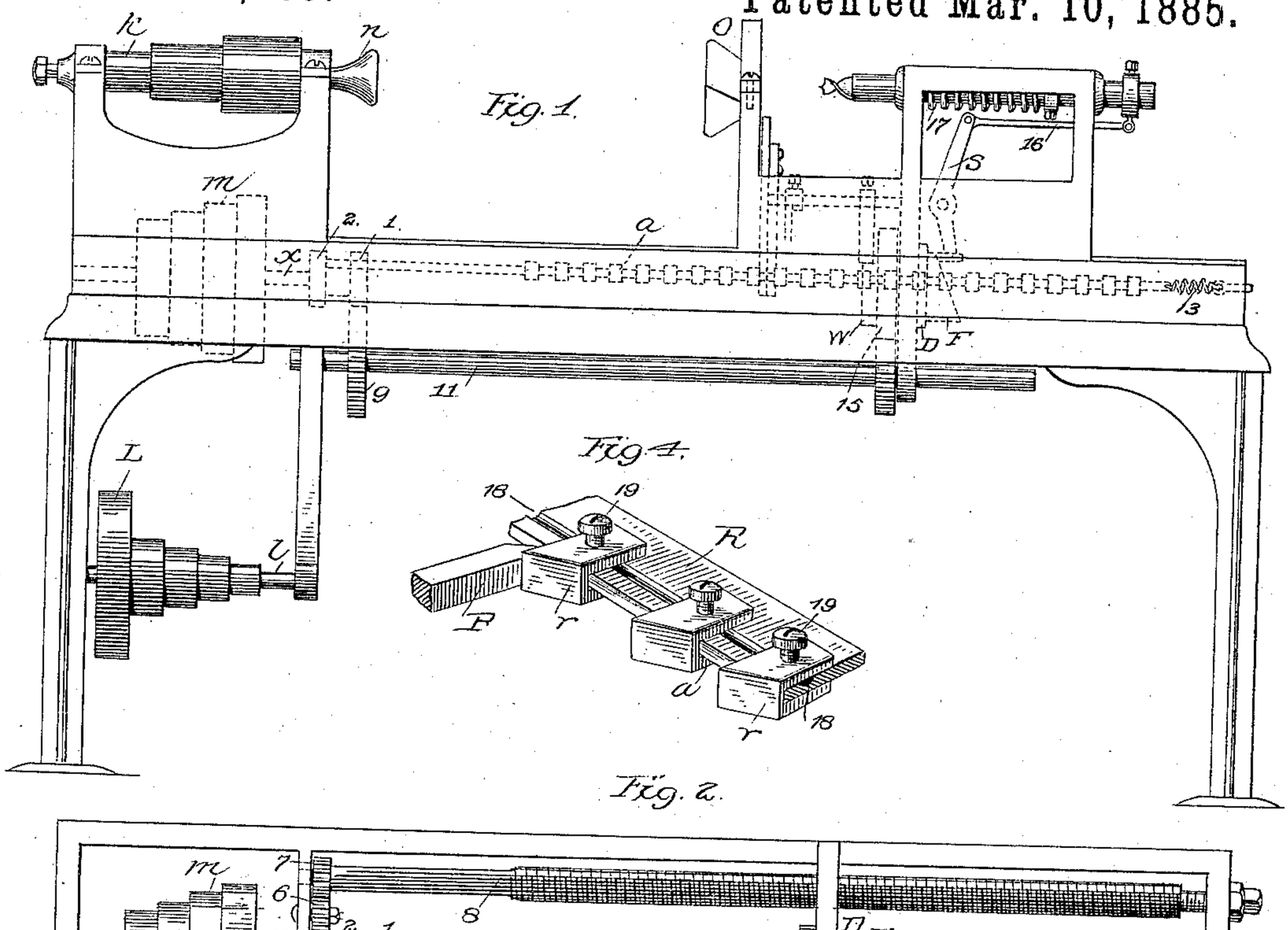


Fig. 4.

Fig. 2.

