

No. 697,017.

Patented Apr. 8, 1902.

A. S. REED.
ADJUSTABLE CONE FOR BICYCLE HUBS.

(Application filed Mar. 23, 1901.)

(No Model.)

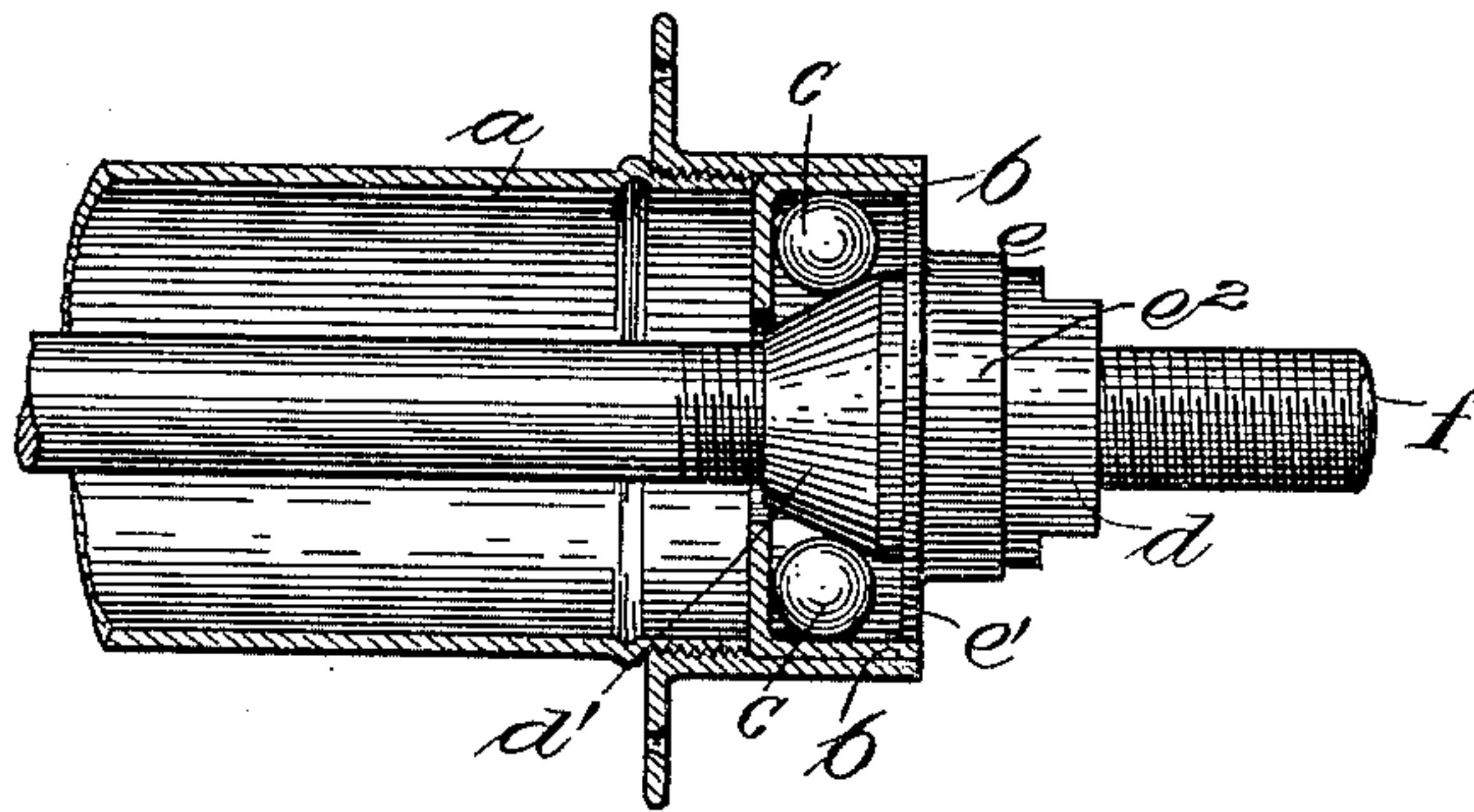


Fig. 1.

