

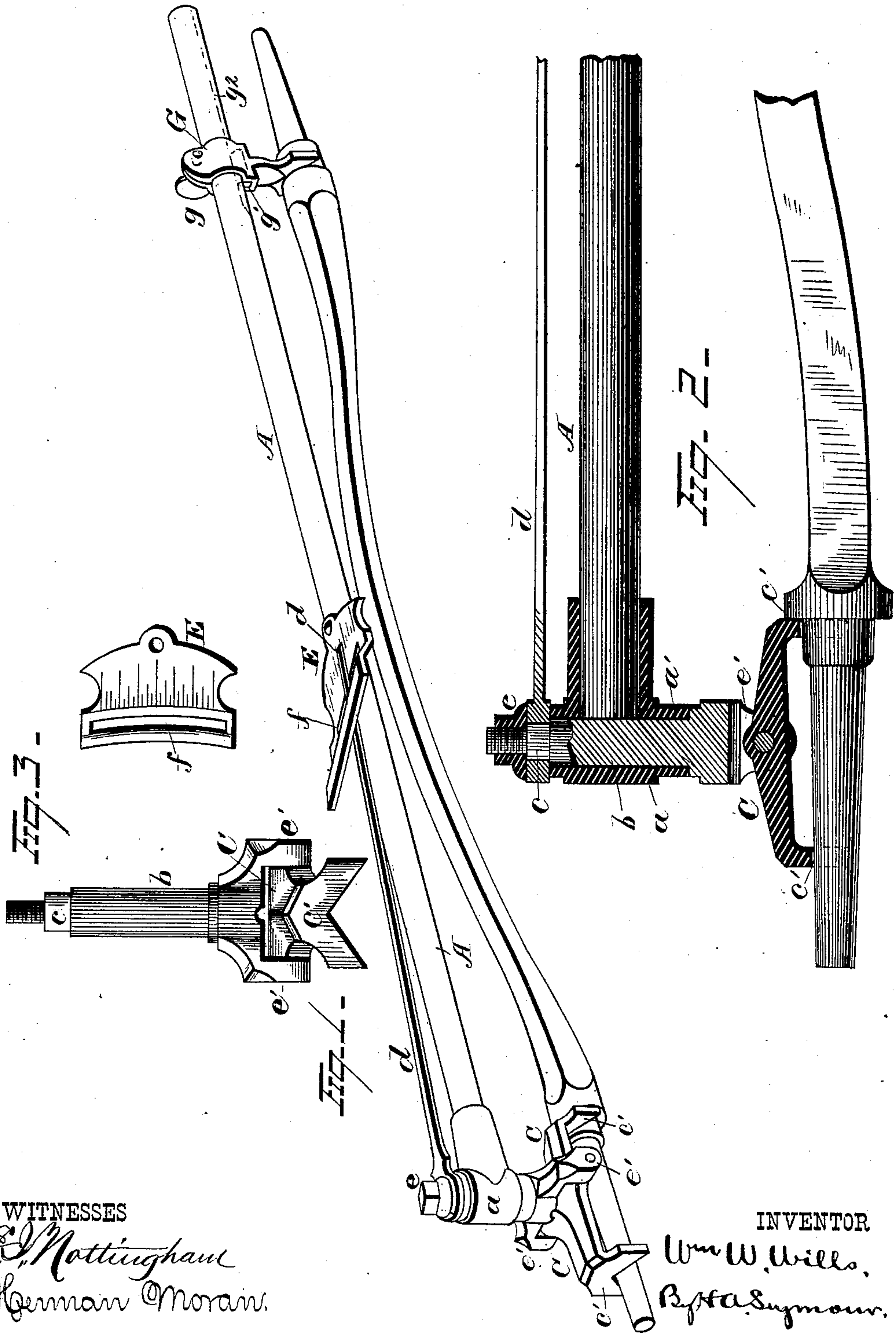
(Model.)

W. W. WILLS.

Axle Gage.

No. 243,670.

Patented June 28, 1881.



WITNESSES

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WILLIAM W. WILLS, OF JANESVILLE, WISCONSIN, ASSIGNOR TO THE
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AXLE-GAGE.

SPECIFICATION forming part of Letters Patent No. 243,670, dated June 28, 1881.

Application filed April 5, 1881. (Model.)

To all whom it may concern:

Be it known that I, WILLIAM W. WILLS, of Janesville, in the county of Rock and State of Wisconsin, have invented certain new and useful Improvements in Axle-Gages; and I do hereby 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 pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in axle-gages, the object of the same being to provide a device to set and gather vehicle-axles which is automatic in its operation, and, working, as it does, from the axis of the spindle of the axle, it entirely obviates the necessity of any adjustment for either taper or parallel arms, the only adjustment required being as to the proper length.

With these ends in view my invention consists in the peculiar construction and arrangement of the different parts, as will be more fully explained, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a perspective view of my improved device applied to an axle. Fig. 2 is a longitudinal section taken through the center of the gage; and Fig. 3 is a detail view of the different parts.

