

No. 665,643.

Patented Jan. 8, 1901.

J. T. McCABE.

METALLIC WHEEL AND BEARING THEREFOR.

(Application filed Apr. 25, 1900.)

(No Model.)

Fig. 1.

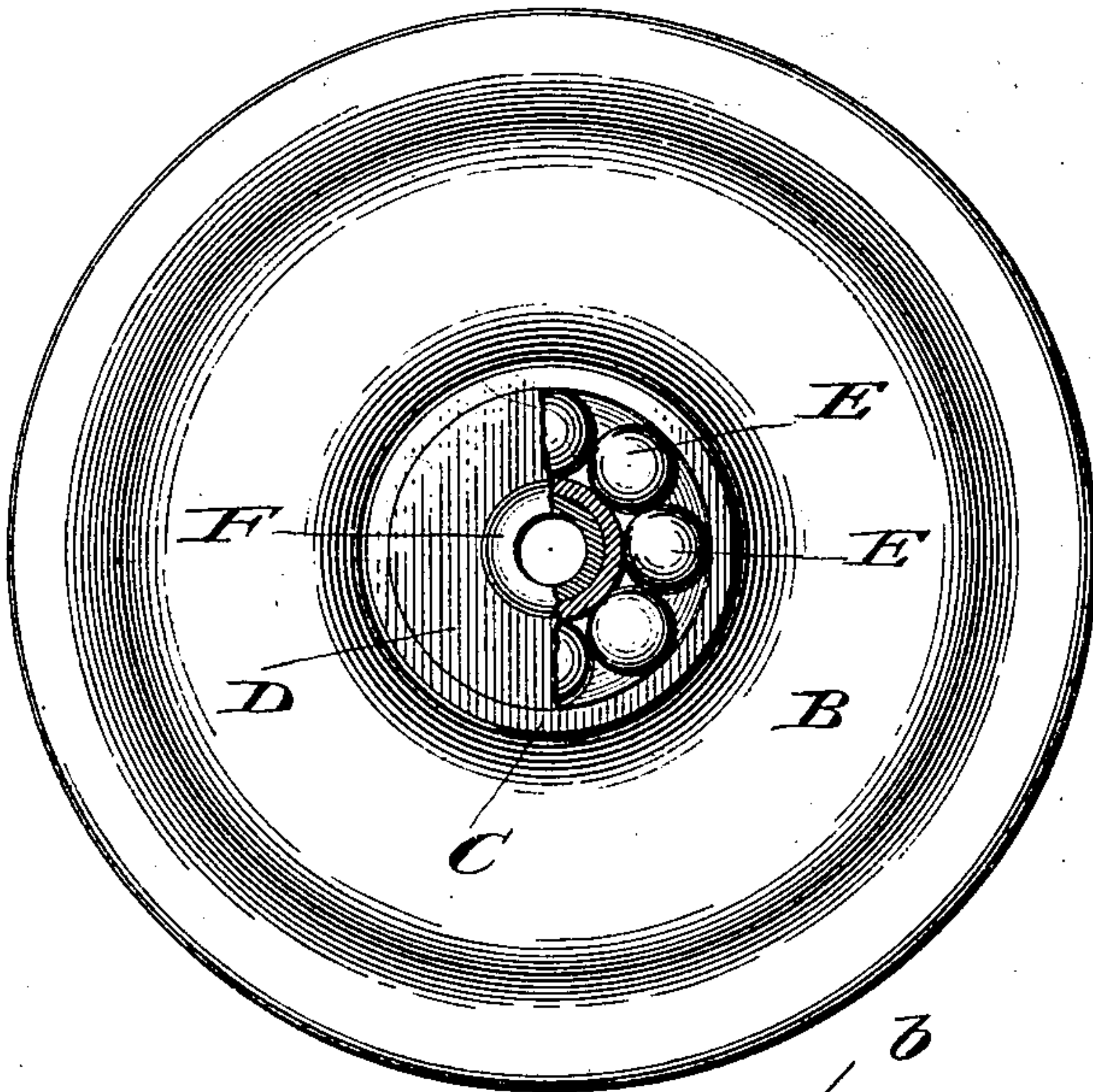


Fig. 2.

