

(No Model.)

2 Sheets—Sheet 1.

G. L. H. SCHNEIDEWIND.

VEHICLE WHEEL.

No. 376,969.

Patented Jan. 24, 1888.

Fig: 2.

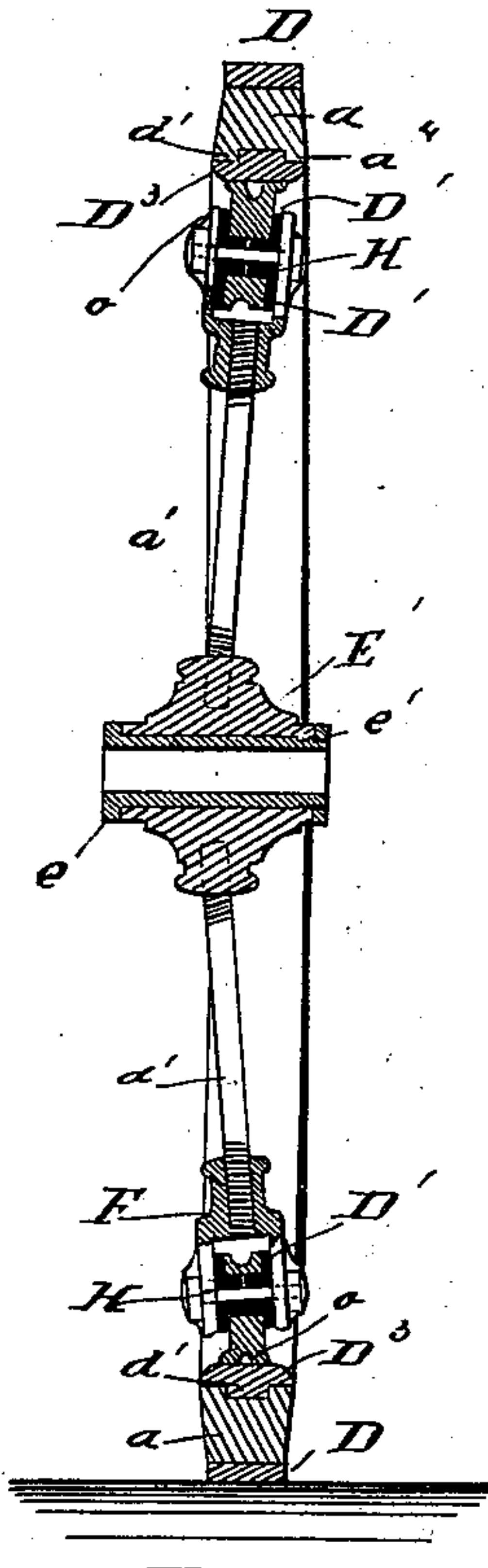


Fig: 1.

