(No Model.) 4 Sheets—Sheet 1.

# W. J. LEWIS & P. H. MURPHY.

## MACHINE FOR TRUING LOCOMOTIVE DRIVING WHEELS.

No. 598,155. Patented Feb. 1, 1898.

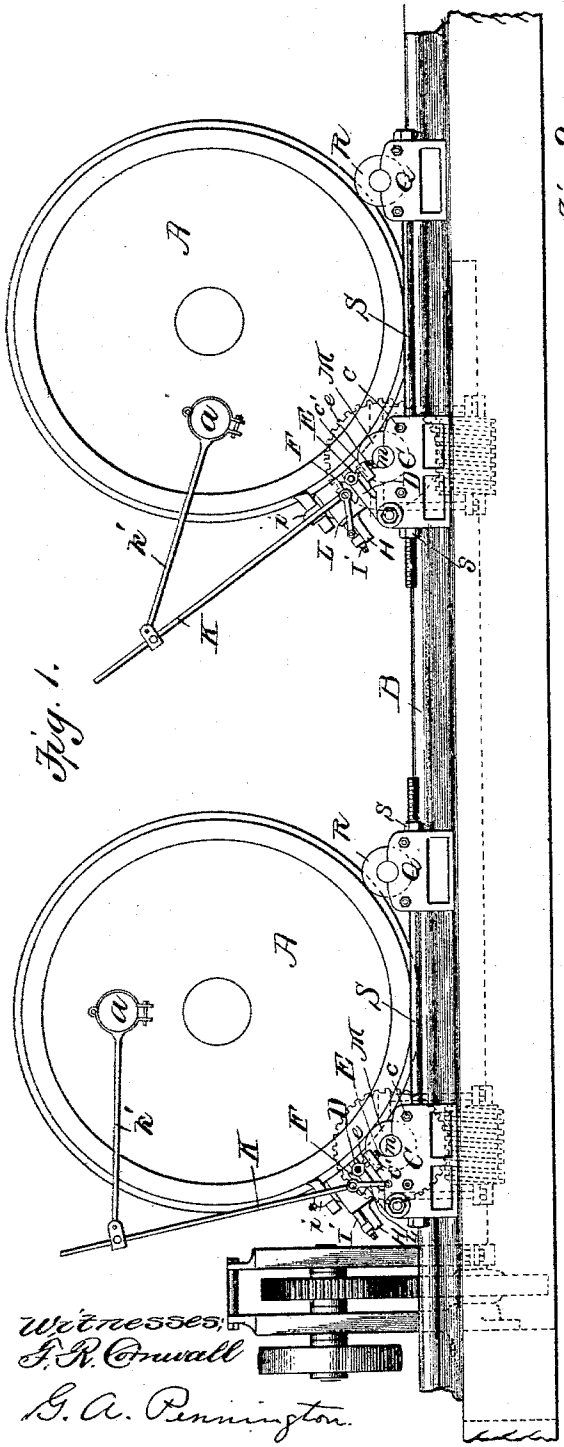


Fig. 1.

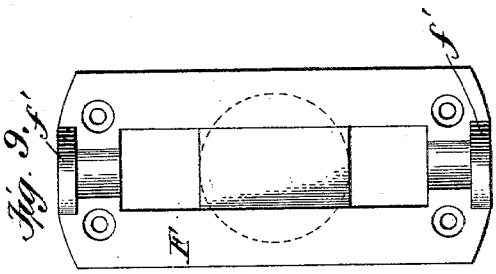


Fig. 9.

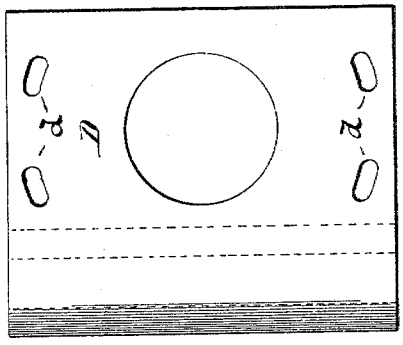


Fig. 8.

