

(No Model.)

P. H. GRIFFIN.
GAGE.

No. 413,779.

Patented Oct. 29, 1889.

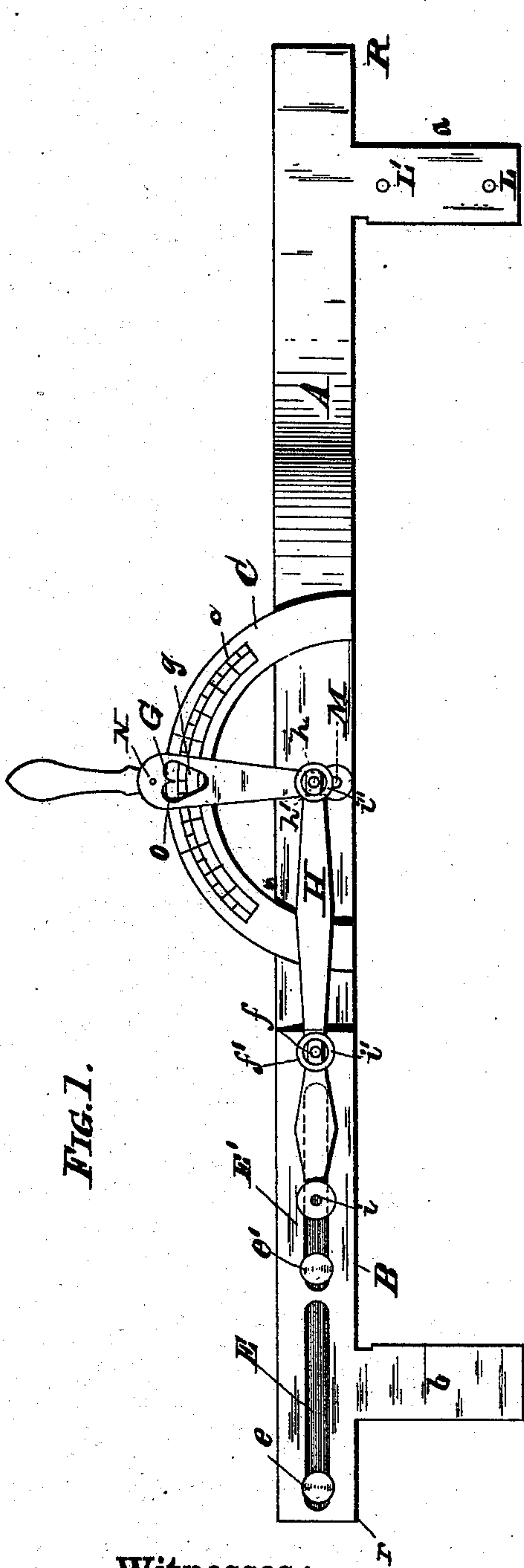


FIG. 1.

