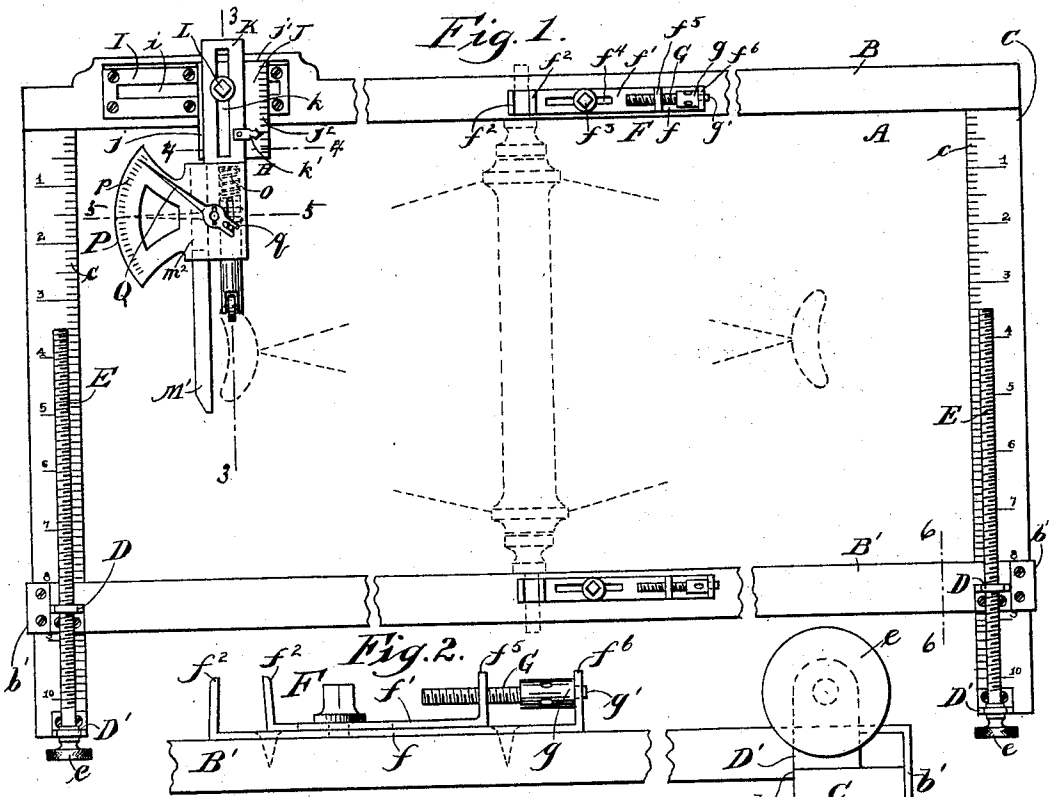
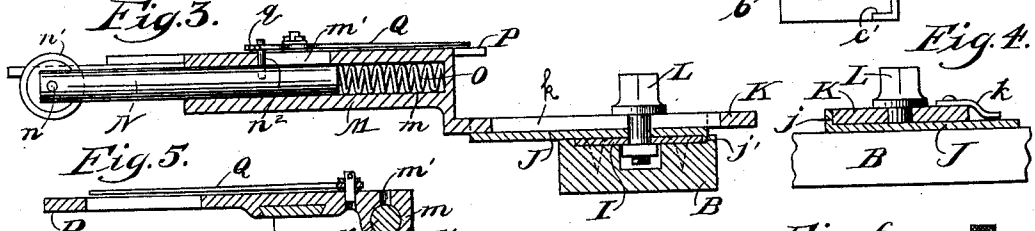
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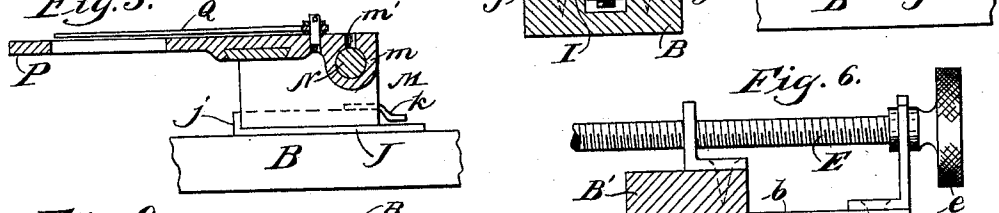
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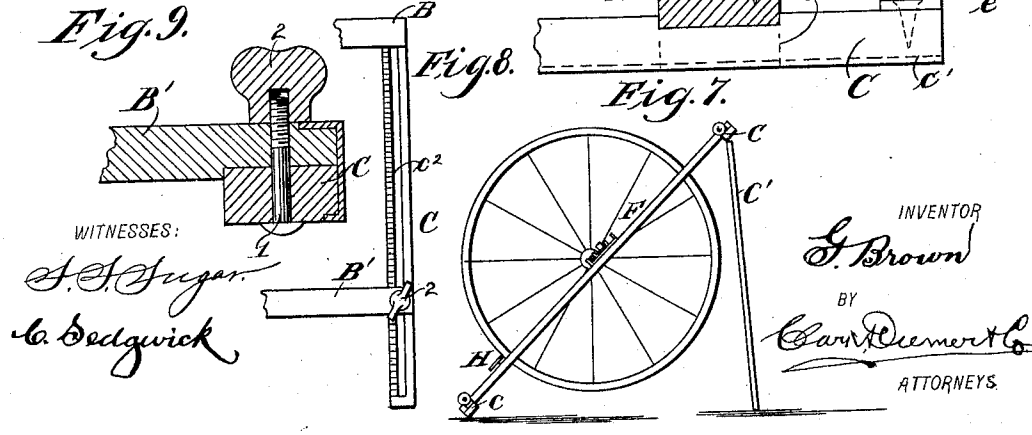
AUTOMATIC INDICATOR FOR TRUING WHEELS.