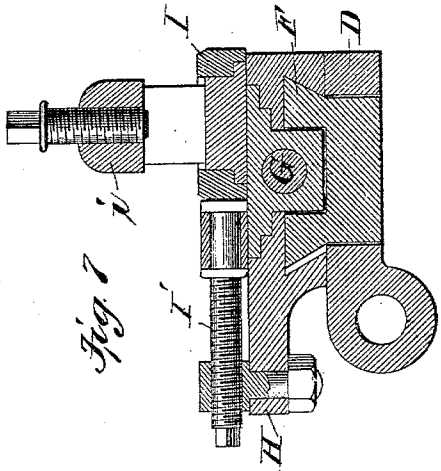


Fig. 7

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# W. J. LEWIS & P. H. MURPHY.

## MACHINE FOR TRUING LOCOMOTIVE DRIVING WHEELS.

No. 598,155. Patented Feb. 1, 1898.

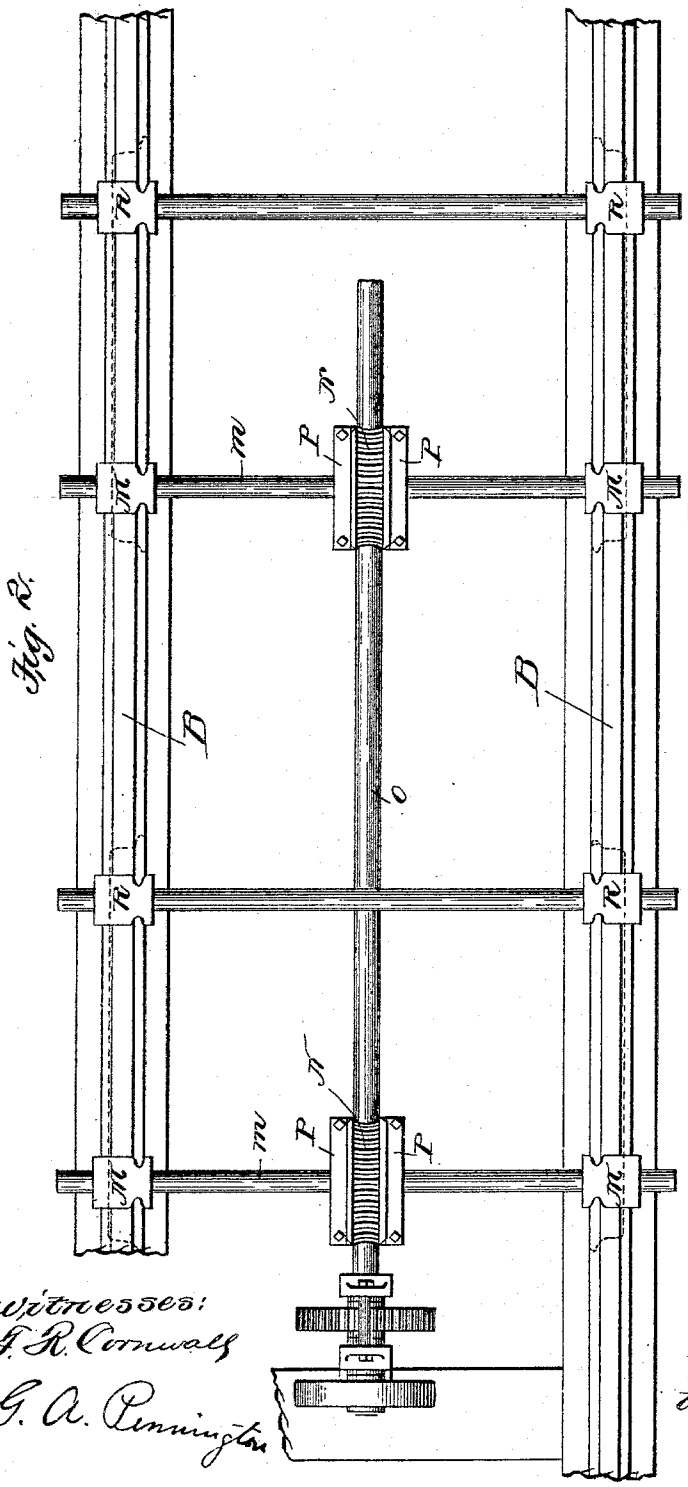


Fig. 2.