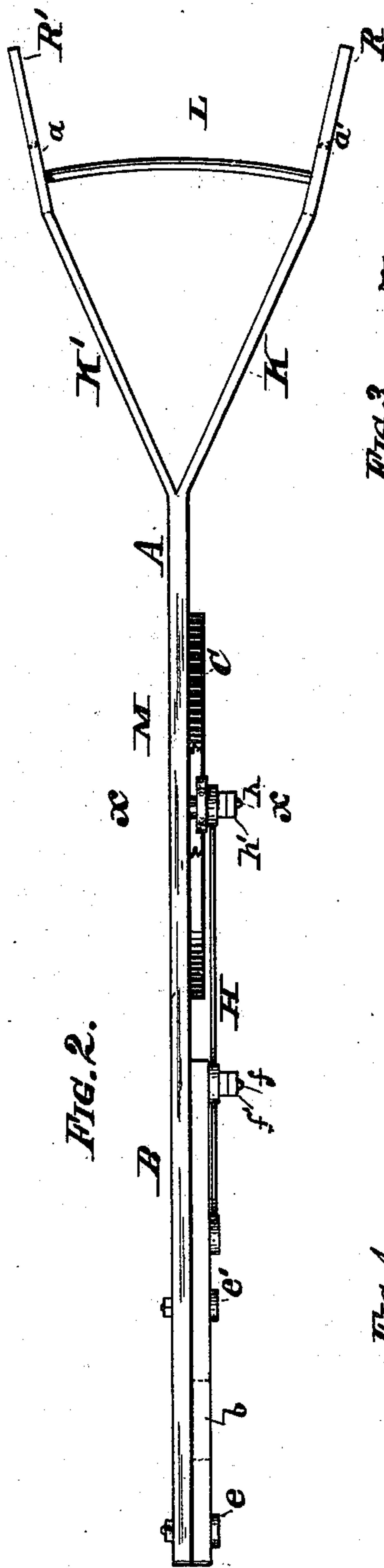


FIG. 2.

