

(No Model.)

G. W. BAKER.

WHEEL.

No. 391,833.

Patented Oct. 30, 1888.

Fig. 1.

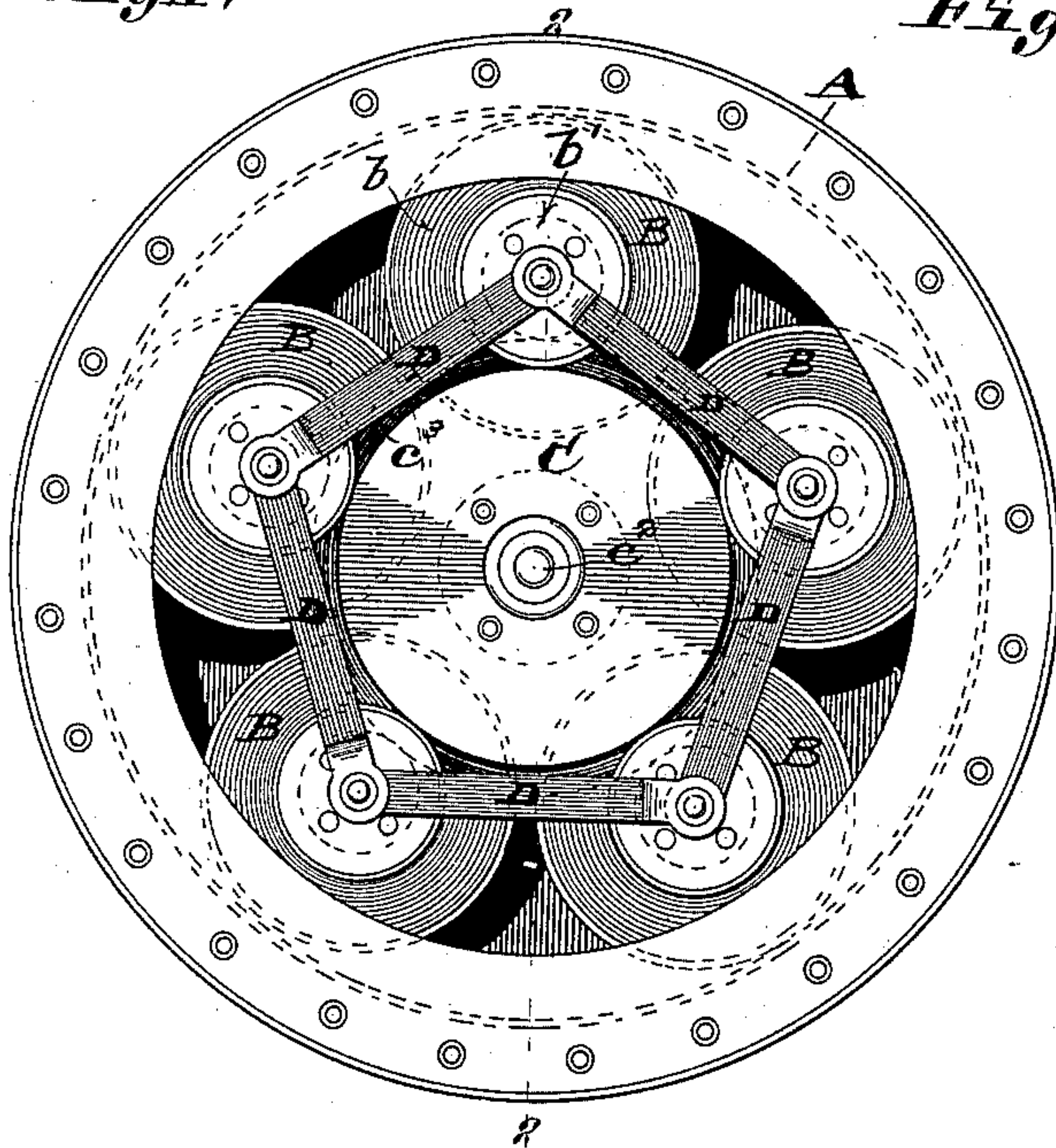


Fig. 2.