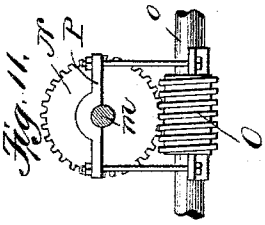


Fig. 11.

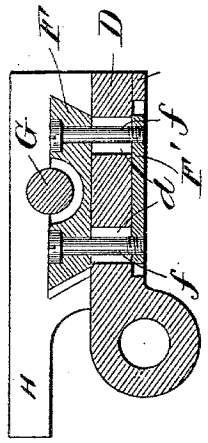


Fig. 10.

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(No Model.) 4 Sheets—Sheet 3.

# W. J. LEWIS & P. H. MURPHY.

## MACHINE FOR TRUING LOCOMOTIVE DRIVING WHEELS.

No. 598,155. Patented Feb. 1, 1898.

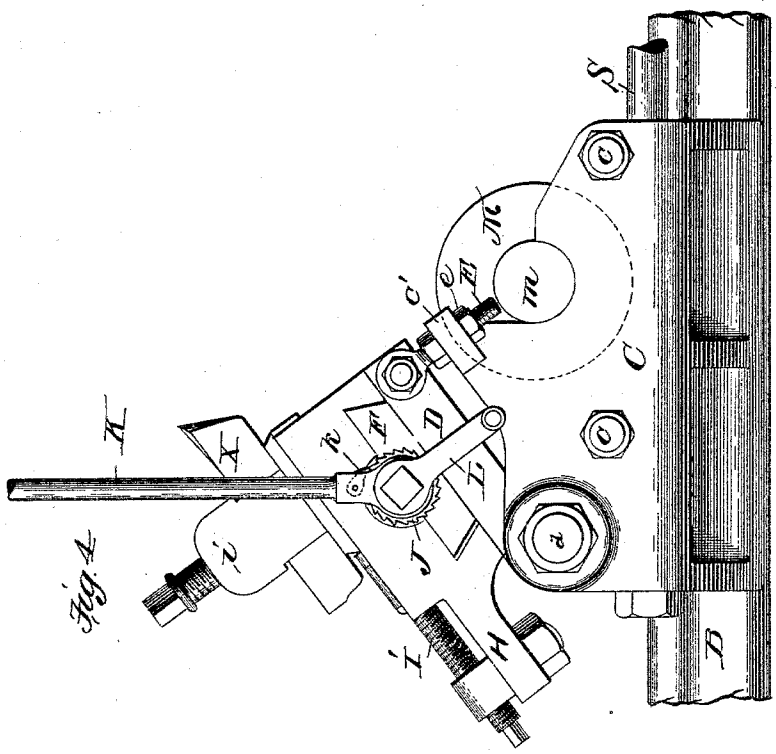


Fig. 4.

