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Patented Aug. 26, 1902.

F. S. SEAGRAVE & H. P. ELLIOTT.
ANTIFRICTIONAL BEARING.

(Application filed Nov. 22, 1899.)

(No Model.)

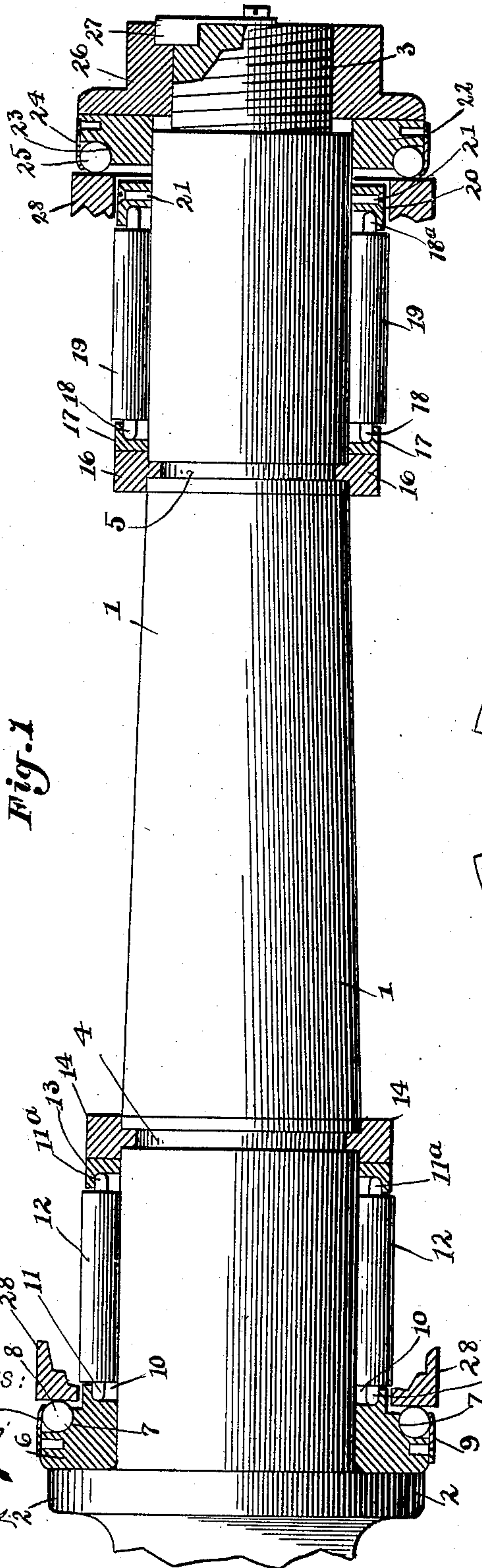


Fig. 1

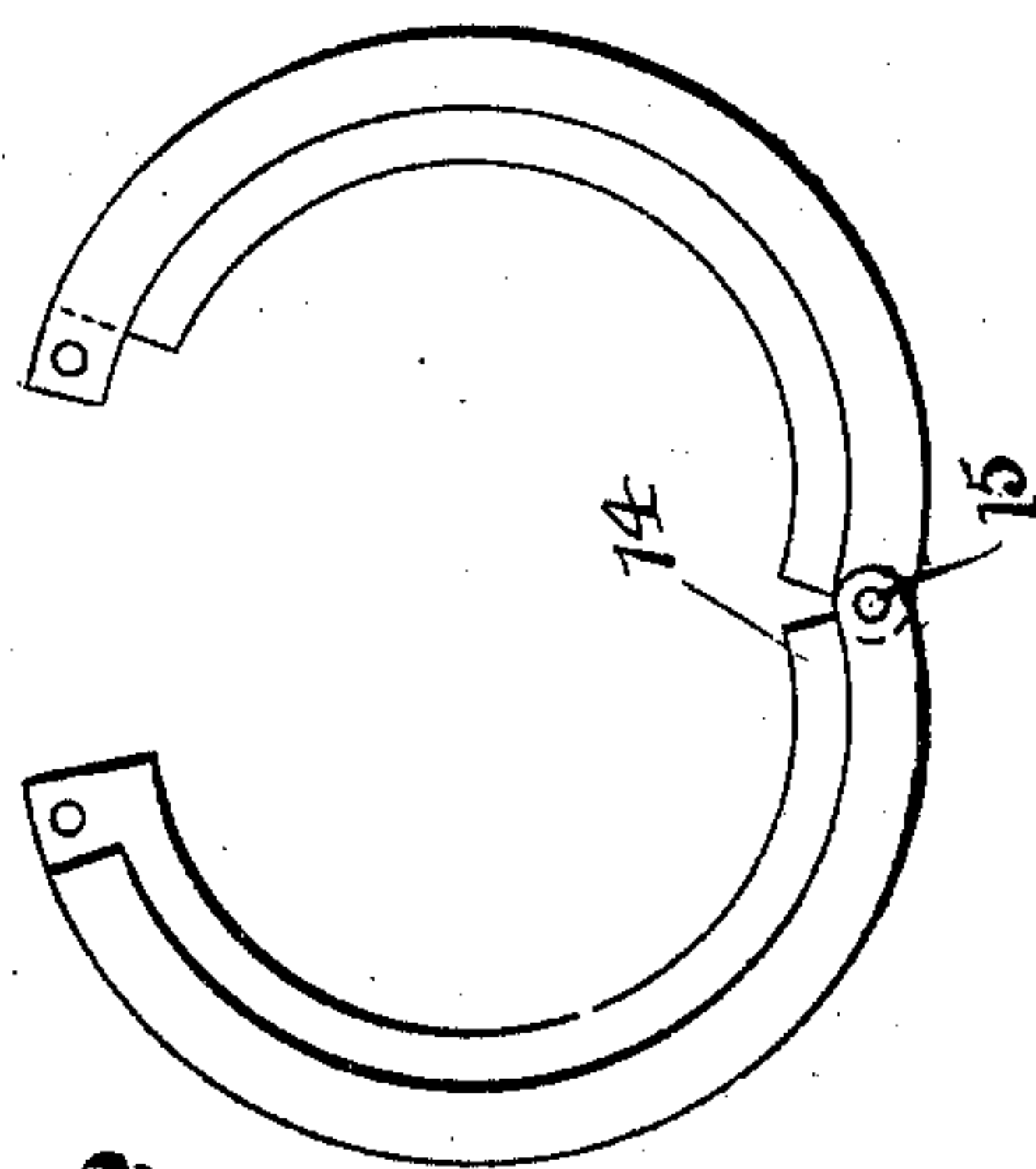


Fig. 2

WITNESSES:

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ANTIFRICTIONAL BEARING.

SPECIFICATION forming part of Letters Patent No. 707,650, dated August 26, 1902.

Application filed November 22, 1899. Serial No. 737,849. (No model.)

To all whom it may concern:

Be it known that we, FREDERIC S. SEAGRAVE and HOMER P. ELLIOTT, citizens of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented a certain new and useful Improvement in Antifrictional Bearings, of which the following is a specification.

Our invention relates to the improvement of antifrictional bearings; and the objects of our invention are to provide an improved bearing of this class adapted for use on vehicle-axes and like places of superior construction and arrangement of parts, to provide improved means for retaining the bearing-rollers in connection and in frictional contact with the surface of the spindle, and to produce other improvements the details of which will be more fully set forth hereinafter. These objects we accomplish in the manner illustrated in the accompanying drawings, in which—

Figure 1 is a view in elevation of a spindle, showing in section the bearing parts which are connected therewith; and Fig. 2 is a face view of the spindle-shoulder ring, which we employ in the manner hereinafter described.

Similar numerals refer to similar parts throughout the several views.

1 represents an axle-spindle, which at its inner end is provided with the usual shoulder 2 and which at its outer end is provided with the usual reduced threaded extension 3. As indicated at 4 and 5, we form in the periphery of said spindle at points on opposite sides of the center of its length grooves or channels, which are adapted for the purposes hereinafter set forth.

