

Richard K. Vestal. Adjustable Axle Setting Gauge

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PATENTED APR 11 1871

Fig. 1.

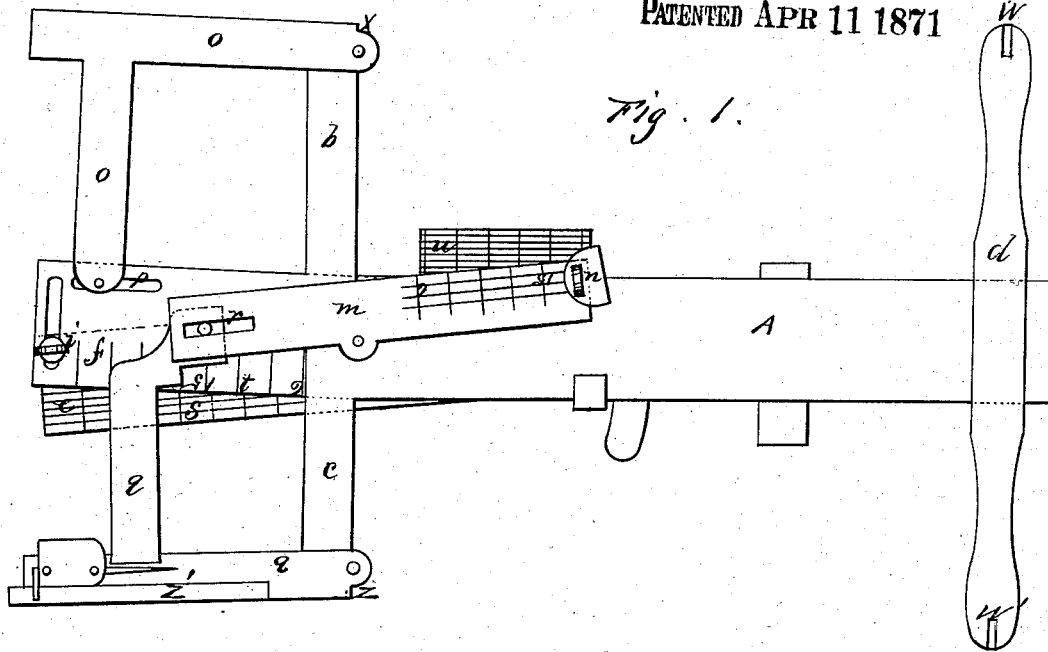
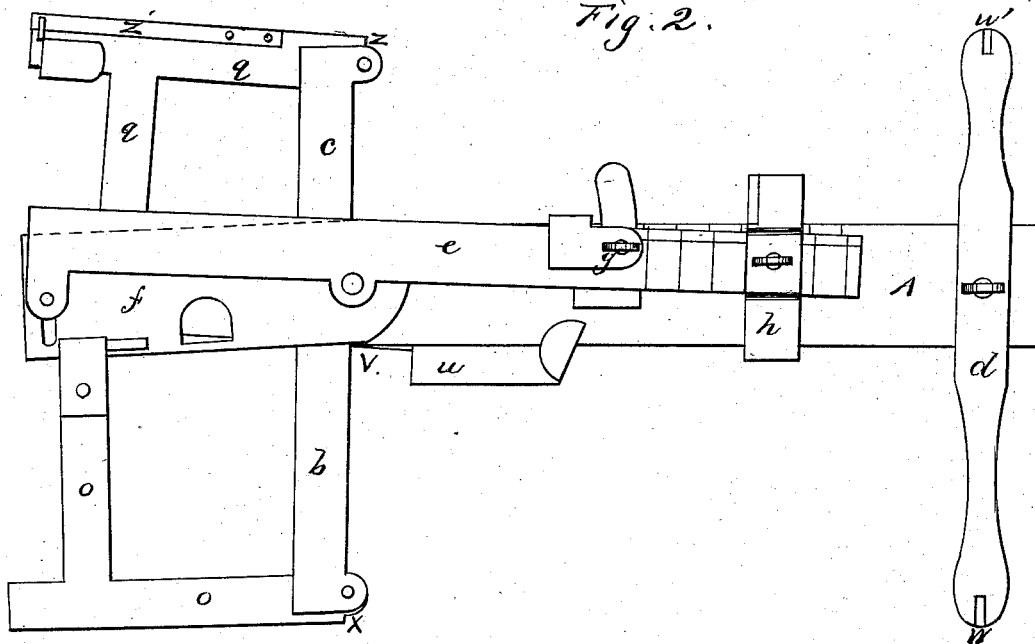


Fig. 2.



Witnesses.
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RICHARD K. VESTAL, OF SANTA CRUZ, CALIFORNIA.

Letters Patent No. 113,598, dated April 11, 1871.

