

No. 610,331.

Patented Sept. 6, 1898.

C. E. ROBERTS.
BEARING FOR WHEELS.
(Application filed Nov. 13, 1897.)

(No Model.)

FIG. 1.

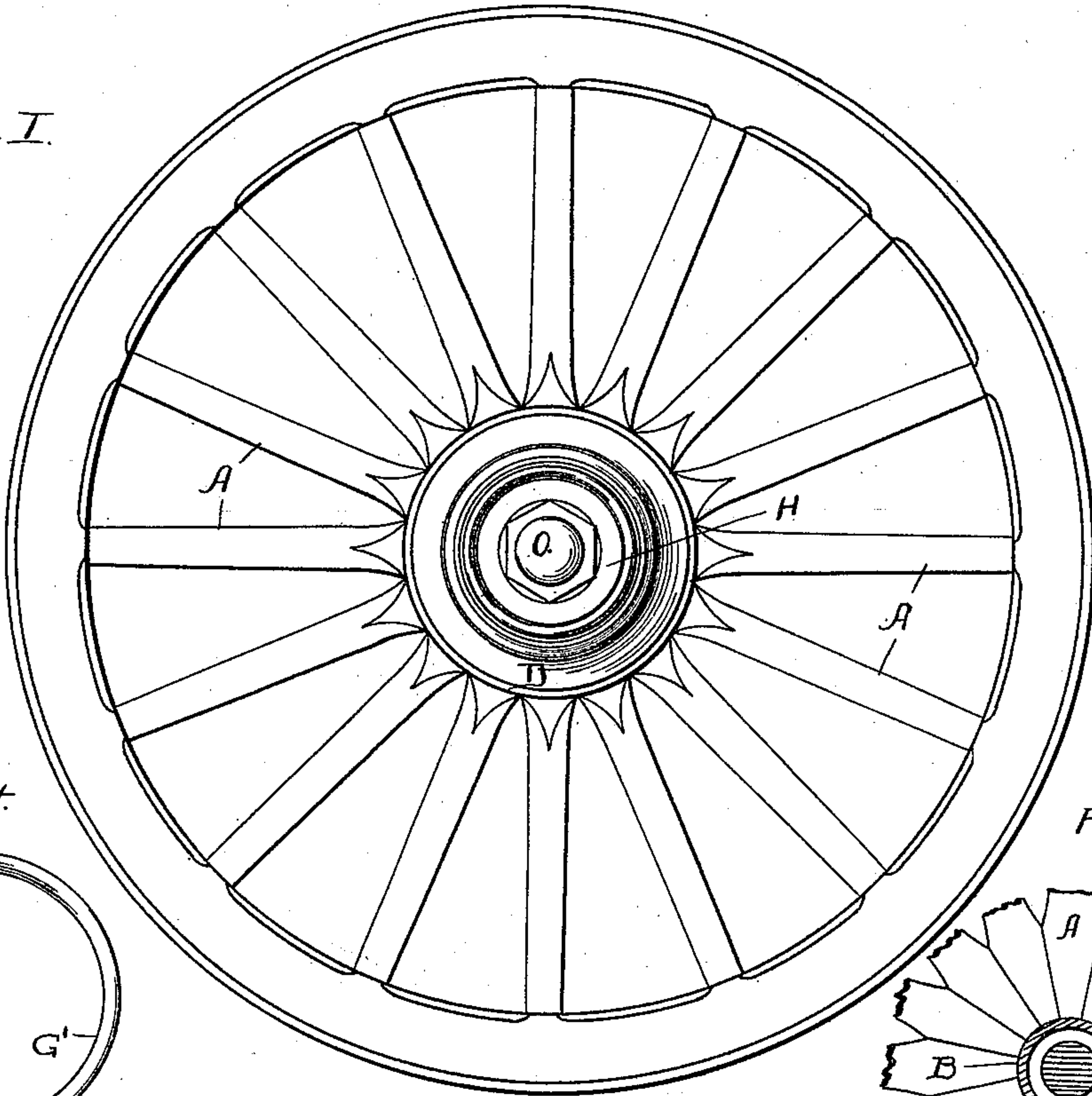


FIG. 4.

