

H. McQUARRY.
AXLE GAGE.

Patented Jan. 19, 1892.



UNITED STATES PATENT OFFICE.

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AXLE-GAGE.

SPECIFICATION forming part of Letters Patent No. 467,470, dated January 19, 1892.

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To all whom it may concern:

Be it known that I, HECTOR MCQUARRY, a British subject, residing at Barrie, in the county of Simcoe, Canada, have invented certain new and useful Improvements in Axle-Gages; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to new and useful improvements in axle-gages; and it consists in a certain construction and arrangement of parts, as hereinafter fully set forth, the essential features of which are pointed out particularly in the claims.

The object of the invention is to provide means for determining the proper bend to be given an axle, so that the lower spokes in a wheel of given "dish" turning thereon will stand always plumb. This object is attained by the device illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of my improved axle-gage. Fig. 2 is a side elevation of same. Fig. 3 is an enlarged detail plan of the main bar of the gage carrying the "dish-rule" and the sliding plate mounted thereon carrying the curved lines and having the "spoke-rule" attached thereto. Fig. 4 is a central longitudinal section taken on dotted line 4 4 of Fig. 3.

Referring to the letters of reference, A designates the main bar of the gage, which is provided at one end with the vertical head B, having a slotted opening passing horizontally therethrough in line with the bar A of the gage. In said opening is pivoted the bracket-arm C by means of the pin *a*, whereby said arm is adapted to swing horizontally, the depending bifurcated end *b* of said arm having the plate D pivoted between the forks thereof, said plate being provided with the prongs *d*, adapted to fit over the axle and hold said plate parallel therewith.

E designates a vibrating pointer formed integral with the hub of the bracket-arm C,

whose pivot *a* forms the center of oscillation of said pointer, which extends horizontally over the bar A. On the opposite end of said bar A is a sliding support F, secured by a set-screw *c*, and provided with the depending leg *f*, having a notch (not shown) in its lower end to fit the axle on which it rests, whereby that end of the gage is supported above the axle and on a horizontal line therewith, all of which parts are common.

H designates the dish-rule, which may be formed directly upon the bar A, but which is shown upon a plate secured to the upper face of said bar and extending slightly above the surface thereof, said rule being provided with a series of graduations numbered from 1 to 10, inclusive, and which are considered in terms of eighths of inches. This graduation of the rule, however, is not arbitrary, as various divisions to the inch may be employed to correspond with any terms in which it may be desired to read wheel-dimensions. These figures on the rule H refer to the dish of the wheel, which is determined by the distance from the butt of the spoke at the hub to a line drawn diametrically across the outer face of the wheel.

I designates a plate mounted to slide horizontally of the bar A under the index end of the pointer E, and is provided with a set-screw *t* for securing it in place on said bar. Attached to the forward end of said plate and sliding therewith is the "spoke-rule" J, which is slotted through its longitudinal center to receive the dish-rule H over, which it slides, the forward or outer end of said rule J being connected by the bridge portion *h*, which extends over the rule H.

Upon the face of the rule J is a series of graduations numbered consecutively from 14 to 28, inclusive, arranged in double columns thereon as a matter of convenience and to economize in space. Said graduations and numerals are located on each side of the longitudinal slot in said rule and are adapted to register with the graduations on the dish-rule H, and refer to the length of the spokes of the wheel in terms of "inches."

Mounted on the upper face of the sliding plate I is a central longitudinal line *e*, which

is directly in line horizontally with the center of the pivot *a* and the notched end of the leg *f*. Located on each side of the central line *e* are the curved lines *i*, that cross the path of the vibrating pointer E, and which are formed with such relation to the length of said pointer and the graduations on the dish-rule H and spoke-rule J, that, when the gage is set for a wheel having a certain dish and given length of spoke, if the axle have the proper set, the index end *o* of the pointer E, when the gage is placed thereon, will register with one of said curved lines, as shown in Fig. 1. It will be readily understood that if a wheel having spokes twenty-two inches long and three-eighths of an inch dish is placed upon a straight axle, the lower ends of the under spokes in the wheel will stand outward three-eighths of an inch from a vertical line, and that in order to bring said spokes into a plumb position the axle must be bent downward at the ratio of three-eighths of an inch in twenty-two. For example—to determine the proper “set” to be given an axle to cause the under spokes to stand plumb in a wheel having three-eighths of an inch dish and spokes twenty-two inches in length, the plate I is adjusted until the numeral 22 on the sliding rule J, indicating the length of spoke in terms “of inches,” is placed opposite, or so as to register with the numeral 3 on the fixed rule H, indicating the dish of the wheel in terms of “eighths of inches.” When so adjusted the parts are secured by means of the set-screw *t*. The axle is then bent downward at the end just back of the collar, when it is given a quarter-turn and the gage placed thereon with the pivot *a* vertically over the point at which the axle has been bent. If the axle has been given the proper set, the index end *o* of the pointer E will then register with one of the curved lines *i* on the face of the plate I, as clearly shown in Fig. 1, in which view the above example is carried out. If the index end of the pointer does not register with the curved line *i*, error in the set of the axle is shown, which may be corrected as the pointer indicates.

While I have shown two curved lines upon the plate I, but one is necessary, the additional line being employed as a matter of convenience to enable the gage to be applied to the axle whether turned in either direction after giving the set thereto.

It will now be apparent that this improved gage may be quickly adjusted and will readily indicate the set of the axle when placed

thereon, obviating confusion in reading the result, as there is but one of the curved lines with which the pointer must register to indicate the correct set of the axle, which may be determined at a glance.

To indicate the proper set for “gather,” the edge of the finger *o* of the pointer, when the gage is placed upon the axle, should register with the central horizontal line *e* of the plate I.

Having thus fully set forth my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In an axle-gage, the combination of the main bar having a supporting-head pivoted to one end thereof, the pointer mounted thereon, and the support at the opposite end of said bar, the sliding plate traveling longitudinally on said bar behind the pointer, said plate having an index-line curving from the center thereof outward transversely of said plate.

2. The combination, in an axle-gage, of the main bar having the head pivoted to one end, the swinging pointer on said head, the support at the opposite end of said bar, the dish-rule on said bar, the plate traveling longitudinally on the main bar, the spoke-rule mounted on said plate and traveling therebehind the pointer, and the curved index-line *i* on said plate.

3. In combination with the main bar, the bracket arm or head pivoted to one end thereof, the vibrating pointer on said head, the sliding support on the opposite end of the main bar, the dish-rule mounted centrally on the main bar, and the plate adapted to travel longitudinally on the main bar, said plate having the spoke-rule at one end and the curved lines *i* at the opposite end, substantially as specified.

4. In an axle-gage, the combination of the main bar having a bracket pivoted to one end, the vibrating pointer having one end attached to said bracket, its free end swinging transversely over the main bar, the support slidingly mounted on the opposite end of said bar, the dish-rule on the main bar, the plate slidingly mounted on said bar, said plate having the spoke-rule at one end and the lines *e* and *i* at the opposite end portion, and means for locking said plate to the main bar.

In testimony whereof I affix my signature in presence of two witnesses.

HECTOR McQUARRY.

Witnesses:

E. S. WHEELER,
R. B. WHEELER.