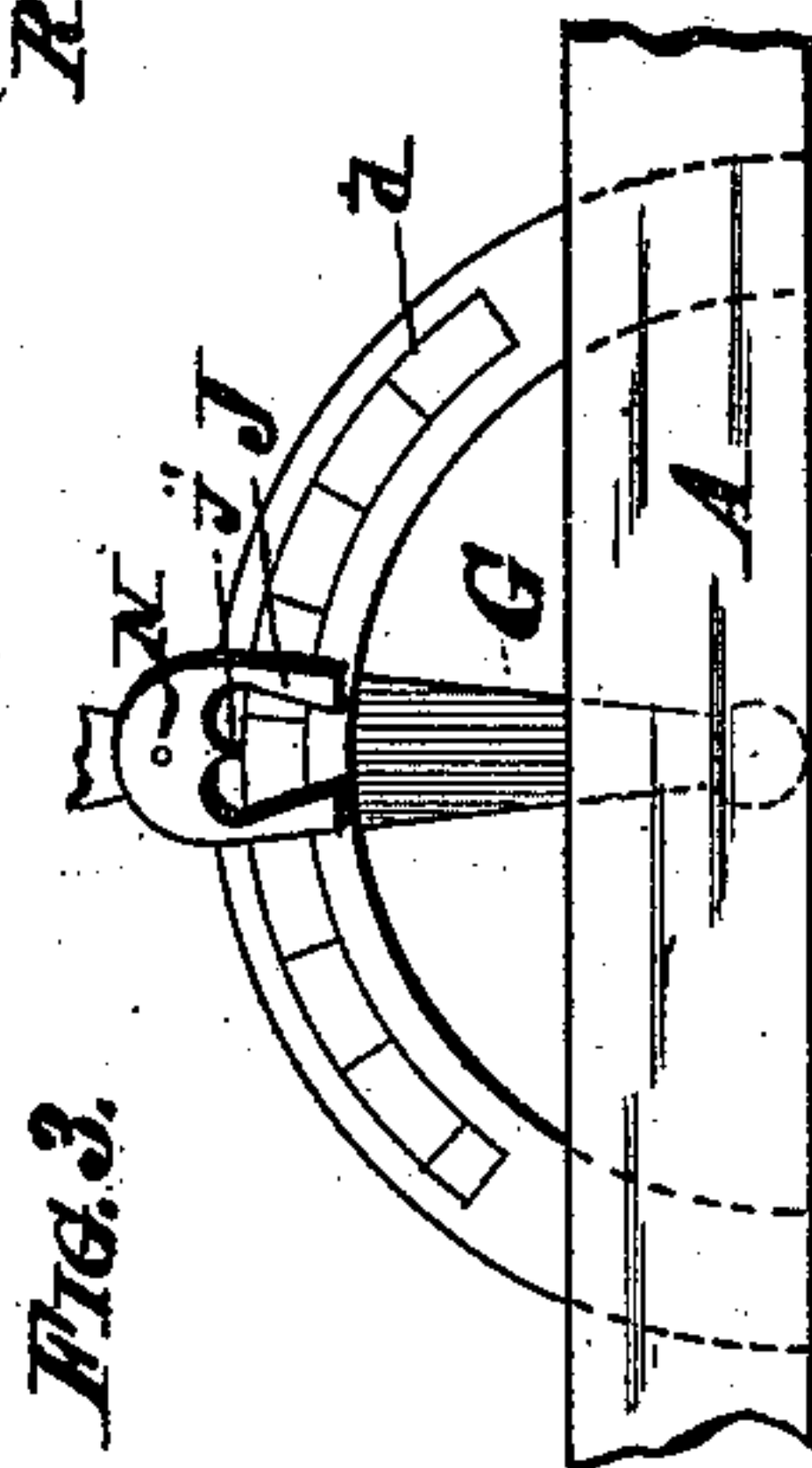


FIG. 3.

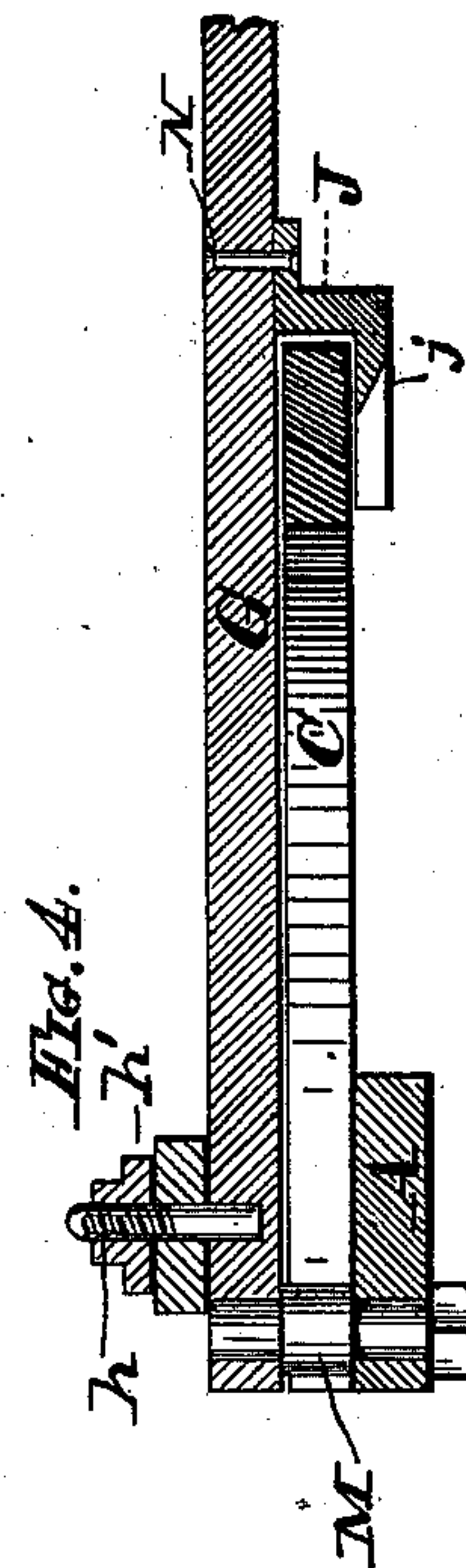


FIG. 4.

Witnesses:

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UNITED STATES PATENT OFFICE.

PATRICK HENRY GRIFFIN, OF BUFFALO, NEW YORK.

GAGE.

SPECIFICATION forming part of Letters Patent No. 413,779, dated October 29, 1889.

Application filed June 14, 1889. Serial No. 314,288. (No model.)

To all whom it may concern:

Be it known that I, PATRICK HENRY GRIFFIN, of Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Measuring-Gages; and I do hereby declare that the following description of my said invention, taken in connection with the accompanying sheet of drawings, forms a full, clear, and exact specification, which will enable others skilled in the art to which it appertains to make and use the same.

This invention has general reference to measuring-gages; and it consists, essentially, in the novel and peculiar combination of parts and details of construction, as hereinafter first fully set forth and described, and then pointed out in the claims.