A represents a bar, of either metal or wood, of convenient size and proper length, to one end of which is rigidly secured a journal-box, *a*, having an opening, *a'*, passing through the same at right angles to the bar A, through which passes the journal *b*. This journal is provided near its upper end with a square shoulder, *c*, on which is placed an index-finger or pointer, *d*, the said pointer and journal being retained in place by the nut *e*, screwed onto the upper end of the journal. The lower end of this journal *b* is provided with depending arms *e'*, between which is pivoted the oscillating rest C, having the feet *e'* formed separate from or integral therewith. These feet are about five and one-half inches apart, and are provided with inverted-V-shaped bearing-faces, which fit over the axle-spindle and prevent the gage from slipping out of position, and the oscillatory motion of the foot allowing it to adjust itself on axles having any desired taper.

The pointer or index-finger *d* is about twenty-four inches long, and is secured by a nut onto a square shoulder formed near the upper end of the journal *b*, and points inward toward the index-guard and scale-plate E, rigidly secured to the bar A at a point where the point of the index-finger or pointer will note and magnify the variations upon the scale, said scale being marked in sixteenths of an inch from the center to each side. This scale-plate is provided with an oblong slot, *f*, which, when the rear end of the plate is bent as shown in the drawings, offers a passage for the end of the pointer, so that the same may rest on the scale-plate, and also forming a guide, in which the pointer works, said guide holding the pointer down on the plate and preventing the end of the same from being damaged by engaging with obstructions.

G is a sliding rest, situated on the bar opposite the end to which the rigid journal is secured, the upper end of which is slitted and provided with two upwardly-projecting lips, through which a thumb-screw, *g*, passes, and holds the same in the desired position on the bar. This rest is also provided with a feather or key, *g'*, which fits in a corresponding groove, *g''*, on the under side of the bar A and prevents the slide from turning on the bar while being adjusted to the length of the axle. The lower end of this sliding rest is provided with one foot having a bearing-face similar to those described for the opposite side.

The advantage of this gage is that it instantly adjusts itself to any size axle or shaft, where heretofore gages had to be adjusted to the different sizes. This is also true of the taper. The gages heretofore used had not only to be adjusted to different sizes, but if different tapers on the same axles occurred those gages gave imperfect results. With this gage different sizes and tapers are handled automatically and a correct result always obtained.

It will be seen from the above that, the double rest being only about five and one-half inches long and the pointer about twenty-four inches long, any variations of the spindles from the true incline will be magnified over four times on the scale-plate. When it is desired to have the spindles inclined in a predetermined angle the gage is placed thereon and

the inclination of the spindle noted on the scale-plate. The spindle at this end of the axle is now deflected on the anvil, and the gage is again placed thereon to ascertain if correct, and so repeated until the pointer rests at the predetermined point on the scale-plate. The opposite journal is then deflected in the same manner until the pointer rests on a point the same distance from the center on the opposite side of the scale-plate.

It will thus be seen that by the use of my improved gage both spindles of the axle can be deflected or inclined exactly alike to give the required pitch to the wheels placed thereon.

By giving the gage or axle a quarter-turn the pointer will show if the axle has been accidentally bent to one side of a vertical plane passing through the center of the axle while giving the same the desired pitch, and if such is the case the axle is straightened on the anvil, and when perfectly true the pointer will rest on the center of the scale-plate.

I can, if desired, make the gage stationary to a table or stand with the rests facing upward and the pointer and scale-plate on the opposite side of the bar A; or, instead of using a pointer and scale-plate, as shown, a spring-scale connected to the double rest by any suitable gearing can be used to accomplish the same results; and hence it is evident that numerous changes in the construction and arrangement of the different parts can be resorted to without departing from the spirit of my invention, for by slightly modifying the device it may be adapted to the straightening of journals as well as the setting of axles; and hence I would have it understood that I do not limit myself to the exact construction shown and described.

I am aware that axle-gages have been constructed of bars pivoted to each other, clamps being adjustably secured to the outer ends of the bars, said clamps being adapted to fit the axles, the inner end of one bar being constructed to overlap the inner end of the other, and said inner ends provided with a scale and indicator; and hence I would have it understood that I make no claim to such construction and arrangement of parts.

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

1. In an axle-gage, the combination, with a bar or rod having a rest adjustably secured to one end thereof by spline and groove and set-screw, said rest being constructed to fit upon one of the axle-spindles, of a swiveled rest connected with the opposite end of the bar or rod, an index-finger or pointer connected with the journal of the swiveled rest, and a scale for indicating the deflection of the spindle, substantially as set forth.

2. In an axle-gage, the combination, with a rod having a fixed journal-box at one end and an adjustable rest at the other end, of a journal located in the journal-box and provided at its lower end with two depending arms, an oscillating rest secured between said arms and adapted to be received and retained upon either spindle of the axle, and an index-finger secured to the said journal and arranged to indicate on a scale the deflection of the spindles from a point or points on the axle, substantially as set forth.

3. In an axle-gage, the combination, with a bar or rod provided with a rest at one end, of a rest pivoted to a journal supported in a bearing attached to the opposite end of the bar or rod, and an index-finger or pointer and scale for indicating the deflection of the spindles, substantially as set forth.

4. In an axle-gage, the combination, with a bar or rod provided with a longitudinally-adjustable rest at one end and a swiveled oscillating rest at its opposite end, of a scale secured to the bar, said scale provided with an elongated slot, and an index secured at one end to the journal of the swiveled rest, the free end of the finger or pointer extending through the elongated slot in the scale, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 29th day of March, 1881.

WILLIAM W. WILLS.

Witnesses:

WALTER WHEELER,
J. B. DOE, Jr.