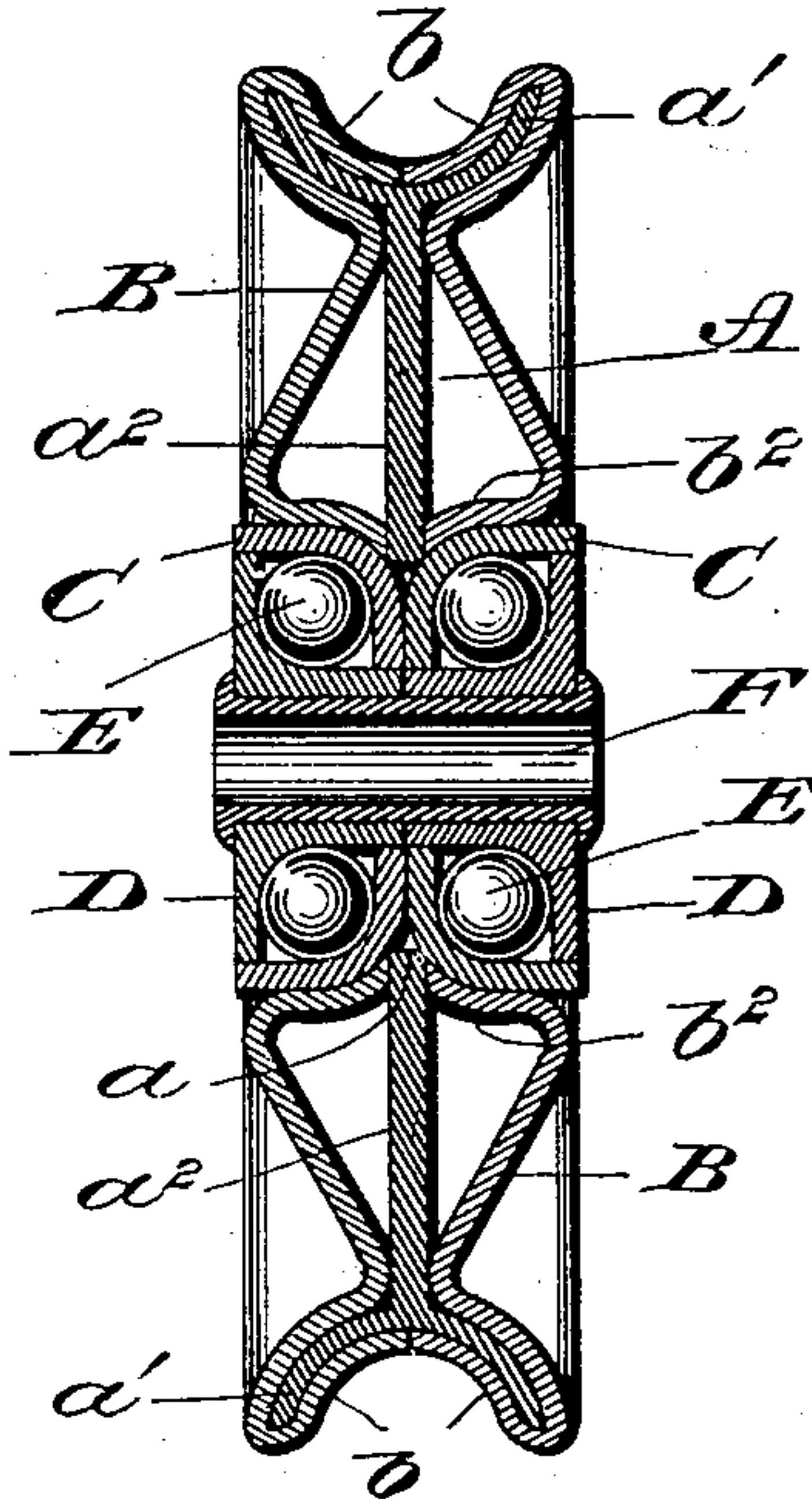


Fig. 3.