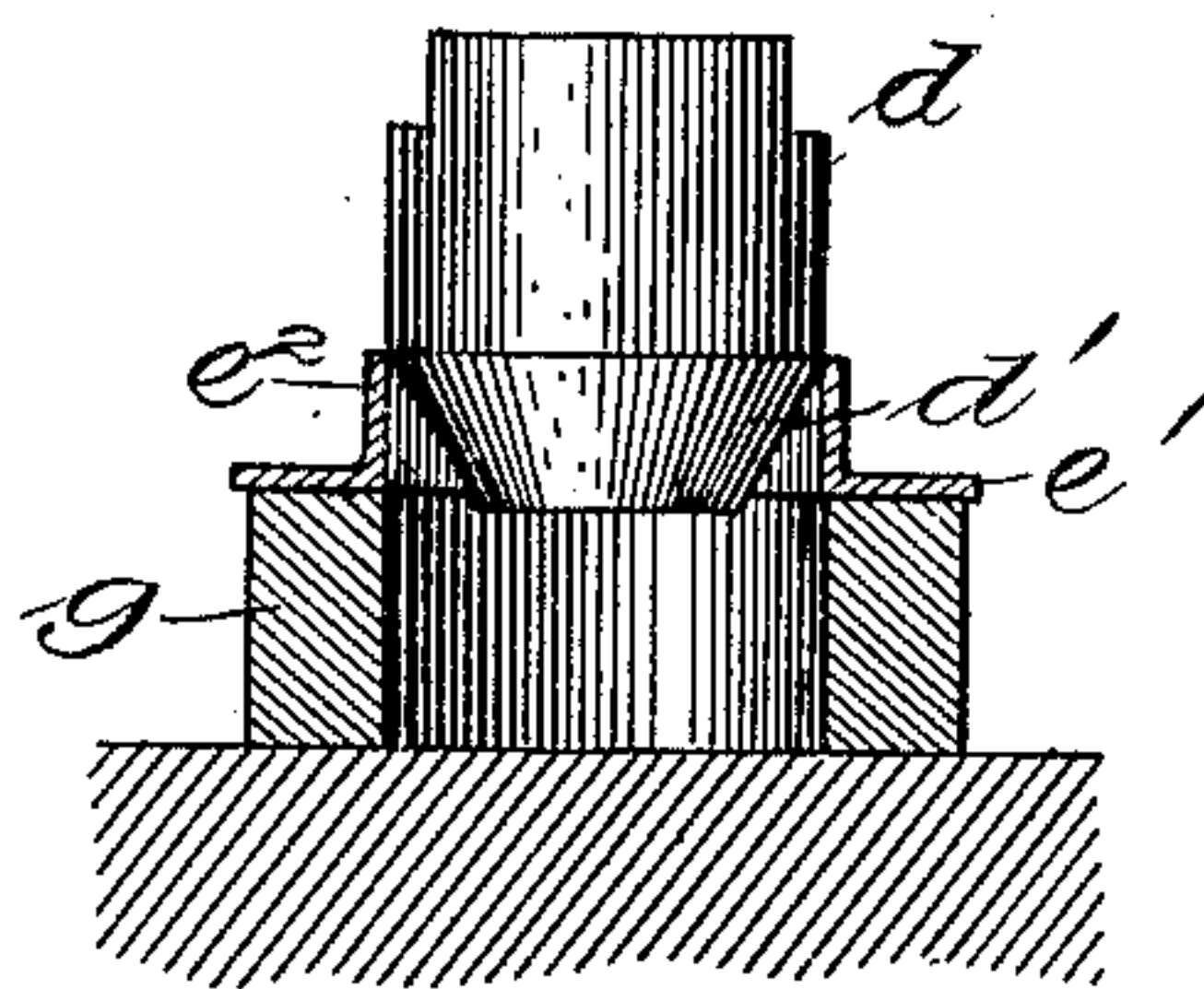


Fig. 2.

