No. 732,834. PATENTED JULY 7, 1903.

W. O. DAYTON & L. E. BRENNAN.

GEARING.

APPLICATION FILED JUNE 18, 1902.

NO MODEL. 2 SHEETS—SHEET 1.

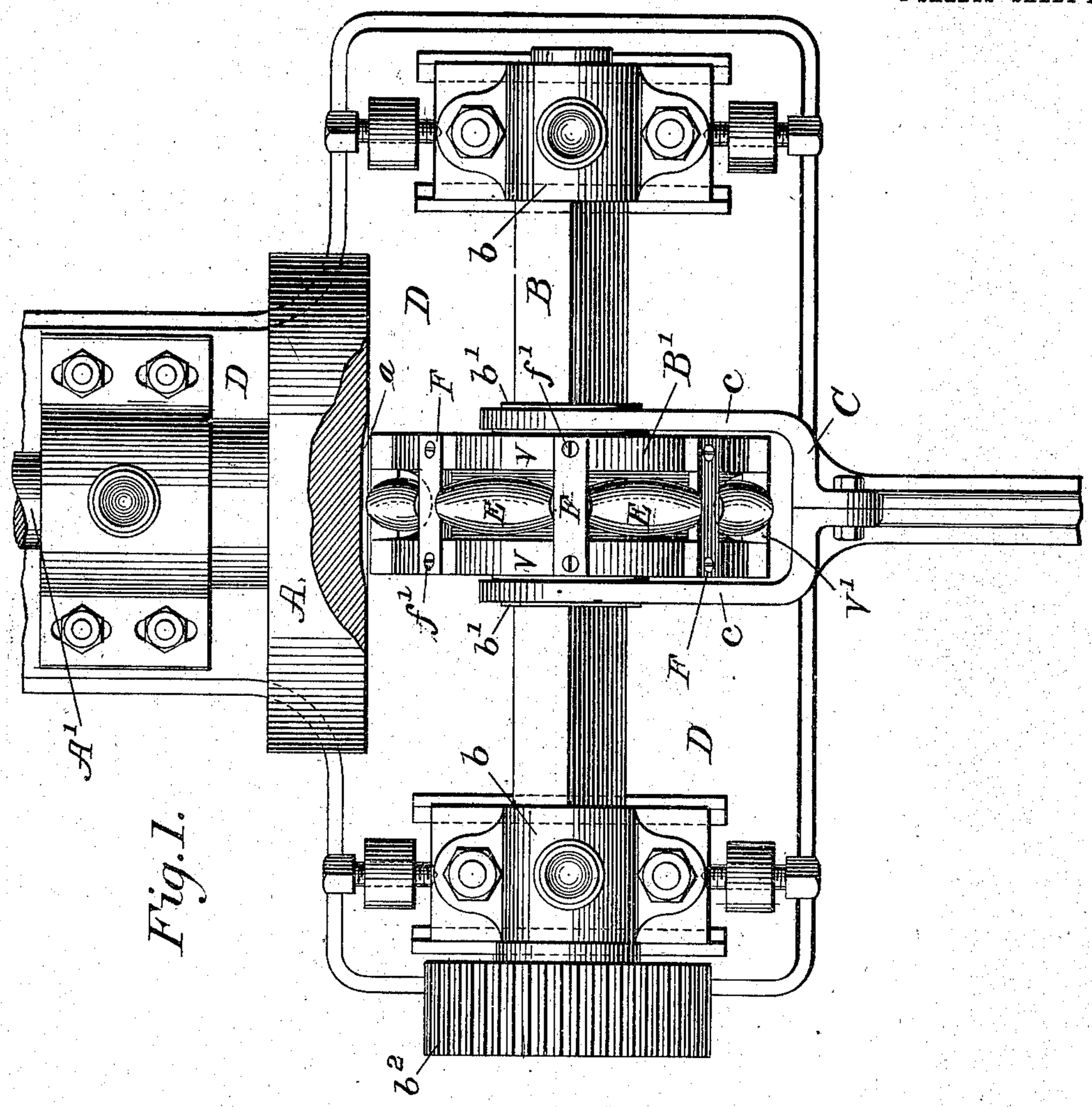

Fig. 1.