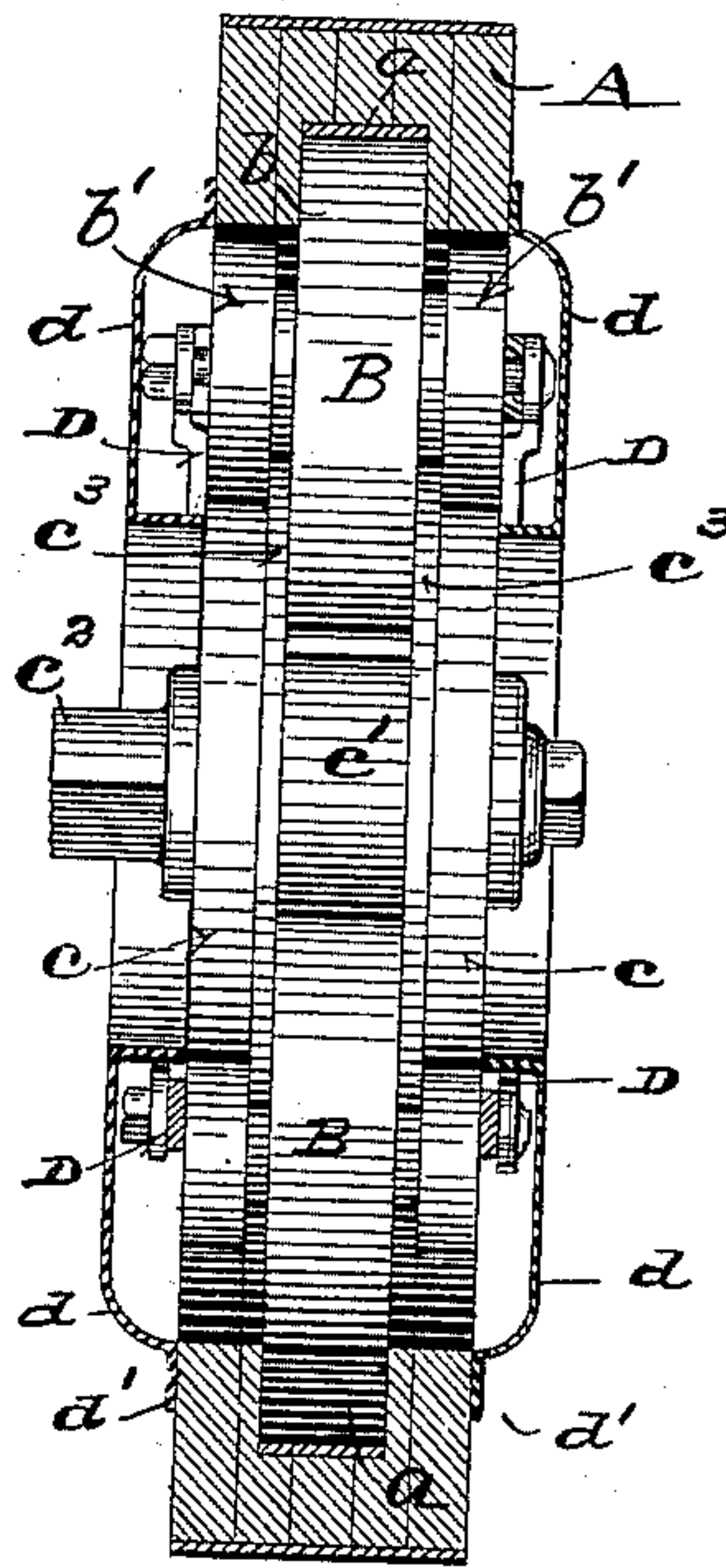


Fig. 3.

