

No. 767,387.

PATENTED AUG. 16, 1904.

N. D. CHARD.  
WHEEL RIM FINISHING MACHINE.

APPLICATION FILED APR. 11, 1904.

NO MODEL.

3 SHEETS—SHEET 1.

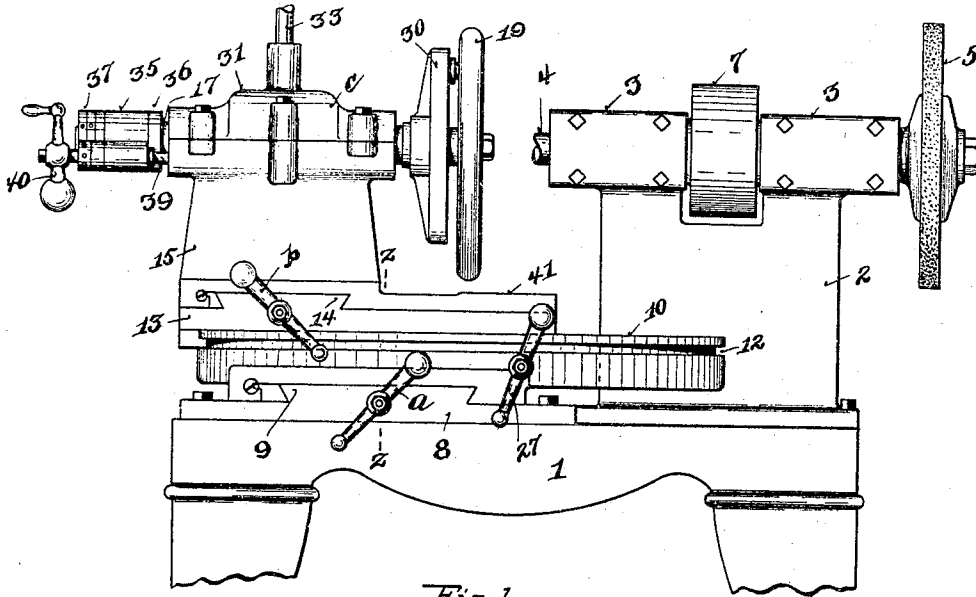


Fig. 1.

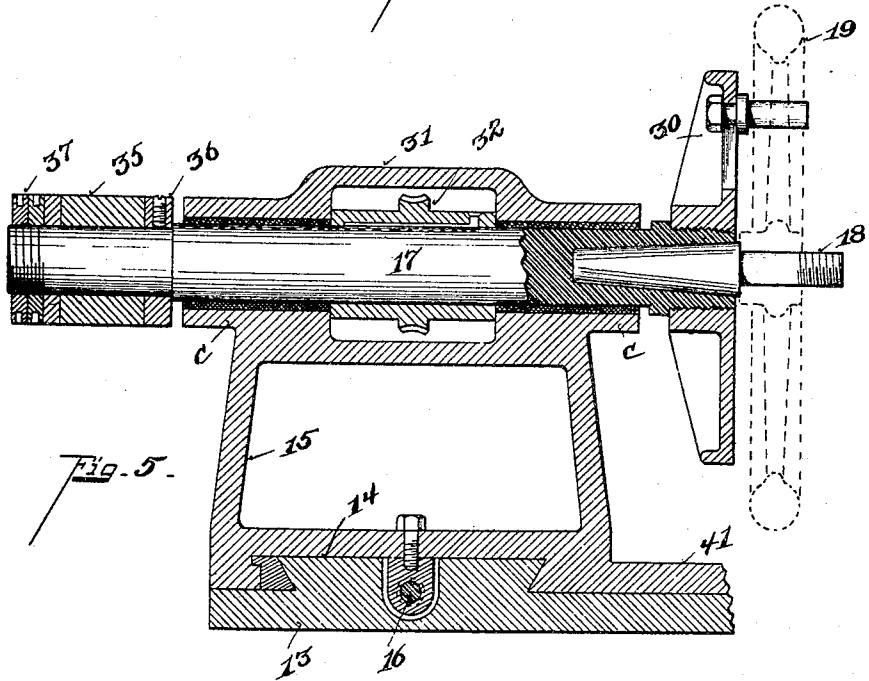


Fig. 5.

