

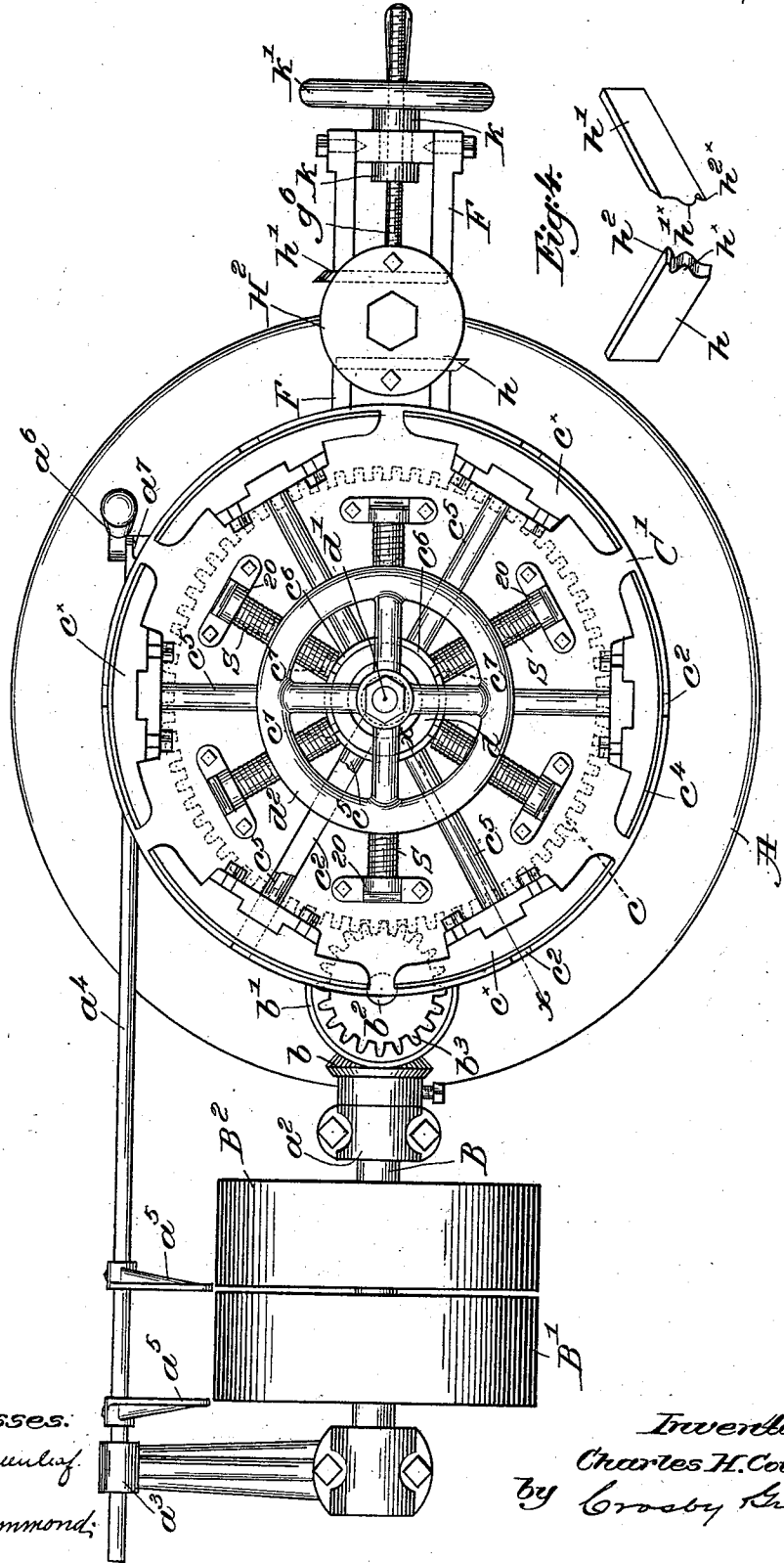
C. H. COWDREY.

MACHINE FOR DRESSING WHEEL RIMS OR THE LIKE.

No. 562,172

Patented June 16, 1896.

Fig. 2.



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UNITED STATES PATENT OFFICE.

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MACHINE FOR DRESSING WHEEL-RIMS OR THE LIKE.

SPECIFICATION forming part of Letters Patent No. 562,172, dated June 16, 1896.

Application filed August 7, 1895. Serial No. 558,523. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. COWDREY, of Fitchburg, county of Worcester, State of Massachusetts, have invented an Improvement in Machines for Dressing Wheel-Rims or the Like, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

This invention has for its object the production of a machine for dressing the periphery of wheel-rims or similar articles in a rapid and effective manner, whereby the periphery of the dressed or shaped rim shall be in a true circle, means being provided for securely holding the rim while being dressed, permitting one rim to be removed and another put in its place with but little loss of time.

In accordance therewith my invention consists in a rim-dressing machine constructed substantially as will be hereinafter described in the specification and particularly pointed out in the claims.