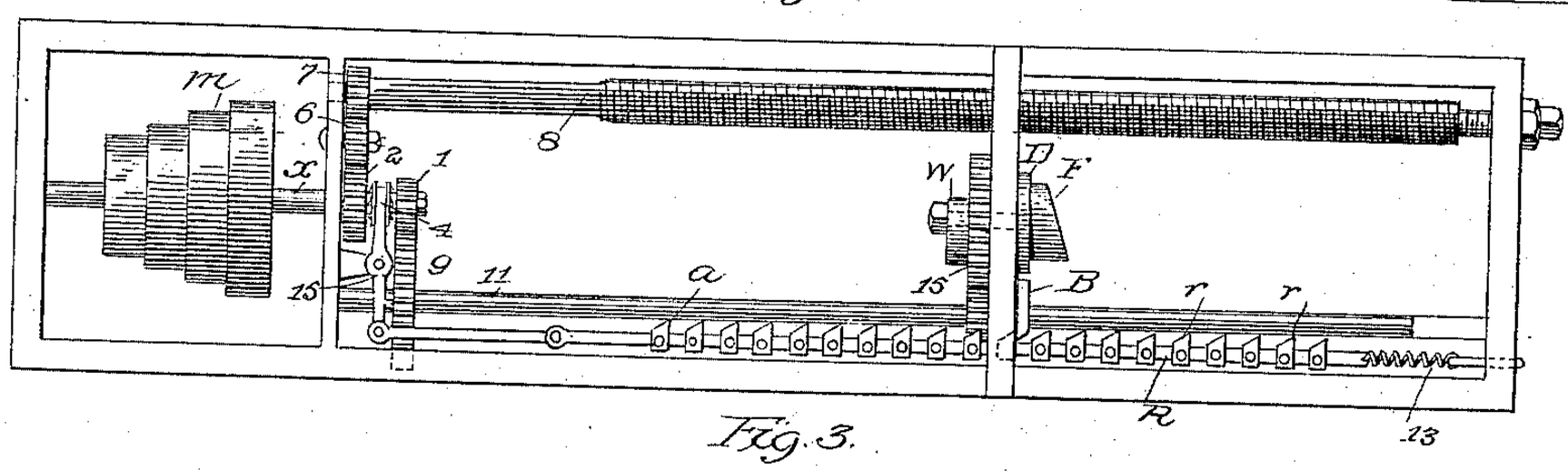
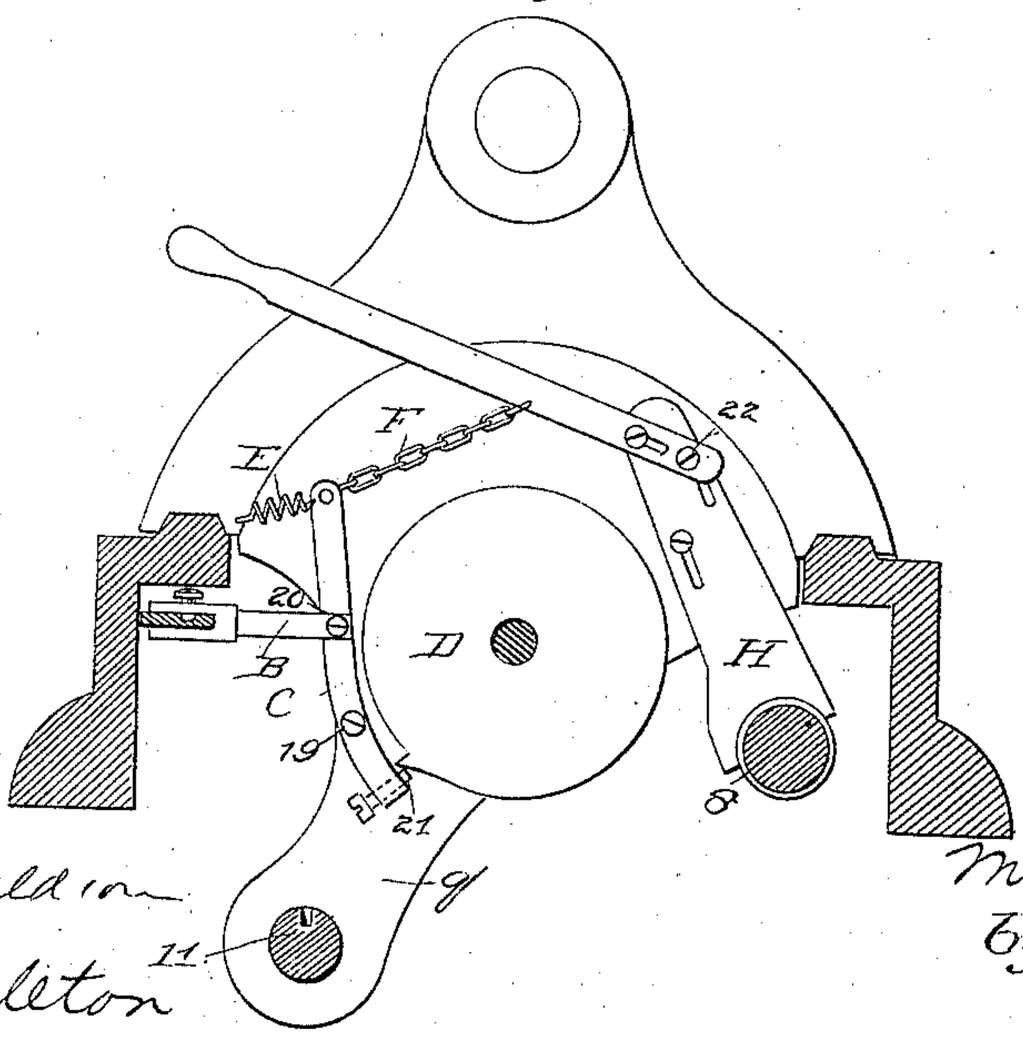