In the drawings already mentioned, Figure 1 is a side elevation of my device. Fig. 2 is a plan of the same; and Fig. 3 is a rear view of the dial, showing a different graduation. Fig. 4 is a sectional elevation in line *xx* of Fig. 2.

Like parts are represented by corresponding letters of reference in all the figures.

The object of this invention is the production of a simple, cheap, and efficient device for measuring the inside and outside diameters of pulleys, cylinders, car-wheels, chills for car-wheels, and in fact all work of a similar nature.

To attain this result, I construct my device of a main bar A, having at one end two prongs K K', projecting outwardly from the same in the shape of the letter Y, said prongs being stiffened by rods L L', the ends of which are fastened to the said prongs K K'. Near the outer ends of these prongs are located two downwardly-projecting legs *a a'* and overhanging bars R R', said legs being set at an angle, the point of which is at the junction of the prongs and main bar A. At the other end of the main bar is located a sliding bar B, having two slots E E', within which the bolts *e e'* are fitted, said bolts being screwed into the bar A, with their heads overlapping the slots, thus allowing the said bar B to be moved back and forth, said slots having a length equal to the capacity of the device, plus double the width of the downward projection *a*, as hereinafter described. Upon

one end of said bar B is located a downwardly-projecting leg *b* and overhanging bar *r*, while upon the other end is located a pivoting-bolt *f*, upon which is journaled a connecting-rod H, having three holes or eyes *i i' i''*, respectively, the eye *i''* being the one by which said rod is journaled upon a pivoting-bolt *h* in the lever G. This rod H is held in position upon the bolt *h* by the nut *h'*, said nut having flat spaces thereon for the application of a wrench to unscrew the same when necessary.

Upon the center of the bar A is located a semicircular dial C, having graduations *c*, adapted to indicate the inside diameter of the object which the device is arranged to measure. Upon the reverse side of said dial are shown further graduations *d* to enable one to ascertain the outside diameter at which the device was last set when used as an outside caliper.

G is a lever, pivoted with its lower end on the bar A at the center of the dial C by a shoulder-bolt M, as clearly shown in Fig. 4. A short distance above the lower end of said lever is located the pivoting-bolt *h*, already mentioned. Near the upper end of said lever G is provided an aperture *g*, by means of which the figures of the graduation on the dial may be seen. In the upper end of this aperture is placed a pointer *o*, to indicate inside diameters when used as a gage for gauging the inside diameters of cylinders, rings, chills, &c. On the back of the said lever G is secured by rivets N a guard-piece J, to keep said lever in connection with the semicircular dial C, said guard-piece having an excision shaped so as to form therein a pointer *j*, as clearly shown in Figs. 3 and 4, the former, in conjunction with suitable graduations *d*, indicating the outside diameters to which the apparatus may be set.

In operation the device is used as follows: When the device is to be used for measuring inside diameters—such as the inside of rings, cylinders, chills for the treads of car-wheels, &c.—the connecting-rod H engages the sliding bar B at the inner eye *i'*. The legs *a, a'* and *b* of the device are then placed on the interior of the work to be measured, with the overhanging bars *r R R'* bearing on the face of said work. The lever G is then manipu-

lated until the legs touch the work. The device is then removed, when pointer O will indicate upon the dial the correct diameter of the work, it being understood that these
 5 gages are to be used for ascertaining the variations from the diameters of standard work—such as car-wheels, pulleys, &c.—where the predetermined sizes are known. For instance, supposing a thirty-three-inch car-
 10 wheel is to be measured on a thirty-three-inch caliper, the pendent bars *a a' b* are so arranged that when the respective pointer stands in the center of the semicircular dial the gage will measure exactly thirty-three
 15 inches, so that any variation from this size, either larger or smaller, will be indicated on the respective side of said dial. When the device is to be used for outside work of the same diameter, the nut *f'* is unscrewed and
 20 the connecting-rod removed from the pivot-bolt *f*, when the sliding bar H is moved outwardly until the pivot *f* is opposite the outer eye *i* in the connecting-rod, when the said eye is placed upon the pivot-bolt and the nut re-
 25 placed. The device as now set will indicate exactly the same outside diameter as it heretofore showed the inside, so that if work were fitted to the size indicated by the device it would be a correct fit.