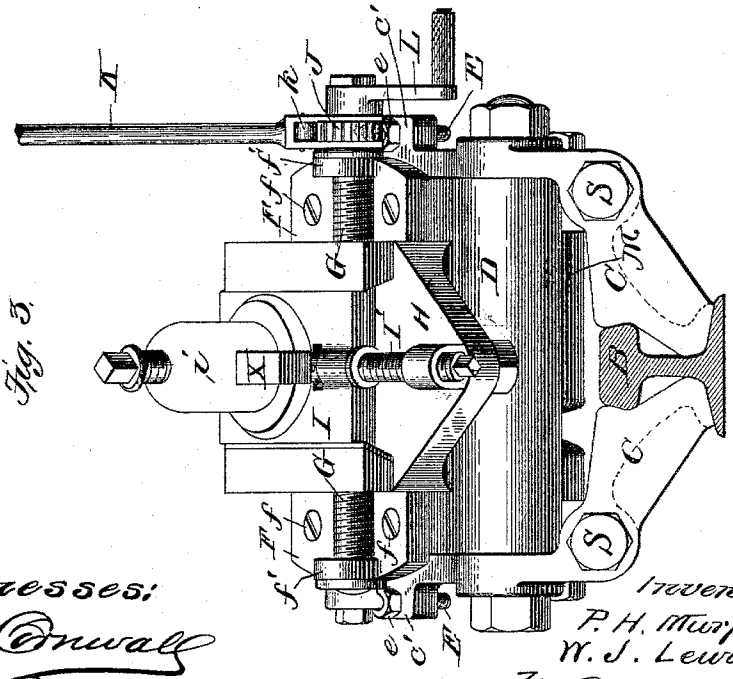


Fig. 5.

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# W. J. LEWIS & P. H. MURPHY.

## MACHINE FOR TRUING LOCOMOTIVE DRIVING WHEELS.

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Fig. 6.

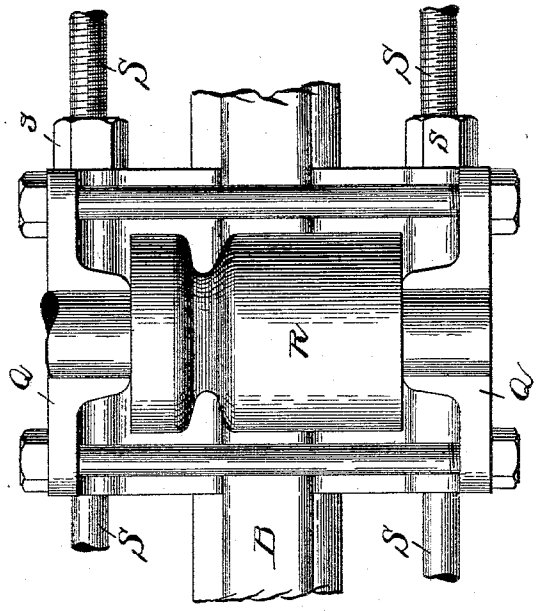
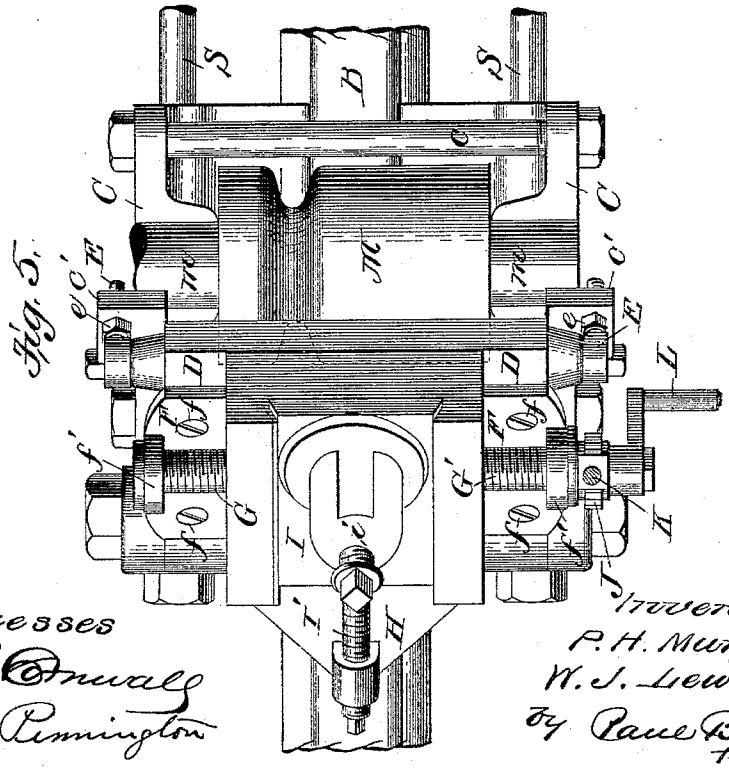



Fig. 5.




