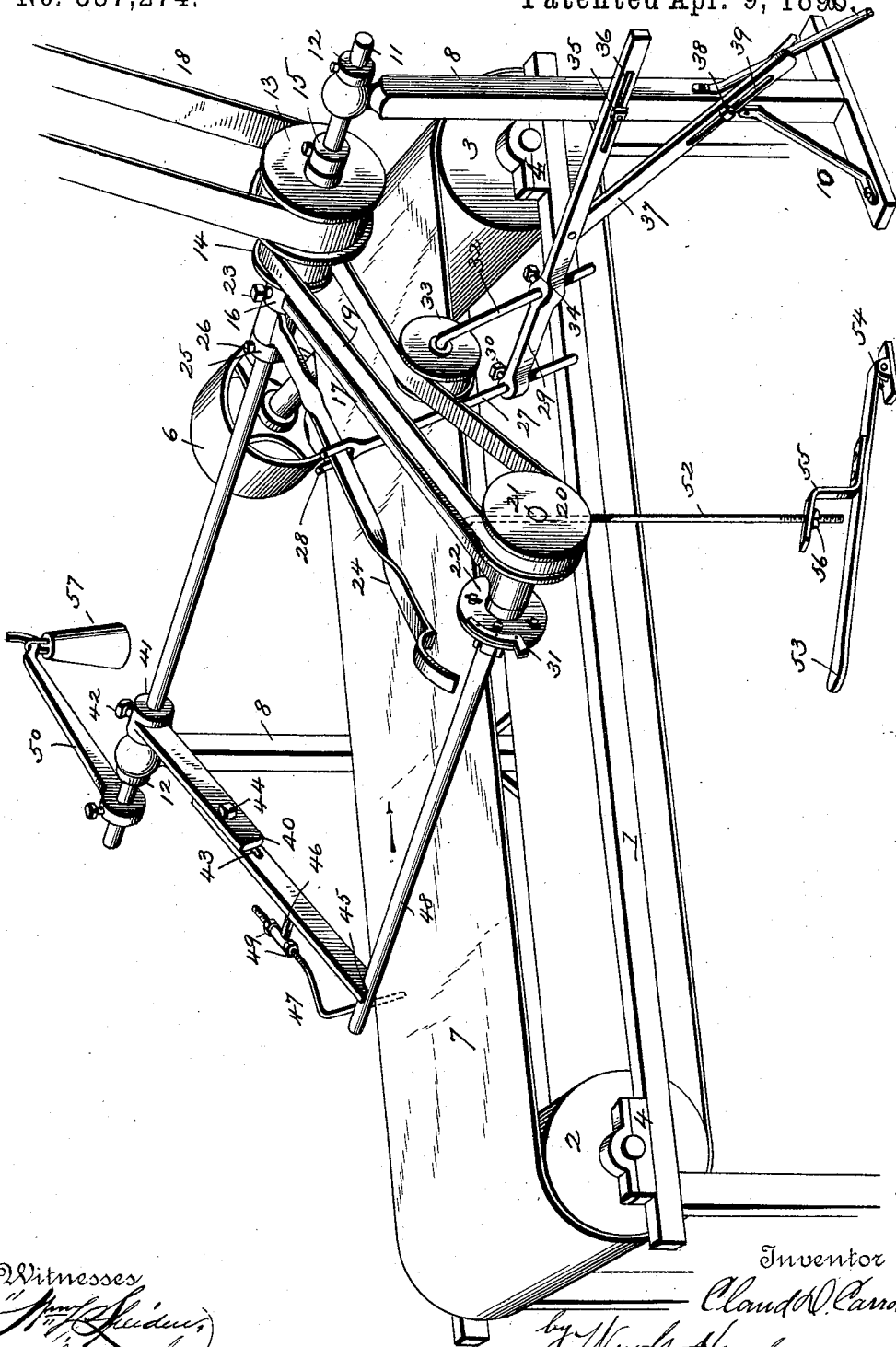


(No Model.)

C. D. CARROLL.
SPOKE GRINDING AND POLISHING MACHINE.

No. 537,274.

Patented Apr. 9, 1895.