No. 603,782. Patented May 10, 1898.









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AUTOMATIC INDICATOR FOR TRUING WHEELS.

SPECIFICATION forming part of Letters Patent No. 603,782, dated May 10, 1898.

Application filed February 23, 1897. Serial No. 624,718. (No model.)

To all whom it may concern:

Be it known that I, GEORGE BROWN, a citizen of the United States, and a resident of Long Island City, county of Queens, and State of New York, have invented certain new and useful Improvements in Automatic Indicators for Truing Wheels, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof, in which similar letters and figures of reference indicate corresponding parts.

This invention relates to an improved automatic indicator for truing wheels, the object thereof being to produce a device of this character which will automatically indicate all inequalities or faulty positions of the assembled parts of any wheel which comprises removable spokes in its construction, whereby the rim can be maintained in perfect lateral adjustment and also concentric with the axis.

The apparatus is especially applicable for truing and adjusting bicycle or other vehicle wheels, and it is also susceptible of use as a rack for supporting bicycles when they are not in use.

The invention will be hereinafter fully described, and specifically set forth in the annexed claims.

In the accompanying drawings, forming part of this specification, Figure 1 is a plan view of my improved device, showing portions thereof broken away. Fig. 2 is a detail edge view illustrating a clamp forming part of the apparatus. Fig. 3 is longitudinal sectional elevation taken through the indicator forming part of my invention on a line 3 3 of Fig. 1. Fig. 4 is a cross-sectional elevation taken on a line 4 4 of Fig. 1. Fig. 5 is a cross-sectional elevation taken on a line 5 5 of Fig. 1. Fig. 6 is a cross-sectional elevation illustrating a means for adjusting one of the lateral beams forming part of the apparatus. This view is taken on a line 6 6 of Fig. 1. Fig. 7 is a side elevation of the device, illustrating the same in position for use; and Figs. 8 and 9 are detail views illustrating a modified means for adjusting the framework of the apparatus.

In the practice of my invention I provide a frame A, comprising a longitudinal beam B and two cross-beams C, which are extended at right angles to the cross-beam B and securely fastened thereto. These two said cross-beams C are respectively supplied on their upper surfaces with scales *c*, laid out, preferably, in inches and fractional parts thereof—for instance, eighths, as illustrated in the drawings. These beams may be of any desired length, depending upon the size of the wheels adapted for use in combination with the device.