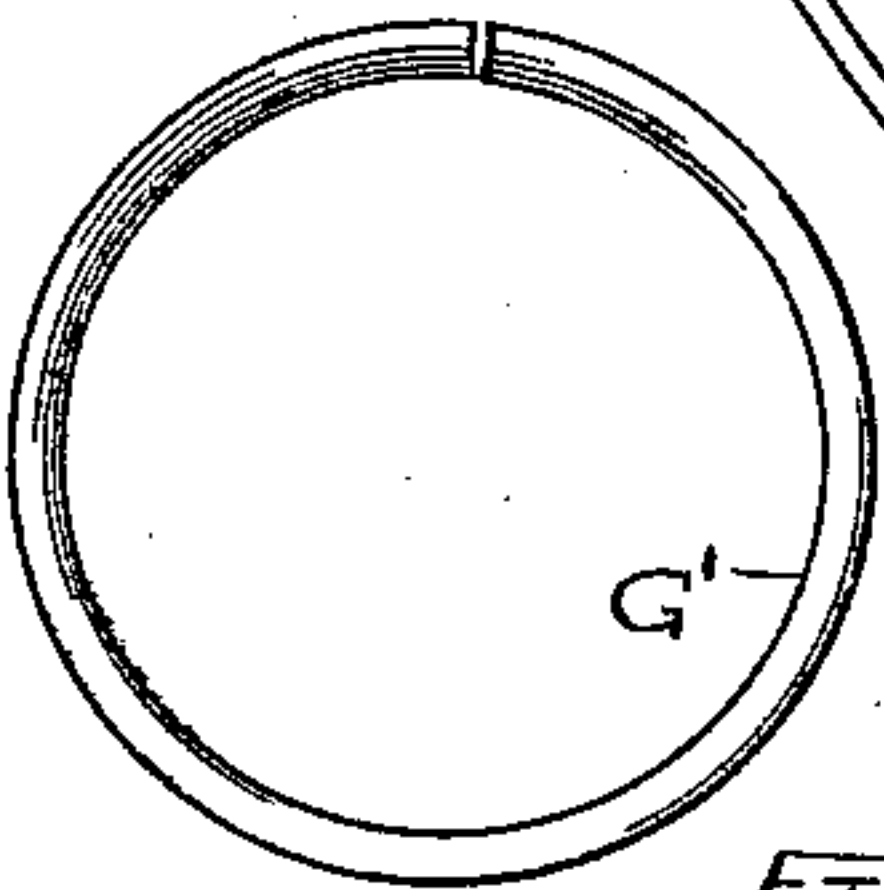


FIG. 2.