Figure 1 in side elevation represents one form of rim-dressing machine embodying my invention, the rim to be dressed being shown in dotted lines. Fig. 2 is a top view of the machine shown in Fig. 1, the rim being omitted. Fig. 3 is a partial sectional detail of the clamping mechanism, and Fig. 4 represents in perspective a pair of the cutter-blades adapted to dress the rim and form an annular concavity therein.

Referring to Figs. 1 and 2, I have shown an upright hollow post or standard A, adapted to support the working parts of the machine, arms or brackets A' and A², (see Fig. 1,) secured to or forming part of the standard at its base, being provided with bearings a' and a² for a main driving-shaft B, with fast and loose pulleys B' and B² thereon, to receive a belt from any suitable source of power. (Not shown.)

The bearing a' is shown best in Fig. 2 as rearwardly extended to form a bearing a³ for a shipper-rod a⁴, having fast thereon a belt-fork a⁵, the inner end of the rod being jointed to a shipper-handle a⁶, pivoted at a' to the rear side of the standard A.

The inner end of the driving-shaft B has fast thereon a bevel-gear b in mesh with a similar gear b' on a vertical shaft b², mounted

to rotate in bearings in a bracket B^x, secured to the standard.

An upright shaft C (see dotted lines Fig. 1) is mounted within the standard A to rotate in suitable bearings 5 and 6, the upper end of the shaft projecting above the top of the standard and having fast thereon a large gear c in mesh with a smaller gear b³ at the upper end of the shaft b², whereby rotation is imparted to the internal shaft C.

A carrier C' (shown as a circular plate) is secured to the shaft C above the gear c, and rotatable therewith, the upper end of the said shaft having a longitudinal threaded hole c' therein (see Fig. 3) for a purpose to be described. The flat upper face of the carrier C' is provided with a series of radial grooves or depressions c² to receive therein a fin or guide c³ on the under side of each of a series of segmental rim-clamps c^x, one of said clamps being guided by each depression or groove, the length of the segments being such that they may be moved toward the center of the carrier C' without interfering. The outer face of each clamp is cut away to form a projecting shoulder c⁴, upon which rests the rim R, (see dotted lines, Fig. 1,) the outer faces of the clamps bearing against the inner circumference of the rim.

Arms c⁵ are bolted or otherwise secured to the backs of the clamps c^x, as clearly shown in Figs. 2 and 3, and extended radially toward the central shaft C, the foot of each arm forming a fin or ledge to enter and be guided by the corresponding radial groove c² in the top of the carrier. The inner ends of the arms c⁵ are laterally extended at c⁶ and provided with an ear or projection c⁷ at each side, the adjacent ears of each pair of arms c⁵ being engaged by one end of a strong spiral spring S, the other end of which abuts against a lug 20, secured to or forming a part of the carrier C', the springs normally acting to draw the rim-clamps inward. The extended ends c⁶ of the clamp-arms are concaved on their inner faces to form a conical socket, into which the clamp-actuator (shown as a conical block or hub d, rigidly secured to a threaded rod d') is adapted to be forced to press the rim-clamps outward against the action of the springs S to thereby tightly clamp the rim upon the carrier.

Referring to Fig. 3, the threaded rod d' is clearly shown in engagement with the threaded hole c' in the carrier-shaft C, rotation of the rod by a suitable hand-wheel d^2 fast thereon 5 on raising or lowering the conical hub d to withdraw it from or to insert it between the inner ends of the clamp-arms.

Supposing the machine to be ready to dress a rim, the rim is placed upon the carrier, resting 10 on the shoulders c^4 of the rim-clamps, and rotation of the shaft d^8 will force the clamp-actuator d in between the inner ends of the arms c^5 , forcing them and the attached clamps outward against the interior of the rim, sub- 15 jecting it to equal strain in all its parts, centering and holding it immovably upon the carrier C', with its periphery free to be acted upon by the dressing devices. In this manner a rim can be clamped upon the carrier or 20 removed therefrom in a very short time, the operator readily operating the clamp-actuator by means of the hand-wheel d^2 .

The annular rim-blanks are usually rectangular in cross-section and of a given internal 25 diameter, and the clamps will be set to such diameter by rotating the rod d' , and as the radial movement of each rim-clamp is the same the rim cannot be distorted.

A fixed bracket F and an adjustable bracket 30 F' (see Fig. 1) are mounted upon the standards A at the top and bottom, respectively, to support the cutter-shaft frame to be described, the bracket F' being substantially L-shaped and secured to the standard by set-screws 8, 35 extended through slots f^x (see dotted lines, Fig. 1) in the vertical web of the bracket, an adjusting-screw 9, rotatable in a lug 10 on the standard A, engaging a threaded ear f' on the bracket, providing for raising or lowering 40 the bracket F' and thereby the cutter-shaft frame to be described.