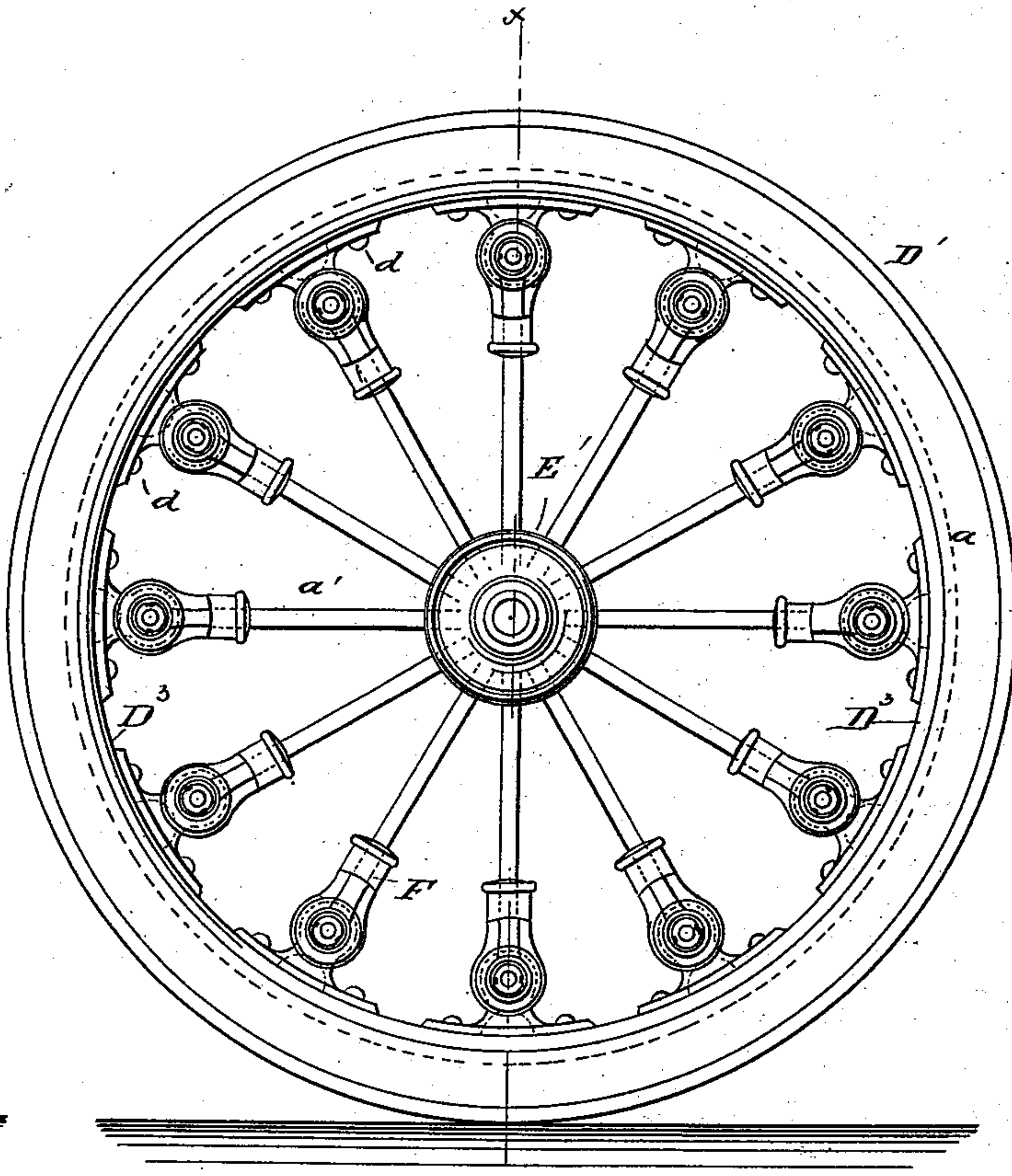


Fig: 3.