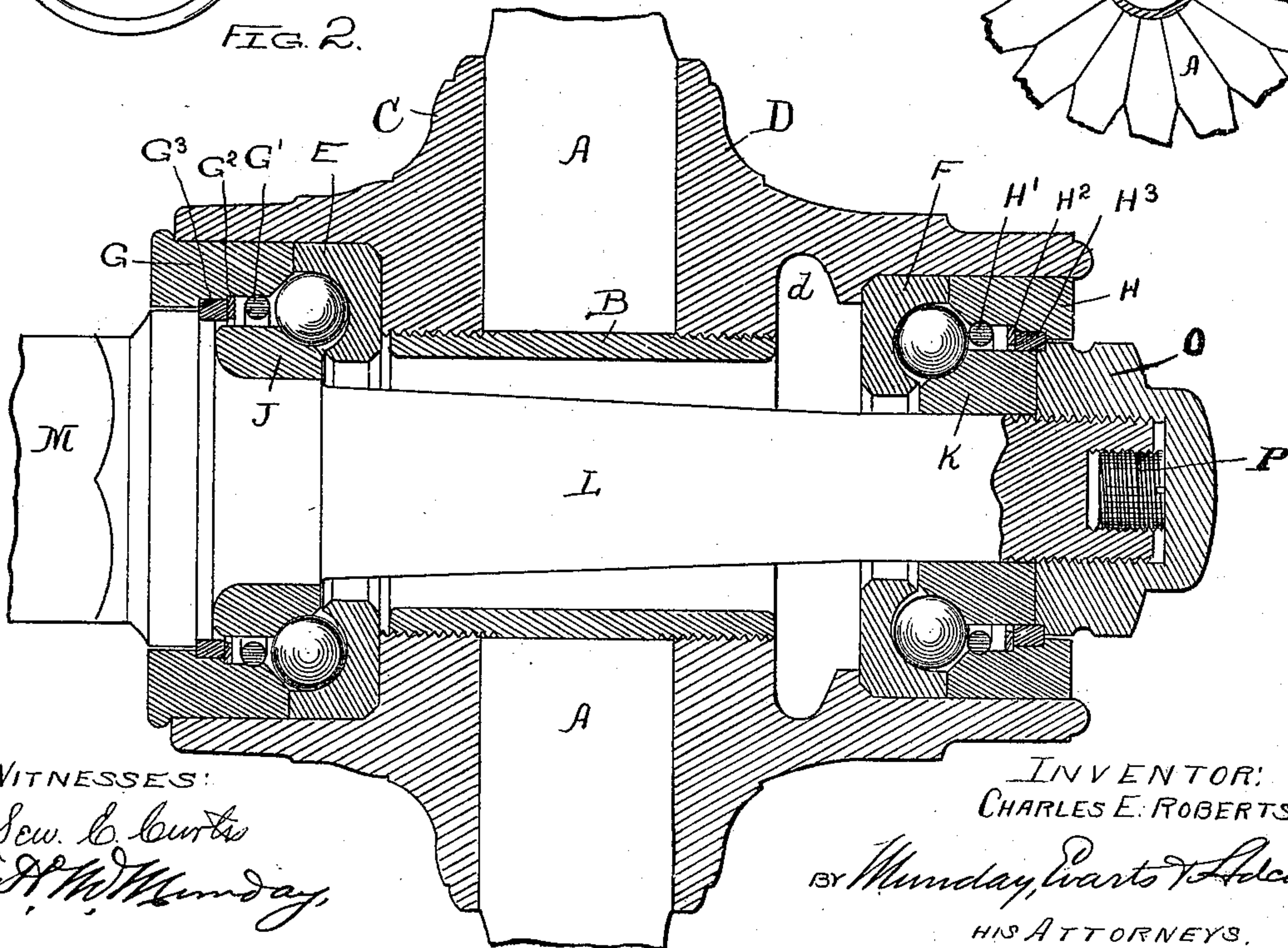
