

No. 698,351.

Patented Apr. 22, 1902.

L. F. ARNOLD.
ROLLER BEARING.

(Application filed Mar. 20, 1901.)

(No Model.)

Fig. 1.

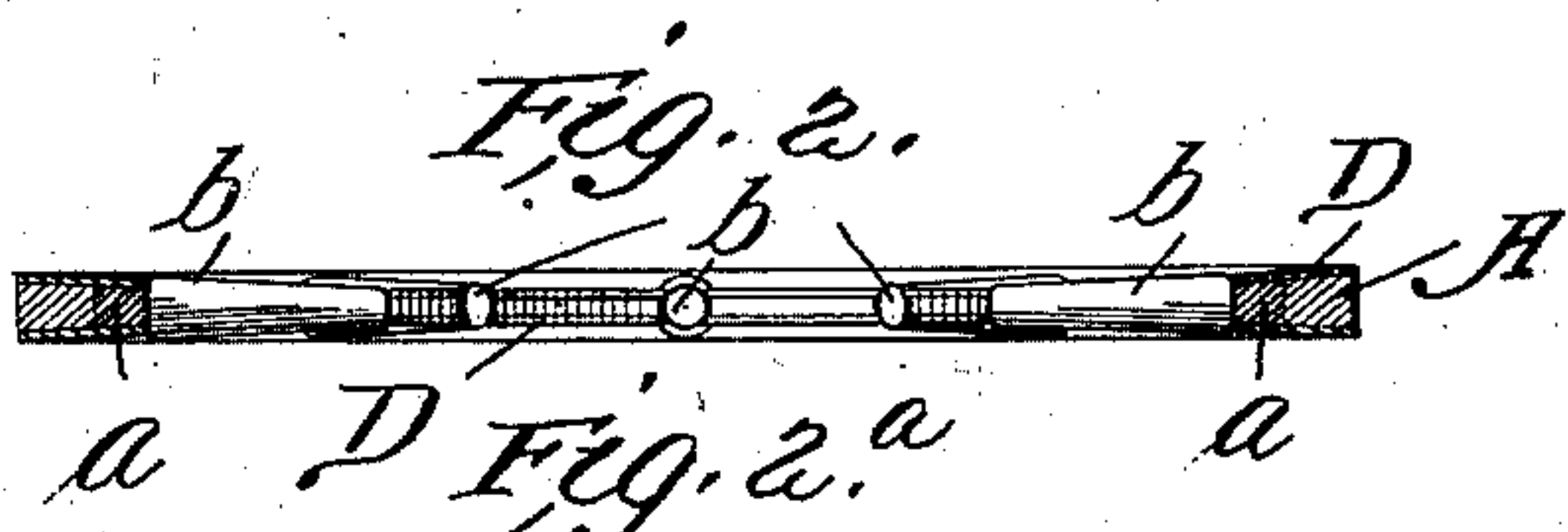
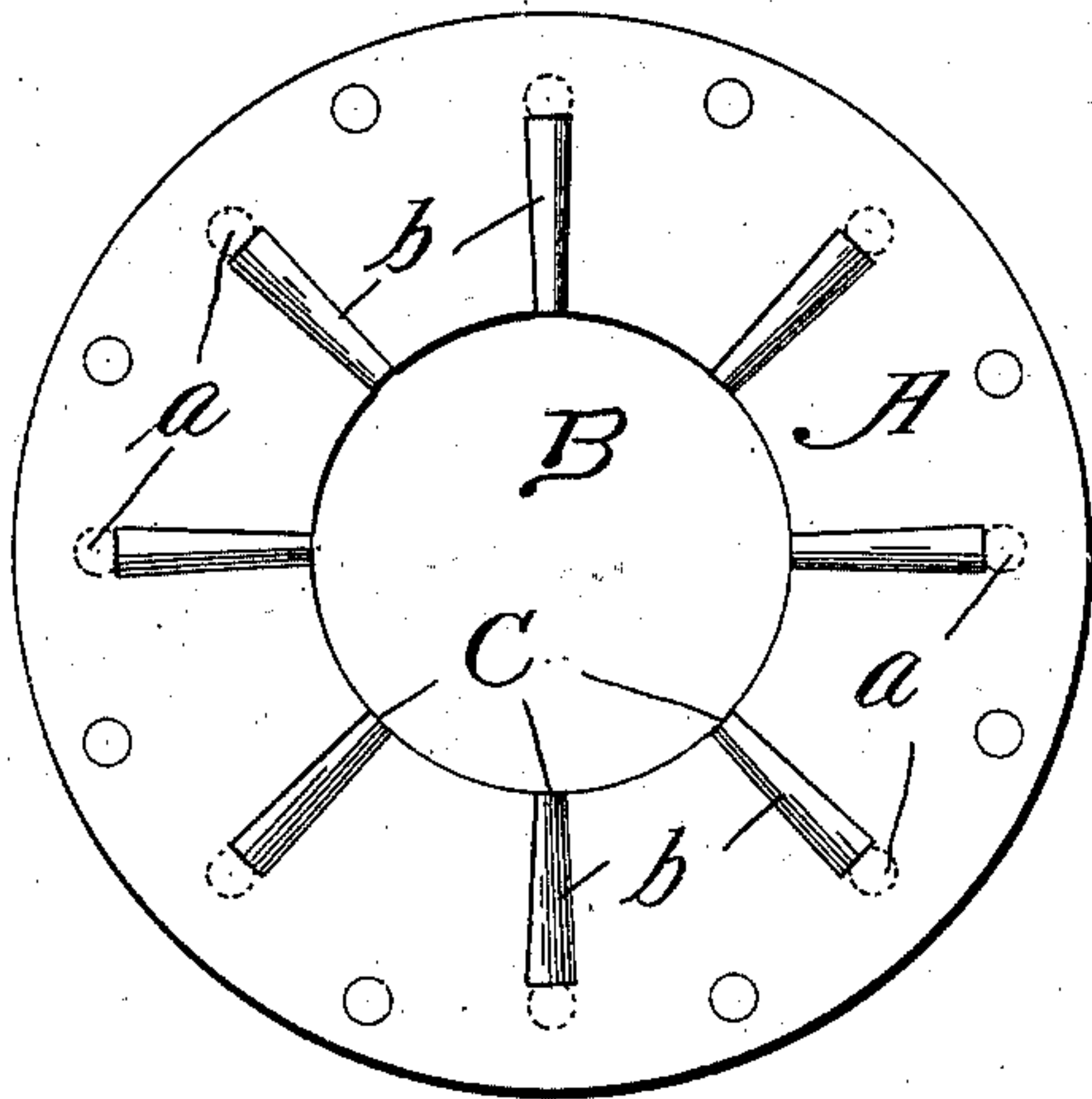