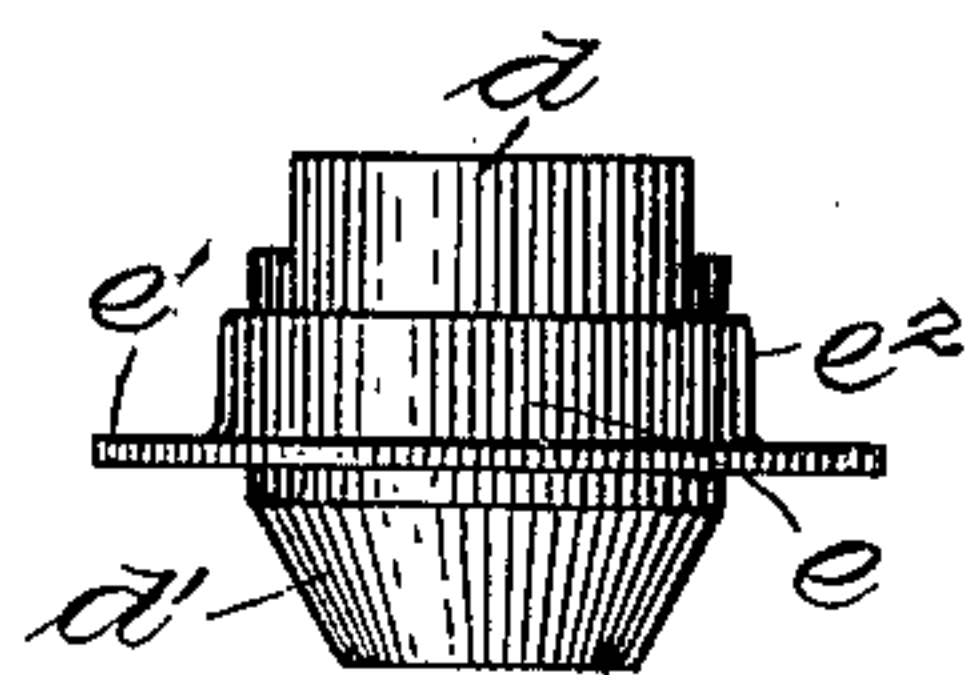


Fig. 3.

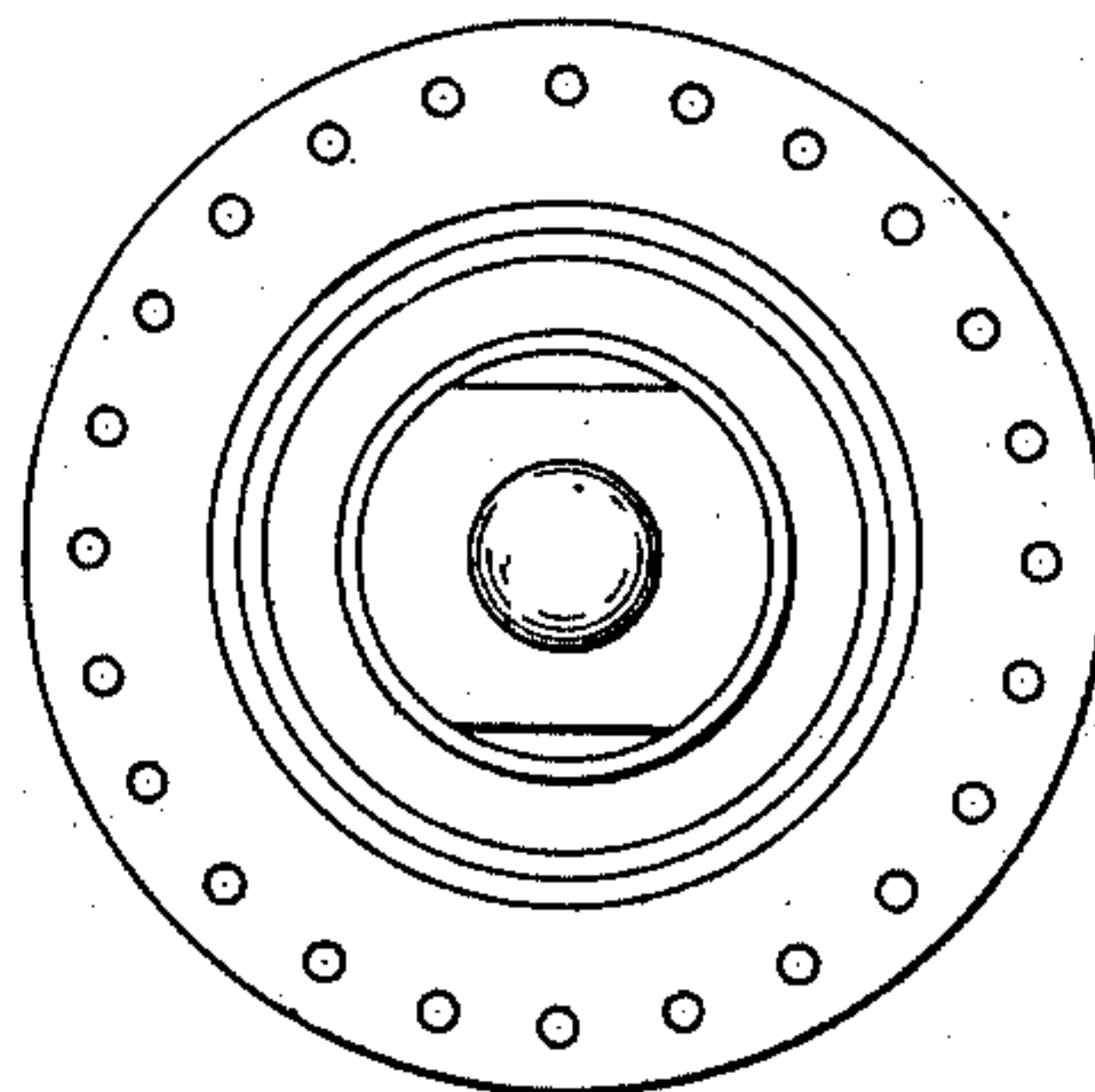


Fig. 4.