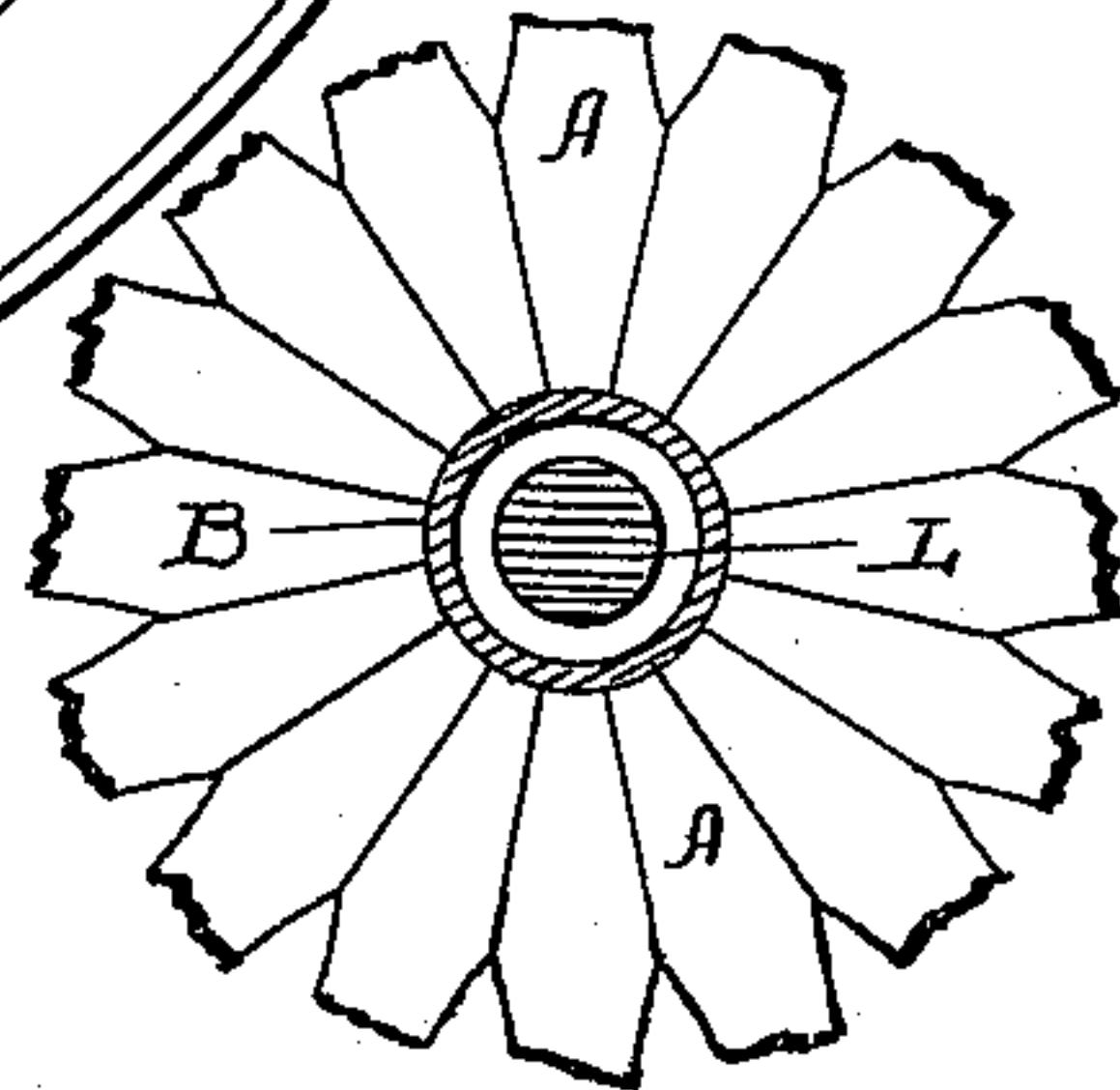


