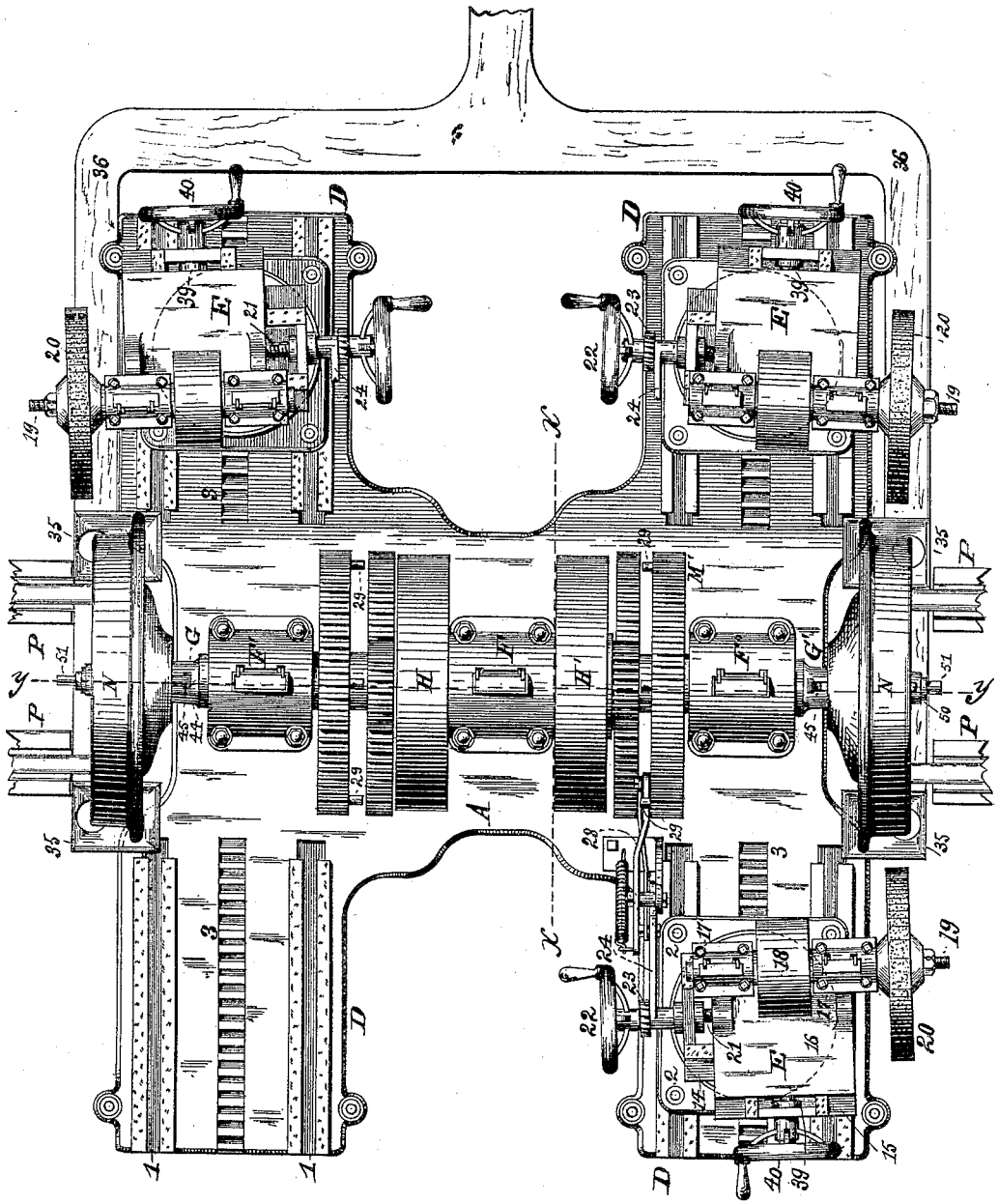
(No Model.) 4 Sheets—Sheet 1.

P. H. GRIFFIN.

CAR WHEEL GRINDER.

No. 411,244. Patented Sept. 17, 1889.

FIG. 1.



Witnesses:

Wm O Stark.

Centie S Stark.

Inventor:

P. H Griffin,

by Michael J Stark,

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N. PETERS, Photo-Lithographer, Washington, D. C.