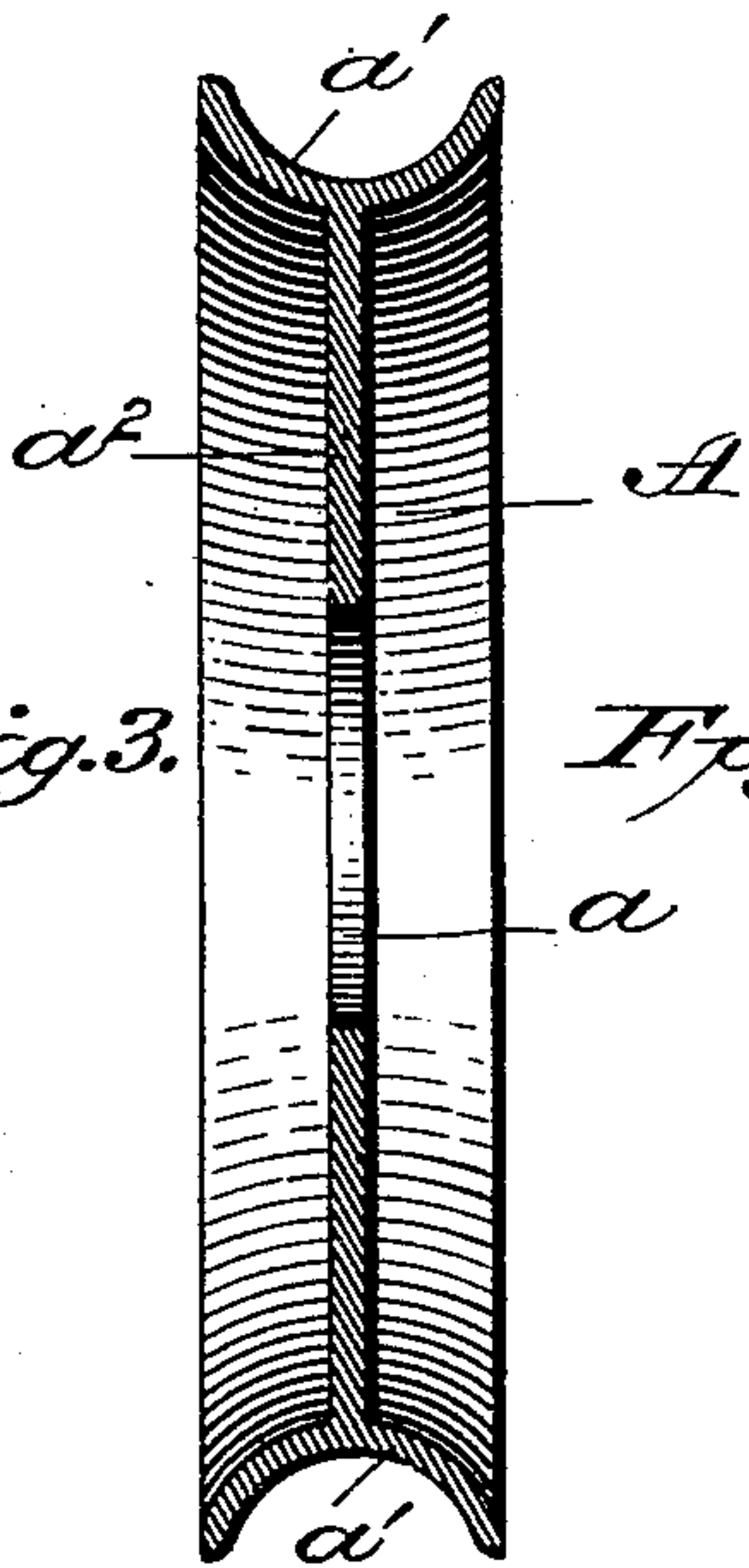


Fig. 4.

