

No. 778,411.

PATENTED DEC. 27, 1904.

J. B. GUINN & F. H. ANDES.

LOCOMOTIVE TIRE GAGE.

APPLICATION FILED DEC. 4, 1903.

2 SHEETS—SHEET 1.

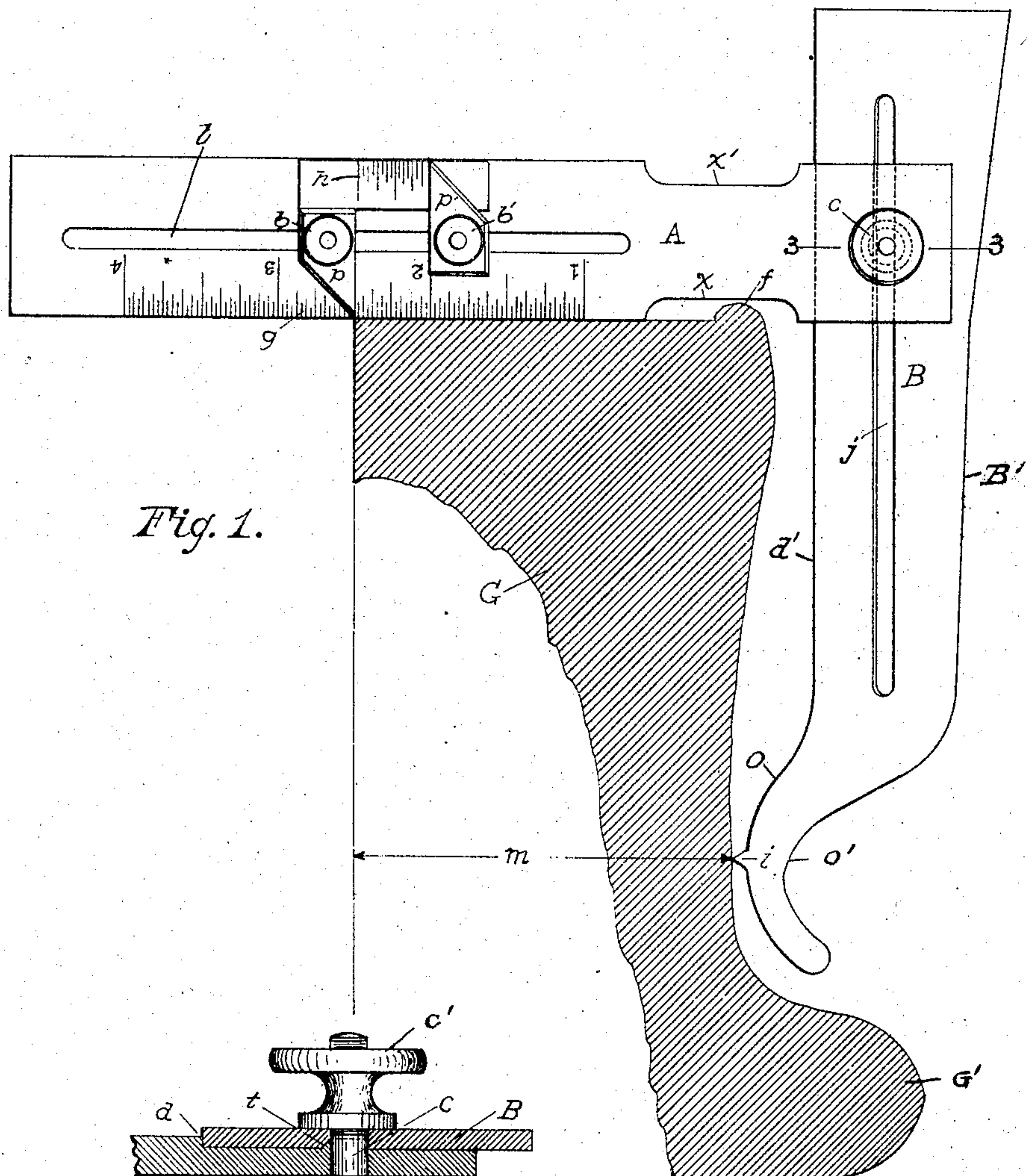


Fig. 1.