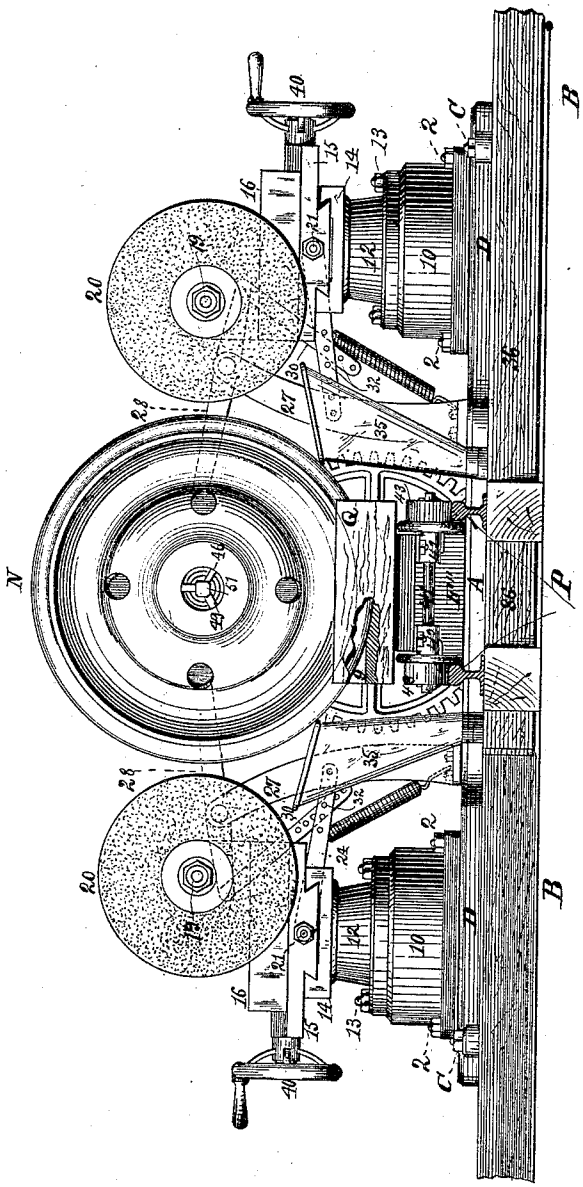
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P. H. GRIFFIN.

CAR WHEEL GRINDER.

No. 411,244. Patented Sept. 17, 1889.

FIG. 2.



Witnesses:

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(No Model.)

4 Sheets—Sheet 3.

P. H. GRIFFIN.

CAR WHEEL GRINDER.

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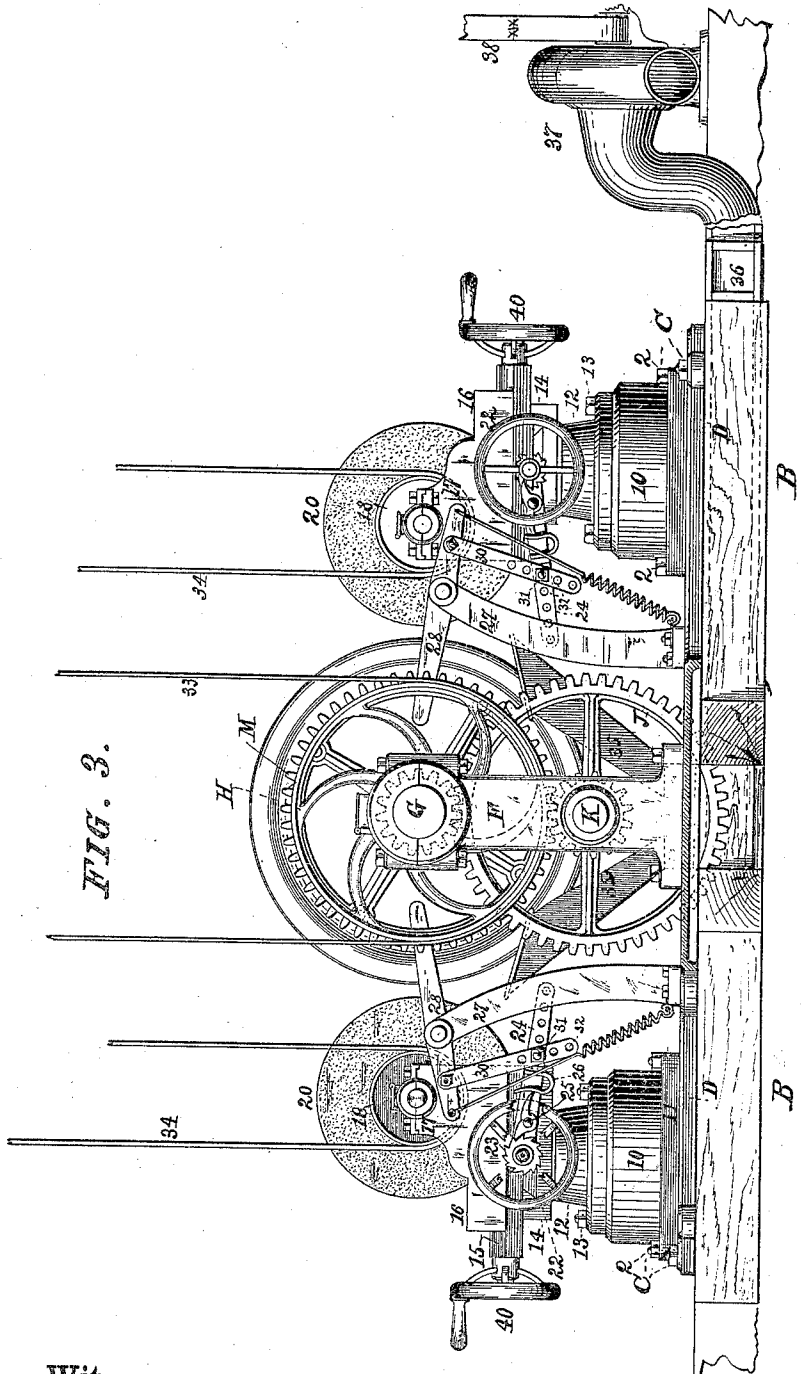


