

(No Model.)

2 Sheets—Sheet 1.

J. M. ANDREWS.  
JOURNAL BEARING.

No. 487,815.

Patented Dec. 13, 1892.

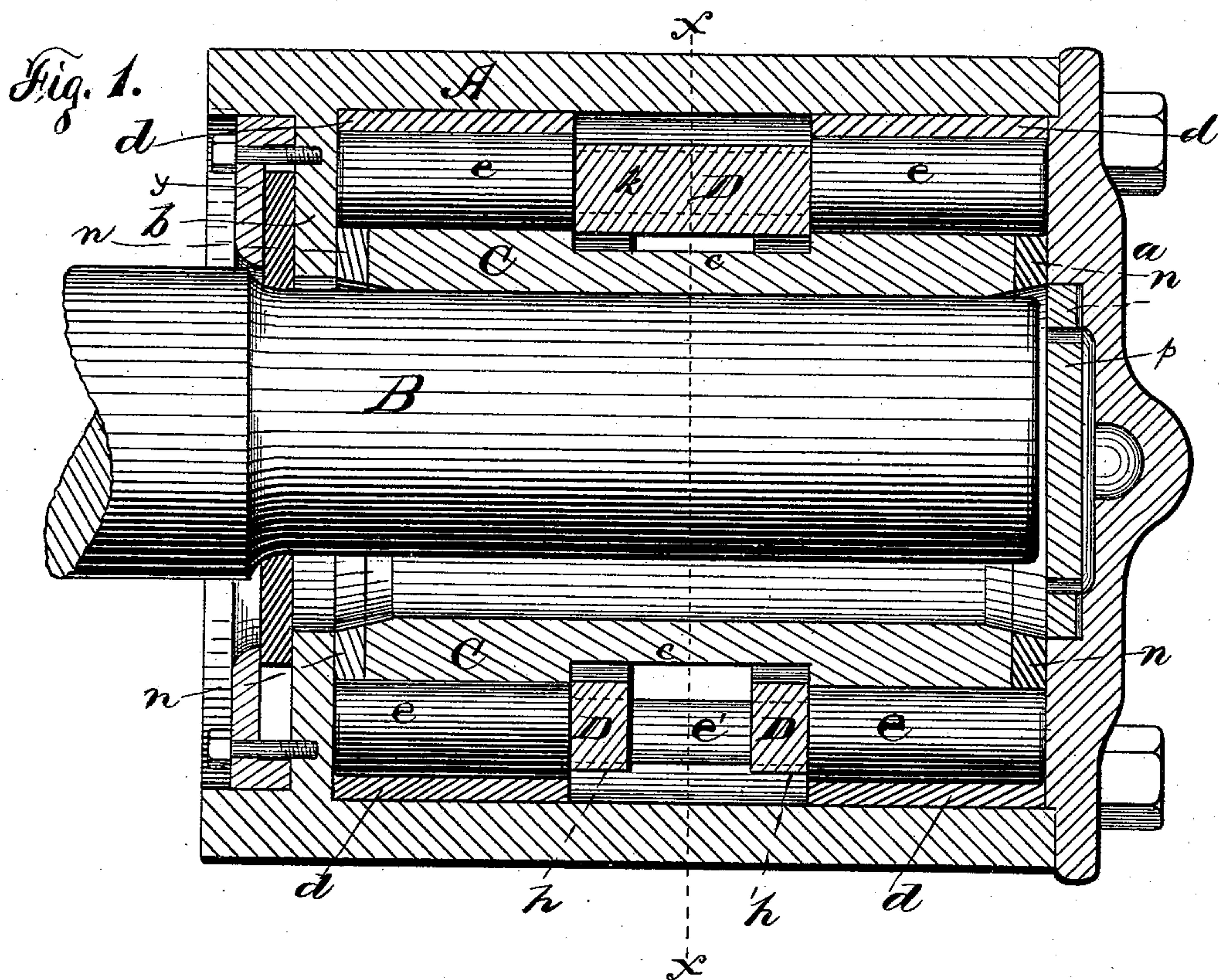
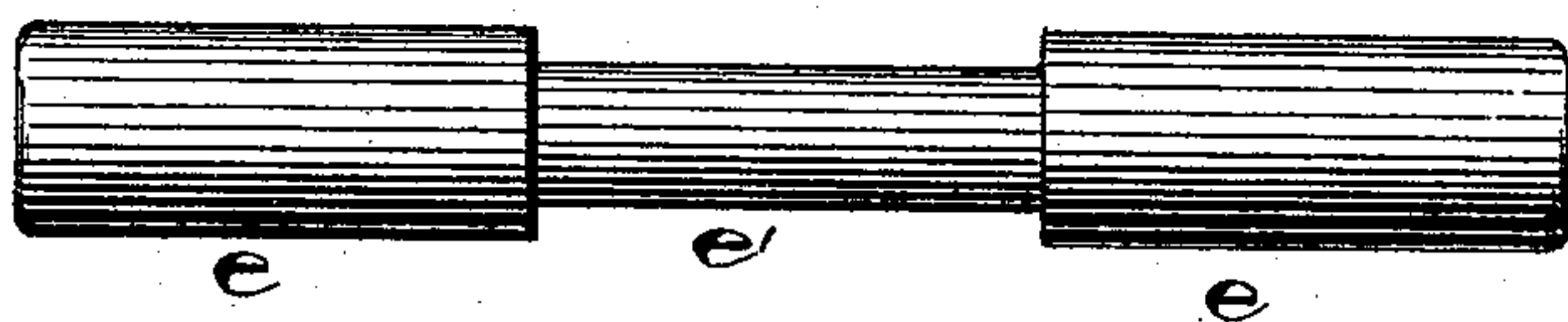


