(No Model.)

J. K. CULLEN & J. W. SEE.

GAGING DEVICE FOR CAR WHEEL LATHES.

No. 344,083. Patented June 22, 1886.

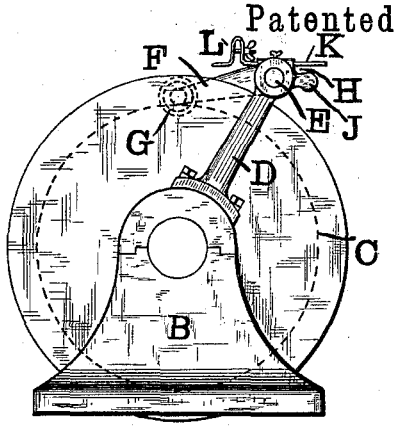

Fig. 2.

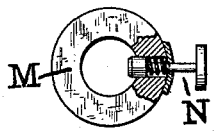

Fig. 4.

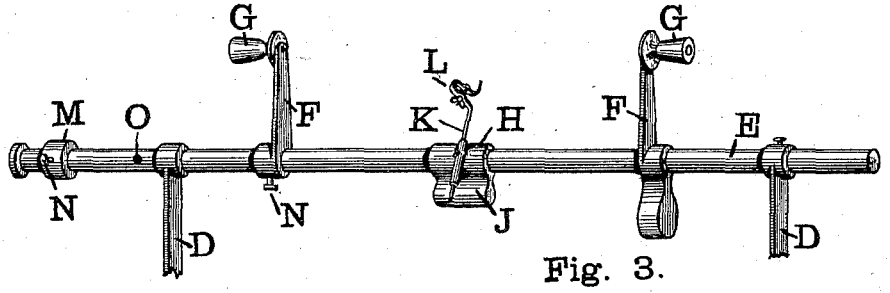

Fig. 3.

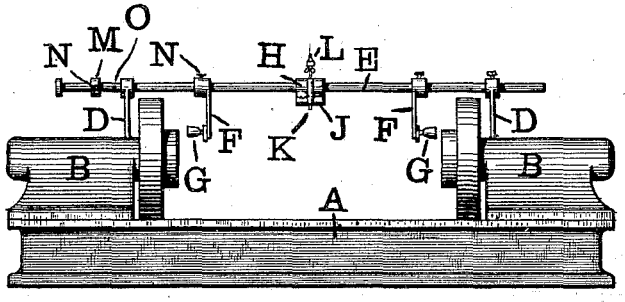

Fig. 1.

WITNESSES:
W. A. Seward
J. W. Snyder

INVENTORS
James K. Cullen and
James W. See
by James W. See
ATTORNEY

UNITED STATES PATENT OFFICE.

JAMES K. CULLEN AND JAMES W. SEE, OF HAMILTON, OHIO, ASSIGNORS TO THE NILES TOOL WORKS, OF SAME PLACE.

GAGING DEVICE FOR CAR-WHEEL LATHES.

SPECIFICATION forming part of Letters Patent No. 344,083, dated June 22, 1886.

Application filed March 29, 1886. Serial No. 197,086. (No model.)

To all whom it may concern:

Be it known that we, JAMES K. CULLEN and JAMES W. SEE, of Hamilton, Butler county, Ohio, have invented certain new and useful Improvements in Gaging Devices for Car-Wheels, of which the following is a specification.

In turning the tires of car-wheels, and in re-turning old tires on car-wheels, it is desirable that the wheels be of equal diameter; that the flanges of the two wheels be at proper distance from each other; that the tires be given a proper cross-sectional contour, and that the flanges be properly disposed with reference to the journals of the car-axles.

Our invention relates to a device for such gaging of car-wheels, and is intended to be used in connection with a machine which supports the car-axle with its two wheels by its journals or by its centers. The office of such axle-supporting device may be fulfilled by the lathe in which the wheels are being turned, and the gaging device may thus serve not only in testing the completed work, but also in determining the dimensions, &c., during the progress of the turning. We therefore illustrate our gaging device as applied to a car-wheel lathe.

Our invention will be readily understood from the following description, taken in connection with the accompanying drawings, in which—

Figure 1 is a front elevation of the main portions of a double-headed car-wheel lathe fitted with our gaging device; Fig. 2, an elevation of the same, the lathe-bed being omitted and the scale being enlarged; Fig. 3, a perspective view of the gaging device, and Fig. 4 an end view of the stop-collar.