FIG. 3.

Witnesses:

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Centie L Stark.

Inventor:

P H Griffin,

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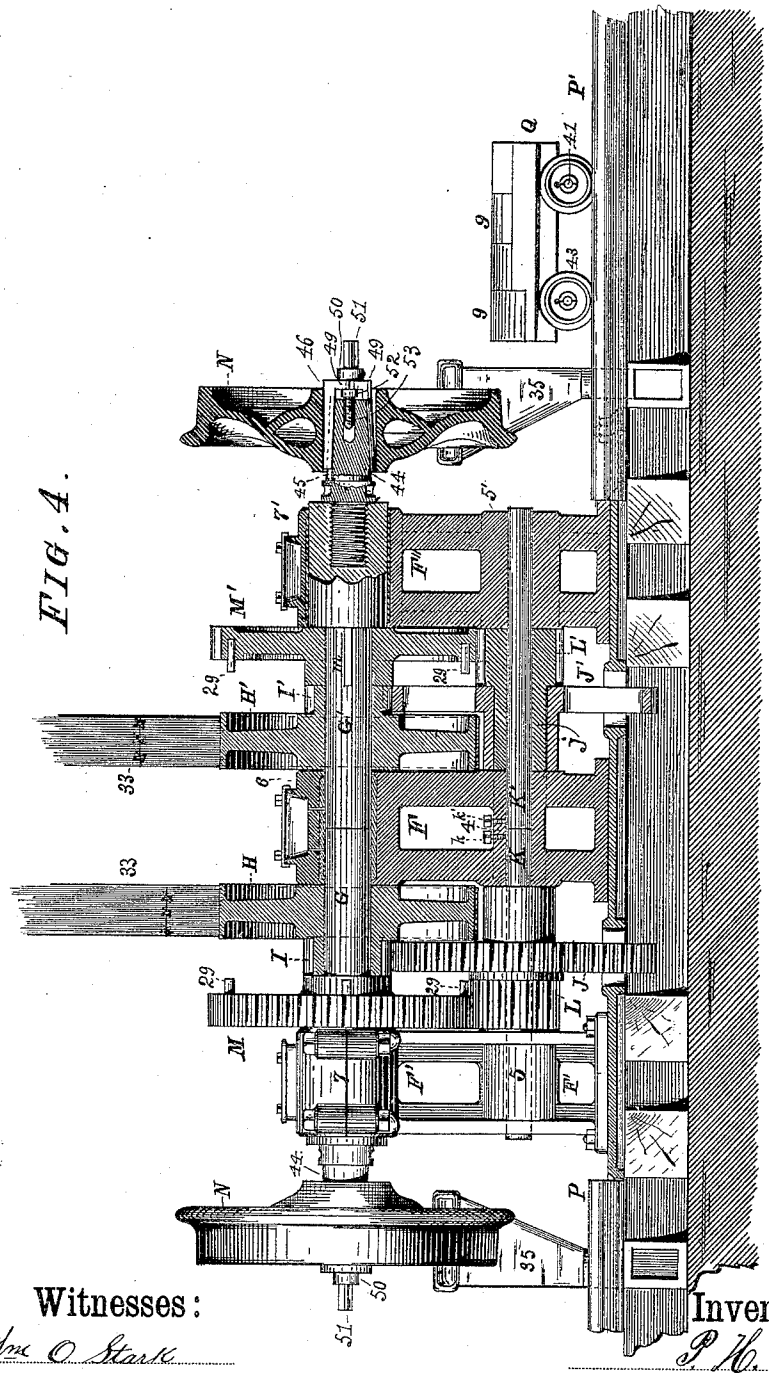
(No Model.) 4 Sheets—Sheet 4.

