

(No Model.)

2 Sheets—Sheet 1.

W. P. BARCLAY.

CHILLED CAR WHEEL BORING AND TRUING MACHINE.

No. 283,367.

Patented Aug. 21, 1883.

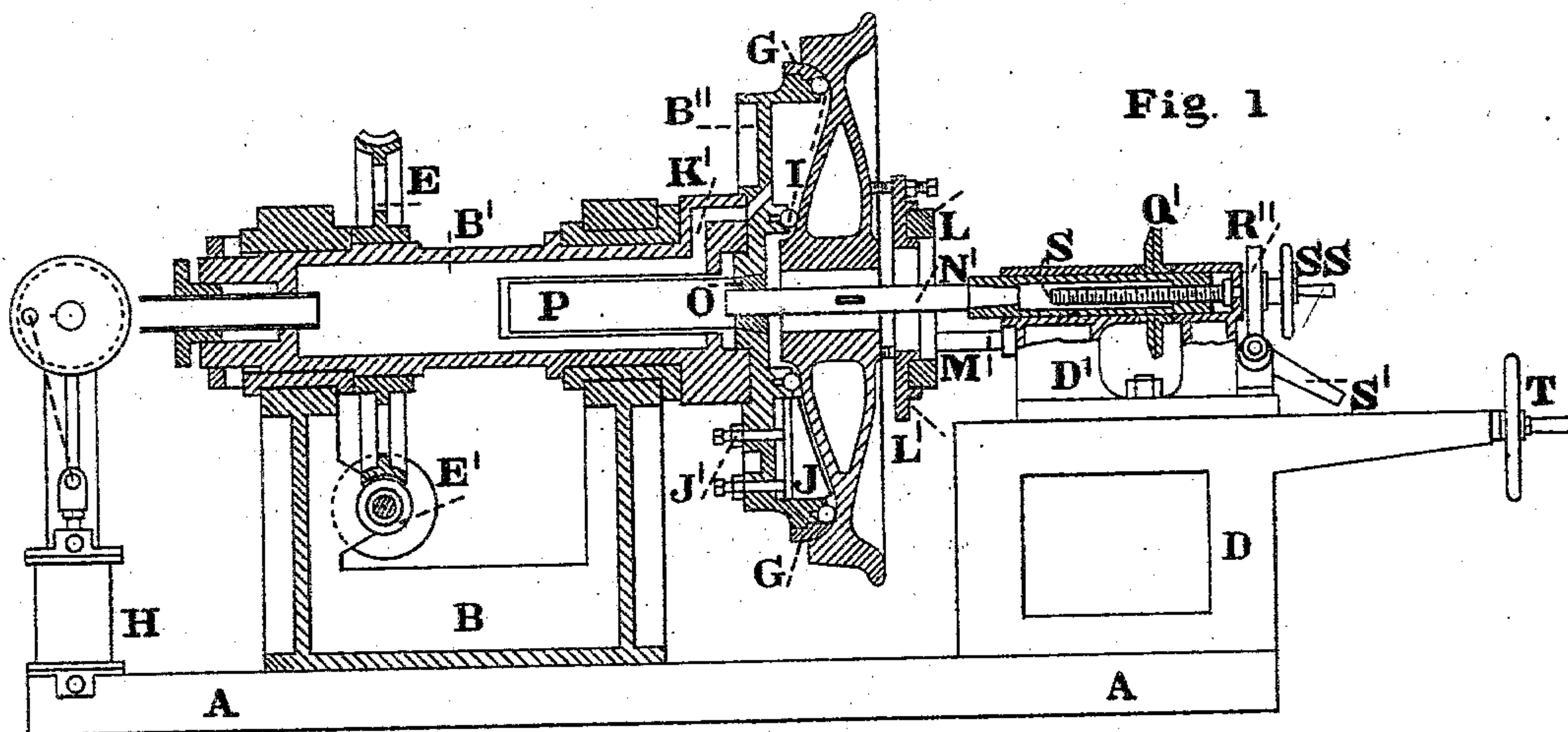


Fig. 1

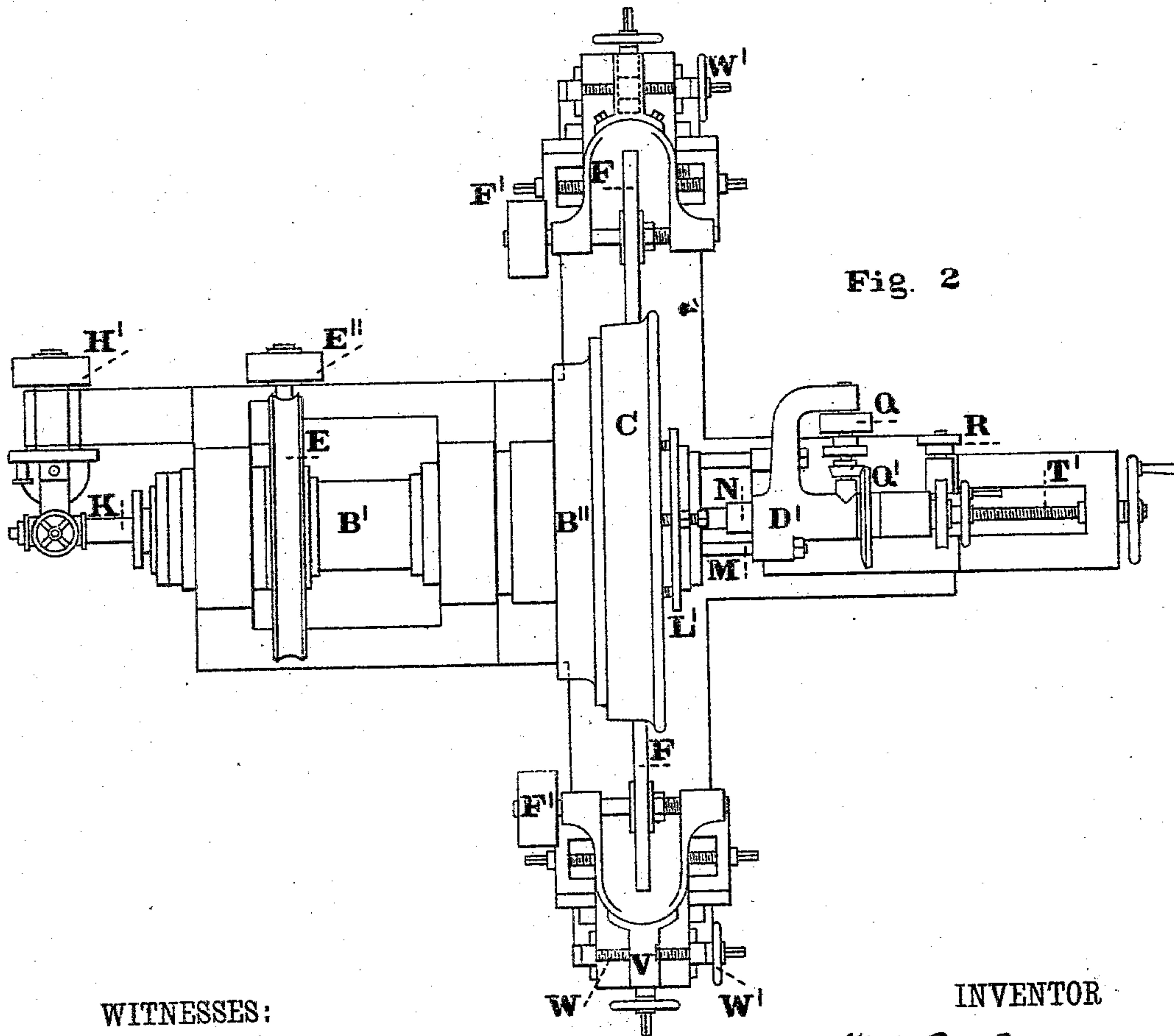


Fig. 2

WITNESSES:

*F S Johnson*  
*Harry Mac Namara*

INVENTOR

*Wm. P. Barclay*

BY

ATTORNEY

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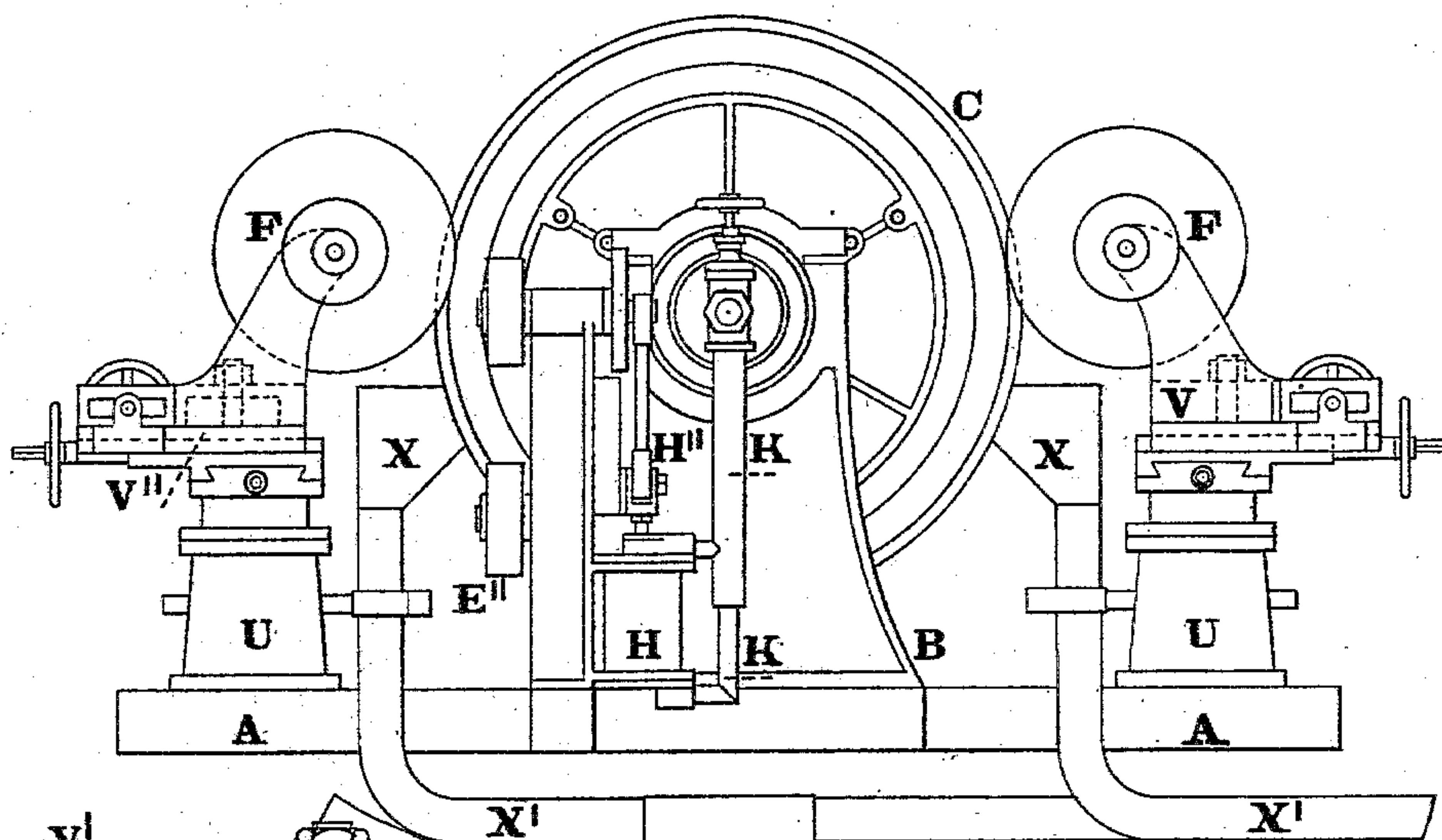