In the drawings, A indicates a lathe-bed; B, a pair of head-stocks thereon; C, in Fig. 2, a dotted line corresponding to the periphery of the car-wheels; D, standards, one rising from each head-stock and each supporting a bearing at its upper end; E, a cylindrical bar fitted to rotate and slide in the two standards; F, a pair of arms fitted upon this bar; G, gaging-rollers secured at the ends of these arms, the axis of the rollers being parallel with the axis of the bar, the rollers having a longitudinal sectional contour corresponding reversely to the contour which is to be given to the tires of the car-wheels; H, a block fitted to revolve and slide upon the bar; J, a counterbalance-weight upon this block serving to retain the block in a certain normal position of rotation upon the bar; K, a pointed calipering-rod fitted to slide in a transverse socket in the block, and being secured in such socket by a set-screw; L, a bow or bend in the calipering-rod of flattened cross-section so as to be flexible, and provided with a thumb-screw crossing the bend, so as to permit the length of the rod to be adjusted; M, a stop-collar fitted to slide upon the bar outside one of the standards; N, clutch-pins, one in the collar M and one in one of the gaging-arms F, these pins serving to lock the parts to the bar by engaging in holes in the bar; and O, a hole near one end of the bar adapted to be engaged by the clutch-pin of the stop-collar.

The bar E is to be supported in a position truly parallel with the axis of the lathe or other supporting device for the car-axle and its wheels. The caliper-rod K may be set to such length as will cause its point to just touch the periphery of the proper-sized car-wheel when the point of the caliper-rod is swung downward to the car-wheel. The counter-weight J serves to keep the caliper-point up out of engagement with the car-wheel when not in use, and this weight may also be used as a handle in rotating the block when the caliper-point is to be used.

A diameter of car-wheels having been predetermined, it is obvious that the caliper-point will serve in ascertaining if the wheels being tested correspond to the required dimensions, as the block with its caliper-point may be moved along the bar so as to test either wheel of the pair. More generally in turning old wheels no thought is given to the ultimate diameter of them, it being only requisite that the two wheels of a pair should have equal dimensions. In this case we must determine the largest diameter at which the smallest wheel will finish, and then the two wheels are brought to that determined dimension.

Car-wheel lathes are generally arranged to turn the tires of both wheels at once, and it becomes important to get both cuts under way

as quickly as possible; hence the necessity for being able quickly to determine the finishing size of the smaller wheel and to quickly transfer that size to the larger wheel. In doing this we start a cut into both wheels until the inequalities of the tire disappear and the cut begins to show itself all around the tire. This shows the largest diameter at which each wheel can be finished. By means of the caliper being moved from one wheel to the other it can quickly be determined which of the two wheels will finish to the smaller size, and the caliper is accurately set to the smaller wheel and then transferred to the larger wheel, thus enabling the cutting-tool upon the larger wheel to be set into its cut to produce the proper size. The cut upon both wheels may then be started with the assurance that the sizes will be uniform.

The bow and set-screw arrangement in the caliper enables delicate adjustment to be given to the calipering-point, and the sliding of the calipering-rod through the block permits of more extended adjustment. It is obvious that if the gaging-arms F be set at such distance apart as will correspond with the distance from car-wheel to car-wheel, the calipering-block cannot be moved along the bar a sufficient distance to reach each of the car-wheels, the gaging-arms forming an obstacle. This difficulty may be overcome by offsetting the gaging-arms, so as to bring their hubs sufficiently far apart, or the bar may be shifted endwise when the caliper-block is interfered with by the gaging-arm, thus moving the gaging-arm bodily out of the way; or the gaging-bar may be slipped along the bar out of the way by simply disengaging its clutch-pin.

The gaging-arms F are of such a length that when they are pushed forward their end rollers will lie in contact with the car-wheels and the arms may be counterbalanced. When the rollers at the end of the gaging-arms are brought down upon the car-wheels, they serve as gages for testing and determining the contour of the tires. The rollers are shown as having inner flanges of comparatively large diameter. These flanges enter behind the flanges of the car-wheels, and serve in gaging the distance between the inside of the car-wheel flanges. Where this inner distance is not to be gaged these flanges may be omitted from the rollers. We prefer to have the gages at the ends of the gaging-arms in the form of rollers free to revolve upon studs, as such gages are cheaply produced and very durable; but it is obvious that the rollers may be rigidly secured against rotation, or that contour-gages not in roller form may be rigidly secured to the arms.