IMPROVEMENT IN AXLE-GAUGES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, RICHARD K. VESTAL, of the city and county of Santa Cruz, State of California, have invented an Improved Adjustable Gauge for Setting Axles; and I do hereby declare the following description and accompanying drawing are sufficient to enable any person skilled in the art or science to which it most nearly appertains to make and use my said invention or improvements without further invention or experiment.

The object of my invention is to provide a universal gauge for setting the axles of common road vehicles, by which I am enabled, first, to set the axle to suit the taper of the spindle; and secondly, to suit the disk of the wheel; and lastly, to suit the gather of the wheels, or the slight tendency to run together, which is given each pair of wheels on the same axle for the purpose of making them run easily.

Referring to the accompanying drawing for a more complete explanation of my invention—

A is a bar of metal or wood, made longer than the longest diameter of a wheel ordinarily used, and also long enough to include any ordinary length of axle.

This bar has arms, *b* and *c*, extending at right angles to it from one end, while the other end carries an adjustable sliding arm or bar *d*.

Near the point where the arms *b* and *c* meet the bar A, two bars or plates, *e* and *f*, are pivoted to one side of the bar A, the bar *e* extending some distance along the bar A, and held at any desired point or slight angle with the bar A by a set-screw, *g*.

This bar *e* also carries an adjustable arm, *h*, the purpose of which will be more fully described hereafter.

The outer ends of the plates *e* and *f* are adjusted upon each other from side to side by means of a set-screw, *i*, moving in a transverse slot in one of the plates, so that they can be clamped at any point upon each other.

Upon the opposite side of the bar A, from the two arms *e* and *f*, and held by the same pin, is a third arm, *m*, which is also movable from side to side about its point of attachment, and is held by a set-screw, *n*.

The point of an L-shaped bar, *o*, is pinned to the extremity of the arm *b*, while the other end of the angle has a pin passing through it so as to slide in a slot, *p*, on the arm or bar *f*.

A similar-shaped bar, *q*, is pinned to the arm *c*, and has its opposite end made to move by means of a pin in a slot, *r*, in the plate or arm *m*.

The operation will be as follows:

The arms *e*, *f*, and *m* being set parallel with the bar A and with each other, the set-screw *i* is loosened and the arm *f* is moved over the arm *e*, about their

common center, till the scale *s* shows an angle equal to half the taper of the spindle, the reading being taken at a point opposite the transverse scale *t*, which shows the length of the spindle.

These two plates are then secured together by their set-screws *i*, and the screw *n* is loosened. The arm *m* is then moved about its point of attachment till its angle with the scale *u* on the bar A shows one-half the taper of the spindle less the "gather," (before described,) which it is determined to give the axle. The screw *n* is then made fast, and the arms *o* and *q* will then stand with their sides at an angle with lines which are parallel with the bar A.

The bar A is then turned over, as in fig. 2, and the felly of the wheel is made to rest in the space V, and against the side of the bar A, near the adjustable arm *d*, so that the edge of the bar A extends across the disk of the wheel just above the hub.

The bar or arm *h* is then set at a point on the arm *e*, opposite the center spoke, above the hub of the wheel; and the screw *g* being loosened, the arm *e* is moved toward the wheel till the end of the gauge *h* touches the center spoke. This movement will carry the outer end of the arm *e* in the opposite direction, taking with it the arms *f* and the guide *o*. The screw *g* being set again, (when the gauge *h* touches the spoke, as described,) the guide or arm *o* will be in the exact position to set the spindle in a vertical plane while the guide *q* will be adjusted to set it in the horizontal plane.

The first adjustment is made by first moving the bar *d* till one collar of the axle rests against the lug *w* and the other collar rests in the notch *x* at the end of the guide *o*. The axle is placed with the lower side of the spindle against the guide *o*, to which it must be made to conform by bending the axle. This being accomplished the axle will be set in that direction. It must then be brought against the guide *q*, the side of the spindle touching and the collars resting in the notch Z on the lug W.

The springs Z are made to stand at an angle above and below the guide *q*, but their edges are in the same plane, so that the axle can be exactly fitted notwithstanding its set in the other direction.

This finishes one end, which is then allowed to cool, and the other end is heated and set in the same manner.

By this device I am enabled to set axles rapidly and accurately, without any labor in drawing and laying out angles.

Having thus described my invention,

What I claim, and desire to secure by Letters Patent, is—

1. The bar A, with its arm *b* and guide *o*, in combination with the adjustable vibrating gauge-arms *e*

and *f*, substantially as and for the purpose herein described.

2. The adjustable gauge-arm *m* and the guide *g*, in combination with the bar *A*, substantially as and for the purpose described.

3. In combination with the arms *e* and *f* and the guide *o*, the adjustable gauge *h*, substantially as and for the purpose described.

In witness that the above-described invention is claimed by me I have hereunto set my hand and seal.

RICHARD K. VESTAL. [L. S.]

Witnesses:

GEO. H. STRONG,
WM. H. BUNNELS.