(No Model.) 2 Sheets—Sheet 1.

W. P. BARCLAY.

CAR WHEEL BORING AND TRUING MACHINE.

No. 271,680. Patented Feb. 6, 1883.

Fig. 1

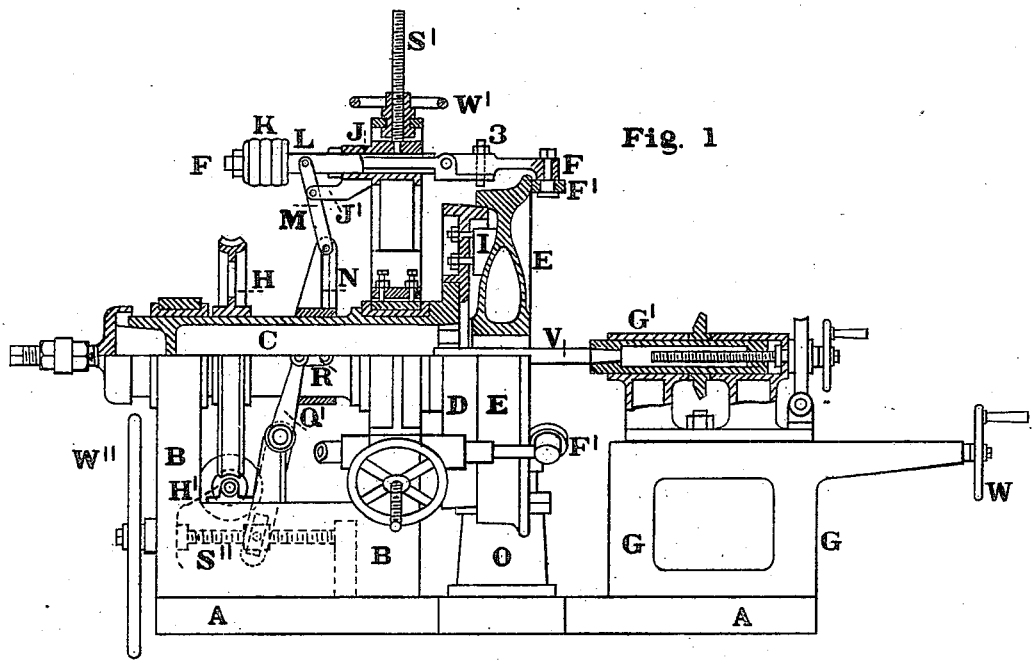
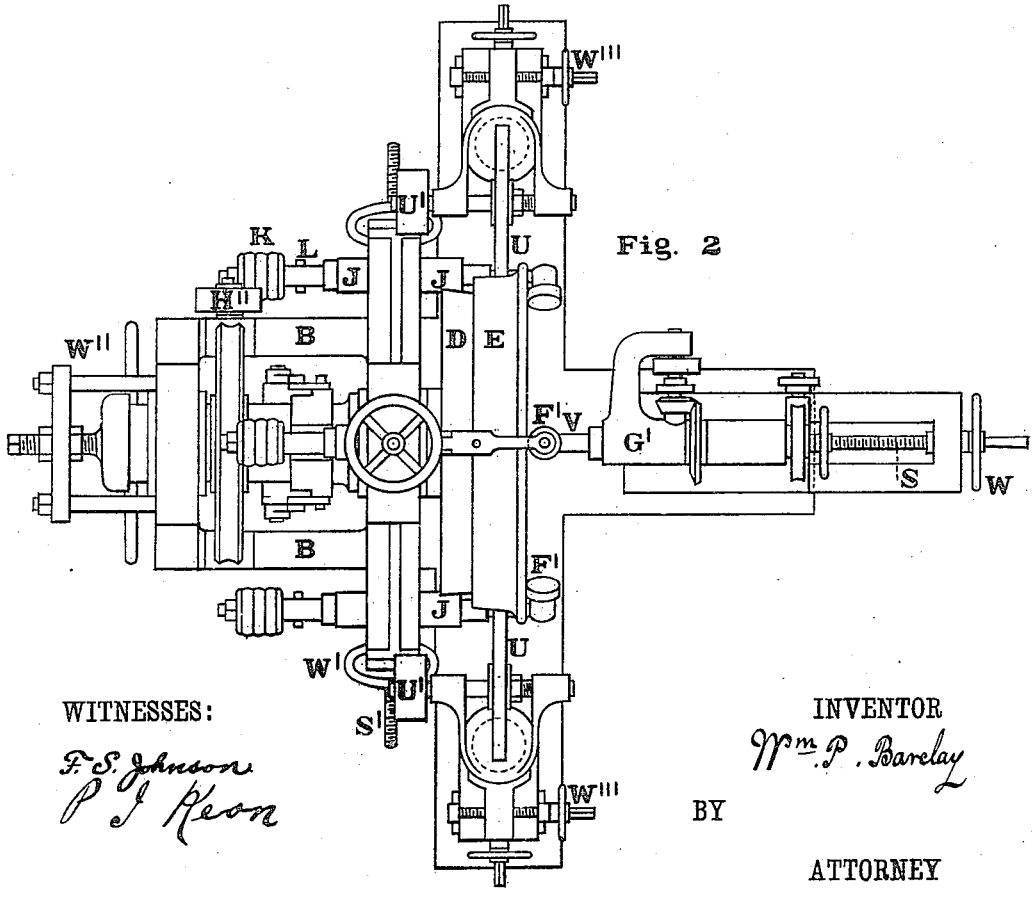