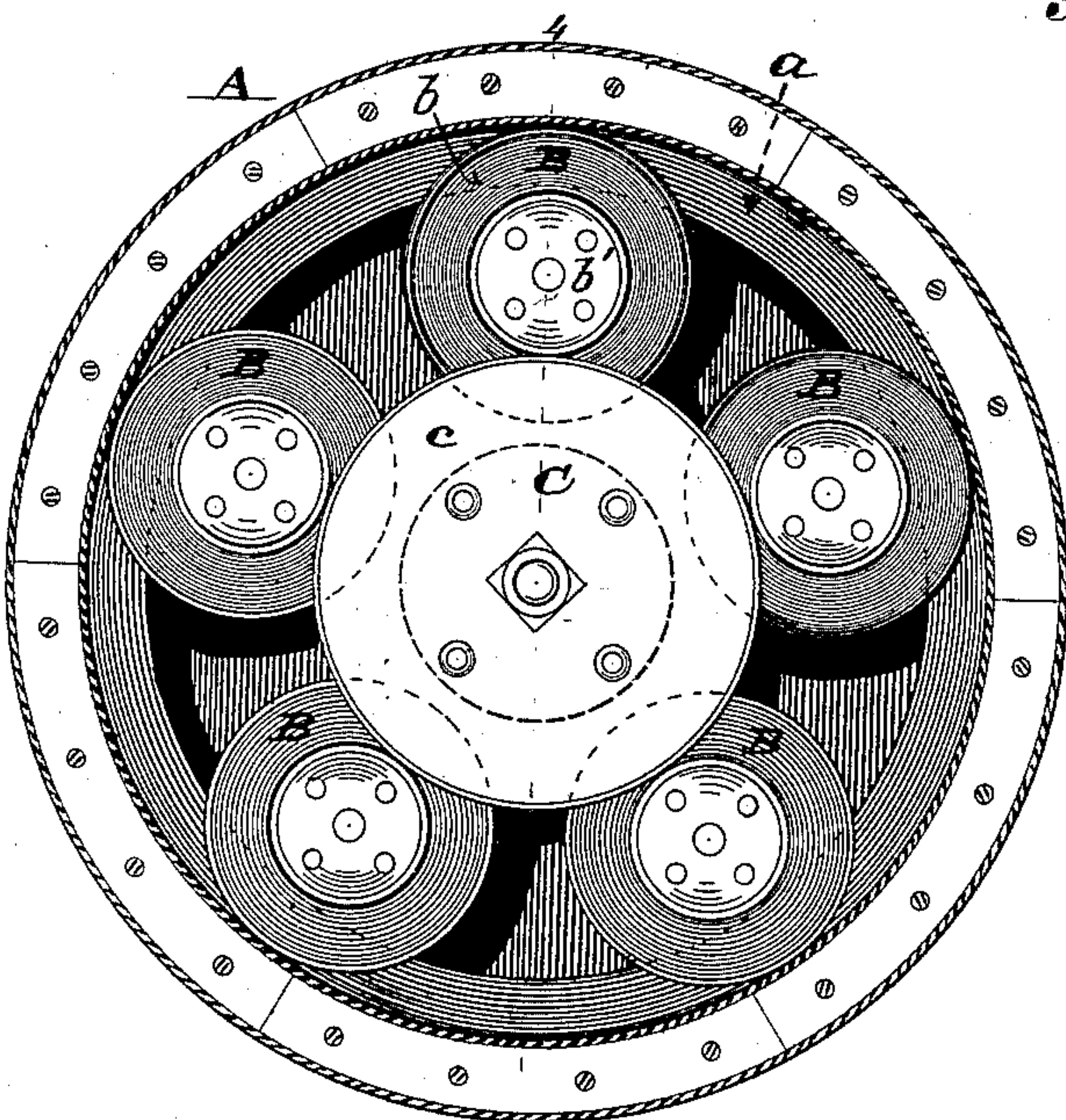
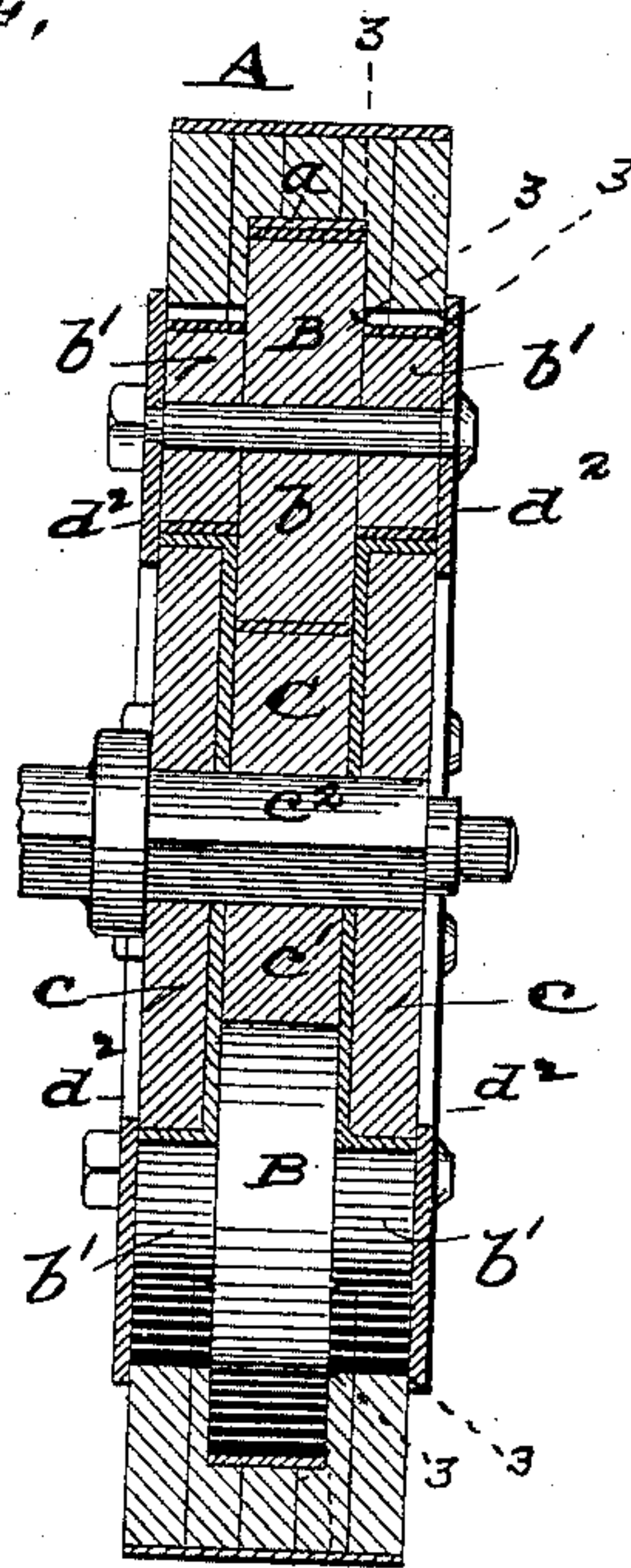