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# UNITED STATES PATENT OFFICE.

WALLACE J. LEWIS AND PETER H. MURPHY, OF ST. LOUIS, MISSOURI.

## MACHINE FOR TRUING LOCOMOTIVE DRIVING-WHEELS.

SPECIFICATION forming part of Letters Patent No. 598,155, dated February 1, 1898.

Application filed March 27, 1897. Serial No. 629,492. (No model.)

*To all whom it may concern:*

Be it known that we, WALLACE J. LEWIS and PETER H. MURPHY, citizens of the United States, residing at the city of St. Louis, State of Missouri, have invented a certain new and useful Improvement in Machines for Truing Locomotive Driving-Wheels, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side elevational view of our improved machine in operative position. Fig. 2 is a plan view of the same, certain parts being omitted. Fig. 3 is an end elevational view of the rail-clamp and its carried cutting-tool. Fig. 4 is a side elevational view of the same. Fig. 5 is a top plan view of the same. Fig. 6 is a top plan view of the clamp which carries the idle-trunnion. Fig. 7 is a sectional view through the tool-holder and its associate parts. Fig. 8 is a plan view of the swinging frame on which the tool-holder guide is mounted. Fig. 9 is a plan view of the tool-holder guide. Fig. 10 is a sectional view through the tool-holder frame and guide, showing the manner of adjusting the latter. Fig. 11 is a side elevational view of the worm-gearing for imparting motion to the live-trunnion.

This invention relates to a new and useful improvement in machines for truing the driving-wheels of locomotives; but we do not wish to be limited in the application of our invention to this particular use, as it will be obvious that there are other uses to which it could be advantageously applied—such, for instance, as truing freight-car wheels, small truck-wheels, &c.

The object of our invention is to provide a machine of the character described which is adapted to coöperate with the engine to true the wheels thereof without necessitating the dismantling of the engine.

It is the general practice at the present time when wheels become flat or worn, so as to be irregular, to remove the wheels from the engine and put them in a lathe for the purpose of truing the tread and flange. It is obvious that such methods are expensive. In our device an engine may be run into a roundhouse or repair-shop, where power may be obtained, the cutting-tool and devices clamped to the rail, so as to support the wheels to be trued on rollers, and power being applied to said rollers will cause the cutting-tool to true up the wheels, said cutting-tool being fed automatically across the face of the tread.

With these objects in view the invention consists in connecting the truing-tool with the wheel being operated upon in such manner that rotation of the wheel to be trued will feed the truing device.

Other features of our invention reside in the novel construction of the rail-clamp, the tool-holder, means for adjusting the tool-holder, mechanism for moving said tool-holder laterally to move the tool along the face of the wheel being operated upon, and the novel construction and arrangement of the transmitting-gearing for imparting motion to the live-rollers.

Other features of the invention reside in the construction, arrangement, and combination of the several parts, all as will hereinafter be described, and afterward pointed out in the claims.

In the drawings, A indicates the driving-wheels of a locomotive, and *a* the crank-pins thereof.

B indicates the rails on which said driving-wheels run. We have shown these rails as being arranged alongside of a pit over which the engine whose wheels are to be trued is run. After the engine is in position our machine is applied to the rails to raise the driving-wheels from the track and true them, the engine not being dismantled during the operation of truing its wheels.

C indicates a clamp adapted to be applied to the rails, said clamp being formed of two like parts for engaging the rail, said parts also supporting the live-roller and the cutting-tool. The parts of this clamp are bound to the rail by cross-bolts *c*.