Fig. 4.



WITNESSES:

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C. B. Kirne

INVENTOR,

James M. Andrews INVENTOR.

BY

BY  
Smith & Davison

his ATTORNEY.

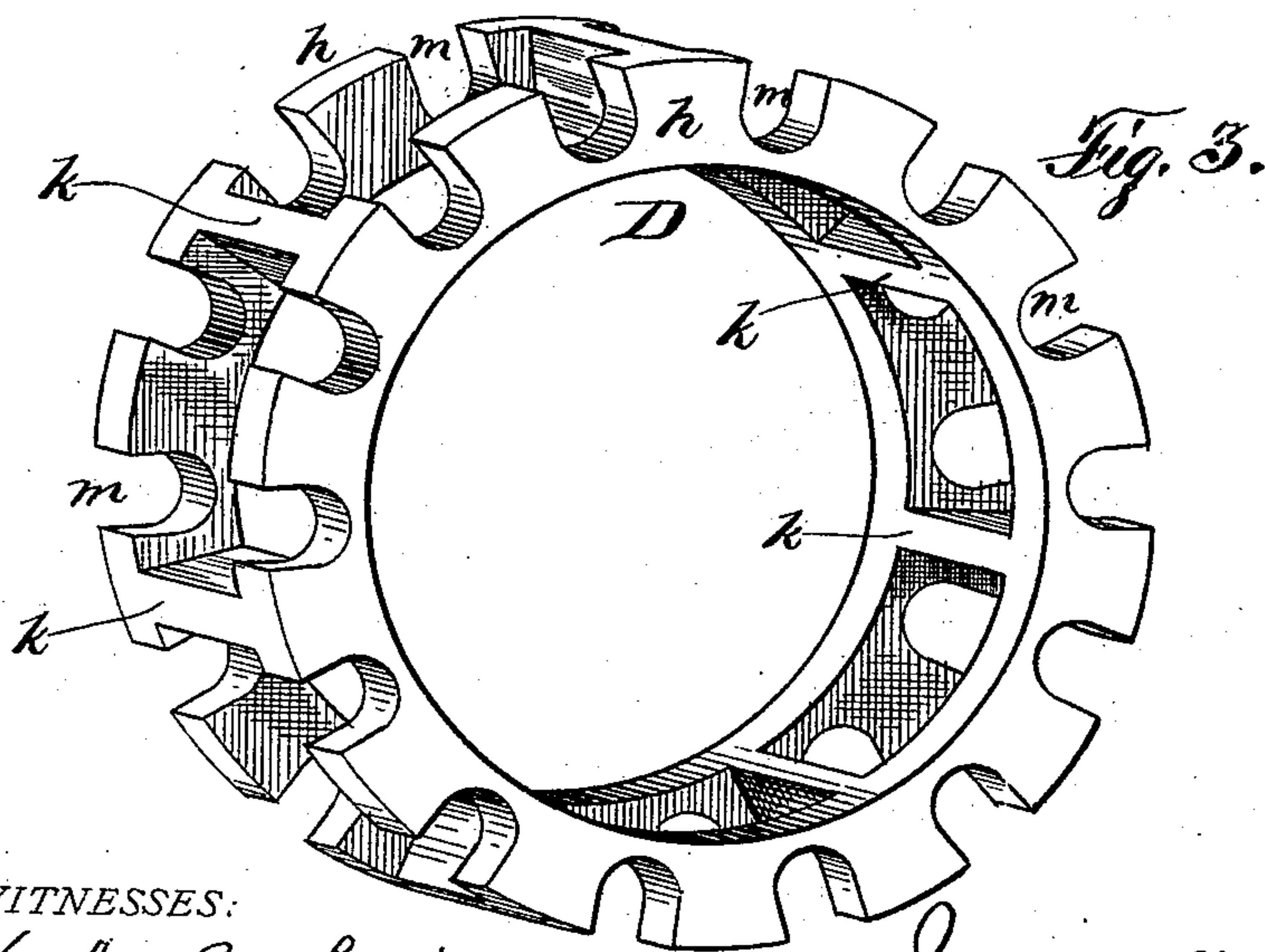
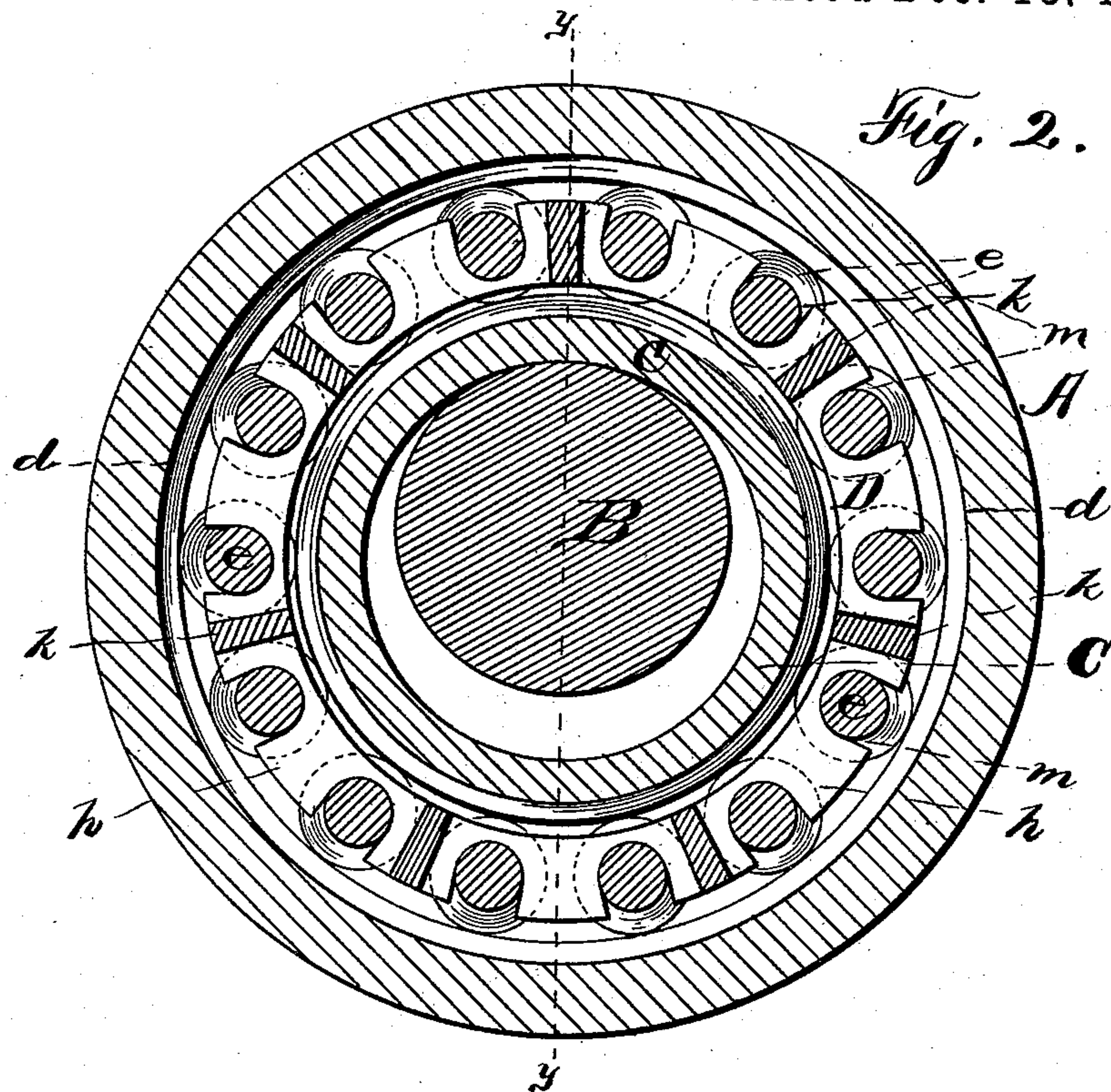
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WITNESSES:

*H. A. Carhart*  
*C. B. Keim*

INVENTOR.

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# UNITED STATES PATENT OFFICE.

JAMES M. ANDREWS, OF SYRACUSE, NEW YORK.

## JOURNAL-BEARING.

SPECIFICATION forming part of Letters Patent No. 487,815, dated December 13, 1892.

Application filed December 21, 1891. Serial No. 415,716. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES M. ANDREWS, of Syracuse, in the county of Onondaga, in the State of New York, have invented new and useful Improvements in Journal-Bearings, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to journal-bearings of the antifriction class.

The object is to produce an antifriction journal-bearing in which the axle or shaft is inserted into or through a sleeve of larger diameter than said axle or shaft, in which the antifriction-rollers are placed in a cage which also lies between said sleeve and casing and is central to said rollers longitudinally and operates to hold said rollers apart and at a fixed distance from each other, in which a loose cylindrical ring or rings are placed between the rollers and the casing and against which they bear outwardly, in which the cage has no bearing outwardly or inwardly and in which annular rings of the same diameter as the loose sleeve are placed at the ends of said sleeve to take the wear and protect the inner diametrical wall of the casing and the cap which closes the outer end of said casing.

This invention consists in the several novel features of construction and operation hereinafter described, and which are specifically set forth in the claims hereunto annexed. It is constructed as follows, reference being had to the accompanying drawings, in which—

Figure 1 is a longitudinal vertical section on line *yy* in Fig. 2. Fig. 2 is a vertical transverse section thereof on line *xx* in Fig. 1. Fig. 3 is an isometrical elevation of the cage which holds the rollers. Fig. 4 is a side elevation of a roller.

A is the outer casing of cylindrical interior, its outer end being closed by the removable cap *a* and its inner end being partly closed by the wall or head *b*, which is diametrical to the bore of the casing.

B is the shaft which passes through this head, the opening therein being considerably larger than said shaft.

C is a loose sleeve, the bore of which is considerably greater in diameter than the shaft which enters it. This sleeve is provided

with a groove *c* in its outer surface, located substantially central to its length. Rings *d* are inserted loosely into the casing and are concentric therewith. Antifriction-rollers *e* are inserted between the loose sleeve C and the rings *d*, and bear outwardly against said rings and inwardly against said sleeve, said rings being antifrictional in their functions and also operating to protect the inner wall of the casing from wear.