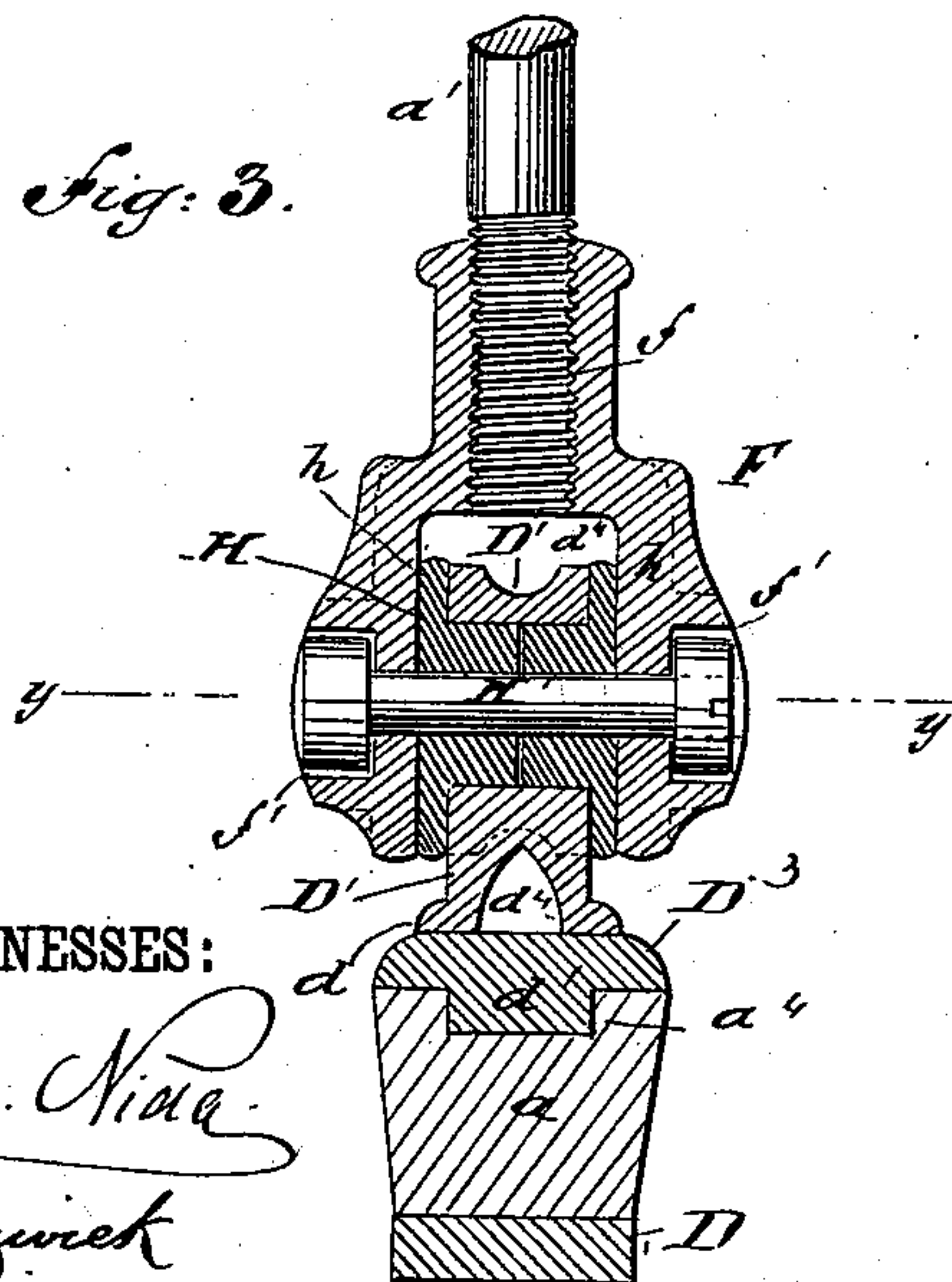
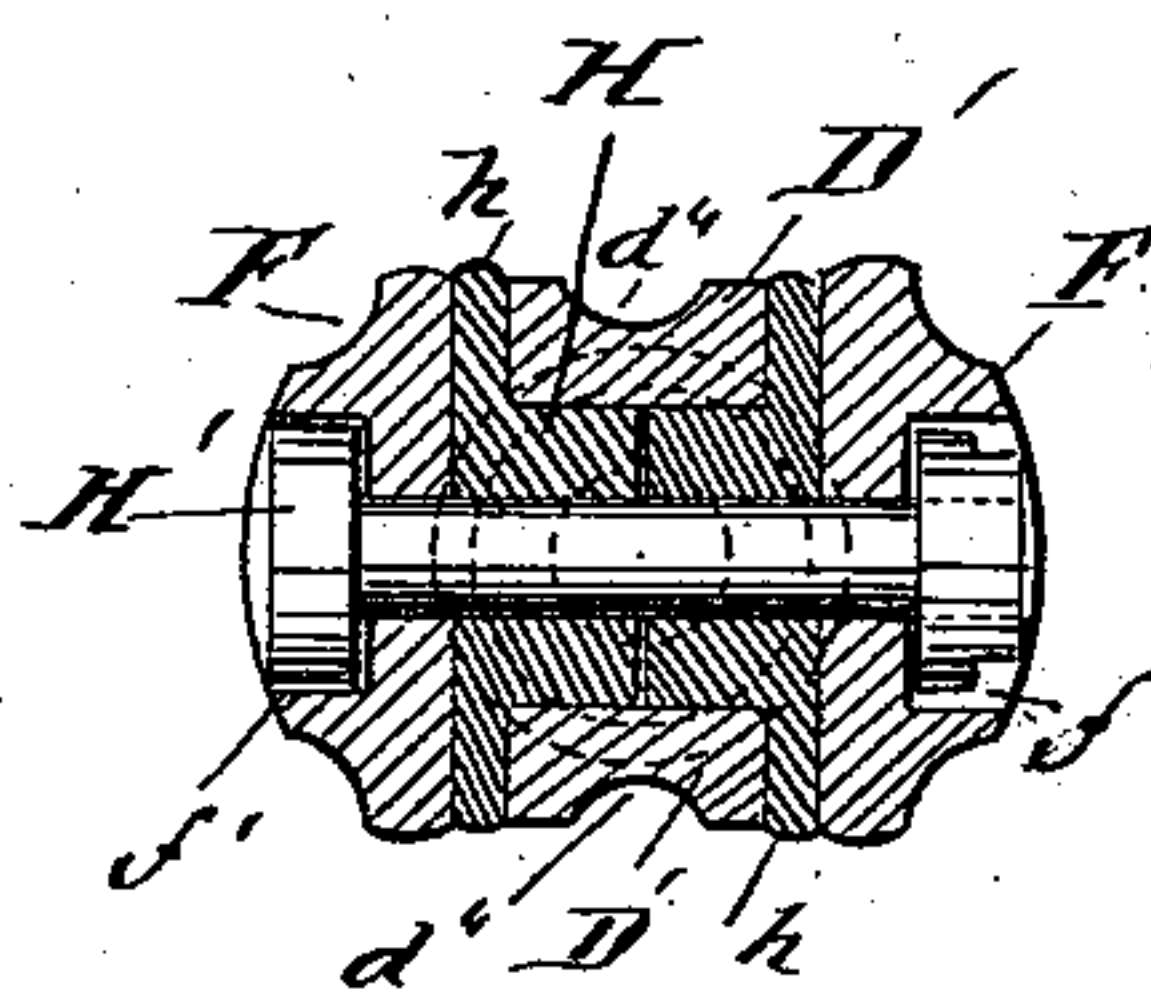


Fig: 4.