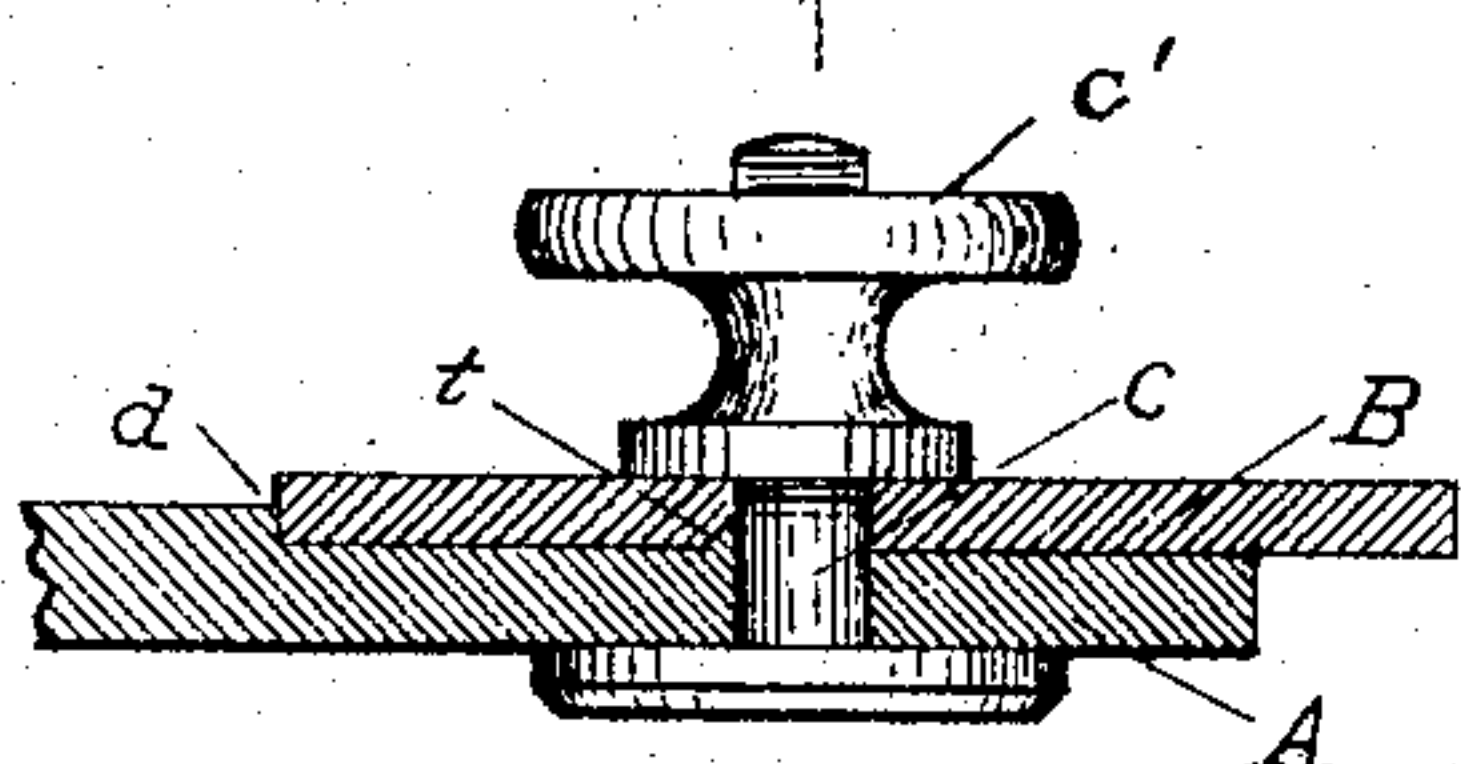


Fig. 3.