FIG. 3.



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CHARLES E. ROBERTS, OF OAK PARK, ILLINOIS.

BEARING FOR WHEELS.

SPECIFICATION forming part of Letters Patent No. 610,331, dated September 6, 1898.

Application filed November 13, 1897. Serial No. 658,493. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. ROBERTS, a citizen of the United States, residing in Oak Park, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Vehicle-Wheels and Bearings Therefor, of which the following is a specification.

My object in this invention is to provide a construction of a ball-bearing wheel and axle adapted to be used in wagons and carriages, and more especially in trucks and other heavy vehicles. These wheels are of the compression-spoke variety and have heretofore been made with hubs of wood or of metal or of combined wood and metal. In my present construction I use hubs consisting of two metal flanges or halves adapted to compress the spokes between them, and these halves are each recessed at the outer end; and I combine with said halves the cups of the ball-bearings by which the wheel is supported upon the axle by inserting the cups of the bearings in the recesses of and securing them directly to the hub-halves.

The nature of my improvement is more fully set forth in the explanation given below of the accompanying drawings, in which latter—

Figure 1 is an elevation of a wheel embodying my invention. Fig. 2 is an enlarged longitudinal section of the hub portion of the wheel. Fig. 3 is a partial section at right angles to that given in Fig. 2. Fig. 4 shows the wire ball-retaining ring.

In said drawings, A A represent the spokes of the wheel. These spokes are tapered at their inner ends, which are in close contact, as seen at Fig. 3, and they rest at their inner ends upon the sleeve B, and upon either side they are supported by the two halves or flanges C and D, which form the hub. The hub-halves are made of metal and are both threaded upon the sleeve B, the threads of the screw connections running in opposite directions, so that the halves C and D can be drawn together as tightly as desired. Upon their adjacent faces the halves are vertical to adapt them to form suitable abutments for the spokes at the inner and outer sides of the latter. The inner end of the hub-half C is recessed, as shown, to receive the cup E, and the outer part of the hub D is recessed to receive

the cup F. The part D is also preferably cut away interiorly, as shown at *d*, to lighten its weight. This, however, is not necessary. The cups are forced tightly into their respective recesses and each of them is adapted to encircle the balls for about half their circumference. A ring G is inserted in the recess in the part C outside of the cup and sets up against the latter and also assists in confining the balls. This ring may be also forced into place so as to be securely held. A ring H, similar to the ring G, is also forced into the part D and against its cup F and serves in a similar manner to confine the balls.

J and K are the cones, both removable and encircling the spindle L of the axle M. The cap-nut O is threaded on the outer end of the spindle and serves to adjust the bearings, and is itself regulated by an adjusting-screw P, threaded into a recess in the outer end of the spindle.

To confine the balls in their races when the wheel is removed from the axle, by which the cones are necessarily disassociated from the cups, I provide inside of the retaining-rings G and H spring-wires G' and H'. These wires are split, as seen at Fig. 4, so that they may be contracted slightly to allow them to be sprung out of the grooves in the rings H and G, in which they are normally positioned, and moved away from the balls and into the open space between them and the washers G² and H², this slight change in position being sufficient to allow the removal of the balls whenever that is desired. After the balls are replaced the wire rings are readily moved back again to their respective grooves. The washers G² and H² serve to confine the water and dust excluding felt packings G³ and H³.

By this construction I obtain a ball-bearing wheel adapted more especially to use upon vehicles employed in transporting heavy loads and much resembling in some respects the Sarven wheels now used. The rings G' and H' do not need to be taken out when the balls are removed or replaced, and consequently do not get out of place or become lost at such times.

I claim—

1. In a ball-bearing, the combination with a recessed metal hub, the balls and the cone, of a cup and a ball-ring both located in the hub-

recess and made fast thereto, said ring being located outside the balls, substantially as specified.

2. In a ball-bearing, the combination with a recessed hub, the cone, and the balls, of the cup and ball-ring both made fast in the hub-recess, with said ring located outside the balls, and a split spring-ring seated in the ball-ring, substantially as specified.

3. In a ball-bearing, the combination with a recessed hub, the cone, and the balls, of the cup and ball-ring both made fast in the hub-recess, with said ring located outside the balls, and a split spring-ring seated in the ball-ring, the bearing having an open space lateral of

said spring-ring into which it may be moved to permit the removal of the balls, substantially as specified.

4. The ball-bearing for vehicle-wheels, comprising a metal hub-flange D recessed at its end, a cup F secured in the recess of said flange, a cone supported by the axle, balls moving between the cup and cone, the ring H, split ring H', and the axle, both said rings being located outside the balls, substantially as specified.

CHARLES E. ROBERTS.

Witnesses:

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