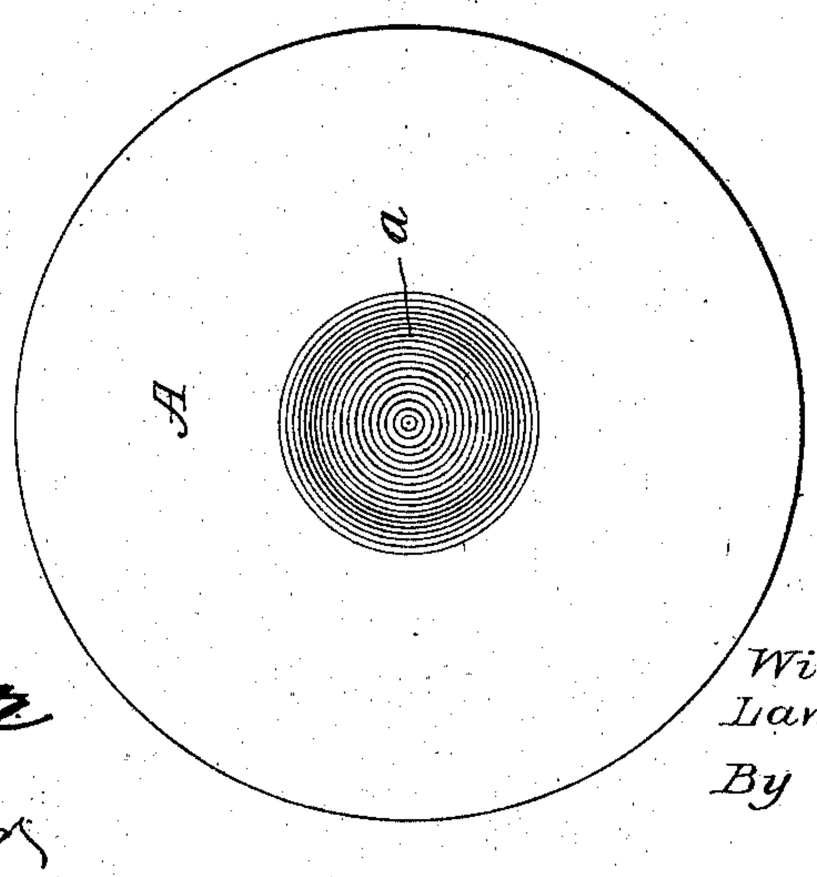

Fig. 2.

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GEARING.

APPLICATION FILED JUNE 13, 1902.

NO MODEL. 2 SHEETS—SHEET 2.

Fig. 4.