The gaging-arms are secured upon the bar at a distance from each other corresponding to the wheel-gage determined upon, and if it is not important that the wheels keep an accurate relation to the journals of the car-axle, then it is desirable that the bar with its gages be free to slide endwise in its supports, as the wheel-contour and gaging distance may often be secured by cutting away very little metal upon the tires if no attention be paid to the accurate relation which the wheels are to bear to the axle-journals. It is, however, generally desirable to gage the relation lengthwise between the wheels and the axle-journals, in which case the gaging-arms must obviously occupy a fixed relation to their supports.

The stop-collar M may be clutched at the hole O, and thus serve to determine the proper end position for the bar and its gages. When not required, this stop-collar may be unclutched and moved out of the way, so as to permit free sliding of the bar for either calipering or gaging purposes.

We claim as our invention—

1. The combination of a support for a car-wheel, a caliper-support disposed beyond the periphery of the car-wheel, and an adjustable caliper attached to said caliper-support.

2. The combination of a support for a car-wheel, a caliper-support disposed beyond the periphery of the car-wheel, and a caliper attached to and fitted to oscillate upon said caliper-support.

3. The combination of a support for a car-wheel, a cylindrical caliper-support disposed beyond the periphery of the car-wheel, and a caliper fitted to oscillate upon said cylindrical caliper-support.

4. The combination of a support for a car-wheel, a caliper-support disposed beyond the periphery of the car-wheel, a caliper movably attached to said caliper-support and adapted to be moved into contact with the car-wheel, and means, substantially as set forth, for holding said caliper normally away from the car-wheel.

5. The combination of a support for a car-wheel, a caliper-support disposed beyond the periphery of the car-wheel, a caliper attached to and fitted to oscillate upon such caliper-support, and a counter-balance adapted to hold such caliper away from the car-wheel.

6. The combination of a support for a car-wheel, a caliper-support disposed beyond the periphery of the car-wheel, and a caliper attached to said caliper-support and fitted to move to and from the car-wheel and along said support in a path parallel to the axis of the car-wheel.

7. The combination of a support for a car-wheel, a caliper-support disposed beyond the periphery of the car-wheel and provided with a socket at right angles to the axis of the car-wheel, and a caliper-rod fitted to be adjusted in said socket.

8. The combination of a support for a car-wheel, a caliper-support disposed beyond the periphery of the car-wheel, a movable caliper-rod attached to such caliper-support and provided with a flexible bow, and an adjusting-screw disposed across the bow.

9. The combination of a support for a car-wheel, a cylindrical bar disposed beyond the periphery of the car-wheel, a block fitted up-

on said bar and provided with a socket, and a caliper-rod fitted to adjust in said socket.

10. The combination of a support for a car-wheel, a gage-support disposed beyond the periphery of the car-wheel, a gage-arm fitted to oscillate on said gage-support, and a tire-gage attached to the end of said gage-arm.

11. The combination of a support for a car-wheel, a gage-support disposed beyond the periphery of the car-wheel, a gage-arm fitted to oscillate upon said gage-support, and a gage-roller attached to the end of said gage-arm.

12. The combination, with a support for a car-wheel, of sliding bar E, gage-arm F, and gage G.

13. The combination, with a support for a car-wheel, of sliding bar E, gage-arm F, gage G, and caliper K H.

14. The combination, with a support for a pair of car wheels and axle, of bar E, gage-arms F, gages G, caliper K H, and a clutch-pin, N, in one of the gage-arms.

15. The combination, with a support for a pair of car wheels and axle, of bar E, gage-arms F, gages G, and stop-collar M.

16. The combination, with a support for a pair of car-wheels and an axle, of bar E, gage-arms F, gages G, sliding stop-collar M, and clutch-pin N in said stop-collar.

17. The combination, with a lathe, of bar E and a caliper fitted to slide upon said bar.

18. The combination, with a lathe, of bar E and a gage fitted to oscillate and slide upon said bar.

19. The combination of a support for a car-wheel, a contour-gage roller, and a moving support for said gage-roller.

JAMES K. CULLEN.
JAMES W. SEE.

Witnesses:
J. W. SNYDER,
W. A. SEWARD.