Fig. 4.



Attest:

J. F. Ry.
J. W. Sanford

Inventor:

George W. Baker
by C. D. Moody, atty.

UNITED STATES PATENT OFFICE.

GEORGE W. BAKER, OF ST. LOUIS, MISSOURI.

WHEEL.

SPECIFICATION forming part of Letters Patent No. 391,833, dated October 30, 1888.

Application filed April 28, 1888. Serial No. 272,132. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. BAKER, of St. Louis, Missouri, have invented a new and useful Improvement in Wagon or other Wheels, of which the following is a full, clear, and exact description.

The object of said invention is to provide an easy-running strong wheel.

It consists substantially of the following combination: An axle provided with a hub, a series of friction wheels or rollers encircling and supporting said hub, and a rim encircling and supporting said series of wheels or rollers, said hub and said rim both having grooves to receive said series of wheels or rollers, each of said friction wheels or rollers being composed of three concentric drums, the two exterior ones thereof being in diameter respectively equal but less than the central drum, the circumferences of said exterior roller-drums being preferably made to bear the same proportion to the circumferences of the exterior hub-drums, which ride upon the said exterior drums of the friction-rollers, as the circumferences of the center roller-drums, which bear and roll on the track in the bottom of the rim-groove, bear to the circumference of said track, and said wheels or rollers being braced apart from each other by means of connecting-rods, which at their ends are journaled on the axles of said friction wheels or rollers, substantially as hereinafter more fully set forth and claimed, and as illustrated in the annexed drawings, making part of this specification, in which—

Figure 1 is an elevation of the outer side of a wheel embodying the improvement under consideration. Fig. 2 is a view showing the wheel partly in section and partly in edge elevation, the sectional portion being on the line 2 2, Fig. 1, and the portion within the rim being in edge elevation. Fig. 3 is a section on the line 3 3 of Fig. 4, which in turn is a section on line 4 4 of Fig. 3.

The last two views illustrate a modified form of the improvement.

Similar letters applied to the several drawings denote the same parts.

A represents the rim of the wheel, said rim being of the ordinary construction, saving that in its inner edge it has a groove, *a*.

