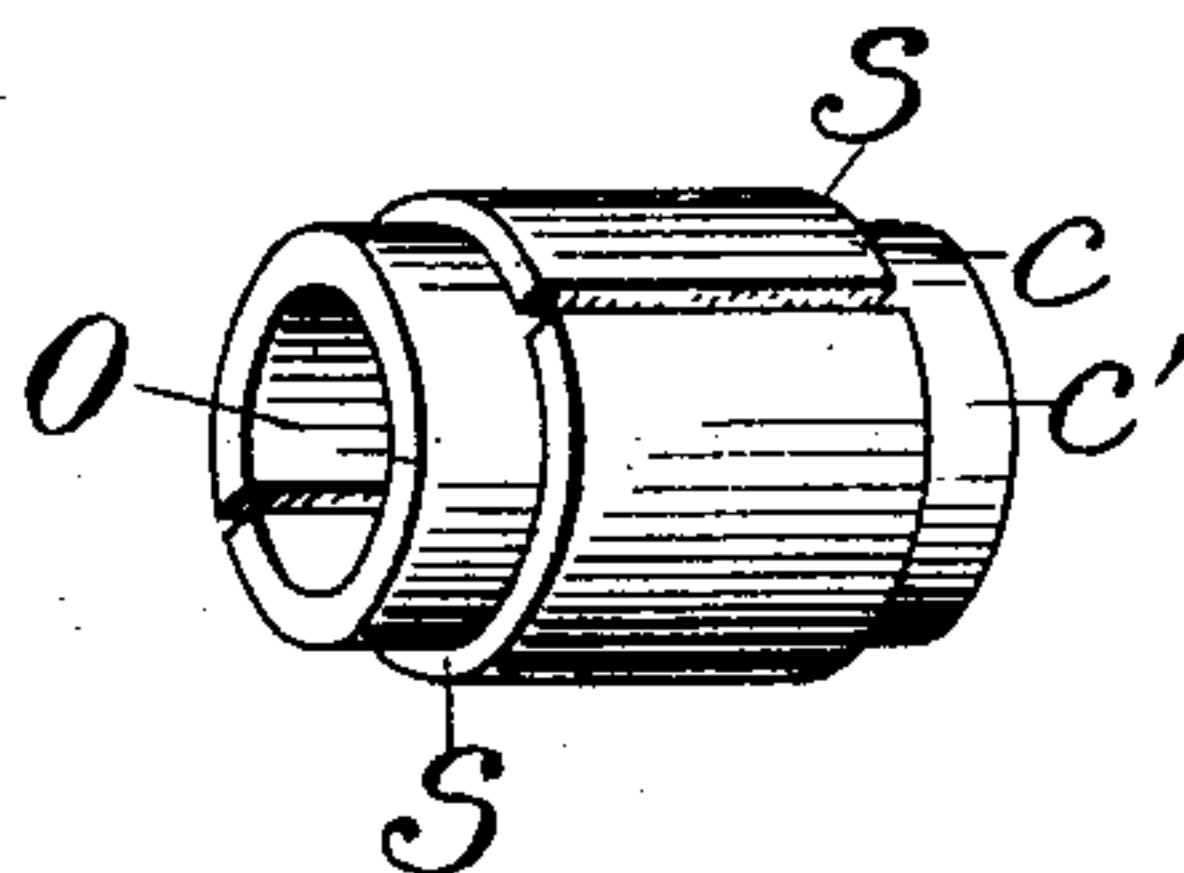
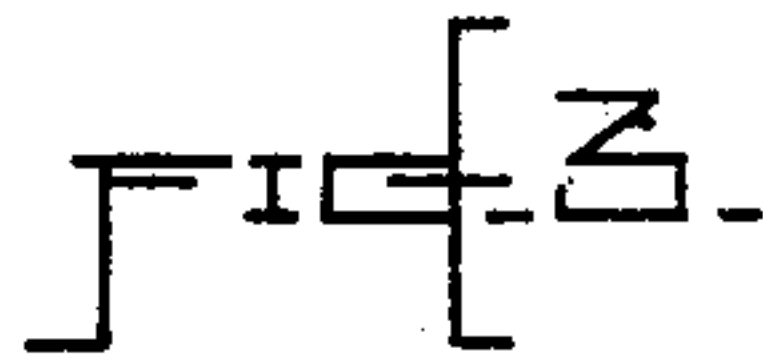