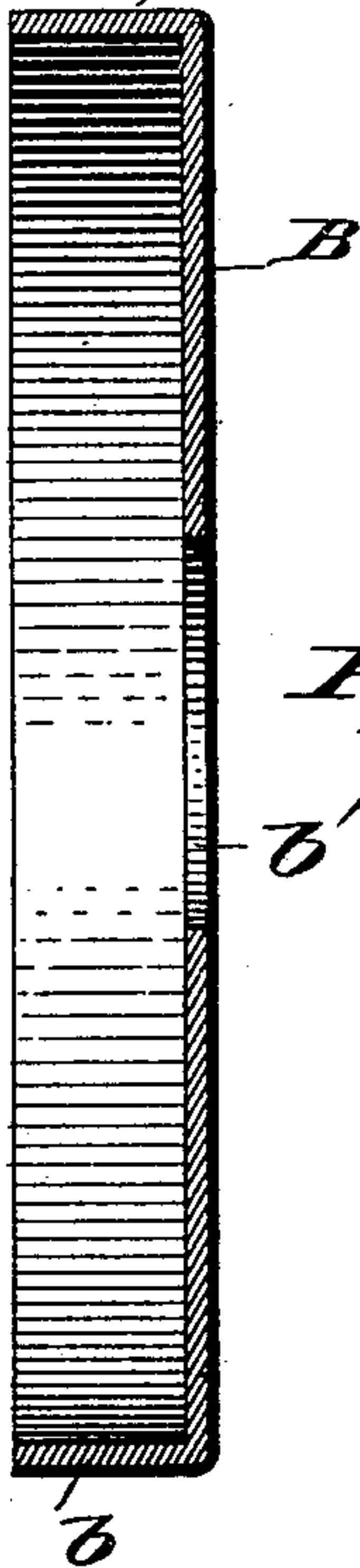
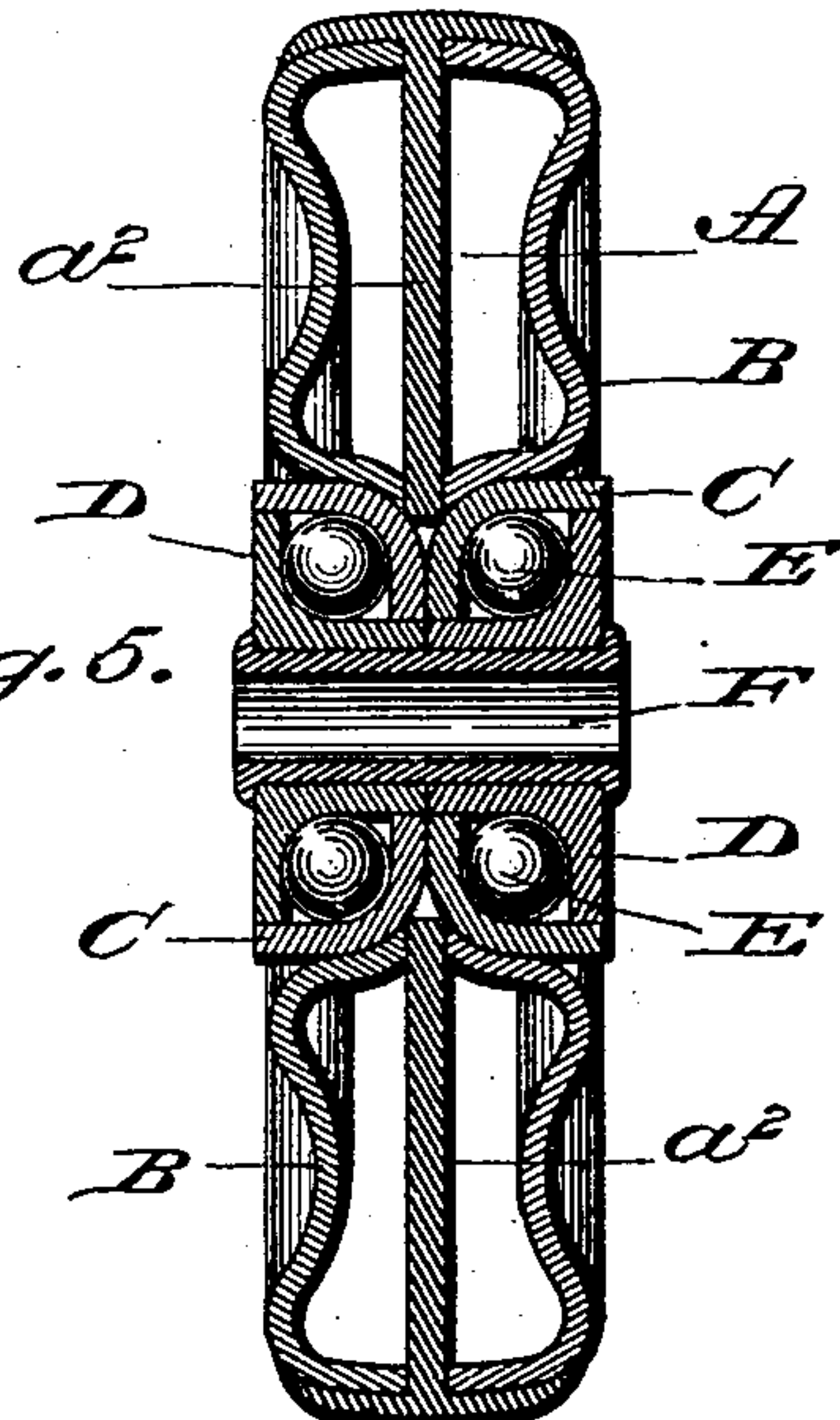