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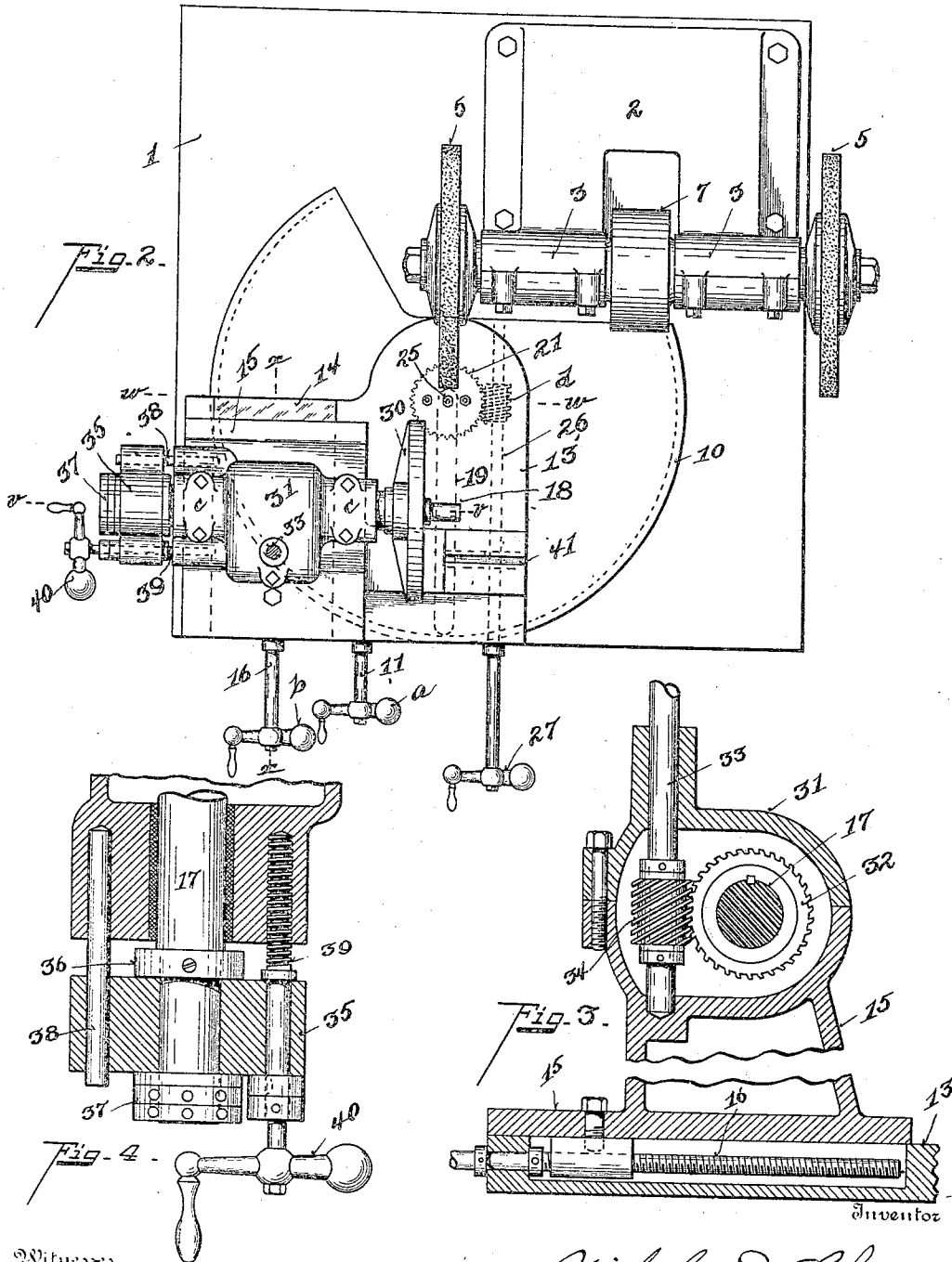
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3 SHEETS—SHEET 2.