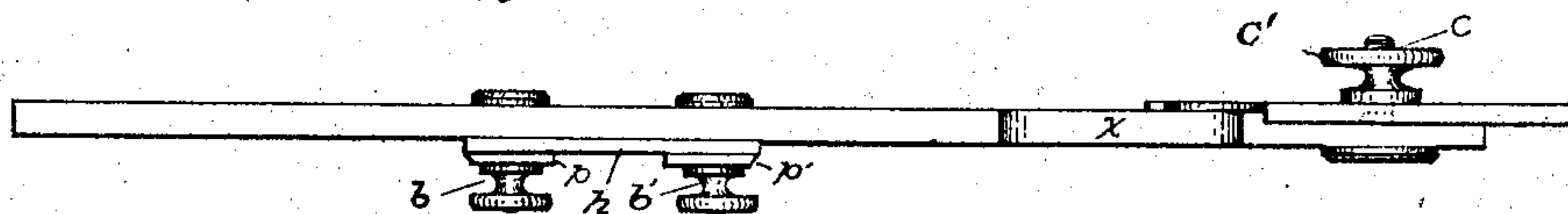


Fig. 2.

Witnesses.

M. L. Corn
Wm. C. Sheen.

Inventors.

J. B. Guinn
F. H. Andes.

No. 778,411.

PATENTED DEC. 27, 1904.

J. B. GUINN & F. H. ANDES.

LOCOMOTIVE TIRE GAGE.

APPLICATION FILED DEC. 4, 1903.

2 SHEETS—SHEET 2.

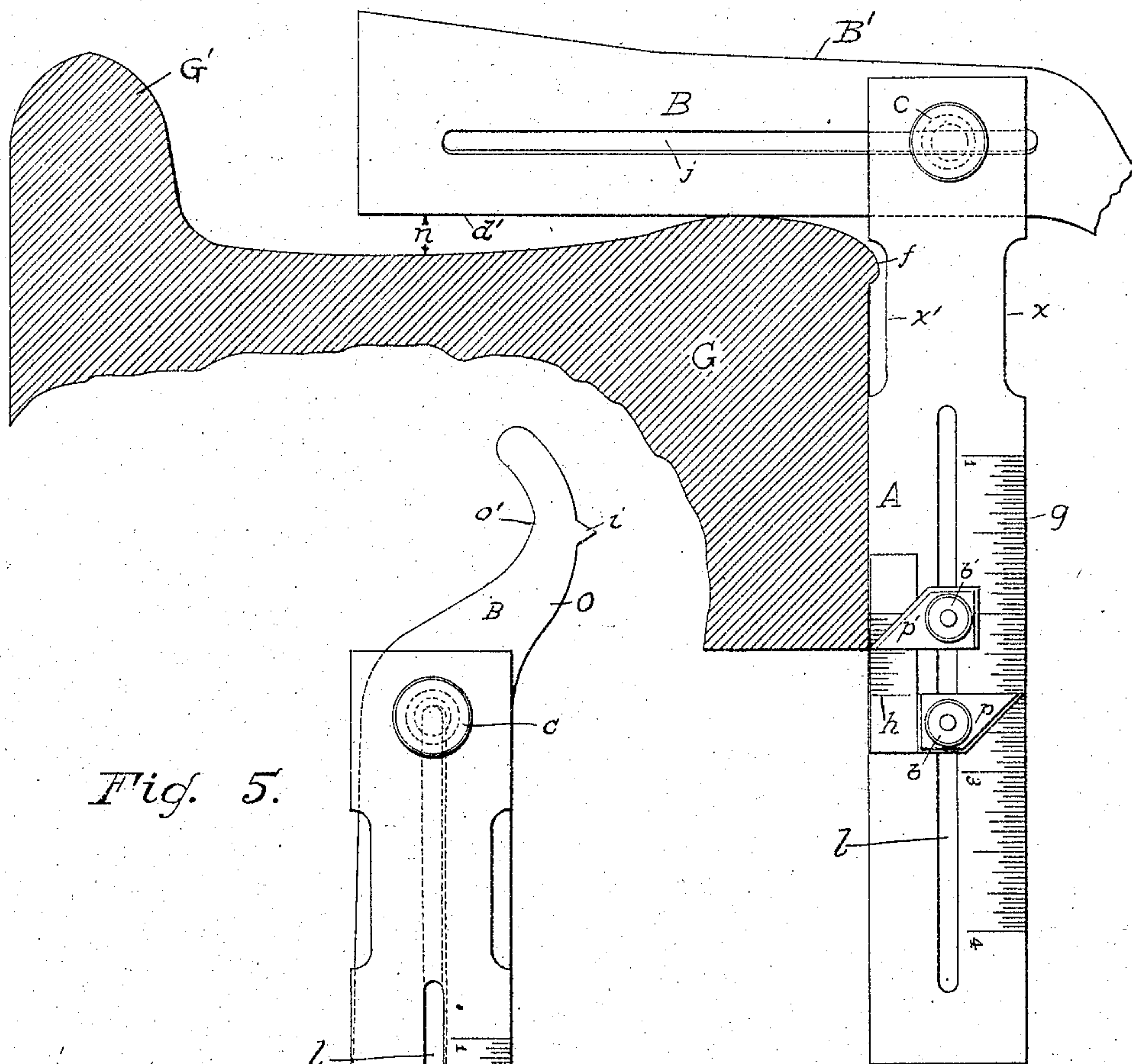
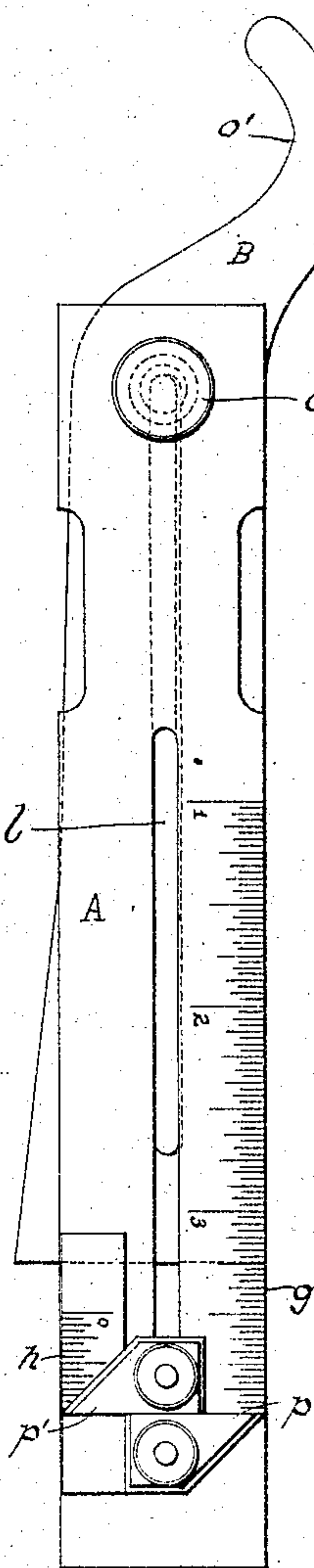