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INVENTOR:

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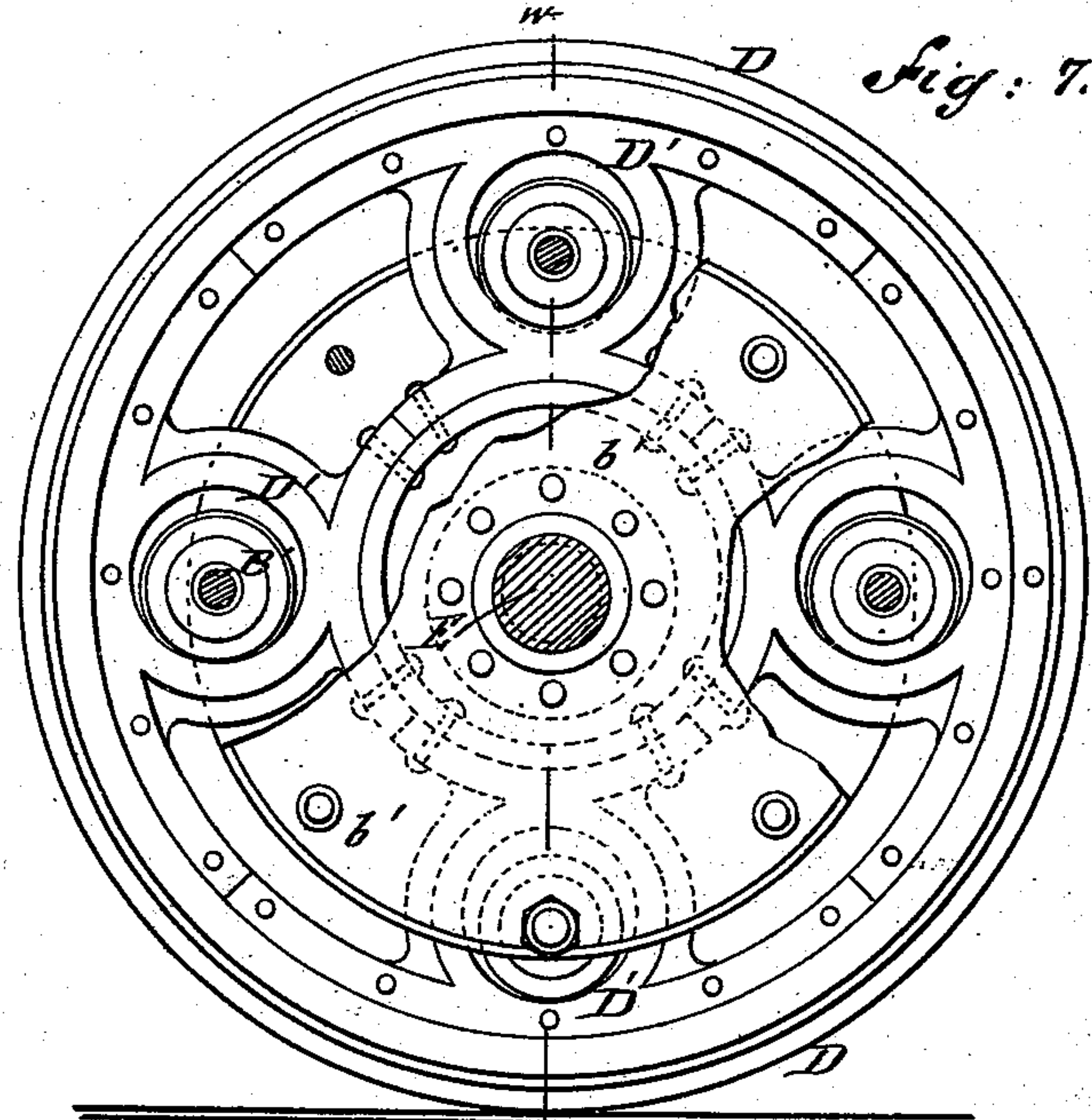
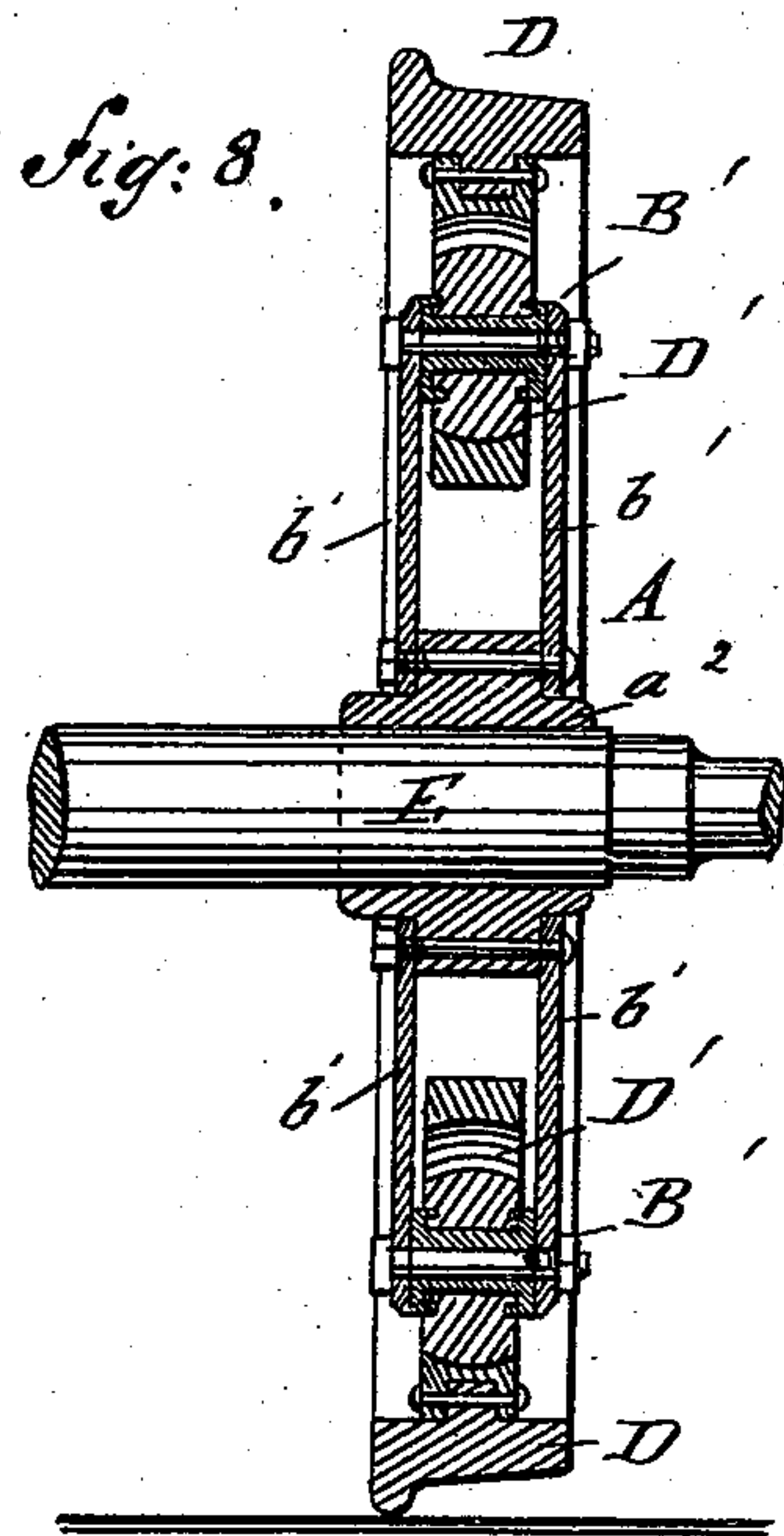
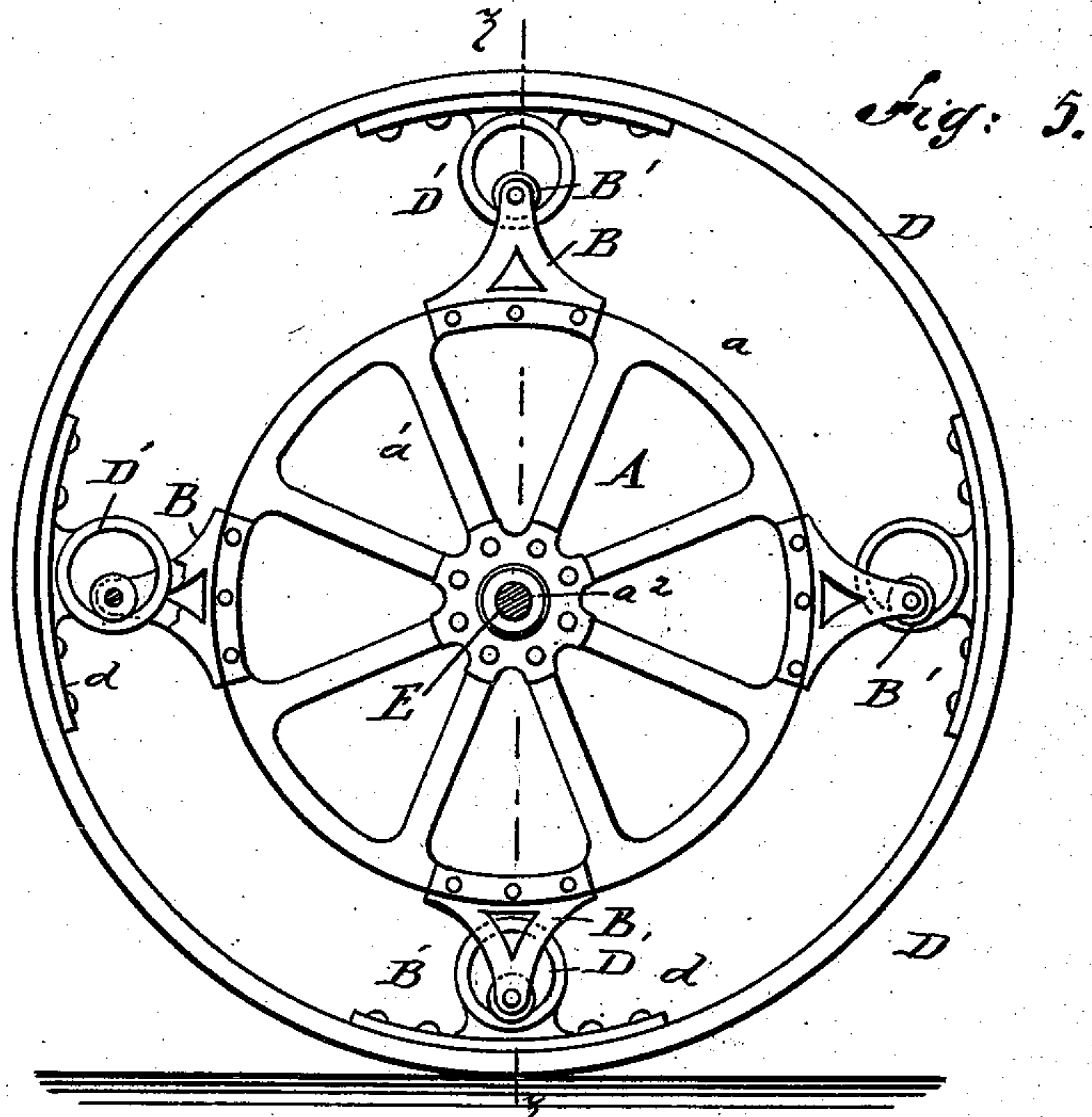