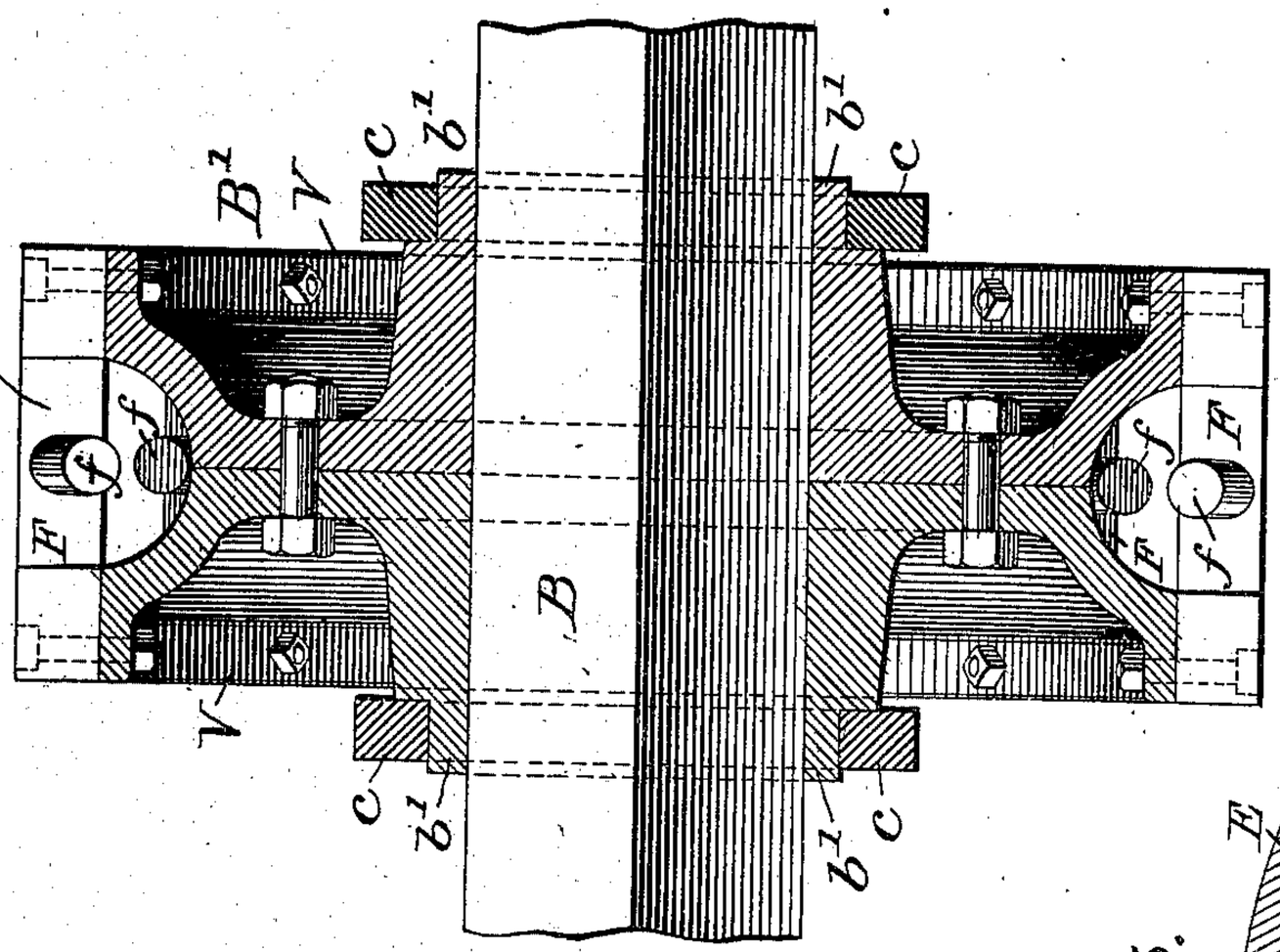


Fig. 5.