Fig. 5.



Witnesses

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# UNITED STATES PATENT OFFICE.

JAMES T. McCABE, OF NEW YORK, N. Y.

## METALLIC WHEEL AND BEARING THEREFOR.

SPECIFICATION forming part of Letters Patent No. 665,643, dated January 8, 1901.

Application filed April 25, 1900. Serial No. 14,310. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES T. McCABE, a citizen of the United States, and a resident of the borough of Manhattan, in the city, county, and State of New York, have invented certain new and useful Improvements in Metallic Wheels and Bearings Therefor, of which the following is a specification.

My invention relates to a wheel and bearing therefor constructed entirely of metal and especially adapted as a carrying-wheel for a sliding door, &c., although adapted by changes in its size and proportions to be used for other purposes, such as a pulley, &c.; and the object of this invention is to provide a simple and durable construction thereof, the several parts of which may be cheaply made and assembled; and to accomplish these objects it consists in the combination, construction, and arrangement of the various parts of which it is composed, as will be hereinafter more fully described and claimed.

Referring to the accompanying drawings, in which corresponding parts are designated by similar marks of references, Figure 1 is a side elevation, partly in section, of a door-carrying wheel and its bearing constructed in accordance with this invention. Fig. 2 is a transverse central section thereof. Fig. 3 is a corresponding section of the central disk thereof. Fig. 4 is a corresponding section of a side web, showing its shape before being assembled and pressed upon the central disk. Fig. 5 is a view similar to Fig. 2, but showing a modified form of my invention.

The device shown consists of a wheel proper consisting of the central disk A and the two side webs B and a bearing therefor consisting of two cups C, two cones D, balls E, and a tubular rivet F.

Referring to Figs. 1 to 4, the central disk A of the wheel has a central aperture  $a$  and a double annular flange  $a'$ , formed around its outer edge, the flange in the figures referred to being concave. By preference the disk is of sheet metal, and the flange thereon is formed by spinning. Each of the side webs B is also formed of sheet metal and is struck up into the shape shown in Fig. 4—that is to say, each side web consists of a flat portion having a central aperture  $b'$  and having an annular flange  $b$  formed around its outer edge on one

side thereof. A web of this shape is in the making of a wheel assembled on each side of a central disk A, and by means of suitable chucks the flanges  $b$  are rolled down closely upon the flange of the central disk, the edges of the flanges of the webs abutting on the outside of the flange of the central disk and in the medial line thereof. At the same time the portions of the webs adjacent to the peripheries thereof formed by the flanges  $b$  are pressed down upon the inside faces of the flange  $a$ , reinforcing and inclosing the latter, and the portions of the webs adjacent to the central apertures therein are forced down concentrically to the axis of the wheel against the inner disk close to the edge of the aperture thereof, this bending of the webs forming shoulders  $b^2$ , one on each side of the wheel, and the projecting inner edge of the inner disk forming a wall  $a^2$  for the purpose of centering and holding the bearing hereinafter described. The curvature given to the shoulders  $b^2$  is by preference the same as the curvature on the cups of the bearing.

In the recess formed by each shoulder  $b^2$  a cup C is contained, the cups fitting snugly within the respective recesses and being each limited in their inward position therein by the central wall  $a^2$ , formed by the projecting inner edge of the inner disk.

Within each cup C is located a cone D, balls E being contained between the cups and cones, as is well known.