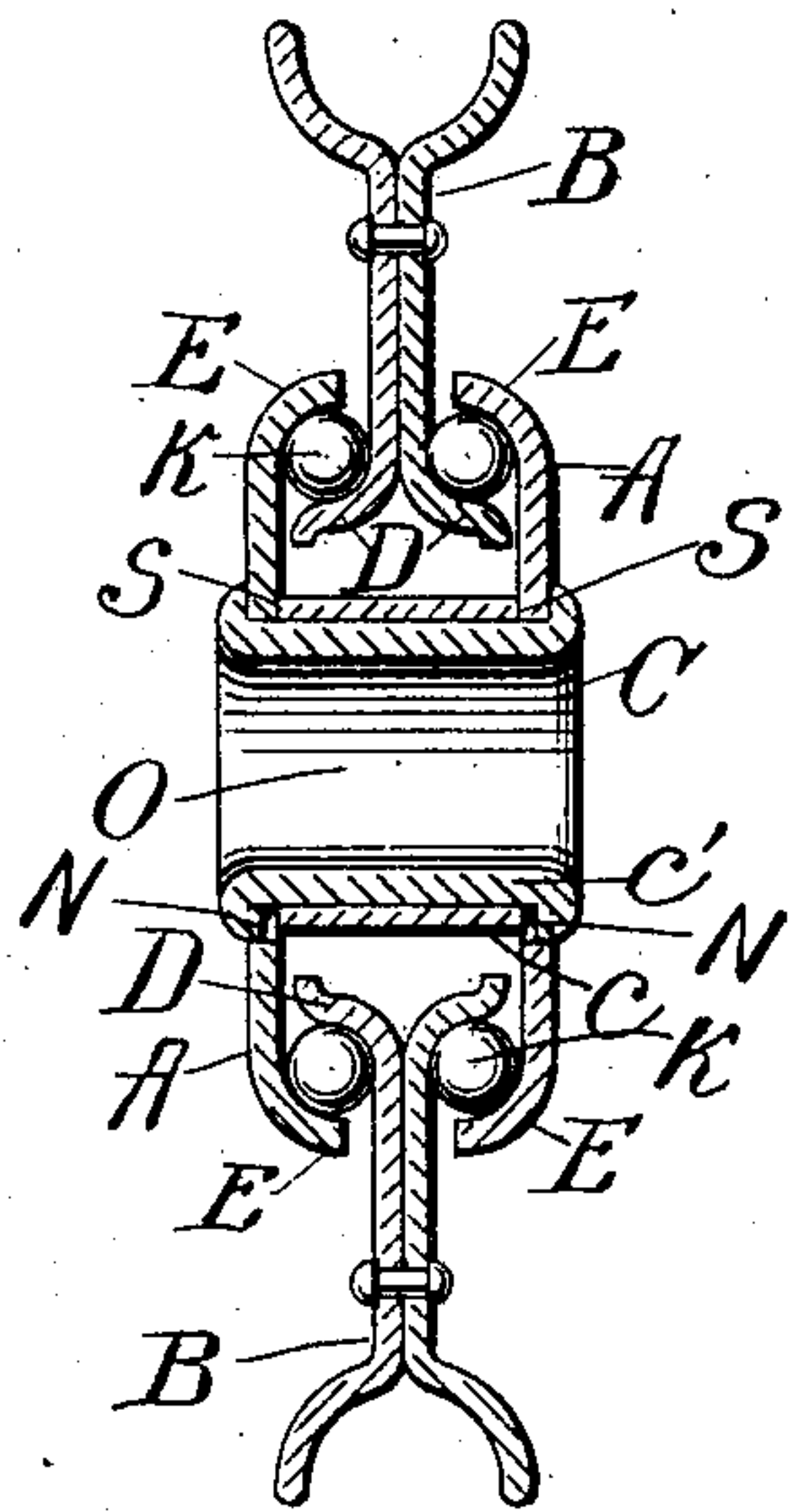
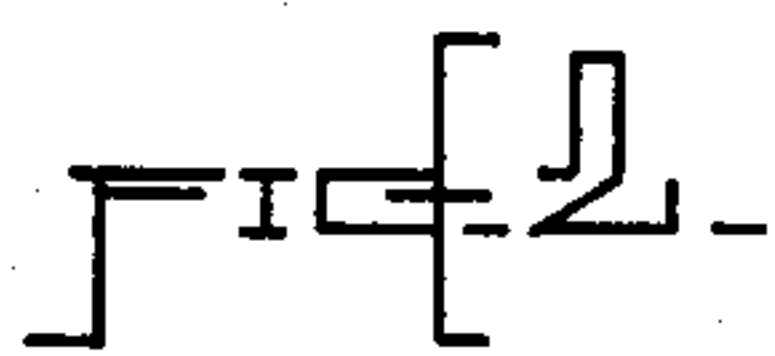