Fig. 4.

Fig. 5.



Witnesses.
M. R. Coen
Wm. C. Sheen.

Inventors.
J. B. Guinn
F. H. Andes.

UNITED STATES PATENT OFFICE.

JOHN B. GUINN AND FRANK H. ANDES, OF KNOXVILLE, TENNESSEE.

LOCOMOTIVE-TIRE GAGE.

SPECIFICATION forming part of Letters Patent No. 778,411, dated December 27, 1904.

Application filed December 4, 1903. Serial No. 183,761.

To all whom it may concern:

Be it known that we, JOHN B. GUINN and FRANK H. ANDES, citizens of the United States, residing at Knoxville, in the county of Knox and State of Tennessee, have invented new and useful Improvements in Locomotive-Tire Gages, of which the following is a specification.

This invention relates to tire-gages, and more particularly to gages for railroad-locomotive tires; and the object sought to be accomplished is to produce a convenient instrument for ascertaining without calculation both the thickness and depth of wear of a worn tire. Other objects are to make the gage of such form that it may be folded for convenient carriage in the pocket and to make a construction simple and easily handled, light yet durable, inexpensive to manufacture, perfectly accurate, and well adapted to the use for which it is designed.

To the accomplishment of these objects and such others as may hereinafter appear the invention consists of a tire-gage embodying the combinations of elements and arrangement of parts as hereinafter described, and particularly pointed out in the appended claims, reference being had to the accompanying drawings, showing the preferred embodiment thereof, and in which—

Figure 1 shows an elevational view of the gage as applied to a worn tire for the purpose of ascertaining its thickness. Fig. 2 shows a plan view of the gage. Fig. 3 shows an enlarged sectional detail of the joint between the two arms of the gage, taken upon line 3 3 of Fig. 1. Fig. 4 shows an elevational view of the gage as applied to the same worn tire as shown in Fig. 1 for the purpose of ascertaining the wear, and Fig. 5 shows the gage with its two arms folded for convenience of carriage in the pocket.