Fig. 4.

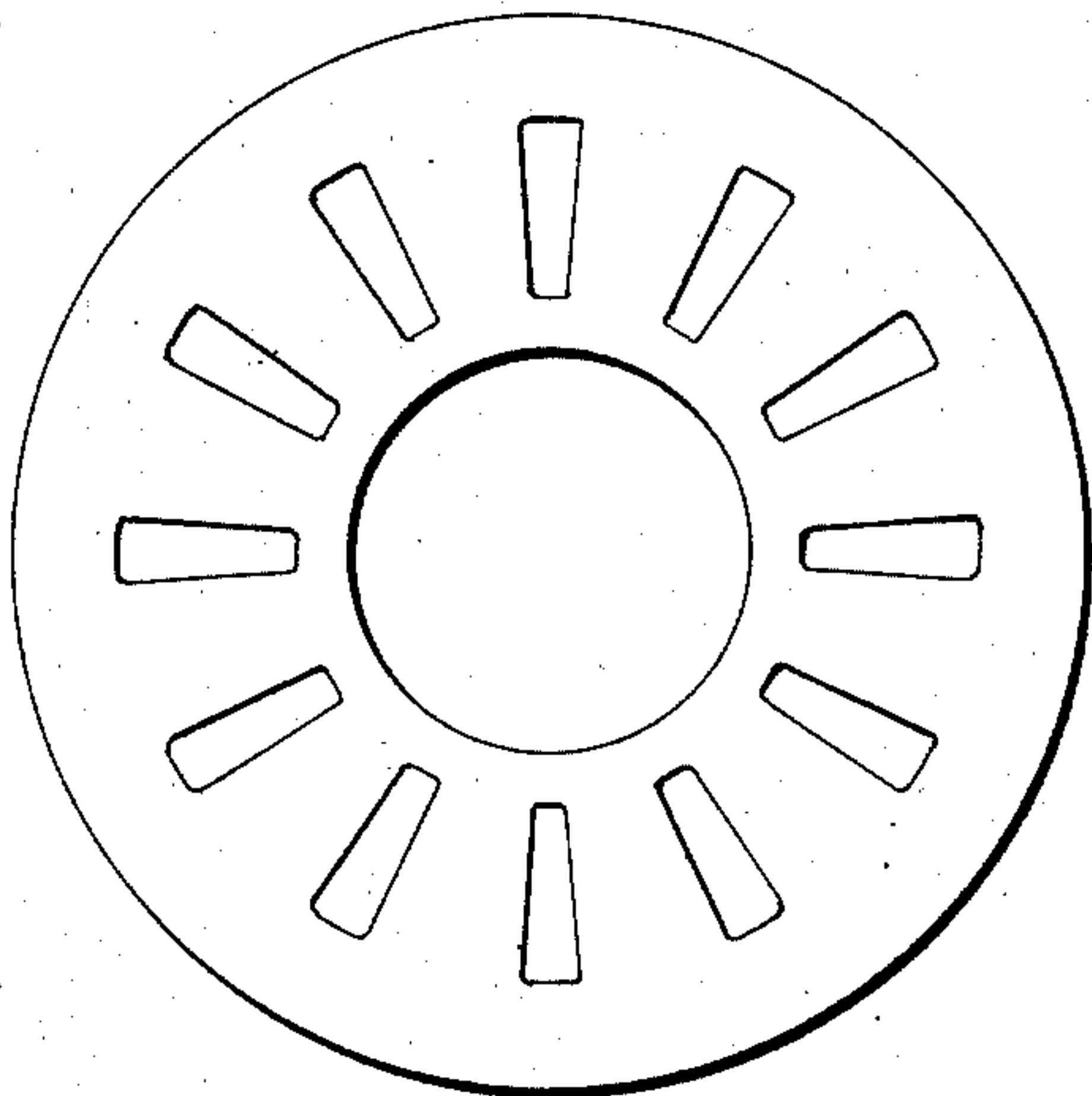


Fig. 3.



Fig. 3.a



Fig. 3.a

Fig. 5.