Fig. 3.



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UNITED STATES PATENT OFFICE.

MARCELLUS E. TUCKER, OF BRANDON, VERMONT.

WOOD-TURNING LATHE.

SPECIFICATION forming part of Letters Patent No. 313,839, dated March 10, 1885.

Application filed June 2, 1884. (No model.)

To all whom it may concern:

Be it known that I, MARCELLUS E. TUCKER, of Brandon, in the county of Rutland and State of Vermont, have invented a new and useful Improvement in Wood-Turning Machines; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention relates to wood-turning machines, and is an improvement on a machine, in its essential features, shown in the United States patent of Newton, granted on the 17th day of November, 1857.

In the accompanying drawings, Figure 1 represents the machine in side elevation. Fig. 2 is a plan view of the same. Fig. 3 is a transverse section showing the carriage and center-board with the mechanism for operating the pawl. Fig. 4 shows in perspective a portion of the rack-bar.

The cone head-stock *n* is driven by band from above, and a pulley, K, on the same shaft drives, by means of a connecting-band, the pulley L on the shaft *l*. Stepped pulleys on this shaft, by means of a band, drive corresponding pulleys *m* on shaft *x*. Shaft *x* carries on its inner end two loose pinions, 1 and 2, with a clutch, 4, between them splined on the shaft, and adapted to hold to the shaft either of the pinions. Pinion 1 is in mesh with pinion 9 on the grooved rod 11. Pinion 2, by intermediate gear, 6, drives gear 7 on the feed-screw 8. This feed-screw passes through a nut on the carriage, the construction and arrangement of which parts are well known and are not fully shown. The carriage rides on ways of the ordinary construction, and the carriage, tail-stock, and cutting mechanism do not differ from those heretofore known and used. The rack-bar *a* operates in connection with the pawl B and the feed-screw and carriage in the usual manner, being held at one end by a spring, 13, and drawn along by the action of the pawl until the lever 15 changes the clutch from pinion 2 to pinion 1, thereby arresting the feed-screw and starting the rod 11. This, through pinion 15 on arm *q* of the center-board, drives through suitable pinion-cams, T, D, and W, on stud in the center-board. I provide a lever, C, pivoted at 19 on the center-board, and to this the pawl B is pivoted at 20. An adjustable screw-stud, 21, in the lower end of the lever engages with a spur on the wheel D, and this draws the pawl out of gear with the rack-bar, which pawl is returned by spring E, Fig. 3. The cam T operates the lever S, pivoted on the side of carriage and connected to the bit-spindle by rod 16. The parts are arranged and timed so as to force the bit forward at the proper moment after the turning operation has been performed, and when the lever has passed the high part of the cam the spring 17 on the spindle returns the bit and its connections. The cam W operates the cutting-off mechanism. The die *o* has the ordinary cutting-tool.