Engaging at its two respective ends with the beams C is an adjustable beam B′, which is mortised at each end to form shoulders *b*, Fig. 2, which bear against the inner edges of the cross-beams C to prevent contraction of said beams, and to prevent spreading of the beams C straps *b′* are secured to the respective ends of the adjustable beam B′ and engage with grooves *c′* in the lower outside edges of the beams C.

As a means for adjusting the beam B′ each end thereof is supplied with a stud D, having threaded openings leading therethrough. Engaging with each of these said studs are screws E, which are loosely journaled at their outer ends through studs D′, located on the respective outer ends of the beams C. These said screws E have milled heads *e* on their outer ends adapted for use as a means for operating them.

Mounted upon the respective upper surfaces of the beams B and B′ are clamps F, comprising fixed plates *f* and sliding or adjustable plates *f′*. These two said plates have jaws or projections f^2 extended outwardly from their respective adjacent ends, which converge at angles toward each other, whereby in conjunction they supply a dovetail space adapted for containing the axle of the wheel to be adjusted. The plate *f′* is held to the plate *f* by means of a screw f^3, which is threaded into the plate *f* and passes through a slot f^4 in the plate *f′*. This said screw is adapted for locking the plates in tight engagement with each other.

As a means for adjusting the plates *f* and *f′*, they are provided at their respective ends opposite to the jaws f^2 with upright projections f^5 and f^6. Threaded through the upright f^5 is a screw G, which has a head *g* formed thereon adapted for revolving the

screw. Extended outwardly from this said head is a spindle g', which is loosely journaled through the upright f^6.

Mounted upon the upper surface of the beam B, near one end thereof, is an indicator H, which comprises a fixed plate I and adjustable plates J and K, these said plates being held together by means of a screw or spindle L, which passes through crossed slots i and k, located, respectively, in the plates I and K, and also through an aperture in the plate J, which is located between them.

The plate J has a flange j extended upwardly therefrom for engagement with one edge of the plate K for the purpose of maintaining these two said plates parallel to each other, and the plate J is provided with another flange j', projected downwardly therefrom, which engages with the outer edge of the plate I for maintaining a position at right angles therewith.

Projected inwardly from the plate K is a box M, which has a cylindrical recess m leading therethrough for engagement with a piston N. This said piston has a wheel n mounted upon its outer end, which is preferably covered with a peripheral rubber band n'. This said piston is normally maintained in an extended position by means of a spiral spring O.

Extended laterally from the box M is a segmental protractor P, which has a scale p marked thereon.

Pivotally mounted upon the upper surface of the box M is a pointer or needle Q, adapted for indicating the degrees upon the protractor P. This said needle has a fork q extended therefrom, which engages with a pin n^2, extended upwardly from the piston N and passing through a slot m' in the upper surface of the box M. A removable blade M′ is also connected to the box M and extended at right angles from the inner end thereof parallel with the piston N. This said blade engages with a socket m^2 in the box M, so that it can be readily removed.

As a means for setting the plate K in proper relative arrangement with the plate J a scale j^2 is formed upon the surface of the plate J, and a pointer k' is connected to the plate K for registering with the scale j^2. This said scale contains the same subdivision of inches as the beams C, whereby the indicator may be set at proper relative position to adjust a wheel of any given size.

In the operation and use of the device as applied, for instance, to a bicycle or other vehicle wheel to be adjusted the axle of the wheel is brought into engagement with the clamps F, which tightly engage the two ends thereof. The width of the hub is then determined. This width equals the distance between the beams B and B′ after the beam B′ is properly adjusted by means of its adjusting-screws E. From the product comprising the width of the hub I then deduct the width of the rim, and the remainder is divided by two, which gives the distance at which the pointer k' is required to be set relatively with the scale j^2 upon the plate J, whereby the wheel n will bear against the side of the rim. Then by revolving the wheel upon its axle any inequalities in the setting thereof will be indicated by the pointer Q. This said pointer will accurately indicate whether the rim is set at right angles directly across the center of the hub, and the blade N will point out any eccentric position of the wheel relatively with its axle.