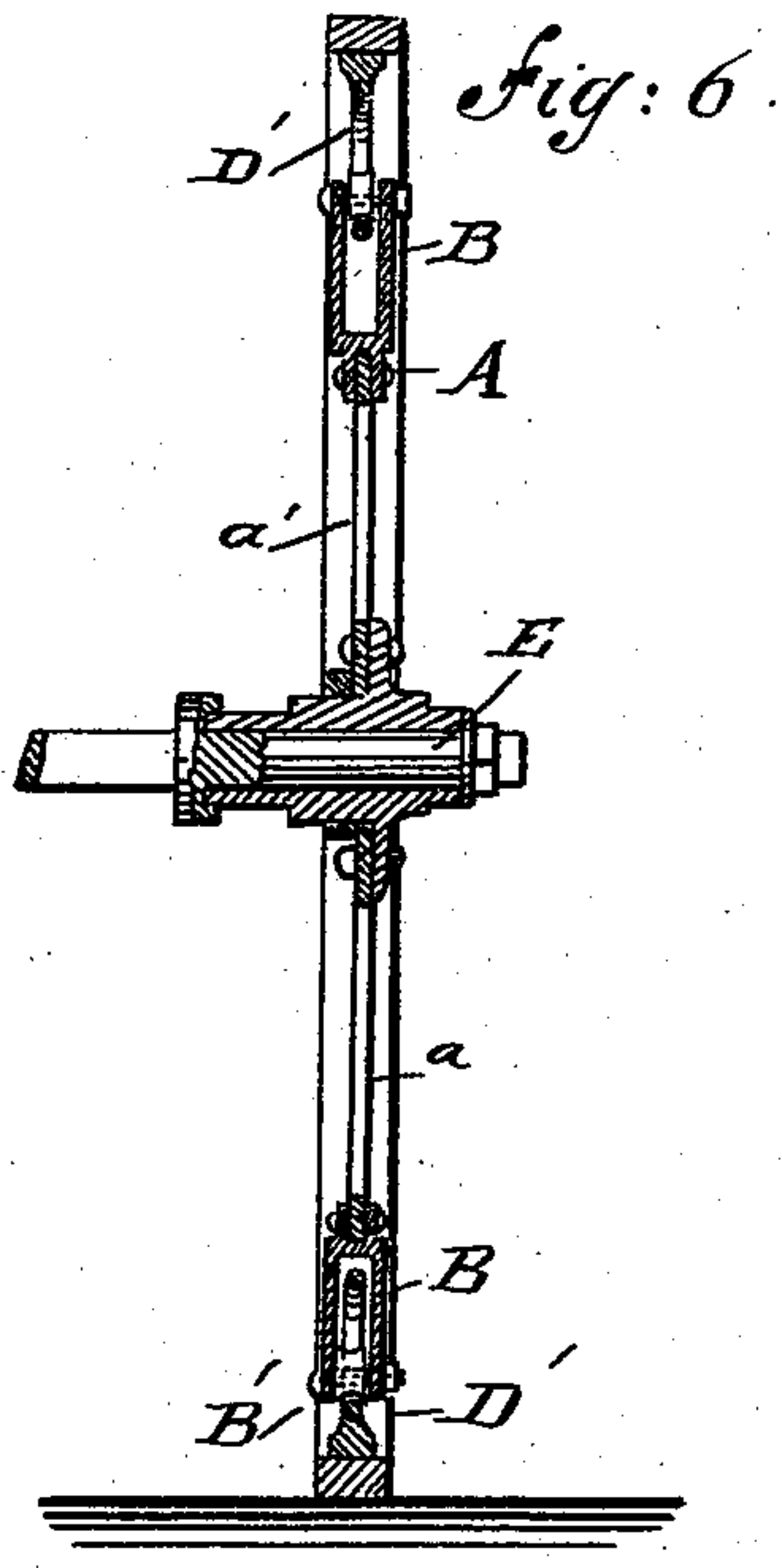
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UNITED STATES PATENT OFFICE.