A suitable rivet F extends through the cones, and the latter are locked thereon and held against separation by upsetting the end of the rivet, and in practice the wheel may be mounted by passing a shaft through this rivet.

In Fig. 5 I have shown a modified form of my invention, and in the device there shown the flange of the central disk is convex instead of concave, and the flanges of the webs are bent down against the inside faces of the flange of the central disk, the edges of the flanges on the webs abutting on the central disk immediately inside of the flange thereof.

It will be noted that in a wheel constructed in accordance with my invention not only is provision made for properly centering and holding the bearing, but that the webs support the flange of the wheel directly from the



cups at the point where the latter are supported by the balls, and thus I obtain a structure which has no loose parts and which can support a great weight without injury.

5 Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. As a new article of manufacture, a metallic wheel, consisting of a flanged and apertured central disk, and apertured side webs, 10 having their portions adjacent to their peripheries bent down under the flange of the central disk and their portions adjacent to their apertures bent inwardly against the said disk, forming shoulders, substantially as 15 described.

2. As a new article of manufacture, a metallic wheel, consisting of a flanged and apertured disk and apertured side webs, having 20 their portions adjacent to their peripheries bent down under the flange of the central disk, and their portions adjacent to their apertures bent inwardly against the said disk around the aperture therein, forming shoulders, the edge of the aperture in the disk be- 25 ing located beyond the shoulders formed by the webs, substantially as described.

3. As a new article of manufacture, a metallic wheel, consisting of a flanged and apertured central disk, and an apertured flanged 30 web on each side thereof, the flanges of the webs being bent down upon the outside of the flange of the disk, the portions of the webs adjacent to their peripheries being bent down upon the inside of the flange of the disk, 35 and the portions of the webs adjacent to their apertures being bent inwardly against the disk, forming shoulders, substantially as described.

4. As a new article of manufacture, a metallic wheel, consisting of a flanged and apertured central disk, and an apertured flanged 40 web on each side thereof, the flanges of the webs being bent down upon the outside of the flange of the disk, the portions of the webs adjacent to their peripheries being bent down upon the inside of the flange of the disk, and 45 the portions of the webs adjacent to their apertures being bent inwardly against the disk, forming shoulders, and the edge of the aperture in the disk being located beyond the shoulders formed by the webs, substantially 50 as described.

5. The combination, with a metallic wheel

consisting of a flanged and apertured central 55 disk, and apertured side webs, having their portions adjacent to their peripheries bent down under the flange of the disk, and their portions adjacent to their apertures bent inwardly against the disk, forming shoulders, 60 of ball-bearing cups contained and fitting in the recesses formed by the shoulders, substantially as described.

6. The combination, with a metallic wheel, consisting of a flanged and apertured central 65 disk, of apertured side webs, having their portions adjacent to their peripheries bent down under the flange of the disk, and their portions adjacent to their apertures bent inwardly against the disk around the aperture 70 therein, forming shoulders, the edge of the apertured disk being located beyond the shoulders, substantially as described.

7. The combination, with a metallic wheel, consisting of a flanged and apertured central 75 disk, and an apertured flanged web on each side thereof, the flanges of the webs being bent down upon the outside of the flange of the disk, the portions of the webs adjacent to their peripheries being bent down upon the 80 inside of the flange of the disk, and the portions of the webs adjacent to their apertures being bent inwardly against the disk, forming shoulders, of ball-bearing cups contained and fitting in the recesses formed by the shoul- 85 ders, substantially as described.

8. The combination, with a metallic wheel, consisting of a flanged and apertured central disk and an apertured side web on each side 90 thereof, the flanges of the webs being bent down upon the outside of the flange of the central disk, the portions of the webs adjacent to their peripheries being bent down upon the 95 inside of the flange of the disk, and the portions of the webs adjacent to their apertures being bent inwardly against the disk, forming shoulders, the edge of the aperture in the disk being located beyond the shoulders formed by the webs, of ball-bearing cups con- 100 tained and fitting in the recesses formed by the shoulders, substantially as described.

In testimony whereof I have hereunto signed my name in presence of two witnesses.

JAMES T. McCABE.

In presence of—

DONALD M. TURNER,  
J. M. McILVAINE.