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3 SHEETS—SHEET 3.

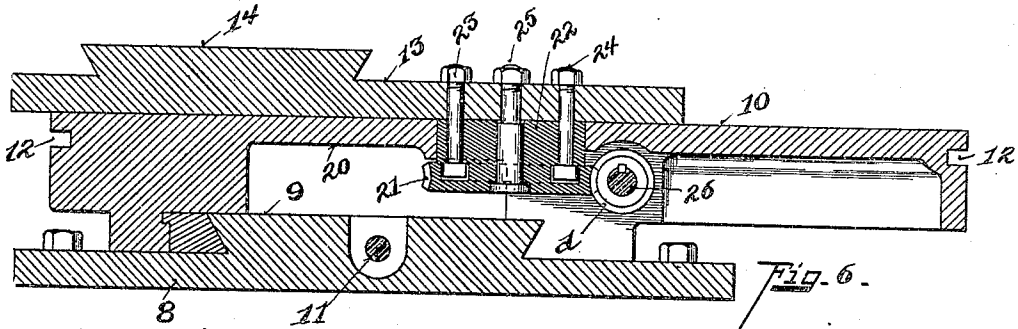


Fig. 6.

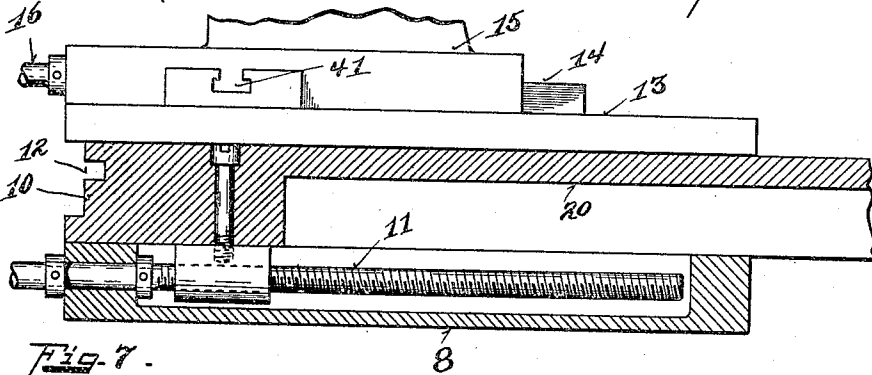


Fig. 7.

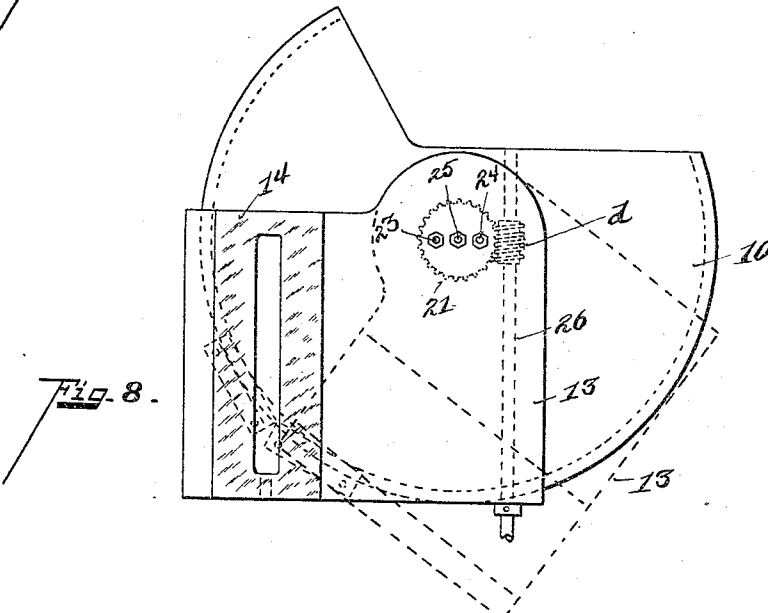


Fig. 8.