30 It will be seen that the range of the device is governed by the distance between the bolt upon which the lever G is journaled and the bolt upon which the connecting-rod is placed. It may in some cases be advantageous to in-
 35 crease the range of the device by increasing the distance between the two bolts M *h*, or the connecting-rod may be provided with a larger number of eyes to increase the range of work capable of being measured, such
 40 changes being in no wise a departure from the nature of my invention. It will be further observed that this device is especially adapted for use in the measurement of car-wheels and
 45 their chills.

50 Car-wheels are usually designated by numbers. When the treads of the same are trued up, they are gaged to ascertain the diameter in inches, from which the corresponding number is ascertained. In such cases it will be
 55 advantageous to inscribe the numbers of the wheels upon the dial instead of the diameter in inches, thus obviating the necessity of ascertaining the number of the car-wheel from the diameter in inches, such graduation being an equivalent of the present graduation, and will be within the scope of my invention.

The hereinbefore-described device may be produced in wrought-iron in the process of forging, while the connecting-rod may be produced in malleable iron, so that when the de-
 60 vice is finished in a substantial manner it will be a serviceable implement for use in machine-shops, car-wheel factories, locomotive-works, pattern-shops, &c., especially so
 65 since it can be produced at a low figure.

In some cases it may be advantageous to dispense with one of the pointers, so as to use it

as an outside or an inside caliper only—a matter which will suggest itself to the intelligent mechanic.

Having thus fully described my invention, I claim as new and desire to secure to me by Letters Patent of the United States—

1. A gage for measuring the treads of car-wheels and similar objects, consisting of a
 75 stationary bar having two legs and a suitable dial, a further bar provided with a single downwardly-projecting leg, and a lever fulcrumed on the stationary bar and connected with the movable bar by a connecting-rod,
 80 said bars being held in sliding contact by screw-bolts passing through apertures in the movable bar, as and for the purpose set forth.

2. In measuring-gages, the combination, 85 with the bar A, having legs *a a'*, of a movable bar B, having two longitudinal slots E E', engaging bolts *e e'*, and near its end a leg *b*, lever G, fulcrumed on the bar A and connected with the bar B by the connecting-rod H, and
 90 a suitable dial upon said bar A, as and for the purpose set forth.

3. In measuring-gages, a dial having graduations on both of its faces, in combination with a lever having its fulcrum in the center
 95 of said dial, said lever having in its face an opening provided with a pointer and on the back a guard-piece overlapping the edge of said dial, and also provided with a pointer, whereby the graduations on either side of
 100 said dial may be used and the lever held in proper position, substantially as described.

4. In measuring-gages, the combination, with the bar A, having two downwardly-projecting legs *a a'* and overhanging bars R R',
 105 a dial C, having graduations *c d*, a sliding bar B, having longitudinal slots E E', bolts *e e'*, a downwardly-projecting leg *b*, and overhanging bar *r*, a pivoted lever G, having aperture *g*, provided with a pointer *o* on one side
 110 and a guard provided with a pointer *j* on its opposite side, and a connecting-rod H, to connect the stationary bar with the movable bar, all as set forth.

5. In a combined in and outside measuring-gage, the combination, with the bar A, hav-
 115 ing near one end a Y-shaped fork provided with downwardly-projecting legs *a a'* and overhanging portions R R', and on the other end a sliding bar B, provided with two longi-
 120 tudinal slots E E' and downwardly-projecting leg *b*, and two screw-bolts *e e'*, engaging in said slots and being screwed into said bar A, whereby the said bar B is movably secured to the said bar A, substantially as and
 125 for the purpose stated.

In testimony that I claim the foregoing as my invention I have hereto set my hand in the presence of two subscribing witnesses.

PATRICK HENRY GRIFFIN.

Attest:

WM. O. STARK,
 MICHAEL J. STARK.