Fig. 2



WITNESSES:

F. S. Johnson

P. J. Keon

INVENTOR

Wm. P. Barclay

BY

ATTORNEY

(No Model.) 2 Sheets—Sheet 2.

W. P. BARCLAY.

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Fig. 3

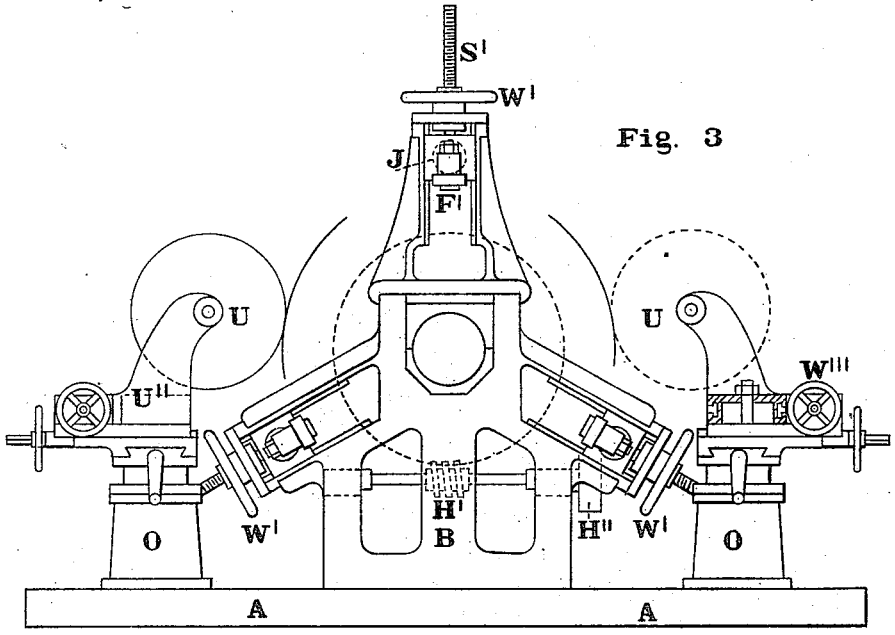
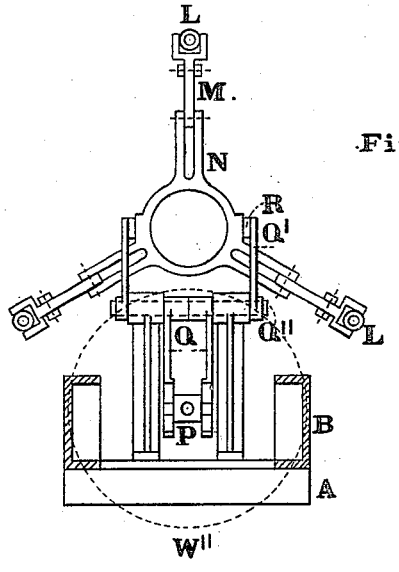


Fig. 4



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INVENTOR

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BY

ATTORNEY

UNITED STATES PATENT OFFICE.