Fig. 3

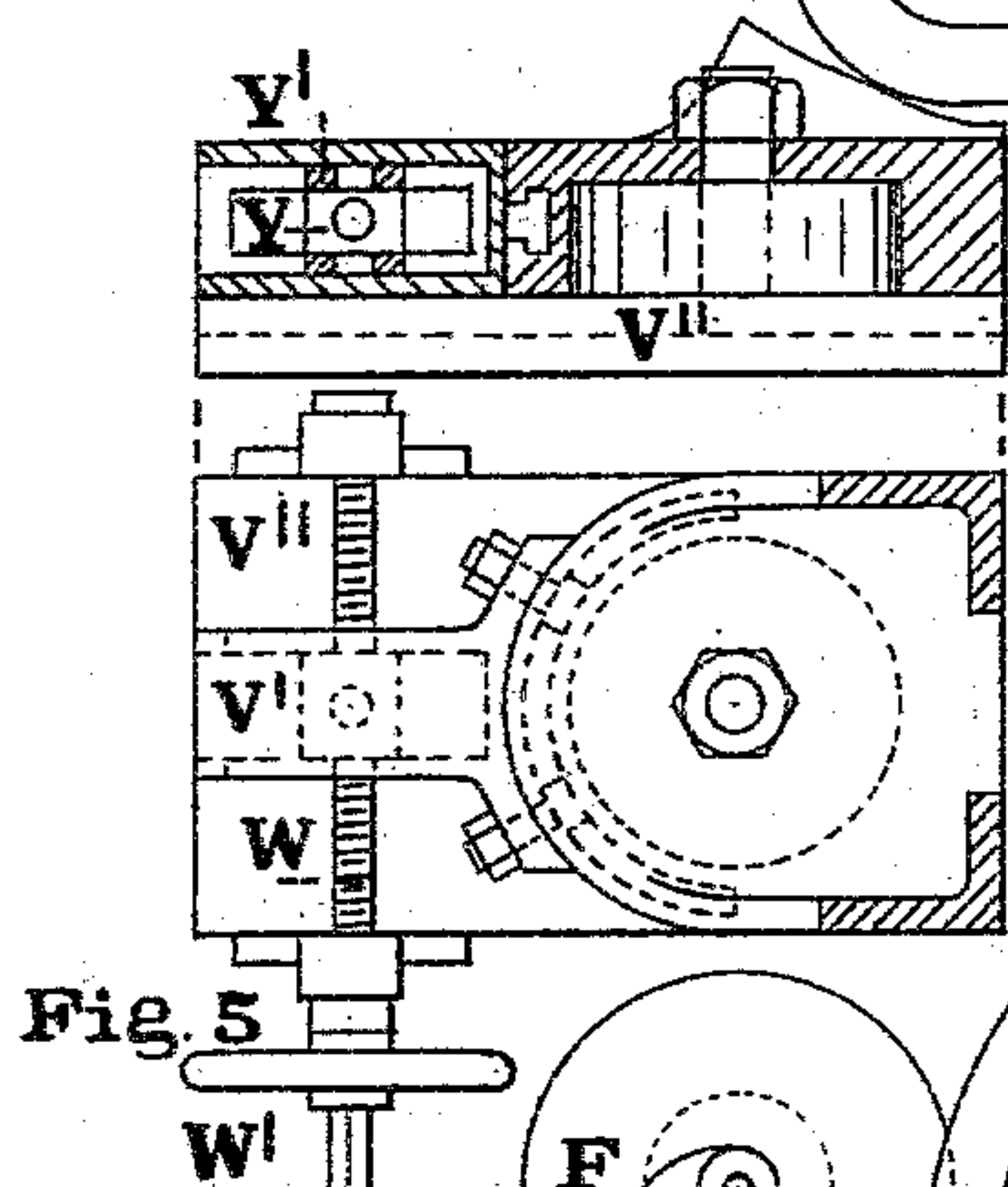


Fig. 5

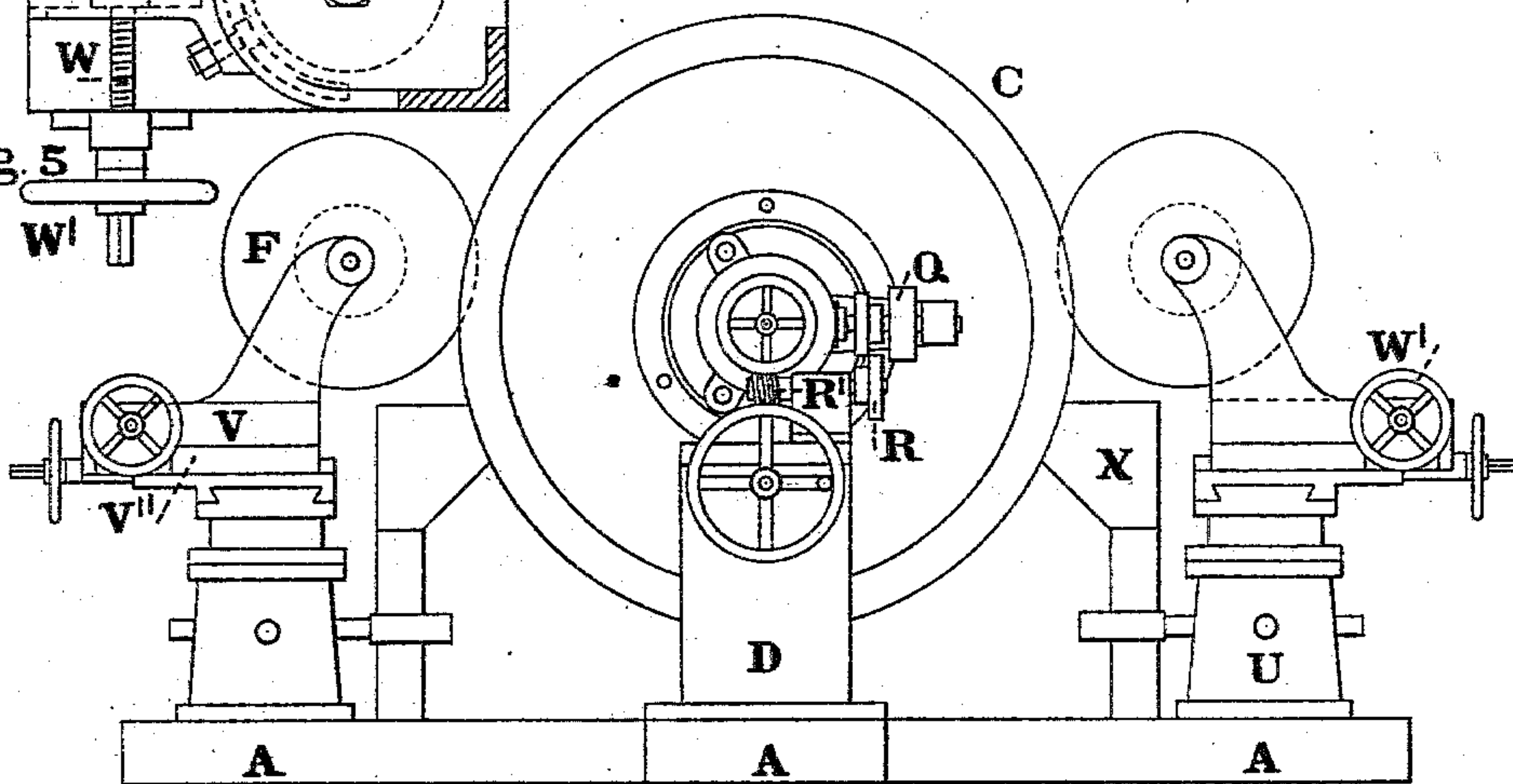


Fig. 4

WITNESSES:

*F. S. Johnson*  
*Harry Mac Namara*

INVENTOR

*Wm. P. Barclay*

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# UNITED STATES PATENT OFFICE.

WILLIAM PARIS BARCLAY, OF CHICAGO, ILLINOIS.

## CHILLED-CAR-WHEEL BORING AND TRUING MACHINE.

SPECIFICATION forming part of Letters Patent No. 283,367, dated August 21, 1883.

Application filed July 12, 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 Chilled-Car-Wheel Boring and Truing Machine, of which the following is a full, clear, and accurate description.

My invention relates to machines for boring and truing the periphery of chilled car-wheels at one and the same time; and my improvements consist in providing apparatus whereby the chilled car-wheels can be bored by the boring-tool and trued on the periphery by the abrading-wheels with the greatest degree of speed and convenience, as more fully described in the annexed specification.

Similar letters of reference indicate corresponding parts throughout the entire figures.

A longitudinal sectional elevation of my improved machine is shown at Figure 1, and a plan view of the same is shown at Fig. 2. Fig. 3 is an end elevation of the machine, looking from the left-hand side of Fig. 1, and Fig. 4 is also an end elevation of Fig. 1, looking from the right-hand side of same. Fig. 5 presents detail views of the base of double standard V and tail-piece V', with the screw, nut, and slide-blocks pertaining thereto.