Witnesses
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UNITED STATES PATENT OFFICE.

CLAUD D. CARROLL, OF AVOCA, NEW YORK.

SPOKE GRINDING AND POLISHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 537,274, dated April 9, 1895.

Application filed July 20, 1894. Serial No. 518,104. (No model.)

To all whom it may concern:

Be it known that I, CLAUD D. CARROLL, a citizen of the United States, residing at Avoca, in the county of Steuben and State of New York, have invented certain new and useful Improvements in Spoke Grinding and Polishing Machines; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawing, and to the figures of reference marked thereon, which forms a part of of this specification.

My invention relates to machines for grinding and polishing spokes, and it has for its object to provide a machine in which the operation of grinding and polishing is expeditiously and efficiently performed, and the operation of which is completely within the will or under the control of the operator.

It has further for its object to provide a machine in which is contained the smallest number of parts consistent with efficiency, and also to provide for the adjustment of the parts to accommodate them to the condition of the particular work to be performed.

To the accomplishment of the foregoing and such other objects as may hereinafter appear, the invention consists in the construction, and in the combination of parts hereinafter particularly described and then sought to be specifically defined by the claims, reference being had to the accompanying drawing forming a part hereof, and which represents in perspective the essential parts of a machine embodying the features of my invention.

In the drawing the numeral 1 designates a frame of any suitable construction supporting at opposite ends thereof the rolls 2 and 3 whose axles or shafts are journaled in suitable boxes 4 secured to the frame, and to the extended shaft 5 of one of the rolls is secured the band pulley 6 through which motion is transmitted to the rolls 2 and 3 and to the endless belt or apron 7 which passes around said pulleys and which is formed with an abrading surface of suitable material which will serve to impart the desired finish to the spoke to be acted on by it.

The numerals 8 designate suitable uprights

or standards which may be braced by rods 9 and 10, which standards support a horizontal shaft 11 which is free to turn in its bearings in said uprights and which may be held against longitudinal movement by the collars 12, which also admit of longitudinal adjustment of the shaft 11. The shaft 11 has mounted upon it so as to turn freely thereon a double flange pulley 13, 14 which may be held against longitudinal movement in one direction by a set collar 15 and in the other direction by a set collar 16 which may constitute the hub of an arm 17 to be more fully described hereinafter. The portion 13 of the double pulley is designed to receive the driving belt 18, and the portion 14 of said pulley is designed to receive the transmitting power belt 19 which also passes around a pulley mounted upon the shaft 21 which carries at its other end a chuck 22, said shaft 21 being journaled in the free end of the arm 17, the other end of said arm being secured to the shaft 11 so as to be moved therewith by means of a set screw 23 which passes through the hub, or its collar, 16 of the arm and engages the shaft 11. The shaft 11 has also mounted freely upon it a stop-arm 24 which is prevented from moving longitudinally upon the shaft by a collar and set screw 26, said stop-arm being supported by a rod 27 in the fork 28 of which the arm rests, said rod being sustained by an arm 29 in which the rod is readily adjustable by a set screw 30 so that by raising and lowering the rod 27 the stop-arm 24 can be elevated or depressed proportionately to the throw or adjusted position of the arm 17 which carries the spoke chuck 22, so as to maintain such relation between the spoke chuck and the stop-arm 24 that when the spoke chuck is thrown upward into its non-operative position, a catch 31 attached to the chuck will come in contact with the end of the stop-arm and have its rotation stopped so as to permit the removal of the spoke and the insertion of another spoke in its place. This also insures the stopping of the chuck in the same position every time that its catch comes in contact with the stop-arm. It is preferred to have the end of the stop-arm next to the chuck curve or arched as shown. The arm 29 also sustains a rod 32 which carries at its upper end a flanged pulley or sheave 33 which bears

against the under side of the power transmitting belt 19 and serves as a belt tightener so that when the arm 17 carrying the chuck 22 and pulley 20 is lowered, the belt 19 is drawn against the tightening pulley 33 thereby causing the latter to take up the slack in the belt thus causing the belt to turn the pulley 20 and revolve the chuck 22 and rotate the spoke against the abrasive belt or apron 7. When the arm 17 is elevated, the tension of the belt 19 on the pulley 33 is reduced and the belt caused to slacken to an extent that it will fail to revolve the pulley 20.