WILLIAM P. BARCLAY, OF CHICAGO, ILLINOIS.

CAR-WHEEL BORING AND TRUING MACHINE.

SPECIFICATION forming part of Letters Patent No. 271,680, dated February 6, 1883.

Application filed August 24, 1882. (No model.)

To all whom it may concern:

Be it known that I, WM. P. BARCLAY, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and Improved Car-Wheel Boring and Truing Machine, of which the following is a specification.

My invention relates to machines for boring and truing the tread and flange of car-wheels; and my improvements are as described and claimed in the following specification.

Similar letters of reference indicate corresponding parts throughout the several views.

In Figure 1 there is represented a side elevation of my improved car-wheel boring and truing machine, the drawing being partly sectional. Fig. 2 shows a plan view of the machine. Fig. 3 is a front elevation of the driving head-stock, and Fig. 4 shows a detail part of the machine.

The bed-plate A is of a form to support the driving and boring head-stocks, and the pedestals for slide-rests that the abrading-wheels are connected with.

The driving head-stock B is furnished with a spindle, C, and to the said spindle is attached a face-plate, D. The car-wheel E is shown in position on the face-plate D. The face-plate has a projecting flange that is adapted to the size and shape of the car-wheel, and when the car-wheel is brought close up to the projecting flange of face-plate D the inside periphery of the rim of car-wheel fits close onto the said projecting flange of face-plate and brings the center of car-wheel concentrically with the center of face-plate. The car-wheel E is held onto the projecting flange of face-plate by a number of bolts, F, specially devised for the purpose, as hereinafter explained.

The pedestal G is firmly secured to the bed-plate A, and the boring-head G′ is so constructed that it can be shifted along the upper face of the pedestal G by the screw S, operated by the hand-wheel W.

The spindle C, face-plate D, and car-wheel E are made to revolve by the action of a screw acting upon the teeth of screw-wheel H. The screw H′, that gives motion to the screw-wheel H, has its motion communicated to it by the belt-pulley H″, that is connected to one end of the spindle of screw H′.

The driving head-stock B has three radial projecting arms. Each arm is furnished with a slide-block, J, and the slide-blocks can be changed in their positions to accommodate the various sizes of car-wheels. The hand-wheel W′ and attached screw S′ are for the purpose of changing the position of the slide-blocks J to any desired point required, so as to suit the car-wheel that is to be bored.

Passing through each of the slide-blocks J is a bolt, F, composed of several parts. The upper bolt F only requires to have a joint, and at the extreme ends of that part of the bolts that spans over the tread of car-wheel there are pivoted small rollers F′, which are forcibly drawn close to the face of the flange of car-wheel, and thus hold the car-wheel firmly onto the projecting flange of face-plate. The opposite ends of these bolts have nuts and washers, and between the washers are rubber cushions K, which act as a spring and ease the tension that would otherwise be put upon the bolts F by the roughness of the flange of car-wheel that comes in contact with the small rollers F′, pivoted from the ends of the bolts F, that reach over the tread of the car-wheel. Each bolt F passes through a tube, L, one end of the said tubes bearing against the inner washers that confine the cushions K. The opposite ends of the tubes bear against a shoulder formed upon the bolt F. The tubes L have each two small journals which secure one end of the levers M to the tubes. The levers M are pivoted to the brackets J′, formed upon the slide-blocks J, the central ends of said levers are connected to the arms N of the union cross-head. The hand-wheel W″, when turned around, turns also the screw S″, to which it is attached. As the screw S″ is turned around it compels the small cross-head P to move along, and the said cross-head being connected with the levers Q, the levers Q transmit their motion to the levers Q′. The said levers, all being connected to the one rock-shaft Q″, will necessarily make similar movements. The upper ends of the two levers Q′ are connected by short links R with the union cross-head N. A connection, as described, being produced by the intervening mechanism between the hand-wheel W″ and the bolts F, whatever force of motion is exerted upon the hand-wheel

W″ is also exerted upon the bolts F, and the bolts F are specially contrived to hold the car-wheel E onto the projecting flange of face-plate, the small rollers F′ at one end of the bolts F permitting the car-wheel to revolve slowly around, the cushions K at the opposite ends of bolts F yielding immediately to any extra tension produced by the roughness of that portion of the flange of car-wheel that the rollers F′ are made to roll over.