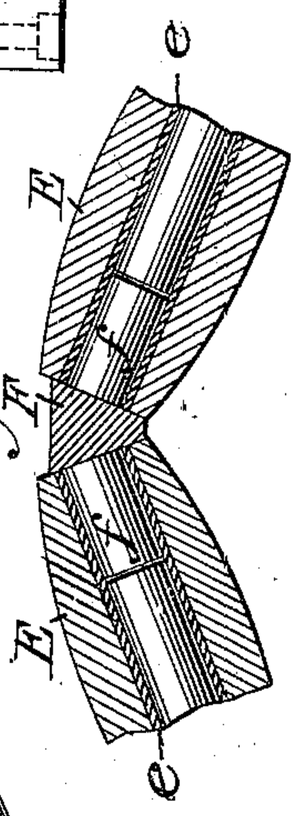
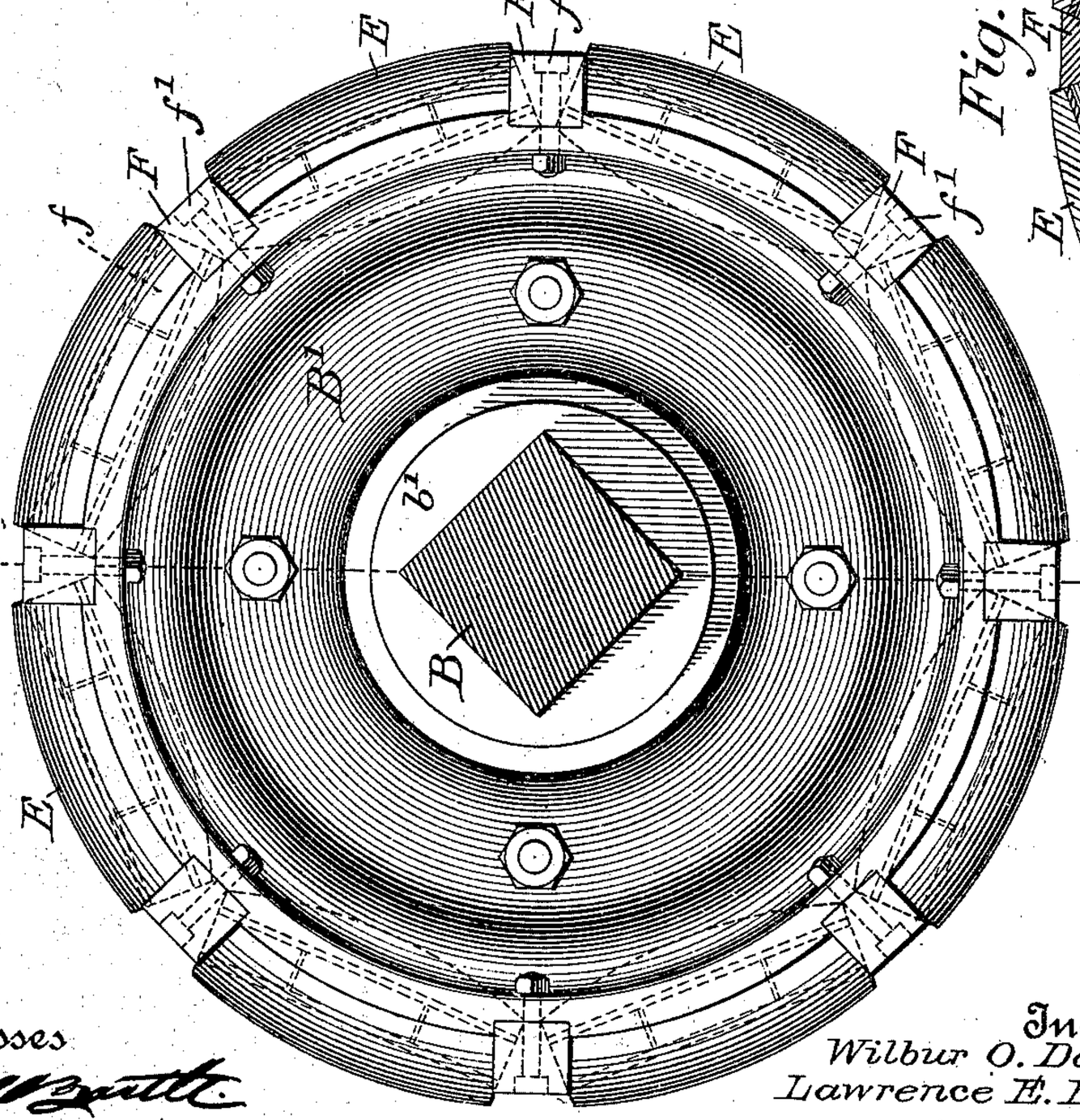


Fig. 3.



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No. 732,834. Patented July 7, 1903.

UNITED STATES PATENT OFFICE.

WILBUR O. DAYTON AND LAWRENCE E. BRENNAN, OF CHICAGO, ILLINOIS, ASSIGNORS TO BODÉ AUTOMOBILE CO., OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

GEARING.

SPECIFICATION forming part of Letters Patent No. 732,834, dated July 7, 1903.

Application filed June 18, 1902. Serial No. 112,250. (No model.)

To all whom it may concern:

Be it known that we, WILBUR O. DAYTON and LAWRENCE E. BRENNAN, citizens of the United States, residing at Chicago, Cook county, Illinois, have invented certain new and useful Improvements in Gearing, of which the following is a specification.

This invention relates to that class of friction-gearing for the transmission of power in which a friction-wheel is shifted across the face of a rotating friction-disk.

One object of the invention is to minimize the force required to shift the friction-wheel across the face of the disk.

A further object of the invention is to enable the member actuated by the other to be brought to rest or disengaged from the power member after reducing the speed of the actuated member and without arrest of the power member.

With these and other objects in view the invention consists in the construction hereinafter described and in the combinations set forth in the appended claims.

In the accompanying drawings, forming part of this specification and showing one form in which the invention may be embodied, Figure 1 is a plan view illustrating a form of the improvement in connection with mechanical accessories suitable in adapting it to use in motor-vehicles and the like. Fig. 2 is a plan view of the working face of what will be designated in this specification as the "driving-disk." Fig. 3 is a side elevation of a friction-wheel embodying the invention herein claimed and which will be designated the "driven wheel." Fig. 4 is a section of the driven wheel, taken on the broken line 4 4 of Fig. 3; and Fig. 5 is a sectional detail illustrating a portion of the peripheral frictional parts of the driven wheel.