The clamps F are located directly opposite to each other, and they are adapted to securely clamp the axle of the wheel, so that the hub may revolve freely thereon. The jaws f^2 of these said clamps are extended toward each other in convergent angles, so that round axles may be rigidly and securely clamped.

In Fig. 7 I have illustrated a means for supporting the apparatus, comprising a hinged upright C′, connected to one of the cross-beams C; but I do not confine myself to any specific means for supporting the framework. When this means of support is used, however, the device as a whole can be readily employed as a bicycle-rack.

In Figs. 8 and 9 of the drawings I have shown a modified means for adjusting the adjustable beam B′, which comprises simply a screw 1, engaging with the beam B′ and passing through a slot c^2 in the cross-beam C, the said adjustable beam being securely held in place by means of a thumb-nut 2, which engages with the screw 1.

I do not confine myself to the specific details of mere mechanical construction as herein described and shown, as it is obvious that under the scope of my invention I am entitled to slight structural variations. For instance, I do not confine myself to the specific form of spring used for operating the piston forming part of my improved indicator, and other obvious mechanical changes may be made.

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

1. A wheel adjusting and truing apparatus, comprising a framework consisting of a longitudinal beam and two cross-beams, and an adjustable beam mounted upon the said cross-beams, said cross-beams having graduations upon the upper surface thereof and said longitudinal beams having clamps secured respectively to their upper surfaces, and means for adjusting the movable beam, substantially as shown and described.

2. As a wheel adjusting and truing apparatus, the combination of the framework, comprising a longitudinal beam having two cross-beams extended from the ends thereof and an adjustable longitudinal beam mounted upon the said cross-beams, and means for adjusting the movable beam, and oppositely-located clamps comprising sliding plates and converging jaws mounted respectively upon the

longitudinal beam of the framework and the adjustable beam and graduated scales upon the cross-beams and an indicator mounted upon the rigid beam of the framework, said indicator having a spring-actuated piston therein with a wheel mounted in its outer end, and said piston connected to a pointer which registers with a protractor, substantially as shown and described.

3. In a wheel adjusting and truing apparatus, the combination of the framework, comprising a longitudinal beam and two oppositely-located beams extended at right angles thereto and having scales marked upon their upper surfaces, and an adjustable beam mounted upon the said beams by means of an adjusting-screw engaging respectively with projections or lugs extended from the movable beam and the cross-beams, and clamps mounted respectively upon the beam of the framework and upon the adjustable beam, said clamps comprising fixed plates and sliding plates and screw for adjusting them, and converging jaws or projections extending from the said plates and an indicator comprising a fixed plate and adjustable plates located at right angles thereto, and means for adjusting the plates; and a box having a spring-actuated piston therein which engages with a needle which registers with a protractor projected from the said box, substantially as shown and described.

4. An automatic indicator adapted for use in connection with a wheel-truing apparatus, comprising a fixed plate having a slot therein, a sliding plate arranged at right angles therewith and an auxiliary slotted plate arranged parallel with the said sliding plate and a screw connecting the parts to each other, the said sliding plate having a scale thereon which registers with a pointer of the auxiliary sliding plate, and a box projected from the auxiliary sliding plate and having a spring-actuated piston engaging therewith, which piston engages with a forked pointer which registers with a protractor extended from the said box, the said piston having a wheel journaled in the outer end thereof for engagement with the edge of a wheel-rim to be adjusted, the said box also having a removable blade extended therefrom for the purpose of maintaining a wheel in position, substantially as shown and described.

5. A wheel adjusting and truing apparatus, comprising a longitudinal beam having cross-beams extended from each end thereof, and an adjustable beam engaging with the cross-beams, and means for locking the adjustable beam to the cross-beams; in combination with an automatic indicator, mounted upon the said stationary longitudinal beam, comprising a lower plate and an upper slotted plate arranged parallel with each other and means for locking them to each other, the lower plate having a scale thereon which registers with a pointer upon the upper plate, and a box connected to the upper plate and having a spring-actuated piston therein which engages with a needle and has a wheel upon the outer end thereof, and a protractor for registering with the said needle, substantially as shown and described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 20th day of February, 1897.

GEORGE BROWN.

Witnesses:
M. G. MACLEAN,
EMILY SEIDLER.