6 represents an inner end ring, which surrounds the spindle adjacent to and abuts against the shoulder 2. In constructing this ring 6 the same is provided on its upper and outer side with a continuous groove or ball-raceway 7, in which are adapted to be arranged bearing-balls 8, said balls being secured in their positions in the raceway by a retaining-band 9, which, as indicated, projects from the periphery of the ring 6. We also provide the ring 6 in its outwardly-projecting inner portion, which is next to the periphery of the spindle, with a continuous recess 10. Into

this recess project the rounded ends of the projecting end pins 11 of bearing-rollers 12, the peripheries of which are in contact with the outer surface or periphery of the spindle. The outer pin projections 11^a of the rollers 12 bear or are retained in a correspondingly-recessed ring 13, which surrounds the spindle at a point adjacent to and on the inner side of the spindle-groove 4. This ring 13 is locked against outward movement by a stop-ring 14, the latter being, as indicated more clearly in Fig. 2 of the drawings, formed of two half-circular sections, which are suitably hinged at 15. This stop-ring is adapted, as shown in the drawings, to have its inner portion seated in the groove 4, in which position it is secured by a suitable connection of the ends of its sections which are opposed to the hinged ends.

Within the spindle-groove 5 we secure a sectional ring 16, corresponding in construction with the ring 14, against which is adapted to abut a bearing-ring 17, corresponding in form and construction with the ring 13. Into the recessed portion of this ring 17 are adapted to extend the inner end pins 18 of a set of bearing-rollers 19, which are arranged about the outer portion of the spindle 1, the outer end pins 18^a of said rollers bearing in the recessed portion of a ring 20, which surrounds the outer end portion of the spindle 1 and which is secured thereto through the medium of screws 21. On the outer side of the ring 20 we mount upon the unreduced end of the spindle a ball-carrying ring 22, which, as prescribed for the ring 6, is provided on its inner face and in its upper portion with a groove or raceway 23, within which are retained, through the medium of a retaining-ring 24, balls 25. Upon the threaded extension 3 of the spindle is adapted to be screwed a nut 26, the inner end flange of which abuts, as shown, against the ring 22. This nut is preferably retained against voluntary rotation through the employment of a spring-dog 27, one end of which is secured centrally to the end of the spindle and the remaining or enlarged end of which is adapted to engage sockets or recesses formed partly in the end of the spindle and partly in the outer face of the nut.

While the bearing of the rollers 12 and 19

herein described is confined wholly to the periphery of the spindle and is thus independent of a boxing, it is obvious that the spindle is adapted to be contained within a
5 suitable cylindrical boxing, the end portions of which are indicated at 28. It will be observed that the end portions of these boxings are so located as to have a bearing contact with the balls 8 and 25. It is obvious that
10 any horizontal adjustment of this boxing may be accomplished through the rotation of the nut 26 and that the balls 25 and 8 are so arranged with reference to said boxing as to receive the end thrust in either direction.
15 The means which we have employed for retaining the rollers in engagement with the periphery of the spindle are such as to insure a bearing contact of the rollers and said spindle and avoid any frictional contact of said
20 rollers with the boxing.

It is obvious that the outer end ring 22 and nut 26 might be formed integral, this construction being shown, however, in an application for patent executed and filed by us of
25 even date herewith.

It will be seen that by retaining the rollers in connection with the spindle in the manner herein described the bearing parts can readily be exposed to view and the rollers or balls removed or replaced, as may be desired. 30

Having now fully described our invention, what we claim, and desire to secure by Letters Patent, is—

The combination with a spindle having peripheral groove, of a ring formed of semicircular sections hinged at their adjacent ends 35 and having a flange portion engaged in said groove and portions embracing the periphery of the spindle, a recessed ring bearing against one side of the sectional ring, a ring bearing 40 against the shoulder of the spindle, and rollers having projecting end pins seated in channels in the last-mentioned rings, an inclosing boxing, and thrust-bearings, all substantially as shown and described.

FREDERIC S. SEAGRAVE.

HOMER P. ELLIOTT.

In presence of—

A. L. PHELPS,

C. C. SHEPHERD.