P. H. GRIFFIN.

CAR WHEEL GRINDER.

No. 411,244. Patented Sept. 17, 1889.

FIG. 4.



Witnesses:

Wm O Stark

Centie S Stark

Inventor:

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UNITED STATES PATENT OFFICE.

PATRICK H. GRIFFIN, OF BUFFALO, NEW YORK.

CAR-WHEEL GRINDER.

SPECIFICATION forming part of Letters Patent No. 411,244, dated September 17, 1889.

Application filed March 1, 1889. Serial No. 301,672. (No model.)

To all whom it may concern:

Be it known that I, PATRICK H. GRIFFIN, of Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements on Machines for Grinding the Treads and Flanges of Car-Wheels; and I do hereby declare that the following description of my said invention, taken in connection with the accompanying sheets of drawings, forms a full, clear, and exact specification, which will enable others skilled in the art to which it appertains to make and use the same.

This invention has general reference to improvements in machines for grinding the treads and flanges of car-wheels; and it consists, essentially, in the novel and peculiar combination of parts and details of construction, as hereinafter first fully set forth and described, and then pointed out in the claims.

In the drawings already mentioned, which serve to illustrate my said invention more fully, Figure 1 is a plan of my improved wheel-grinder. Fig. 2 is a front elevation of the same. Fig. 3 is a similar view in the line *x x* of Fig. 1. Fig. 4 is a longitudinal sectional elevation in line *y y* of Fig. 1.

Like parts are designated by corresponding letters of reference in all the figures.

The object of my present invention is the production of a machine for grinding and truing up of the treads and flanges of car-wheels, possessing the highest degree of efficiency, so as to produce its work at a minimum of cost. To attain this result I construct this machine in a manner so that two car-wheels are acted upon simultaneously but independently by two emery-wheels each, one attendant being sufficient to attend to the machine.

A is the bed-plate or foundation-plate of my machine, it being fastened upon suitable foundation-timbers, &c., B B by means of foundation-bolts C, as illustrated in Figs. 1, 2, and 3. This bed-plate is of the shape of the letter H, the four members D of which serve to receive each a slide-rest E, Fig. 1, carrying an emery-wheel in the manner hereinafter to be referred to. Each of the members D of the bed-plate has two T-shaped slots 1 1, wherewith engage the heads of the bolts 2 2, Fig. 2, by means of which the said slide-rests are movably secured upon said members D, a further serrated groove 3 being placed about midway between the T-slots to enable the slide-rest being moved with a crow-bar (not shown) being inserted into one or the other of said notches and the slide-rest moved back and forth in an obvious manner.

Upon the central longitudinal portion of the bed-plate A are placed three standards F F′ F″, the first of which is located in the center of the bed-plate and receives all the terminal ends of the shafts and spindles hereinafter to be named. Each of these standards has two bearings, 4 and 6 being respectively the lower and upper bearings of the central standard, and 5, 7, 5′ and 7′, respectively those of the outside standards. The upper bearings carry spindles G G′, upon which are loosely-revolving pulleys H H′, formed together with pinions I I′ in one piece, said pinions engaging spur-wheels J J′, fastened upon sleeves *j*, revolving upon fixed shafts K K′, held in position by means of set-screws *k* *k′* in the central standard F, as clearly illustrated in Fig. 4. The sleeves *j* are formed in one piece with pinions L L′, which in turn engage spur-wheels M M′, fastened to the spindles G G′ by keys *m*, and by means of which the said spindles are revolved from the pulleys H H′, the proportions of the gearing employed being such as to revolve the car-wheels N N′ at a slow speed.