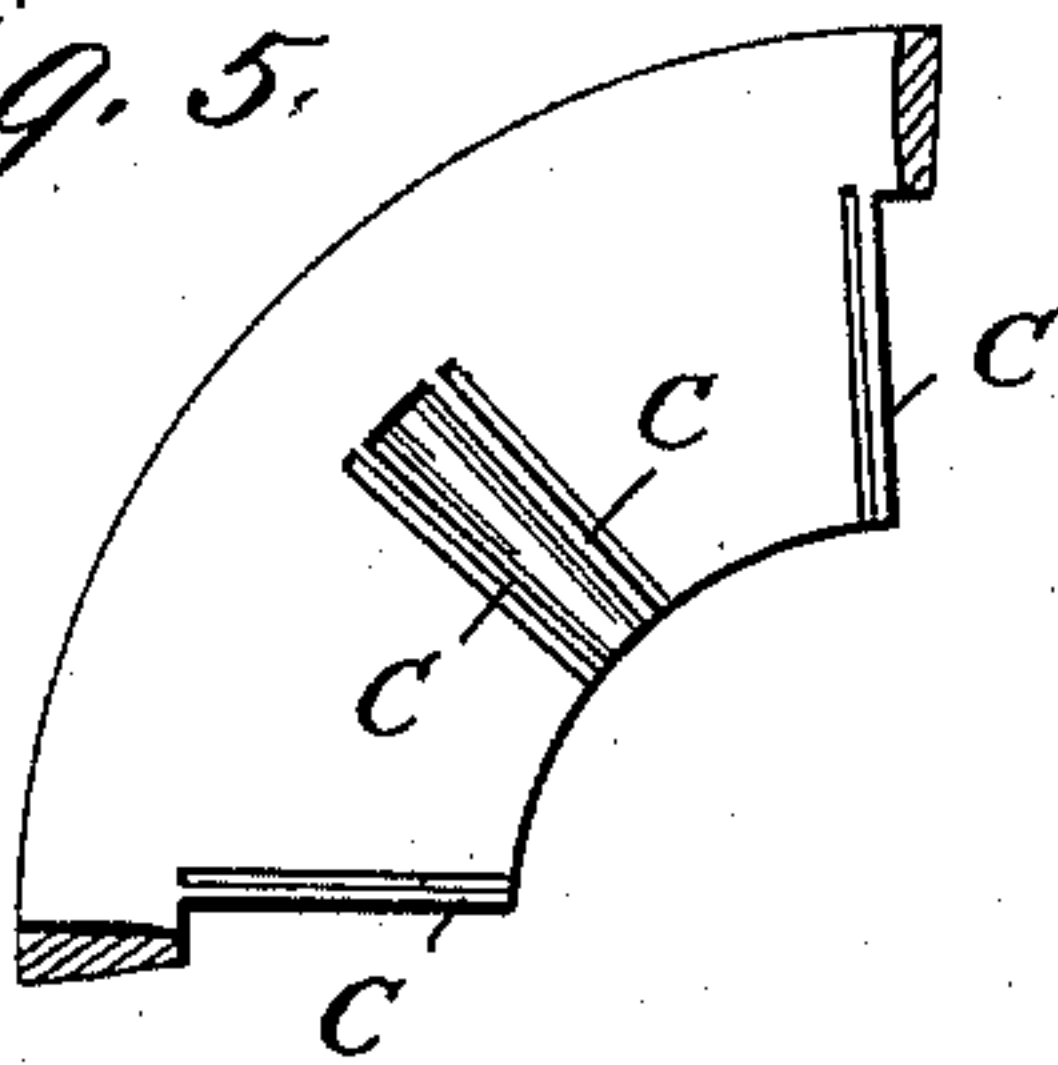
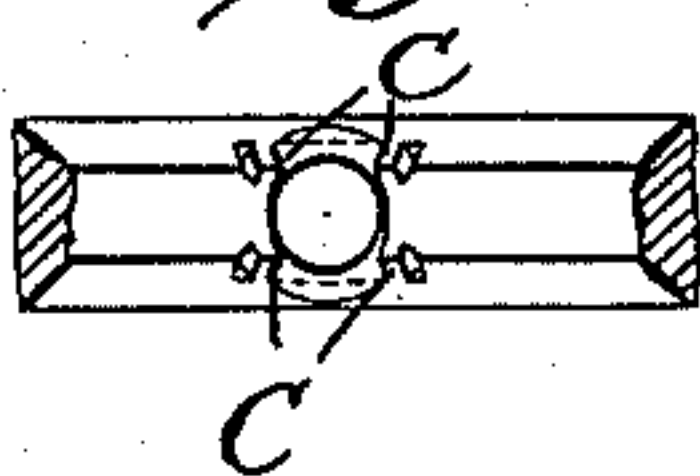


Fig. 6.