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# UNITED STATES PATENT OFFICE.

NICHOLAS D. CHARD, OF CINCINNATI, OHIO, ASSIGNOR TO THE LODGE & SHIPLEY MACHINE TOOL COMPANY, OF CINCINNATI, OHIO, A CORPORATION.

## WHEEL-RIM-FINISHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 767,387, dated August 16, 1904.

Application filed April 11, 1904. Serial No. 202,565. (No model.)

*To all whom it may concern:*

Be it known that I, NICHOLAS D. CHARD, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Wheel-Rim-Finishing Machines, of which the following is a specification.

My invention relates to a machine for finishing the periphery of a hand-wheel.

The features of my invention are more fully set forth in the description of the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a front elevation of my device. Fig. 2 is a top plan view of the same. Fig. 3 is an enlarged section on line *x x*, Fig. 2. Fig. 4 is an enlarged horizontal section of the adjusting mechanism of the work-shaft at the end of the work-stock. Fig. 5 is an enlarged section on line *v v*, Fig. 2. Fig. 6 is an enlarged section on line *w w*, Fig. 2. Fig. 7 is an enlarged section on line *z z*, Fig. 1. Fig. 8 is a detail top plan view of the circular plate and work-stock-supporting plate.

1 represents the bed of the machine, upon which is erected the tool-stock 2. (See Figs. 1 and 2.)

3 represents journal-bearings in the tool-stock, in which is journaled the shaft 4, exposed at the opposite end of the bearing and preferably supplied with the two emery-wheels 5. (See Fig. 2.)

The intermediate portion of the bearing 3 is cut out to provide space for the driving-wheel 7, fixed to the shaft 4 and driven from any suitable source of power, such as a pulley from a counter-shaft.

8 represents a bed-plate secured on the bed 1. (See Figs. 1, 6, and 7.) The bed-plate 8 has the longitudinal way 9, extending perpendicular to the shaft 4.

10 represents a second plate, having gibbed relation with the way 9 of plate 8.

11 represents a feed-screw connecting the plates 8 and 10 for traversing plate 10 on the gibbed way of plate 8 and manipulated by the

handle *a*. The plate 10 is a circular or quasi-circular plate and has the way 12.

13 represents a plate having gibbed engagement with the circular way of the plate 10, so as to move in a circular path. The plate 13 is provided with the longitudinal way 14.

15 represents a work-stock or work-supporting stock having a gibbed relation with the way 14 of the plate 13.

16 represents a cross feed-screw connecting the stock 15 with the plate 13 for traversing the work-stock 15 on the way of the plate 13 and manipulated by handle *b*. The work-stock 15 is provided with a bearing *c*, in which is mounted the work-shaft 17, upon the front end of which is the chuck 30 and centering device 18 for supporting the hand-wheel 19, which is to be finished.

In order to traverse the plate 13 in its circular path upon plate 10, I provide the following devices, (see Fig. 6:). There is a space formed between the top surface of the plate 8 and a projected end 20 of the plate 10. The extension of the plate 10 is provided with a circular orifice at a point opposite the centers upon which the plate 13 turns.

21 represents a worm-wheel the hub of which, 22, is inserted in this circular orifice of plate 10.

23 24 represent bolts securing the worm-wheel 22 to the plate 13, and 25 represents the central bolt through the center of the worm-wheel 21 and through the center of which the plate 13 turns.

25 is the center for the concentric way 12 of plate 10.

26 represents a worm feed-shaft (see Figs. 1, 6, and 8) having the worm *d* engaging the worm-wheel 21.

27 represents the handle for turning shaft 26.