G. L. HERRMANN SCHNEIDEWIND, OF ALTONA, PRUSSIA, GERMANY, ASSIGNOR OF ONE-HALF TO FERDINAND OTTO HUGO WECHSUNG, OF NEW YORK, N. Y.

VEHICLE-WHEEL.

SPECIFICATION forming part of Letters Patent No. 376,969, dated January 24, 1888.

Application filed May 3, 1887. Serial No. 236,949. (No model.) Patented in Germany May 16, 1885, No. 33,446, and in Austria-Hungary October 23, 1886, No. 29,391 and No. 54,812.

To all whom it may concern:

Be it known that I, G. L. HERRMANN SCHNEIDEWIND, of Altona, Hamburg, Germany, have invented a new and Improved
5 Wheel, of which the following is a full, clear, and exact description.

My invention relates to an improvement in that class of vehicle-wheels known as "cycloid-wheels," and has for its object to provide a
10 wheel in which the weight will not bear heavily upon the hub and upon the periphery of the wheel in a vertical plane below the said hub, but wherein the weight will be more or less distributed at various points upon the
15 periphery, and wherein, when the said wheel is traveling forward or backward, the momentum thereof will be greatly increased in the direction of its revolution by the distribution of the said weight.

20 The invention consists in the construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying
25 drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of my wheel, and Fig. 2 a central vertical section thereof
30 through line *x x*. Fig. 3 is an enlarged sectional view of the connection between the spokes and the felly. Fig. 4 is a transverse vertical section through line *y y* of Fig. 3. Fig. 5 is a side elevation of another form of
35 wheel. Fig. 6 is a central vertical section through line *z z* thereof. Fig. 7 is a side elevation of my wheel as constructed for locomotives or railway-cars, parts being broken away; and Fig. 8 is a central vertical section through
40 the same on line *w w* of Fig. 7.

In carrying out the invention, D represents the outer tire; *a*, the felly, which is provided with an inner central rectangular groove, *a'*, adapted to receive a central annular projec-
45 tion, *d'*, integral with the outer periphery of an inner tire, D³, whereby the felly is securely held between an outer and inner tire. The inner tire may, however, be dispensed with in

light wheels, the groove *a'* in the felly in that event being dispensed with.

To the inner side of the tire D³ or the felly
50 *a* a series of inwardly-extending rings, D', are secured by means of bolts or equivalent fastenings passing through a segmental base, *d*, integral with each ring, the number of rings em-
55 ployed being in this case equal to the number of spokes to be contained in the wheel. The segmental base and likewise the rings are provided with an aligning central groove, *d'*, whereby the weight is reduced without lessen-
60 ing the strength. The preferred material for the rings and base is malleable iron, although other suitable material may be used. When the wheel is to be a dished wheel, the inclination is given each ring at the point *o*. (Illus-
65 trated in Fig. 2.) The construction above set forth virtually constitutes an outer wheel, the inner wheel radiating from the hub E'.

The hub E' may be made of metal, and is provided with a series of central threaded
70 apertures adapted to receive the inner threaded ends of the spokes, as illustrated in Figs. 1 and 2. The hub E' is also provided with a box, *e*, substantially corresponding in diameter with the diameter of the axle upon which
75 it is adapted to revolve, the box being furnished at one end with a thread, upon which a flanged ring, *e'*, is screwed, whereby the hub is kept in interchangeable contact with the
80 said box.

The spokes *a'* are provided with threads upon both ends—one left and the other right—by means of which the length is easily and quickly regulated, the upper ends of each spoke being adapted for insertion in the an-
85 nular base *f* of a U-shaped frame, F.