The bed-plate A is in the form of a cross, and supports the superstructure of the entire machine. The driving head-stock B has a spindle, B', from one end of which a face-plate, B'', is secured. The said face-plate supports the car-wheel C and carries the car-wheel around with it in its revolutions. The pedestal D supports the boring-head D', that is used for boring out the center of car-wheel to the necessary size to conform to the dimension of a car-wheel axle. To the hollow spindle B' is also attached a screw-wheel, E. The hollow spindle B', face-plate B'', and screw-wheel E are given a slow revolving motion by the action of the screw E', acting upon the teeth of screw-wheel E. The belt-pulley E'' gives the required motion to the spindle or shaft of screw E'. The abrading-wheels F are given a rapid revolving motion through the instrumentality of the belt-pulleys F'. The face-plate B'' has a cone, G, that is made to corre-

spond to the inside conical shape of the rim of car-wheel. The two circular rings of rubber I are placed concentrically with each other and press close to the web of car-wheel. The face-plate has a block, J, that is covered with rubber on the face next to the web of car-wheel, and the said block is set up as required by the set-screws J'. The block J can be formed the entire circle of face-plate or merely put in in sections. The block J, having a pliable material on its face next to the web of car-wheel, acts as a driving-dog to the face-plate, and the car-wheel is thus carried around with the face-plate in its revolutions.

The vacuum-cylinder H has a piston and piston-rod and inlet and outlet air-valves at each end of cylinder. The piston of cylinder H is given a reciprocating motion by the action of the belt-pulley H' and connecting-rod H''. A pipe, K, connects each end of vacuum-cylinder H to the hollow spindle B' of driving head-stock B. The core of spindle B' also connects by one or more ports, K', with the face-plate B''.

The safety-disk L supports the ring L', and the ring L' is furnished with a number of set-screws, that are made to press against the web of car-wheel, the ring L' revolving along with the car-wheel as it turns around. The disk L is stationary, and is supported off the boring-head D' by three studs, M, which are secured to bosses cast on the boring-head D' for that purpose.

The boring-head D' has a spindle, N, the spindle N having a boring-rod, N', that is supported at the inner end by the bush O. The pipe P has its inner end closed, and both ends of said pipe are air-tight, so that no air will be admitted to the core of spindle B' by the joints of said pipe. The spindle N of boring-head D' is given a quick revolving motion by the action of the belt-pulleys Q and bevel-gearing Q'. The spindle N is made to move forward, when revolving, by the small belt-pulleys R, giving motion to a screw, R', and screw-wheel R'', that is placed upon the feed-screw spindle S, that passes through the back end of boring-head D', and enters the back end of spindle N, which has a nut or thread cut for a short distance, so that as the spindle N and the feed-screw spindle S revolve at different



velocities the spindle N and boring-rod N' will be taken gradually forward as the said spindles are revolving.

The handle S' is for the purpose of placing the screw R' in gear with the screw-wheel R'', or out of gear, as occasion requires. When the said screw and screw-wheel are out of gear with each other, the spindle N can be run back or forward by turning around the hand-wheel S S.

The hand-wheel T is connected with the screw T', and as the hand-wheel T is turned around, the entire boring-head D' is moved back or forward, according to the movement of the said hand-wheel.

The columns U support the slide-rests, which permit the abrading-wheels F to be moved in parallel directions with the slides of said rests. The top slide of each rest has a double standard, V, that revolves around a boss cast upon the slide-plate V'' of top slide, and the abrading-wheels F are supported by the double standards V, the spindles of the abrading-wheels working in the journal-boxes of said standards. Each double standard V is also furnished with a tail-piece, V', that is connected to the circular side of double standard by two T-headed bolts working in a groove formed upon the circular side of said standard.