The rod 32 which carries the belt tightening pulley 33 is vertically adjustable in the arm 29 by means of a set screw 34 so that the pressure of the roller against the power transmitting belt may be varied. The arm 29 is supported from one of the standards 8 and is secured to that standard by a bolt 35 passing through a slot 36 in the arm so as to permit the arm to be adjusted laterally thus bringing the rods 27 and 32 into proper relation with the belt 19 and stop-arm 24. The arm 29 is braced by a diagonally extending arm 37 which is attached at one end to the arm 29 and is connected to the upright 8 by a bolt 38 passing through a slot 39 in the arm 37 which allows the latter to be adjusted correspondingly to the arm 29.

The shaft 11 carries an arm which serves to hold the outer end of the spoke against the abrasive belt or apron 7. This arm is designated by the numeral 40, and is preferably formed in two parts, one part having a hub 41 through which the shaft 11 passes and provided with a set screw 42 for the purpose of securing the arm to the shaft. The other part or member of the arm is formed with slot 43 through which a bolt 44 passes and secures it to the other part or member of the arm. By forming one part with the slot 43, the arm can be lengthened and shortened so as to accommodate it to the position of the spoke upon the abrasive apron or belt. The outer end of this arm is formed with a notch 45 in which the outer portion of the spoke will lie and which enables the arm to hold the spoke to the apron or belt. The arm is provided with a bracket 46 which supports a guard 47 formed substantially as shown and lying outside of the belt 7 and extending below the end of arm 40 and adapted to bear against the inner side of the spoke 48 so as to prevent the spoke from passing inward from beneath the outer end of the arm. This guard will also serve to guide the outer end of the spoke into position against the notched end of the arm 40. It is preferred to form the shank portion of this guide with threads so as to screw into the bracket 46 as illustrated, and to provide nuts 49 to the threaded portion of the shank and against opposite sides of the bracket 46 so as to hold the guide in the position to which it may be adjusted.

A lever 50 is secured to the shaft 11 and projects to the rear thereof and is designed to

receive a counter balancing weight 51, or its equivalent, so that when the downward pressure on the chuck arm 17 which holds the spoke against the abrasive apron is released, the counter balancing weight will turn the shaft 11 so as to elevate the chuck arm 17, transmitting power belt 19, and the spoke holding arm 40, thus carrying the spoke from contact with the abrasive apron or belt 7.

Suitable means is provided for lowering the chuck arm 17, the power transmitting belt 19, and the spoke holding arm 45 so as to bring the spoke into contact with the abrasive apron or belt 7. Suitable means for this purpose may consist of a rod 52 connected at one end to the chuck arm 17 and at the other end to an operating lever, for instance to a foot or pedal lever 53 fulcrumed at 54 and having a bracket or arm 55 through which the lower end of the rod 52 may pass and have a screw nut 56 applied to its threaded portion beneath the bracket or arm 55 so that by adjusting that nut the point of connection may be adjusted and the throw of the rod 52 thus regulated.

In operation, one end of the spoke is placed between the jaws of the chuck and the other end against the notched end of the spoke holding arm 40. The foot treadle 53 is then depressed which lowers the chuck arm 17 and at the same time carries down the spoke holding arm 40 so as to bring the spoke against the surface of the abrasive belt or apron 7, the power transmitting belt 19 being at the same time pressed against the tightener pulley 33 so as to make the power transmitting belt taut, whereupon the shaft which carries the chuck is rotated thus causing the spoke to be revolved in contact with the surface of the abrasive belt which is at the same time in motion, which rotation of the spoke continues until the same has received the desired finish. The pressure on the foot pedal or lever 53 is then released whereupon the counter balancing weight 51 turns the shaft 11 so as to elevate the spoke holding arm 40 and the chuck arm 17, at the same time slackening the power transmitting belt so that the power is cut off from the chuck. As the chuck arm and other parts mentioned are elevated, the catch 31 on the chuck is brought into contact with the end of the stop-arm 24 which checks or stops the vibration of the chuck and enables the spoke to be removed and another inserted in its place, and the operation described is then repeated so long as the machine is in operation.