The ends of the spindles G G′, projecting from the standards F′ F″, are internally screw-threaded, so as to receive expansion-mandrels, the construction of which will hereinafter appear.

In front of the stands F′ F″ are laid tracks P P′, upon which trucks or cars Q are placed to handle the car-wheels, as hereinafter to be particularly referred to.

The slide-rests E, heretofore mentioned, are all alike, with the exception that two of them are "right" and the other two are "left," so that a description of one will aptly apply to all. In Fig. 3, the base 10 has flanges 11, by means of which and bolts 2 it is removably secured upon the member D of the bed-plate. Upon this base is secured the stand 12 by means of screws 13, which stand has on its upper side ways 14 for a traverse 15, having the slide 16 moving at right angles to the

traverse 15, and provided on its upper surface with two bearings 17, carrying between them a pulley 18, which pulley is secured to a mandrel 19, the forward end of which has an emery-wheel 20, all as clearly illustrated in Figs. 1 and 3. The traverse 15 is moved by a screw 21, having on its end a hand-wheel 22 and a ratchet-wheel 23, there being further secured upon said screw a lever 24, Figs. 1 and 3, which actuates said ratchet-wheel (and with it the screw 21) by the pawl 25 and spring 26. This spring 26 is of substantially U shape, one member being fastened to said lever 24, and its free end pressing upon the tail of the dog or pawl 25 in a manner easily comprehended.

To the bed-plate A are fastened four supports 27, (Fig. 1 showing but one, and Figs. 2 and 3 but two thereof, they having been omitted from said Fig. 1 so as not to crowd the same with details which would have a tendency to obscure the drawings,) to the upper end of which are pivoted levers 28, having their fulcrum about midway of their length. One of the ends of these levers reaches a short distance beyond the periphery of the spur-wheels M or M′, so as to come in contact with pins 29, which pins depress the ends of these levers on one side of the machine and lift the opposite set of levers on the opposite side, the motion up or down depending upon the direction of revolution of the machine. To the end of the lever 28 is pivoted a rod 30, which connects said lever with the lever 24 by means of a bolt 31, there being a series of bolt-holes 32 in these various levers, so as to lengthen or shorten their throw at pleasure, and thereby the feed of the slide 16, together with the emery-wheel 20, in a manner readily comprehended.

The stands 12 are movably fixed to the bases 10, so as to enable them to revolve around a fixed center, and thereby to be set at an angle to the center line of the axes of the main spindles G G′, the angle being that of the tread of the car-wheels N, so that the latter will be trued up by revolving both the car-wheels and the emery-wheels in a proper direction from suitably-arranged countershafts (not shown) placed overhead and having belts 34 to operate the emery-wheels 20 and other belts 33 to drive the pulleys H H′, as illustrated in the drawings.

To remove the dust and grit caused by the operation of the emery-wheels upon the car-wheels, I place hoppers 35 under each wheel, and connect these hoppers by means of ducts 36 with an exhaust-fan 37, receiving motion through the belt 38 in an obvious manner.

The trucks used for bringing the car-wheels to the machine and removing them when finished have in their platform curved step-like depressions 9, so arranged as to fit the various diameters of car-wheels in one or the other of these depressions. A car-wheel is placed upon this truck in an erect position, resting with its tread in its respective curved depression, so that when it reaches the machine it stands just right in height to slide upon the expansible mandrel, where a few turns of its spindle-screw with a suitable wrench will immediately secure the wheel in proper position, while to remove the car-wheel from the machine the truck Q is run under it, the mandrel contracted, and the truck with its load moved away. These trucks have axles 41, running in bearings 42, secured underneath the platform, said axles having flanged truck-wheels 43 running upon the tracks P on both sides of the machine.

The expansible mandrels heretofore mentioned consist each of a tapering nose or projection 44, formed either in one piece with the main spindles G G′, or they are separate pieces screwed into the said spindles. In this tapering portion 44 there are three grooves 45, dovetailed to receive a wedge-shaped jaw 46, having a dovetailed portion 47 fitting the dovetailed portion of said grooves—a nice fit. Each of these jaws has near its forward end a lug 49, having parallel sides to fit between a collar 50 on the screw-spindle 51, and a further collar 52, secured to said spindle, the jaws being moved longitudinally in said grooves by turning the screw-spindle 53 with a wrench placed upon the wrench-section 51 on the end of said screw-spindle. The lugs 49 are parallel because they move radially between the collars 50 and 52 when the screw-spindle is revolved, and so retain a fixed position relative to the said collars and the spindle. It will now be readily observed that motion being given to the car-wheels by starting the machine and then feeding the slides 16 by means of the feed-screws 39 and hand-wheels 40 to the tread of the car-wheels, and then starting the emery-wheels and the self-feeding mechanism of the traverse 15, by throwing the pawls 25 into action the traverse will feed the emery-wheels over the surfaces to be reduced, it being a matter of fact that this machine will finish forty car-wheels in a thoroughly satisfactory manner in ten hours with but one attendant to the machine and one laborer to supply the wheels and remove those that are completed.