Referring to the drawings, A represents the stock of the gage, and B a profile and surface-contact blade suitably attached thereto in such manner that it may be folded in upon stock A from its normal position at right angles thereto. To this end the surface of one end of stock A is suitably grooved, as shown by Fig. 3, forming a shoulder d , located at

right angles transversely across said stock, and also a tongue t , parallel to said shoulder, having one straight and one tapered or slanting face, the latter on the side toward the said shoulder. In the profile-blade B is formed a longitudinally-arranged slot j , one edge of which is beveled in such manner as to receive snugly the tongue t . Stock A and blade B are securely clamped together, but in such manner that a pivotal movement between them may be had when desired by means of a headed bolt c , provided with a thumb or tightening nut c' . It is readily seen that by this arrangement the profile-blade B is held with its edge d' , which bears against the shoulder d , at perfect right angles to the edges of stock A, while at the same time allowing a lateral adjustment across stock A throughout the length of slot j .

Beyond one end of slot j blade B is formed with an offset o , provided with a contact-finger i , the location of which with reference to stock A will be hereinafter explained.

The edge B' of blade B is cut to form a profile-gage for flanged tires, and to this end is curved at o' in such manner as to correctly fit the curvature of an unworn flange. To detect deformities in the outline of a flanged tire, the blade B is inverted from the position shown in the drawings and the curve o' placed upon the flange G' , when the amount of wear is easily seen by inspection.

The stock A is provided with a longitudinal slot l , on one side of which is a scale formed of suitable graduations g , which may be as fine as is thought desirable, those in the drawings being thirty-seconds of an inch. The zero-point of this scale is located in the following manner: Through the end of contact-finger i of blade B when the same is clamped in position at right angles to stock A a line is drawn parallel to edge d' , and where this line crosses stock A the zero-mark is placed. It is therefore seen that when the stock A and blade B are clamped in position at right angles to each other the zero-mark of scale g and the end of contact-finger i are in a line also at right angles to stock A.

Constructed to slide in slot l of stock A are headed bolts b and b' , each provided with

thumb or lock nuts, under which are clamped pointers p and p' , respectively. Pointer p is mounted over scale g , and attached to this pointer, forming a part of it and movable
 5 with it, is a second graduated scale h , (here shown as divided into thirty-seconds of an inch, but which may obviously be graduated as fine as is found desirable.) This scale h is in length equal to the distance from the zero-
 10 mark of scale g to the edge d' of the blade B, and its zero-mark is at the end farthest from the pointer p , to which it is attached. (See Fig. 5.) Pointer p' is mounted to have a movement over scale h , and, as noted, both
 15 pointers have a free movement throughout the length of slot l , pointer p always carrying scale h with it, while scale g remains stationary. The stock A is recessed at x x' for the purpose of clearing any burs that may be
 20 formed upon the edge of tire G, as shown at f .

In using the gage for measuring the least thickness of a worn tire, more particularly a locomotive-tire, the same is applied as shown by Fig. 1. The edge of stock A, bearing the
 25 scale g , is placed against the side of tire G and blade B is adjusted so that the end of contact-finger i thereof touches the lowest part of the worn face of the tire. Pointer p is then moved along its scale into line with
 30 the edge of the under face of tire G and is there locked securely in position. As the end of finger i is constructed to be in line with the zero-mark of scale g , the thickness of the worn tire (indicated by m) can be read di-
 35 rectly from said scale. As here illustrated by Fig. 1, this thickness is two and one-half inches. Now in order to measure the depth of wear of the same tire the gage is manipulated as follows: Stock A is moved to the end of slot
 40 j nearest offset o , and edge d' of blade B is applied to the tire G, as shown by Fig. 4, the edge of stock A, on which moves scale h , being placed against the side of the tire. Edge d' of blade B is now in contact with the un-
 45 worn part of the tread, and to measure the depth of wear (indicated by n in the drawings) it is only necessary to move pointer p' along scale h until it is in line with the edge of the under face of tire G. The pointer p , carry-
 50 ing the scale h , having already been set for the thickness m , the depth of wear n can be read directly from scale h . This is possible for the following reasons: When edge d' is brought in contact with the unworn portion
 55 of the tire-tread and pointer p' has been adjusted in line with the edge of the under face of tire G, the distance between the two pointers p and p' shows the distance that the zero-mark of scale g has been moved below the
 60 lowest point of the worn face lately in contact with finger i , and therefore as the length of scale h is the same as the distance from zero of scale g to edge d' necessarily the remaining portion of scale h other than that between
 65 the pointers equals distance n . As here illus-