Attest
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UNITED STATES PATENT OFFICE.

LUCIUS FRANK ARNOLD, OF PROVIDENCE, RHODE ISLAND, ASSIGNOR TO
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ROLLER-BEARING.

SPECIFICATION forming part of Letters Patent No. 698,351, dated April 22, 1902.

Application filed March 20, 1901. Serial No. 51,999. (No model.)

To all whom it may concern:

Be it known that I, LUCIUS FRANK ARNOLD, a citizen of the United States, residing at Providence, Rhode Island, have invented certain new and useful Improvements in Roller-Bearings, of which the following is a specification.

My invention is an improvement in roller-bearings specially designed for a thrust-bearing; but the manner of holding in the rolls is capable of use in many different situations.

In the accompanying drawings, Figure 1 shows a face view of a thrust-bearing, and Fig. 2 is a sectional view of the same. Fig. 2^a is an enlarged detail showing the end of the roller and its containing-slot of Fig. 2. Fig. 3 shows a modification. Fig. 3^a is an enlarged detail of the roller and containing-slot of Fig. 3. Fig. 4 shows another modification. Fig. 5 shows a modified method of holding in the roll, and Fig. 6 shows a detail of construction.

In carrying out my invention I provide what I may term a "cage" in the form of a disk having an open center and a series of slots radiating from the open center. The walls or faces of the disk taper inwardly toward the center, and the slots are also made tapering, their smaller ends being at their inner extremities, where they merge into the open center, and their broader ends being at their outer extremities. The disk is shown at A, the open center at B, and the radiating slots at C. To obviate the making the cage of tool-steel, a pin *a*, hardened and ground, is inserted at the head of each slot to form a bearing for the end of the roll.

The slots C are cut with straight walls, and the rollers *b*, which are tapering, are inserted, and in order to hold them in place I apply to each side of the cage a light sheet of metal, these sheets being identical in form with the cage, but having the slots therein of slightly less width, so that they overlap the slots in the cage sufficiently to hold the rolls in place and prevent their displacement. These sheets are indicated at D and are riveted or otherwise secured to the cage. Instead of holding the rollers in place in this way I may modify the construction, as shown in Fig. 3, in which

I make the cage A' in two pieces and make the slots of varying widths, so that upon the outer face of the sections of the cage the width of the slots will be sufficient to retain the rollers in place, while the width of the slots on the inner faces is sufficient to allow the rollers to be inserted. The two sections are then placed one upon the other and riveted or otherwise secured, and this makes a self-contained cage.

Instead, as in Figs. 1 to 3, of having the slots run through to the central opening I may make a stronger construction by having the slots intermediate of the cage between the inner opening and the outer periphery, as shown in Fig. 4.

In Fig. 5 I show another modification, in which the slot is first formed with straight walls by punching or otherwise, and thence upon each side of the slot and upon each face of the cage the metal is indented to force inwardly an overhanging lip, as shown at *c*, which confines the roller in place.

What I claim is—

1. A roller-bearing comprising a cage having an intact outer periphery and an open center with a plurality of radiating slots opening into said center, rollers fitting in said slots, and means for confining the rollers in the slots, substantially as described.

2. A roller-bearing comprising a cage having radiating slots formed therein, rollers within said slots, said cage having independent plates overlapping the edges of the rolls to retain the same in place, substantially as described.

3. A roller-bearing comprising a cage of circular disk form having an open center and intact outer periphery and having radiating slots opening into said center, rollers retained in said slots, and hardened bearing-pins inserted transversely through the plate at the outer ends of said slots, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

LUCIUS FRANK ARNOLD.

Witnesses:

CHARLES K. HIGGINS,
BELLE C. RUSSELL.