BB represent the series of rollers or friction-wheels. Said rollers B are each composed of three concentric parts or drums—viz., the central drum, *b*, and the two side drums, *b' b'*, the diameters of the latter two in the present instance being about half the diameter of the central drum, *b*. It is the central drum, *b*, which travels in the rim-groove *a*, and the side drums, *b'*, do not touch the rim A. The hub C is also composed of three concentric drums—viz., the two outside drums, *c c*, which are of equal diameter, and the central one, *c'*, of less diameter than the two outside ones—all of which are fastened on and to the axle *c'*. The parts *c c* and *c'* serve to form the groove in the hub in which the central part, *b*, of the roller B travels. Said part *b* does not come in contact with the central part, *c'*, of the hub, but the outside drums, *c c*, of the hub ride upon the side drums, *b' b'*, of the rollers.

c' c', Fig. 2, are washers concentric with the hub and designed to play between the sides of the hub-drums *c* and of the rollers *b*. The rollers B are connected and held apart from each other and arranged regularly around the hub in their respective positions by means of the connecting-rods D. These rods at their ends are journaled on the axles *b'* of the rollers, and are shaped substantially as shown.

The operation of the herein-described improvement is as follows: The weight of the load applied to the vehicle rests on the axle and thence on the hub. In the movement of the vehicle the hub rides upon the series of wheels or rollers, bearing especially upon those of the series which for the time being are beneath the hub, and the series of wheels or rollers in turn bear upon the rim of the wheel. The wheel being supposed to rest on a suitable road or surface and a hauling-strain applied to the axle, the hub bears against the roller, then forward of it, which roller in turn bears against the rim in a forward direction, causing the main wheel to roll on the road and rollers to roll on the track in the groove of the main wheel.

The two annular sheet-metal cases *d d*, termed "dust-shields," extend from the outside drums, *c*, of the hub to the rim of the wheel for the purpose of protecting the inte-

rior of the wheel from dust and dirt. They are fastened to the outsides of the hub-drums *c*, their outer edges, *d' d'*, sliding on the rim *A* as it revolves, all substantially as shown in Fig. 2. The said dust-shield is omitted in Fig. 1.

In the modified form of the improvement shown in Figs. 3, 4, the flat rings *d² d²*, shown in Fig. 4, take the place of both dust-shield *d*, Fig. 2, and the connecting-rods *D*. The axles of the rollers journal into said ring *d²* and it revolves with the rollers, its edges projecting over the hub-drums *c* and the rim *A*, on which it slides as it revolves. The structure may be constructed entirely of metal. If the rim and any of the drums are constructed of wood, they may be provided with iron tires, and an iron track or tread may be laid at the bottom of the groove in the rim of the wheel.

The number of rollers employed in wheels of this character is preferably five; but the number may be reduced to three or it may be increased in number, provided in either case that they are properly proportioned and are arranged uniformly, as above described.

To secure the least friction, the circumferences of the roller-drums on which the hub-drums bear and the circumferences of the said hub-drums should bear the same proportion to each other as the circumferences of the center drums of the rollers do to the circumference of the track in the bottom of the groove in the rim of the wheel.

The described improvement may be applied in different ways, according to the work which may be desired to be performed. For instance, the axle may be constructed to revolve or not,

and the hub may be arranged to revolve on the axle or be rigidly fastened thereto.

In the above description of the said improvement the part called the "hub," being rigidly fastened to the axle, becomes in fact part of the axle.

I am aware of a wheel having a series of friction-rollers interposed between the hub and the rim, the rollers each consisting of a single drum whose periphery comes in contact with both the hub and the rim and the rollers touching each other. Such a construction would not answer my purpose, because of the excessive friction incident thereto caused partly by the rubbing of the friction-wheels against the hub and the rim, and especially by the jamming and consequent rubbing of the friction-rollers against each other.

I claim—

A wheel having in combination an axle provided with a hub, a series of friction wheels or rollers encircling and supporting said hub, and a rim encircling and supporting said series of wheels or rollers, said hub and said rim both having grooves to receive said series of wheels or rollers, said wheels or rollers having a central larger drum and two exterior smaller drums, and the exterior drums of said hub riding upon the exterior drums of said wheels or rollers, and the central drum of said wheels or rollers riding in the rim-groove, substantially as described.

Witness my hand this 2d April, 1888.

GEO. W. BAKER.

Witnesses:

C. D. MOODY,

A. M. EVERIST.