The tail-pieces V' are each furnished with a nut, Y, through which work the screws W. The nut Y has projecting from opposite sides bosses or journals, around which turn the slide-blocks Y'. The slide-blocks Y' can only move in the direction of the length of the tail-pieces V', as they are confined by the grooves formed upon the upper and lower faces of said tail-pieces. The tail-pieces V' also have an oblong hole on the sides for clearance for the screws W. When the hand-wheel W' is turned around, it turns the screw W and moves the nut Y along on the screw. As the nut Y is moved it compels the tail-piece V' to move in the same direction, for the slide-blocks Y' are pivoted from the nuts Y, and are also confined by the grooves on the upper and lower faces of the tail-pieces V'. The grooves in the tail-pieces allow of the slide-blocks Y' to move back and forth in the direction of the length of tail-pieces, and the bosses of nuts Y allow the slide-blocks Y' to turn to any angle that the tail-piece is placed at by the changing of the position of the nut Y on the screw W. As the hand-wheel W' is turned around it is the means of changing the position of tail-piece V', and through the tail-piece the double bracket V is made to revolve around the boss cast upon the slide-plate V'', and to which it is secured by a bolt and nut. The bolts that secure the tail-pieces V' to the double standards merely allow of the range to be increased that the said standards can be turned around to without requiring to make the tail-pieces V' and screws W unnecessarily long or inconvenient.

The hoppers X convey the refuse that is produced by the abrading-wheels acting upon the periphery of car-wheels to the pipes X', which are connected to any suitable mechanism used for conveying refuse to any desirable place.

Having described in detail the different parts of my improved chilled-car-wheel boring and truing machine, the principle and action are as subsequently described.

A car-wheel, when placed in position on the face-plate of machine, is supported by the cone G, fitting into the conical-shaped part of the rim of car-wheel, and the circular rings of rubber I, bearing upon the web of the car-wheel, separate the air confined between the said rubber rings, car-wheel, and face-plate from the outside air, for the car-wheel, when placed close up to the cone G, also compresses the said rubber rings I to an oblong shape, and the valve of pipe K, that connects with the vacuum-cylinder H, now being opened, the piston of vacuum-cylinder H pumps out the air confined by the rubber rings between the face-plate and web of car-wheel. Consequently for a considerable portion of the area of the car-wheel there is a vacuum formed between the face-plate and car-wheel, and the pressure of the atmosphere, acting upon the reverse side of car-wheel, presses against the same and holds the car-wheel onto the cone G of face-plate with a force or pressure equal to the total amount of vacuum that is acquired by the exhausting of the air from between the face-plate and car-wheel. The pressure thus exerted by the atmosphere against the car-wheel, and holding the car-wheel firmly onto the cone G of face-plate, is amply sufficient to maintain the car-wheel in position on face-plate, so as to permit the car-wheel to be operated upon by the boring-tool and abrading-wheels of the machine.

The safety-disk L and ring L' can be used in conjunction with the vacuum-cylinder H, or independent of it, so that a car-wheel can be bored out at the center by the boring-head D', and trued up on the periphery by the abrading-wheels by the use of the said disk L and ring L', holding the car-wheel firmly onto the cone G of the face-plate, for when the set-screws of ring L' are pinched up tight to car-wheel the ring L' is at the same time at liberty to revolve along with the car-wheel and face-plate. The cone G, holding the car-wheel in its proper position, and the block J having a rubber face next to the web of car-wheel, acts as a driving-dog to the face-plate and compels the car-wheel to revolve precisely along with the face-plate in its revolutions, thus allowing the truing and boring of the car-wheel to be done with speed and precision. The disk L and ring L', as used in conjunction with the vacuum-cylinder H, are more for the purpose of safety, to prevent the car-wheel falling off the cone G under any carelessness of the operator of the machine.



The following claims are intended to describe fully that which I hold as new and original and desire to secure by Letters Patent:

- 5 1. The cone G, rubber rings I, face-plate B'', and spindle B', in combination with a vacuum-cylinder, H, as herein shown and described.
2. The boring-head D', spindle N, bevel-gearing Q', screw R', and screw-wheel R'', in  
10 combination with the disk L and ring L', substantially as shown, and for the purpose specified.
3. The abrading-wheels F, with affixtures

for operating the same, as hereinbefore described, in combination with a face-plate, B'', 15 cone G, and boring-head D', substantially as shown and set forth.

4. The double standard V and tail-piece V', having a nut, Y, and slide-blocks Y', and a screw, W, with hand-wheel for operating the 20 same, substantially as herein shown and described.

WILLIAM PARIS BARCLAY.

Witnesses:

JNO. H. COWPER,  
SIMON M. COOPER.