I have described with particularity what I consider to be the preferred construction and arrangement of the several parts but it is obvious that alterations may be made in such details without departing from the essential features of the machine.

Having described my invention and set forth its merits, what I claim is—

1. In a spoke grinding and polishing machine, the combination of the main rotatable shaft, the chuck arm secured to said shaft to

move therewith and carrying at its opposite end a chuck for one end of the spoke and a pulley, a loose pulley mounted on the main rotatable shaft, the power transmitting belt connecting said loose pulley and the pulley at the opposite end of the chuck arm, the belt tightener pulley supported beneath the belt, the spoke holding arm connected at one end to the main rotatable shaft, means for depressing the spoke holding arm and the chuck arm to hold the spoke against the abrasive belt and to press the power transmitting belt against the pulley to take up slack in the belt and cause it to transmit power to the spoke chuck, and means for elevating the spoke holding arm and the chuck arm to move the spoke from the abrasive belt and for lifting the power transmitting belt to create slack therein, substantially as and for the purposes described.

2. In a spoke grinding and polishing machine, the combination of the main rotatable shaft, the spoke holding arm and the chuck arm secured to said shaft to move therewith, the chuck supported at the free end of the chuck arm and provided with a catch, and the stop-arm having one end connected freely with the main rotatable shaft and the other end in position to be engaged by the catch of the chuck when the chuck is elevated, substantially as and for the purposes described.

3. In a spoke grinding and polishing machine, the combination with the adjustable spoke holding arm, of the guard 47 adjustable with said arm attached thereto to one side of the abrading belt and extending below said arm and arranged to engage the spoke and prevent it from passing from the end of the spoke holding arm, substantially as and for the purposes described.

4. In a spoke grinding and polishing machine, the combination with the spoke holding arm, of the guard 47 adjustable lengthwise of the arm and secured at one side of the arm and arranged to engage the spoke and prevent it passing from the end of said arm, substantially as and for the purposes described.

5. In a spoke grinding and polishing machine, the combination of the chuck arm supporting at one end the spoke chuck and the pulley connected with the chuck, the loose pulley, the power transmitting belt connecting

said loose pulley and the pulley supported at the free end of the chuck arm, a belt tightener pulley arranged to engage with the power transmitting belt, and means for depressing the free end of the chuck arm to lower the spoke chuck and to press the power transmitting belt against the belt tightener pulley to tighten the belt, substantially as and for the purposes described.

6. In a spoke grinding and polishing machine, the combination of the chuck arm carrying at the free end the spoke chuck and the pulley connected therewith, the loose pulley, the power transmitting belt connecting said loose pulley and the pulley at the free end of the chuck arm, the stop-arm having one end arranged to be engaged by a portion of the chuck pulley when the latter is raised, and the arm carrying a rod to support the stop-arm and a rod provided with a belt tightener pulley to render the power transmitting belt operative when the spoke chuck is lowered and non operative when said chuck is elevated, substantially as and for the purposes described.

7. In a spoke grinding and polishing machine, the combination of the main rotatable shaft, the chuck arm connected at one end thereto and carrying at its opposite end a spoke chuck and the pulley connected therewith, the driving and loose pulley mounted on the main rotatable shaft, the power transmitting belt connecting the loose pulley and the pulley carried at the free end of the chuck arm, the spoke holding arm connected to the main rotating shaft to move therewith, the stop-arm having a free connection with the main rotating shaft and its opposite end in position to have a portion of the spoke chuck engage therewith when elevated, the arm carrying a rod to support the stop arm and a rod supporting a belt tightener pulley, means for depressing the free ends of the spoke holding arm, chuck arm and power transmitting belt, and means for elevating said parts when the machine is to be thrown out of operation, substantially as and for the purposes described.

In testimony whereof I affix my signature in presence of two witnesses.

CLAUD D. CARROLL.

Witnesses:

E. C. ARMSTRONG,
H. R. STEVER.