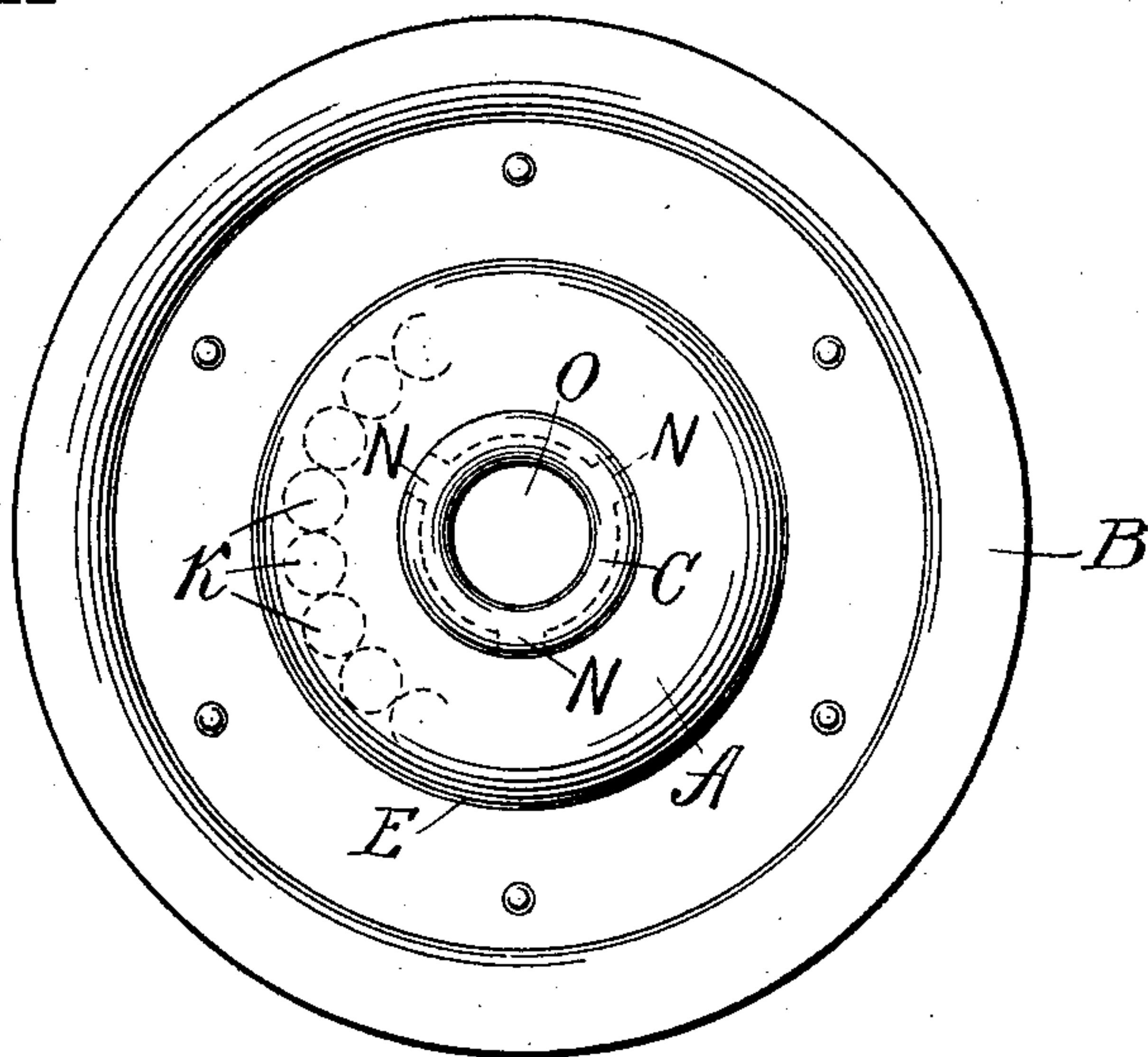
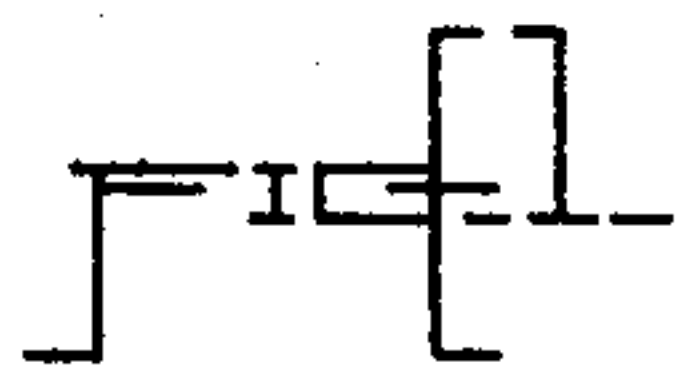