D indicates a supporting-frame for the cutting-tool, which frame is pivoted on a cross-bolt *d*.

E indicates a bolt having an eye in its upper end, which eye is pivotally mounted to the free end of frame D. Bolts E pass down through the lug *c'* on the side of clamp-section C, and jam-nuts *e* on this bolt impinge against the upper and lower faces of this lug

to adjust the free end of frame D. One of these bolts E is arranged on each side of the frame D.

F indicates a guide formed with a circular projection on its under side and about its middle, as shown in Fig. 7, which projection fits in an opening in the frame-plate D, which opening is shown in Fig. 8. This guide is provided with bolt-openings at its ends, through which pass screw-bolts *f*, said screw-bolts passing through slots *d*, concentric with the circular opening in the frame-plate D, and into a locking block or nut F′, arranged on the under side of the frame-plate D, as shown in Fig. 10. By loosening these screw-bolts in the locking-block the guide F may be adjusted at an angle to the frame-plate and locked in such adjusted position to guide the cutting-tool in an oblique line to form the inclined tread on the wheels. This guide F is formed with ears *f′* at its ends, in which ears is mounted a feed-screw G.

H indicates a laterally-moving tool-carriage mounted upon guide F and threaded upon the feed-screw G. I prefer to provide a circular bearing-block about the middle of this carriage to act as a nut for the feed-screw.

I indicates a tool-block formed or provided with a dome *i*, in which the tool is clamped. This block is slidingly mounted in longitudinally-disposed guideways and is adjusted to its work by a threaded rod I′, which engages therewith at one end, the other end of said rod passing through the nut or projection on the carriage H.

J indicates a rigid wheel fixed to the outer end of the feed-screw G, with which wheel engages a pawl *k*, mounted in a yoke pivoted on an extension of the feed-screw, said yoke being the end of an arm K. I prefer also to provide a crank-handle L on the end of the feed-screw, by which the tool-carriage may be returned after it has traveled across the face of the tread, as is obvious. It will be understood that the pawl *k* is raised to permit this.

M indicates a roller mounted in suitable bearings in the clamp-sections C. This roller is arranged upon a shaft *m*, extending across the track, said shaft having rollers mounted upon both of its ends.

A worm-wheel N is keyed to shaft *m* and engages a worm O, keyed to a longitudinally-disposed shaft *o*. Suitable bearings may be provided for shaft *o*; but in Fig. 11 I have shown yokes P resting upon the shaft *m* on each side of the worm-wheel, from which yokes are suspended by suitable bolts half-bearings for the shaft *o*. Power is imparted to shaft *o* in any suitable manner, we having shown in Figs. 1 and 2 a power-driven pulley and gearing for driving said shaft. By referring to Fig. 2 it will be seen that when shaft *o* is driven it will operate both screws, shafts *m*, and drive four live-rollers.

It is obvious that while we have shown our device applied to truing four driving-wheels more can be driven and trued or a single pair can be operated upon, if desired.

Q indicates track-clamps corresponding in design with the clamps C, with the exception that clamps Q do not carry means for truing the wheel. In fact, clamps Q act simply as bearings for idle-rollers R. Clamps C and Q are provided with longitudinally-disposed alining openings on each side of the rail for the reception of tie-bolts S. These tie-bolts S are headed at one end, while their other end is threaded and receives a nut *s*. By tightening the nut *s* the clamps are turned toward each other on the rail and under the wheel to be trued. By this arrangement the wheel to be trued is lifted above the rail, so that when the live-rollers are driven the wheel to be trued will ride freely on these supporting-rollers.