Similar reference-letters are used in the several figures of the drawings to designate corresponding parts.

In the construction illustrated in the accompanying drawings the letter A indicates the driving-disk, which is rigidly secured to a driving-shaft A', receiving motion from any suitable source of power and suitably journaled in appropriate bearings.

B indicates the driven shaft, which is arranged parallel with the working face of the driving-disk and is suitably journaled, as, for example, in bearings *b*. Upon the shaft B and rotating therewith is the driven wheel B', which is shiftable longitudinally upon the shaft, and therefore radially across the face of the driving-disk A, through the instrumentality of a shifting device, of which is here shown the yoke C, the legs *c c* of which yoke embrace the hub *b'* of the driven wheel B'. The driving-disk is recessed slightly at its center, as shown at *a* in Figs. 1 and 2, whereby the driven wheel B' when shifted to a position opposite said recess is out of contact with the disk and may be brought to rest while the driving-disk continues to rotate at speed. The reversal of the revolution of the driven wheel may be effected by shifting it to the opposite side of this recess. The driven shaft B is here shown as provided at one end with a gear-wheel b^2, representing any means that may be desired for transmission of power to the point where it it is to be utilized.

Desirably the bearings for the driving and driven shafts are supported by a common frame D, as shown. The bearings *b* of the shaft B are shown adjustable to permit such shaft to be moved nearer to or farther from the face of the driving-disk A in order to give more or less forcible contact of the driven wheel B' with the face of said disk or to enable the shaft B to be adjusted to parallelism with said face of the driving-disk A. The wheel B' has its working periphery made up of a series of rollers E, having their axes in the plane of the wheel, so that while the wheel is in forcible bearing through these rollers with the face wheel or disk A it may be readily shifted radially on said disk by reason of the rotation of the contacting rollers upon their axes. A further advantage of this construction is that owing to the rotation of the rollers on their axes in the operation of shifting the driven wheel from one point to another across the face of the driving-disk new frictional or contact surfaces of said rollers will be presented to the driving-disk, thus in a large measure avoiding the

hardening or deadening of the frictional surface of the driven wheel due to pressure and work. In the particular form of the rollers shown in the drawings each roller is oblong and tapered from its middle toward its end on a curvature forming an arc struck from the center of the wheel. The rollers may be made of any suitable or preferred material, rather hard rubber being now thought preferable, in which case the rubber body of each roller may be supported on a metal tube *e*, into the open ends of which project cylindric studs *f f*, formed on cross-bars F for the revoluble support of the rollers. The roller-supporting bars F are shown of V shape in central cross-section to accommodate the inclination of adjacent rollers to each other and to separate these rollers as little as is practicable. The ends of the bars F are shown rectangular and set into notches in the solid rims V V of the wheel, where they are secured by bolts or screws *f' f'*. Between the rims V V is provided a circumferential groove V' for the accommodation of the rollers E.

The power may of course be applied to the wheel B and communicated to the disk, if desired, and, if preferred, the rollers E may present metal surfaces, and the disk or wheel A may be faced with rubber or other substance suitable to give the desired frictional engagement with the rollers.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a friction-gear, the combination with a face-wheel, of a wheel having its bearing periphery composed of revoluble sections contacting with the face-wheel and having their axes in the plane of the wheel upon which they are mounted.

2. A friction-wheel, the periphery of which is composed of sections each revoluble upon an axis in the plane of the wheel, and tapered from center to ends in the arc of the radius of the wheel.

3. A friction-wheel, comprising a body having a grooved rim, and a periphery formed of revoluble rollers partly housed within said grooved rim and partly projecting therefrom so as to form the largest diameter of the wheel.

4. A friction-wheel comprising a body having a grooved rim, cross-bars secured at intervals to the margins of said rim and provided with oppositely-projecting studs lying within the groove thereof, and tapered rollers journaled at their ends upon said studs.

5. In a friction-gear the combination with a friction-disk or face-wheel, and a shaft mounted parallel or substantially parallel with the working surface thereof, of a friction-wheel mounted upon the shaft to rotate therewith but slidable thereon to move diametrically across the face of the disk, and having its periphery which contacts with the disk revoluble in a plane at right angles to the plane of the wheel.

In testimony whereof we affix our signatures in the presence of two subscribing witnesses.

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LAWRENCE E. BRENNAN.

Witnesses:
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