It is obvious that by operating the handle *a* the plate 10 and superimposed parts may be bodily traversed in the direction perpendicular to the shaft 4, that by turning the handle 27 the plate 13, carrying the work-stock 15, may be moved in the circular path around the center 25, also that by turning the hand-

wheel *b* the tail-stock may be traversed on the circularly-traveling plate 13 in whatever position the latter is adjusted. In order to rotate the shaft 17, the bearing *c* is preferably provided with the boxing 31, (see Fig. 5,) in which boxing is located the worm-wheel 32, the opposite ends of which abut against the inner surfaces of the boxing, so as to form a longitudinal movement. Shaft 17 is splined or keyed to worm-wheel 32, so as to drive said shaft, but to permit of the longitudinal movement of said shaft. In order to drive the worm-wheel 32, I provide a worm-shaft 33, (see Fig. 4,) having a worm portion 34 extended into the boxing 31 and engaging the worm-wheel 32. The shaft 33 is journaled in a portion of the bearing *c*, and this shaft is rotated by any suitable source of power.

In order to adjust the work-shaft 17 longitudinally, I provide an end bearing-block 35, through which the shaft 27 projects.

36 37 represent collars on shaft 17, placed on opposite sides of the bearing-block 35.

38 represents a guide-pin projecting from the bearing-block 35 into a recess into the bearing *c*.

39 represents an adjusting-screw journaled in the bearing-block 35 and having screw-threaded engagement with the bearing *c*.

40 represents a handle for operating the shaft 39.

In operation the hand-wheel to be finished is attached to the work-shaft 17, as shown in Fig. 1, and the shaft 17 is so adjusted that the hand-wheel 19, or the periphery thereof, is in line with the periphery of the emery-wheel 5. The handle *a* is then operated to bring the periphery of the hand-wheel 19 in contact with the periphery of the emery-wheel 5. The hand-wheel 27 is then operated to impart a circular travel to the tail-stock 15. It is obvious that the motion subjects all the portions of the periphery of the hand-wheel to the action of the emery-wheel. By turning the handle *a* the center 25 of the plate 13 is adjusted to or from the periphery of wheel 5, so providing the finishing of hand-wheels of different diameter. By turning the handle *b* the shaft 17 is moved to and from the center 25 of plate 13, so changing the radius on which the work-stock 15 turns and so providing for different curvatures or different diameters of the rims of the hand-wheels to be finished.

The outside emery-wheel 5 (see Figs. 1 and 2) is for convenience in other grinding, it be-

ing possible to mount an ordinary chuck in the way 41, (see Fig. 7,) projecting from the tail-stock 15.

Having described my invention, I claim—

1. In a machine of the class described, a bed, a tool-stock thereon, a tool-shaft in the tool-stock, means for rotating the said shaft, the said bed being formed with a way perpendicular to the tool-shaft, a plate having a gibbed relation to said way, the said plate being formed with a circular way, a second plate provided with a way, said second plate having gibbed relation with the circular way of the first plate, the second plate being fulcrumed to the first plate in the line of the tool, a work-stock having a gibbed relation with the way of the second plate, a work-shaft in the work-stock, means for rotating the same, a cross feed-screw for traversing the first plate relative to the bed, a worm-shaft and worm-wheel connecting the first plate to the second plate, for traversing the second plate on the said circular way, and a cross feed-screw between the second plate and the wood-stock, substantially as described.

2. In a machine of the class described, a bed, a tool-stock formed with a bearing, a tool-shaft therein, means for rotating said shaft, the bed being formed with a way perpendicular to said tool-shaft, a plate having a gibbed connection to said bedway, the said plate being formed with a circular way around the tool of the tool-shaft, a cross feed-screw between said plate and said bedway, a second plate fulcrumed to the first plate and gibbed to said circular way, a worm-wheel fixed to the fulcrumed portion of the second plate, a worm-shaft journaled in the first plate engaging said worm-wheel, the said second plate being formed with a straight way, a work-stock gibbed to the way of said second plate, said work-stock having a bearing formed perpendicular to the way of the second plate, a work-shaft in the bearing, means for rotating the same, means for longitudinally adjusting the work-shaft in its bearings, and a cross feed-screw between the way of the second plate and said work-stock, substantially as described.

In testimony whereof I have hereunto set my hand.

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Witnesses:

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