trated by Fig. 4, this wear is seven thirty-seconds of an inch. After the above manipulations have been gone through with both the thickness and the wear of the tire under con-
 sideration are indicated on their respective
 70 scales—namely, g and h —by the pointers p and p' and may easily be read and properly recorded.

To fold the gage for carrying in the pocket, as shown by Fig. 5, locking-nut c' is with-
 75 drawn sufficiently to allow blade B to be turned over the top of tongue t , when it is brought in line with stock A and again secured by tightening the locking-nut.

Although the invention has been described
 80 with particular reference to one form of construction, it is obvious that many and various changes and modifications may be made and still fall within its scope and spirit; but

What we do claim as new, and desire to se-
 85 cure by Letters Patent, is—

1. In a tire-gage, the combination with an arm suitably graduated, of a second arm mounted thereon having an edge disposed at right angles thereto, and a surface-contact
 90 finger on said edge terminating in a line parallel thereto, said line passing through the zero-mark of said graduation, substantially as described.

2. In a tire-gage, the combination with an
 95 arm suitably graduated, of a second arm mounted thereon having an edge disposed at right angles thereto, a surface-contact finger on said edge terminating in a line parallel thereto, said line passing through the zero-
 100 mark of said graduation, and a flanged-tire profile-gage on the opposite edge, substantially as described.

3. In a tire-gage, the combination with an
 105 arm suitably graduated, of a second arm adjustably mounted thereon having an edge disposed at right angles thereto, and a surface-contact finger on said edge terminating in a line parallel thereto, said line passing through the zero-mark of said graduation, substantially
 110 as described.

4. In a tire-gage, the combination with an arm, of a plurality of pointers carried there-
 115 by each coöperating with a scale, a second arm mounted on said first arm having an edge disposed at right angles thereto, and a surface-contact finger on said edge terminating in a line parallel thereto, said line passing through the zero-mark of one of said scales, substan-
 120 tially as described.

5. In a tire-gage, the combination with an arm, of two pointers carried thereby, respec-
 125 tively coöperating with a movable and a stationary scale, a second arm mounted on said first arm having an edge disposed at right angles thereto, and a surface-contact finger on said edge terminating in a line parallel there-
 130 to, said line passing through the zero-mark of said stationary scale, substantially as de-

6. In a tire-gage, the combination with a suitable stock, of a plurality of movable pointers carried thereby each coöperating with a scale, and a surface-contact blade mounted on said stock at right angles thereto, substantially as described.

7. In a tire-gage, the combination with a suitable stock, of two pointers carried thereby respectively coöperating with a movable and a stationary scale, and a surface-contact blade mounted on said stock at right angles thereto, substantially as described.

8. In a tire-gage, the combination with a suitable stock provided with a scale, a pointer for said scale having a second scale mounted thereon, a second pointer for said second scale, and a surface-contact blade mounted on said stock at right angles thereto, substantially as described.

9. In a tire-gage, the combination with a suitable stock provided with a slot and a scale adjacent thereto, a pointer for said scale hav-

ing a second scale mounted thereon and mounted to have a movement in said slot, a second pointer for said second scale, and a surface-contact blade mounted on said stock at right angles thereto, substantially as described.

10. In a tire-gage, the combination with an arm provided with a slot, of two pointers mounted to have a movement therein each coöperating with a scale, a second arm mounted on said first arm having an edge disposed at right angles thereto, and a surface-contact finger on said edge terminating in a line parallel thereto, said line passing through the zero-mark of said scales, substantially as described.

In testimony whereof we affix our signatures in the presence of two witnesses.

JNO. B. GUINN.

FRANK H. ANDES.

Witnesses:

R. H. GUINN,

W. L. MURPHY.