By constructing this machine in the manner described I derive advantages not to be attained by car-wheel-grinding machines now in operation. The main spindles being independent of one another and the wheels held upon these spindles by expansion-mandrels, each car-wheel is as independently finished as if they were done in separate machines, so that as soon as one is done it can be removed and replaced without hinderance to the other. Another advantage in the construction of this machine is that it can be manufactured in separate pieces—that is to say, I can supply the bed-plate A with one "head" (meaning the central and one outside standard, one main spindle, and one lower fixed shaft with the necessary pulley and back gear) and but

one slide-rest and its feed mechanism, in which case the machine will have a capacity of about one-fourth of the entire machine, and can thereafter supply, one after the other, additional head and slide rests until the machine is complete, as heretofore described.

In most machines for truing up the treads of car-wheels as heretofore constructed the wheels have to be mounted upon their axles or they have to be forced upon temporary axles. This necessitates considerable labor and expense, forming quite an item in the production of finished car-wheels, especially so in a factory producing, say, one hundred car-wheels per day, and is simply out of the question, the expense of the necessary machinery, axles, &c., and the cost of mounting and unmounting the wheels making the task an impossible one. Railway companies, as a fact, do not attempt to finish their car-wheels at the treads, and the manufacturer of the wheels but seldom, if ever, furnishes them with axles. Furthermore, many wheels have to be removed from good axles and replaced by new ones without the axle ever reaching the producer of the wheels, so that the process of finishing car-wheels upon their axles is a very awkward and undesirable one.

Having thus fully described my invention, I claim as new and desire to secure to me by Letters Patent of the United States—

1. In machines for truing up the treads and flanges of car-wheels, the combination, with an H-shaped bed-plate, of a series of standards carrying the main spindle above and a fixed shaft below, a driving-pulley having a pinion, a spur-wheel engaging said pinion and fixed to a sleeve having a pinion engaging a spur-wheel fixed to the main spindle above, and a suitable number of slide-rests carrying emery-wheels, as described, for the purpose set forth.

2. In machines for grinding the treads and flanges of car-wheels, the combination, with the base-plate, of the head, consisting of two standards having the main spindle above and fixed counter-shaft below, said main spindle having the driving-pulley, with its pinion, the counter-shaft having the pinion and spur-wheel, the spur-wheel on said main spindle, the driving-pins in said spur-wheels, the slide-rests having emery-wheels, and the feed mechanism operated by said pins and connected with said slide-rests, as and for the purpose set forth.

3. In machines for grinding the treads and flanges of car-wheels, the combination, with an H-shaped bed-plate, of a series of standards carrying the main spindle above and a fixed shaft below, a driving-pulley having a pinion, a spur-wheel engaging said pinion and fixed to a sleeve, a pinion engaging a spur-wheel fixed to the main spindle, and a suitable number of slide-rests carrying emery-wheels, said main spindle having expansible mandrels outside of the outer standards, as described, whereby the car-wheels are chucked directly to the said main spindle, as set forth.

4. In machines for grinding the treads and flanges of car-wheels, the combination of the main spindle with an expansible mandrel thereon and jaws, a collar, and a revolving screw-spindle for actuating said mandrel, substantially as set forth.

5. The combination, with the spindle G G′, having the spur-wheel M M′, provided with the pins 29, of the lever 28, pivoted to the standard 27, the connecting-rod 30, lever 24, having pivoted pawl 25, spring 26, and the ratchet-wheel 23, and feed-screw 21, as set forth.

6. The combination, with the feed-screw 21, having the ratchet-wheel 23 and lever 24, of the pawl 25, having its tail engaged by the U-shaped spring 26, as and for the object set forth.

In testimony that I claim the foregoing as my invention I have hereto set my hand in the presence of two subscribing witnesses

PATRICK H. GRIFFIN.

Witnesses:
MICHAEL J. STARK,
WM. O. STARK.