There are two live-rollers and two idle-rollers mounted on their respecive shafts for each pair of wheels, and the rail-clamps forming bearings for these rollers are individually adjustable by means of the tie-rods, whereby it will require but little power to apply the device and get it in operative position. When in operative position, the arm K is connected by a link *k′* to the crank-pin *a* of the driving-wheel. When the live-rollers are driven, they cause the wheels to be trued to rotate, thereby revolving the crank-pins, which, connected by a link to the arms K, oscillate said arms and rotate the feed-screw G through the medium of the pawl-and-ratchet connection. The guide F being previously adjusted will cause the cutting-tool X to move obliquely and form an inclined face on the tread. The outer end of link *k′* is adjustable lengthwise the arm K, so as to impart different throws to said arm and thereby regulate the rotation of the feed-screws. By adjusting the frame D up or down the cutting edge of the tool is placed at a proper angle and in proper position relative to the wheel to be trued and in this way can be adjusted to different-sized wheels.

We are aware that many minor changes in the construction, arrangement, and combination of the several parts of our device can be made and substituted for those herein shown and described without in the least departing from the nature and principle of our invention.

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

1. The combination with power-driven rollers, of idle-rollers for supporting the wheel to be trued, of a truing device for truing the same, and connected mechanism between the truing-tool and the wheel being operated upon, whereby the rotation of the wheel to be trued will feed the truing device; substantially as described.

2. The combination with live and idle rollers, of bearings in which said rollers are mounted, a rail on which said bearings are

mounted, means for adjusting said bearings along the rail relative to each other, and a truing device mounted on one of said bearings; substantially as described.

3. The combination with live and idle rollers, of bearings therefor, means for adjusting said bearings relative to each other, a truing device mounted on one of said bearings and means for adjusting said truing device relative to its supporting-bearing; substantially as described.

4. The combination of live and idle rollers, of bearings therefor, tie-rods for adjusting said bearings relative to each other, a truing device, a guide for said truing device, and means for adjusting said guide so that it will cause the truing device to travel in an oblique line; substantially as described.

5. The combination with rollers, of rail-clamps forming supports for said rollers, tie-rods for adjusting said clamps relative to each other, a truing device adjustably mounted upon one of said clamps, and means on the wheel being trued for feeding said truing device laterally; substantially as described.

6. The combination with rail-clamps, of live and idle rollers mounted therein, tie-rods for adjusting said clamps relative to each other, a pivoted frame-plate mounted in one of said clamps, means for adjusting the free end of said frame-plate, a truing device mounted upon said frame-plate, an adjustable guide for said truing device, and an oscillating arm for feeding said truing device laterally; substantially as described.

7. The combination with a truing device, of an oscillating arm for feeding said truing device laterally, and a link adjustably mounted on said oscillating arm, the free end of said link being mounted upon the crank-pin of the wheel being operated upon; substantially as described.

8. The combination with rail-clamps, of a frame-plate pivotally mounted therebetween, means for adjusting the free end of said frame-plate, a guide mounted on said frame-plate, screw-bolts for locking said guide in an adjusted position, a tool-carriage, and means for feeding said tool-carriage laterally; substantially as described.

9. The combination with the cutting-tool and its carriage, of a screw-bolt for forcing the tool to its work, a feed-screw moving said carriage laterally, an adjustable guide for directing the path of lateral travel of the carriage, a frame-plate for supporting said guide, and rail-clamps in which said frame-plate is pivotally and adjustably mounted; substantially as described.

10. The combination with driving-shafts, worms mounted thereon, cross-shafts, worm-wheels mounted on the cross-shafts and meshing with the worms of the driving-shafts, rollers on the ends of the cross-shafts, rail-clamps forming bearings for said rollers, a truing device mounted on said rail-clamps, and idle-rollers mounted in rail-clamps which are adjustably connected to the rail-clamps which support the truing device; substantially as described.

In testimony whereof we hereunto affix our signatures, in presence of two witnesses, this 22d day of March, 1897.

WALLACE J. LEWIS.
PETER H. MURPHY.

Witnesses:
F. R. CORNWALL,
HUGH K. WAGNER.