The tubes L are supported by the slide-blocks J, and are also free to move through the slide-blocks when motion is communicated to the said tubes by the levers M connected thereto. The tubes L, when moved horizontally, exert a force of pressure against the face of the inner washers that confine the cushions K equal in amount to the force of motion communicated by the movement of the hand-wheel W″, and this applied force, being also transmitted through the cushions K to the bolts F, is the means of keeping the car-wheel E rigidly to the projecting flange of face-plate, the small rollers F′ permitting the car-wheel to revolve slowly around with the face-plate, so that the hub can be bored out by the boring-head, and the periphery of car-wheel trued by the abrading-wheels.

The abrading-wheels U are arranged to act upon the tread and flange of car-wheel, and are supported by the standards U″, which are secured to the upper slide of the duplex slide-rests. These rests are of the ordinary lathe pattern, and allow the abrading-wheels U to be gradually moved back and forth in any direction, whereby the entire surface of the tread and flange of the car-wheel can be made to any desired size and shape. The abrading-wheels U also can be placed at any angle with the car-wheel or rests by turning around the hand-wheel W‴, which will cause the standards U″, that support the abrading-wheels, to turn around conformably to the movement of the said hand-wheel. The pedestals O support the slide-rests for abrading-wheels. A high motion of rotation is given to the abrading-wheels U by the belt-pulleys U′, that are attached to one end of the abrading-wheel spindles.

To the spindle V of boring-head G′ is attached the instrument or cutting-tool used by the workmen, and as the spindle V revolves it gradually moves forward at the same time and bores out the hub of car-wheel to the correct size for car-wheel axle. The small bolt 3, belonging to the bolt F, when unloosened, liberates that part of the bolt that spans the tread of car-wheel, so that it can be swung up out of the way. The object of the bolt F having a joint is to allow the car-wheel to be handily removed from the face-plate or placed in position on same. The driving-dog I completes the circle of the face-plate, and is a ring of iron faced with rubber. The entire dog can be set out by set-screws. The said rubber ring is pressed tight to the web of car-wheel, and acts as a frictional driver or dog to the car-wheel, so that the car-wheel could not change its original position by sliding around on the projecting flange of face-plate when the machine is under operation.

The mode of operation of this improved machine is as follows: The bolts F and the small rollers attached to them are first moved out from the face-plate by turning around the large hand-wheel W″. This gives clearance to a car-wheel, so that it can be conveniently placed up to the projecting flange of face-plate, and the part of the upper bolt F, to which the roller F′ is pivoted, is then dropped down to its horizontal position, and it is then made firm as a solid bolt by tightening up the small T-headed bolt 3. After the completion of the said operations the hand-wheel W″ is then given a reverse motion, and all of the bolts F made to draw the car-wheel E firmly onto the projecting flange of face-plate. The car-wheel is now ready to be operated upon by the abrading-wheels U, which take off all irregularities from the tread and flange of car-wheel and reduce the same to a perfectly cylindrical form. At the same time the boring-head G′ is also brought into action and the hub of car-wheel is bored out to the desired size and exactly concentric with the tread of car-wheel.

Having thus described my invention, what I claim as new and original, and desire to secure by Letters Patent, is as follows:

1. The driving head-stock B, having divergent arms, to which are adjusted the slide-blocks J, operated by a screw, S′, and hand-wheel W′, substantially as shown and described.

2. The bolts F, with rollers F′, pivoted to one end, and rubber cushions K, attached at the opposite ends of said bolts, the upper bolt F having a joint and attendant T-bolt, 3, in combination with the slide-blocks J, substantially as described and set forth.

3. The hand-wheel W″, screw S″, cross-head P, levers Q and Q′, and rock-shaft Q″, in combination with the union cross-head N, links R, and levers M, particularly arranged to an end, as shown and described.

WILLIAM PARIS BARCLAY.

Witnesses:
J. E. DUNN,
E. C. ANGUERA.