The outer side of each member of the frame F is provided with an aligning recess, *f'*, and an aperture passing through the inner side of each member, as clearly shown in Figs. 3 and
90 4. Each ring D' is fitted with a rubber block, H, consisting of one or two pieces, and of a diameter equal to the inner diameter of the rings, the outer ends, *h*, of the said blocks being adapted to project beyond the sides of the
95 rings and upward and downward even with

the outer periphery. The rubber blocks are of such thickness as that when the filled rings are introduced in the divided ends of the frame F the said blocks will entirely fill the space intervening the members, as shown in Figs. 3 and 4.

The rings and frame are held in engagement by a bolt, H', passing centrally through the rubber block, and also through the apertures in the frame, the head of said bolt and the nut being accommodated in the recesses *f*, whereby they are flush, or nearly so, with the outer face of the frame. The nut upon the bolt may be prevented from turning by means of a spring-strap attached to the frame having a bearing upon the outer surface of said nut. The inner wheel thus resting upon an elastic cushion intercepts any sudden jar or shock received by the outer wheel, preventing the transmission of the same to the vehicle, and also greatly lessening the noise, especially in closed carriages. A wheel constructed as herein described is also beneficial to the draft, as the shock when starting is removed from the shoulders of the horses.

In Figs. 5 and 6 a modification of the aforesaid wheel is illustrated, in which a distinct inner wheel, A, is provided, having a felly, *a*, spokes *a'*, and hub *a''*. Upon the felly *a* of the inner wheel, A, and upon opposite sides thereof, four bracket-frames, B, U-shaped in cross-section, as shown in Fig. 2, are attached to project outward and beyond the same. In the said brackets, at their outer ends, grooved rollers B' are journaled, the said brackets and rollers being so spaced upon the inner wheel, A, as that an equal distance intervenes each of them.

Upon an outer felly and tire, D, or a tire alone, are secured upon the inner periphery thereof, by means of an integral segmental base, *d*, four inwardly-extending rings, D'. The said rings D' are so spaced at equidistance apart and the outer wheel, D, is of such a diameter as that one grooved roller B' will enter and roll upon the lower portion of the inner edge of each ring, and the inner and outer wheels will be so spaced as to only allow sufficient play for the rollers in said rings.

It will be observed that the weight of the load transmitted through the axle E to the wheel is not all sustained at one point, as in the ordinary wheel, but that through the connection of the inner wheel, A, with the outer wheel, D, the weight is divided and sustained in proper proportion at each point of connection, and it will be also observed that the action of the rollers bearing upon the rings is such that as the outer wheel revolves the inner wheel, following in the same direction, tends to force the wheel over in proportion to the weight of the load, and thereby taking much of the strain off the horses and render-

ing the hauling of heavy loads comparatively easy.

In Fig. 8 the principles of my invention are illustrated as applied to a wheel for locomotives or railroad-cars, in which the inner wheel is composed of two plates, *b' b'*, attached to the axle E or hub, the space intervening said plates being about equal to the width of the outer wheel, D, whose periphery is formed with the usual flange. The rollers B' in this event are journaled between the plates *b' b'*, near their peripheries, the rings D', in which the said rollers travel, being adapted to project inward also between the plates. Each roller is allowed but sufficient play in its supporting-ring to admit of unobstructed action in turning curves.

It is evident that the rubber blocks H may be substituted for the rollers B'. (Shown in Figs. 5 and 7.)

The use of the cylinder-wheel is unlimited, and can be used with slight modifications wherever an ordinary wheel is used, and with great advantage over said ordinary wheel both in respect to vehicles and machinery.

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

1. The combination, with a wheel provided with a series of inwardly-extending rings, D', secured to the inner side of the tire, and centrally-apertured annular elastic blocks H, held in said rings, of the U-shaped frame F, pivoted within said blocks and rings and having an annular base, *f*, the hub E, and spokes *a'*, provided with exteriorly-threaded end, said spokes adapted to screw into said hub and frame, substantially as shown and described, and for the purpose herein set forth.

2. The combination, with a wheel provided with a series of inwardly-extending rings, D', secured upon the inner side of the tire, having a segmental base, *d*, and a central peripheral groove in said rings and base, and the elastic blocks H, centrally apertured and provided with flanges *h*, said blocks adapted for insertion in the rings D', of the U-frame F, adapted to embrace said blocks and rings, having an annular base, *f*, and recessed sides *f'*, the bolt H', adapted to pivotally secure the frame F to the rings D' and fit in said recesses, the hub E', and the spokes *a'*, having exteriorly-threaded ends screwed into said base *f* and hub E', all arranged to operate substantially in the manner and for the purpose herein set forth.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 9th day of March, 1887.

G. L. HERRMANN SCHNEIDEWIND.

Witnesses:

EMIL HAASE,
HERMANN GARTEN.