No. 772,022.

PATENTED OCT. 11, 1904.

C. A. BRINLEY.  
BALL BEARING SHEAVE.  
APPLICATION FILED APR. 20, 1904.

NO MODEL.



Witnesses.  
Hauus. Ober  
Edwin M. Whitfield.

Inventor  
Charles A. Brinley  
By Bird & Tarbox  
his Attorneys

# UNITED STATES PATENT OFFICE.

CHARLES A. BRINLEY, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR  
TO THE AMERICAN PULLEY COMPANY, A CORPORATION OF PENN-  
SYLVANIA.

## BALL-BEARING SHEAVE.

SPECIFICATION forming part of Letters Patent No. 772,022, dated October 11, 1904.

Application filed April 20, 1904. Serial No. 204,072. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES A. BRINLEY, a citizen of the United States, and a resident of Philadelphia, Philadelphia county, Pennsylvania, have invented new and useful Improvements in Ball-Bearing Sheaves, of which the following is a specification.

One object of my invention is to provide a ball-bearing sheave, which is extremely simple of construction. Another object is great economy.

Another object is to provide a sheave with a self-contained ball-bearing, which will permit of transportation, storage, &c., independent of the frame, block, or other holder.

Another object is to provide a ball-bearing sheave susceptible of ready attachment to a variety of holders without change therein.

My invention is particularly designed with a view to its usefulness in the art of sheet-metal working and is so described herein, though not intending to so limit the same; and my invention consists particularly in the use of a hollow rivet for securing ball-cups in proper relative position and which is adapted to receive a spindle or pin-axle; and it consists still further in the construction, combination, and arrangement of elements hereinafter set forth, pointed out in my claims, and illustrated in the accompanying drawings, in which—

Figure 1 is a side view. Fig. 2 is a diametrical cross-section of Fig. 1. Fig. 3 is a perspective view of the rivet.

C represents a tubular rivet having the opening O and provided with annular shoulders S S near each end, which prevent the cups A from approaching nearer to each other than the distance between said shoulders, the central apertures in said cups being smaller in diameter than the extreme diameter of said shoulders. I prefer to construct my rivet of two tubes, an inner tube *c'* and an outer tube *c*. These may be sections of pipes or rolls of sheet metal, as shown in Fig. 3. The outer tube *c* being shorter than the inner one the

ends thereof form the shoulders S. Of course this rivet can be made from one piece with the shoulders S formed thereon.

B is a wheel, preferably constructed of sheet metal by a tying process, in which the dies which tie the two side plates of the wheel together at the same time form the cones D D, which coöperate with the curved portions E of the cups A A to form a ball-race for the balls K. I do not make any claim to and do not limit myself to any particular form of construction of the wheel.

The rivet C is constructed so that the shoulders S will be of such distance apart that the cups A A when in position will be held relative to the cones D D, so as to form a ball-race, and the metal between the said shoulders S S and the extreme ends is just sufficient to penetrate the openings in the cups A and to admit of being turned over upon said cups about said openings.

The parts of the device are assembled simply and quickly in ways which are unnecessary of description, and the protruding ends of the rivet C are turned over upon the cups A A, so that they are firmly held upon the shoulders S S.

About the central openings in the cup A, I form recesses or slots N, into which the metal will be pressed when the ends of the rivet are turned over, and thus the more certainly secure the cups against turning. These recesses are not essential, but may be omitted and the upsetting of the ends of the rivet be relied upon to accomplish the same results.

Without stating equivalents of various parts and construction, what I do claim, and desire to secure by Letters Patent, is—

1. The combination with a wheel provided with ball-cones, ball-cups, and balls, of a tubular rivet having means for spacing the ball-cups and having means for securing the same in position.

2. The combination with a wheel provided with ball-cones, ball-cups, and balls, of a tu-



bular rivet having annular shoulders, and means for securing the ball-cups against said shoulders.

3. The combination with a wheel provided  
5 with ball-cones, ball-cups and balls, of an outer tube for spacing the ball-cups and an inner tube having means for rigidly securing the ball-cups to itself and against the ends of said outer tube.
- 10 4. The combination with a wheel provided with ball-cones and balls, of a pair of ball-

cups having recesses or slots about their central apertures, and a tubular rivet having means for engaging said recesses or slots and having annular shoulders.

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In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES A. BRINLEY.

Witnesses:

A. M. WIDDOWS,  
JOHN V. MARTIN.