The bracket F is shown in Fig. 2 as open to receive therein the head of the cutter-shaft frame G, pivoted at g to a block g' , adjustably 45 secured to the horizontal flange of the bracket F' by a set-screw 12, bearings G' and G² at top and bottom of the frame receiving the cutter-shaft H, which has fast thereon a suitable belt-pulley H' by which it is driven. 50 A step-bearing g^2 (see dotted lines, Fig. 1) is supported adjustably in the lower bearing G² by a screw g^3 , provided with a lock-nut n to take up wear. A yoke g^4 is pivotally connected at g^5 to the upper end of the frame G and 55 has secured to it a threaded rod g^6 , extended through the threaded hub k of a hand-wheel k' , the hub k being rotatably mounted and held from longitudinal movement in the outer end of the bracket F, as clearly shown in Figs. 60 1 and 2, whereby rotation of the hand-wheel k' will move the rod g^6 and thereby the frame G upon its pivot g , to cause the cutter-head to approach or recede from the rim to be dressed, providing a feed device for the cutter 65 and also providing for rims of different diameters and thickness. An adjustable stop

m (see Fig. 1) on the bracket F limits the inward movement of the cutter, the stop being slotted at m' to receive therethrough a set-screw m^2 , extended into the bracket, whereby 70 the position of the stop may be adjusted and fixed.

The brackets F and F' are secured to the standard A in such manner that the movement of the cutter-shaft frame G either as a 75 whole or when tipped upon its pivot g will be in a plane radial to the center of the carrier C', and consequently at right angles to the periphery of the rim-blank.

The cutter-head H² is secured to the shaft 80 H in any usual manner, and in Fig. 4 I have shown the shape of the blades h h' which I prefer to use.

Each blade is adapted to cut one-half of the concavity in the periphery of the rim, 85 the edge of the blade h having a projecting convex portion h^x at its upper end and a projecting lip h^2 , the portion h^x cutting the upper half of the concavity in the periphery of the rim, while the lip h^2 trims and dresses 90 the upper edge. The knife or blade h' has its edge reversely arranged, the convex portion h'^x being located near its lower end, to cut the lower half of the rim-concavity, while the lip h'^2 trims the lower edge of the rim. 95 Both knives acting together cut the desired annular concavity in the periphery of the rim, and in a better and more rapid manner than if each knife was shaped to form the entire concavity, each blade also having less 100 work to perform.

In the operation of the machine, after the rim-blank has been properly clamped upon the carrier, the latter is rotated by the mechanism described, and the cutter H² is also 105 rotated at high speed, and the operator by gradually turning the hand-wheel k' moves the cutter into position to act upon the periphery of the blank, continuing to move the cutter radially toward the rim until its periph- 110 ery has been dressed or shaped to the required degree. By this means the rims are rapidly dressed or shaped and finished with a perfectly true and even periphery, requiring but little skill on the part of the operator, 115 and so decreasing the cost of production, the stop m preventing the cutting to extend too deeply into the rim.

I claim—

1. In a rim-dressing machine, a rotatable 120 carrier, a series of segmental rim-clamps radially movable thereon, to engage and hold the inner circumference of a rim-blank, arms rigidly secured to the clamps and extended toward the center of the carrier, springs located between and connected to the arms of 125 adjacent pairs of said clamps, and means to act simultaneously upon the inner ends of the arms to move them outwardly, substantially as described. 130

2. In a rim-dressing machine, a carrier, a series of segmental rim-clamps radially mov-

able thereon, to engage and hold the inner circumference of a rim-blank, arms rigidly secured to the clamps and extended toward the center of the carrier, segmental wings secured to the inner ends of said arms concentric with said clamps, radial ears on the meeting extremities of said wings, springs secured at their outer ends to the carrier and at their ends threaded over said ears, and a conical hub to act simultaneously upon said wings to move them outwardly, substantially as described.

3. In a rim-dressing machine, the combination with the cutter and its supporting-frame, said frame having a threaded rod projecting therefrom, of a fixed bracket having two parallel arms to hold and guide said frame, a hand-wheel having a threaded hub mounted to rotate in the outer end of said bracket and engaging said rod, whereby the cutter may be gradually moved in said bracket and accurately and quickly adjusted, and an adjustable stop, said stop having a slotted shank to receive a set-screw provided therefor in said bracket and also having an extended portion bent around past the bracket into the path

of the cutter-frame to limit the depth of cutting of the cutter, substantially as described.

4. The combination with the standard, of an L-shaped bracket longitudinally slotted in its vertical member, a set-screw extending from said standard into said slot, a lug projecting from said standard, an adjusting-screw carried by said lug and engaging said bracket to adjust the same vertically, a cutter-frame pivotally connected to the horizontal member of said bracket, bearings in said frame, a cutter-shaft mounted in said bearings, a step-bearing reciprocable within the lower of said bearings and abutting against the lower end of said shaft, and a screw in threaded engagement with the said lower bearing to raise and lower said step-bearing, substantially as described.

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

CHARLES H. COWDREY.

Witnesses:

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