D is the cage, consisting of two rings *h* of greater diameter than said sleeve and of such width that their whole diameter is less than the bore of said casing. These rings are connected by the joints *k*, (shown in the drawings as integral with the rings;) but it is obvious that they may be in separate pieces secured together in any ordinary manner. The peripheries of these rings are provided with equidistant notches *m* of substantially the form shown, which are in pairs in line with each other transversely to the rings. This cage has no bearing inwardly against the sleeve nor outwardly against the casing. Said cage lies between the inner ends of the loose rings *d*, but is not in frictional contact therewith. The antifriction-rollers *e* are cylindrical in form adjacent to their ends and are grooved centrally, as at *e'*, so that their central portions fit freely in the notches *m* of the cage and are thus held apart from each other. Annular rings *n*, of equal diameter with the loose sleeve, are interposed between it and the ends or heads of the casing, their inner faces being cut away so that they have no contact with the axle; but the rollers *e* can bear against their outer faces or not, as desired. The rotation of the axle rotates the loose sleeve, this rotates the anti-friction rollers, and these bear upon and more or less rotate the loose rings, and said rollers also rotate in their seats or bearings in the cage, and as they travel carry it around with them, balancing or carrying it between them, and said cage is antifrictional. The annular rings *n* are also more or less rotated by frictional contact with the loose sleeve, and their function is to take up the wear which would otherwise come upon the ends of said sleeve. The loose rings between the rollers and casing also takes up most of the wear upon the inside of the casing and also operate antifric-



tionally between the rollers and casing and create a movable or yielding outer bearing for said rollers, although said rollers are in close contact therewith.

5 It will be readily seen how cheaply the rings *d* can be replaced when worn and how they take most of the wear, and also the same in regard to the annular rings *n*, which pro-  
 10 long the life of the loose sleeve. In Fig. 1 I show also a circular thrust-plate *p*, loosely seated in the head *a* in line with the axle, and lying against the inner face of the head *b* a  
 15 securing-ring *y*, concentric with the casing and adapted to fit over the dust-ring and se- cured in position by screws inserted through  
 20 said ring *y* into the head *b*; but these parts and their functions are not here more fully described, as they are not a part of this in-  
 25 vention, but are a part of the invention for which the joint application of myself and Thomas D. Greene was filed October 30, 1891,  
 30 Serial No. 410,369.

What I claim as my invention, and desire to secure by Letters Patent, is—

25 1. The combination, with the axle, the sleeve loosely encircling it and of greater diameter than the said axle, and the outer casing, of  
 30 rollers interposed between said sleeve and casing and centrally reduced in diameter and a cage lying between the sleeve and casing  
 35 and notched in its periphery to receive the reduced portion of said rollers and hold them apart, said cage having no bearing against said  
 40 sleeve or casing, and means to close the ends of the casing.

2. The combination, with the axle, the sleeve loosely encircling it, and the outer casing, of  
 45 rollers centrally reduced in diameter and bearing against said sleeve, loose rings inter- posed between said rollers and the casing and  
 50 against which said rollers bear, and a cage

lying between said sleeve and casing, but not bearing against either, and notched across its periphery to receive the rollers centrally, and means to close the ends of the casing. 45

3. The combination, with the loose sleeve receiving the axle and the rollers interposed between said sleeve and casing, of the loose rings concentric with the casing and inserted between the rollers and the casing and rotated 50  
 55 by their contact with the rotating rollers.

4. The combination, with the casing, the axle, the sleeve loosely encircling it, and the annular rings concentric with the sleeve and inserted between its ends and the closures 55  
 60 of the ends of the casing, of the antifriction-rollers bearing inwardly against said sleeve and rings and outwardly against the casing.

5. The combination, with the casing, the axle, the sleeve loosely encircling the axle, 60  
 65 and the annular rings concentric with the sleeve and inserted between its ends and the closures of the ends of the casing, of the rollers bearing inwardly against the sleeve and  
 70 rings and the loose rings within the casing and concentric therewith, against which the rollers bear outwardly.

6. The combination, with the casing, the axle, the sleeve loosely encircling the axle, and the annular rings between the ends of 70  
 75 the sleeve and the closures of the ends of the casing, of the rollers bearing inwardly against the sleeve and rings, the cage, notched in its outer face to receive said rollers, and the loose rings within the casing, against which the rollers bear outwardly.

In witness whereof I have hereunto set my hand this 17th day of December, 1891.

JAMES M. ANDREWS.

In presence of—

HOWARD P. DENISON,  
 C. W. SMITH.