Witnesses:
J. M. Skinkle.
W. A. Leach.

Inventor:
Albert S. Reed
By J. M. Barton,
Attorney

UNITED STATES PATENT OFFICE.

ALBERT S. REED, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE ONWARD COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

ADJUSTABLE CONE FOR BICYCLE-HUBS.

SPECIFICATION forming part of Letters Patent No. 697,017, dated April 8, 1902.

Application filed March 23, 1901. Serial No. 52,470. (No model.)

To all whom it may concern:

Be it known that I, ALBERT S. REED, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Adjustable Cones for Bicycle-Hubs, (Case No. 2,) of which the following is a full, clear, concise, and exact description.

My invention relates to ball-bearings, and has for its object to provide an improved cone having a flange which excludes dust and dirt from the bearings and which may be adjusted to and fro upon the cone and be refitted as often as may be required.

Generally speaking, my invention comprises a bearing-cone having a body portion which is approximately cylindrical, although slightly tapered inwardly toward the bearing-surface, and a separate flange or washer associated therewith, having a disk portion for closing the mouth of the bearing-cup, and a cylindrical flange portion adapted to be fitted upon the approximately cylindrical part of the cone and to be adjusted thereon to fit any hub, as may be required. A cross-section of the body portion of the cone or of the cylindrical portion of the flange would be truly circular—that is to say, I do not flatten the cone, but depend entirely upon the tapered body portion to hold the adjustable flange with a tight drive fit. The simplicity of this construction makes it very cheap, and I have found in practice that it is convenient and effective.

My invention is illustrated in the accompanying drawings, in which—

Figure 1 is a sectional view of the end of a bicycle-hub equipped with my improved bearing-cone. Fig. 2 shows how the body portion of the cone may be fitted into the separate flange which it carries when in use. Fig. 3 shows the cone and flange fitted together, and Fig. 4 is an end view of the hub shown in Fig. 1.

Like letters of reference indicate like parts wherever they are shown.

The hub *a* has a bearing-cup *b* fitted in its end, said cup containing the balls *c c* in the usual manner.

My invention is concerned principally with

the bearing-cone *d* and the flange *e*, carried thereby. The cone is screwed upon the shaft *f* of the hub until the bearing-surface *d'* is in proper position to support the balls *c c*. The disk portion *e'* of the flange should then be flush with the end of the bearing-cup to close the mouth thereof. Since the depth of the bearing-cup is not the same in all cases, a bearing-cone having a separate flange adjustable thereon is very useful to repairmen, since such a cone can be readily fitted to any hub. I have therefore made the body portion *d* of the hardened-steel cone substantially cylindrical, as shown in Fig. 2, and provide a separate flange *e*, of soft steel, having a disk portion *e'* and a cylindrical flange portion *e''*, which is adapted to be fitted over the body of the cone.

I have said that the body portion of the cone was substantially cylindrical. It is not, however, exactly cylindrical, but is tapered very slightly from the outer end toward the bearing-surface *d'* in order to make a good drive fit.

In Fig. 2 I have shown the cone entering the flange, which rests upon an annular metal block or anvil *g*. A perfect fit will be secured by tapping the top of the cone with a hammer, thus driving it down into the flange. It will be apparent that the flange may thus be adjusted to any desired position upon the body portion of the cone.

In Fig. 3 I have shown the cone and flange fitted together, ready to be applied to a hub. In practice I make the flange of soft steel, with the disk portion *e'* thereof about as large as the mouth of the largest bearing-cup in common use. After a flange has been fitted upon a cone for a particular hub the repairman can turn down the flange in a few moments to fit exactly the mouth of that hub.

The adjustable cone of my invention has certain advantages over cones having a flange screwed upon the body portion, since my flange may be fitted tightly and exactly and is not liable to work loose or change its position. My cone is also much cheaper to manufacture than such cones or others which have untapered body portions with flattened sides and washers movable thereon.

Having thus described my invention, I claim as new, and desire to secure by Letters Patent, the following:

1. A cone for a ball-bearing having a tapered body portion circular in cross-section and a separate flange-piece *e*, said flange-piece having a disk portion *e'*, and a cylindrical flange portion adapted to be fitted upon the tapering body of the cone, substantially as herein set forth.
2. The combination in a ball-bearing, of the hardened-steel adjustable cone having a

slightly-tapered body portion and a flange-piece of soft steel having a disk portion *e'*, and a cylindrical flange portion adapted to fit upon the tapering body of the cone, substantially as set forth.

In witness whereof I hereunto subscribe my name this 11th day of January, A. D. 1901.

ALBERT S. REED.

Witnesses:

ELIJAH T. HARRIS,
GEORGIA PARKER.