It is apparent that the length of the work turned will depend upon the distance between the teeth of the rack *a*, and, as it is desirable to vary this length, I have devised, in connection with the described machine, rack-bar having variable teeth. This bar is shown detached in Fig. 4. A plain bar, R, is made with a groove, 18, and with teeth *r*, slotted to fit upon the bar. Set-screws 19 in the teeth fit into the groove and hold the teeth in place. By starting out these set-screws the teeth may be shifted to any required distance asunder, and when the bar is set in the machine it will allow greater or less movement of the carriage before shifting, according as the teeth are set at a greater or less distance apart.

For convenience in shifting the carriage back to the beginning of the work, I have devised the arrangement shown in Fig. 3. Cam-wheel D is not changed; but I provide a lever, C, pivoted at 19 on the center-board, and to this the pawl is pivoted at 20. An adjustable screw-stud, 21, in the lower end of the lever engages with the spur on the wheel D, and this draws the pawl out of gear with the rack-bar, which pawl is returned by spring E. A half-nut, H, on the board is made to engage with the feed-screw 8 by means of a hand-lever pivoted at 22. The lever is connected by chain F to lever C, and when the lever is lifted to draw out the half-nut it draws at the same time upon the pawl and releases that from the rack-bar.

I claim—

1. In combination, in a wood-turning ma-

chine, a threaded shaft connected to and adapted to move forward the carriage, gearing connecting said shaft to the main driving-shaft, a grooved shaft carrying pulleys adapted to operate the mechanism on the carriage, as described, gearing connecting the grooved shaft to a loose pinion on the main driving-shaft, a clutch between this loose pinion and a pinion on the main driving-shaft connected to the gearing of the threaded shaft, a lever adapted to throw said clutch into gear with either of the pinions specified on the main shaft, said lever being connected to a rack-bar having adjustable teeth, a pawl, B, connected to a lever, C, pivoted on the frame of the carriage, said pawl being arranged with relation to the adjustable teeth of the rack-bar, a cam-wheel, D, on the carriage having a cam projection adapted to operate the lever C, said wheel D being operated by the mechanism, as described, and the spring for returning said lever, the parts operating as set forth.

2. In combination, in a wood-turning machine, a threaded shaft connected to and adapted to move forward the carriage, gearing connecting said shaft to the main driving-shaft, a grooved shaft carrying pulleys adapted to operate the mechanism on the carriage, as described, gearing connecting the grooved shaft to a loose pinion on the main driving-shaft, a clutch between this loose pinion and a pinion on the main driving-shaft connected to the gearing of the threaded shaft, a lever adapted to throw said clutch into gear with either of the pinions specified on the main shaft, said lever being connected to a rack-bar having adjustable teeth, a pawl, B, connected to a lever, C, pivoted on the frame of the carriage, said pawl being arranged in relation to the adjustable teeth of the rack-bar, a half-nut, H, pivoted on the center-board and engaging with the feed-screw 8, a hand-lever, pivoted as described, connected to the half-nut H, and lever C, for operating the same, and a spring for returning the said lever, the parts operating in the machine as set forth.

3. In combination, in a wood-turning machine, a threaded shaft for moving forward the carriage, gearing connecting said shaft to the main driving-shaft, a grooved shaft carrying pulleys adapted to operate the mechanism on the carriage, as described, gearing connecting the grooved shaft to a loose pulley on the main driving-shaft, a clutch between this loose pinion and a pinion on the main driving-shaft connected to the gearing of the threaded shaft, a lever adapted to throw said clutch into gear with either of the pinions specified on the main shaft, a rack-bar, R, connected to said lever, provided with a groove, 18, the teeth *r*, slotted to fit over the edge of the bar and having set-screws for holding the teeth upon the bar, a pawl, B, connected to a lever, C, pivoted on the frame of the carriage, said pawl being arranged with relation to the adjustable teeth of the rack-bar, mechanism for operating the lever C, and the spring for returning said lever, the parts operating as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

MARCELLUS E. TUCKER.

Witnesses:
FRANK E. BRIGGS,
HARRY M. JONES.