

(No Model.)

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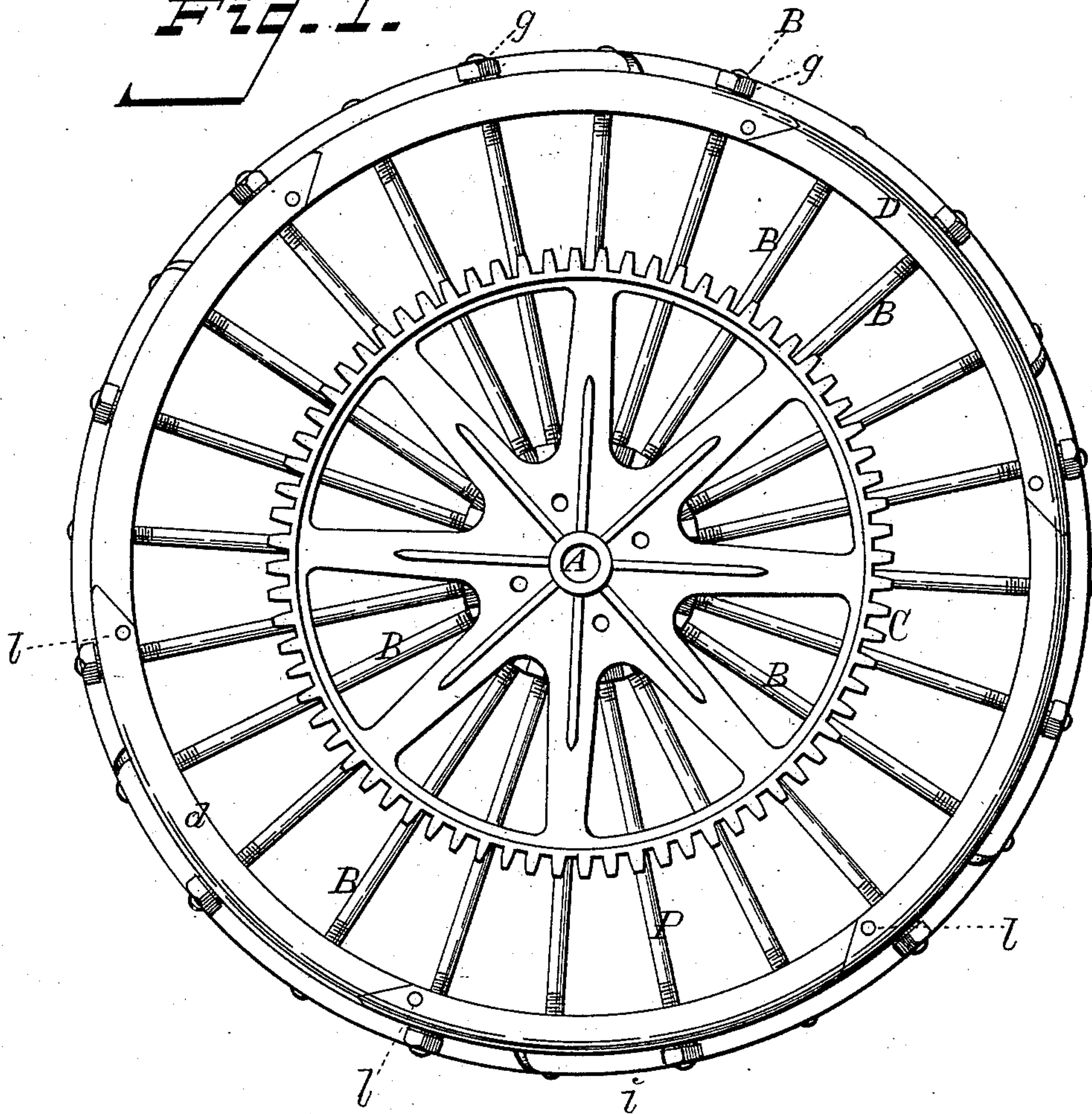
D. M. OSBORNE.

TRACTION WHEEL.

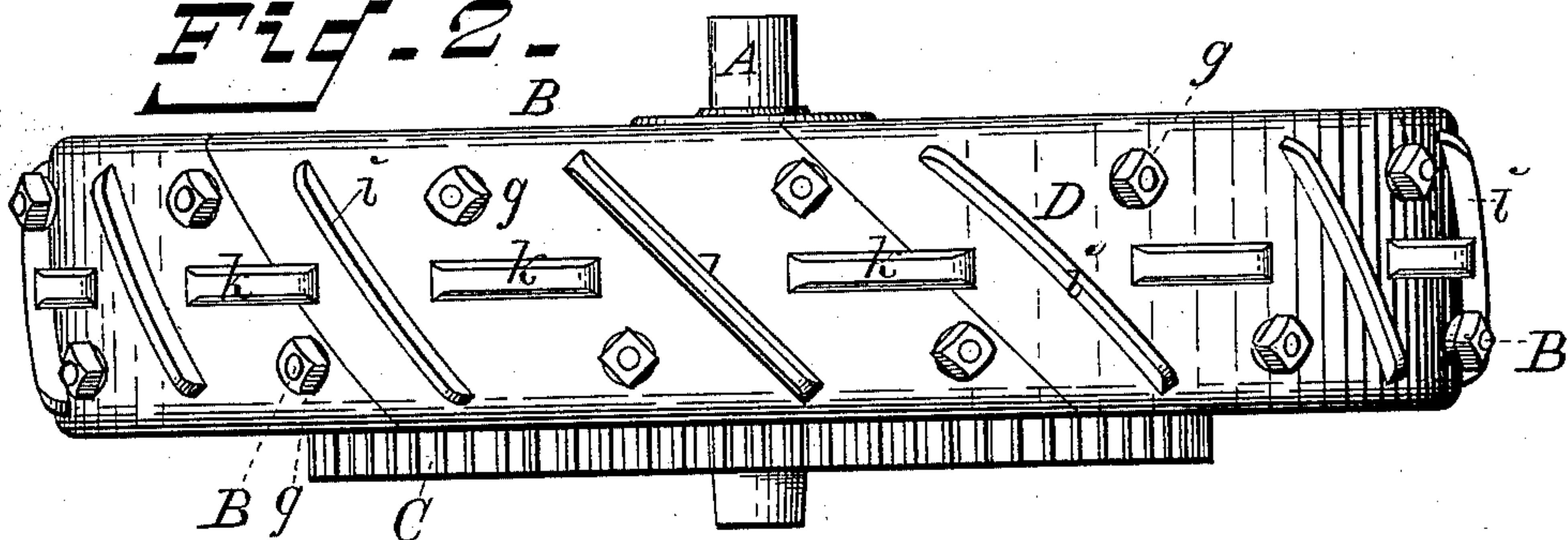
No. 303,588.

Patented Aug. 12, 1884.

**Fig. 1.**



**Fig. 2.**



Witnesses:

Harry Shipley  
Newton Hyckoff

Inventor:

D. M. Osborne.  
By his attorney  
Philip T. Dodge.

(No Model.)

2 Sheets—Sheet 2.

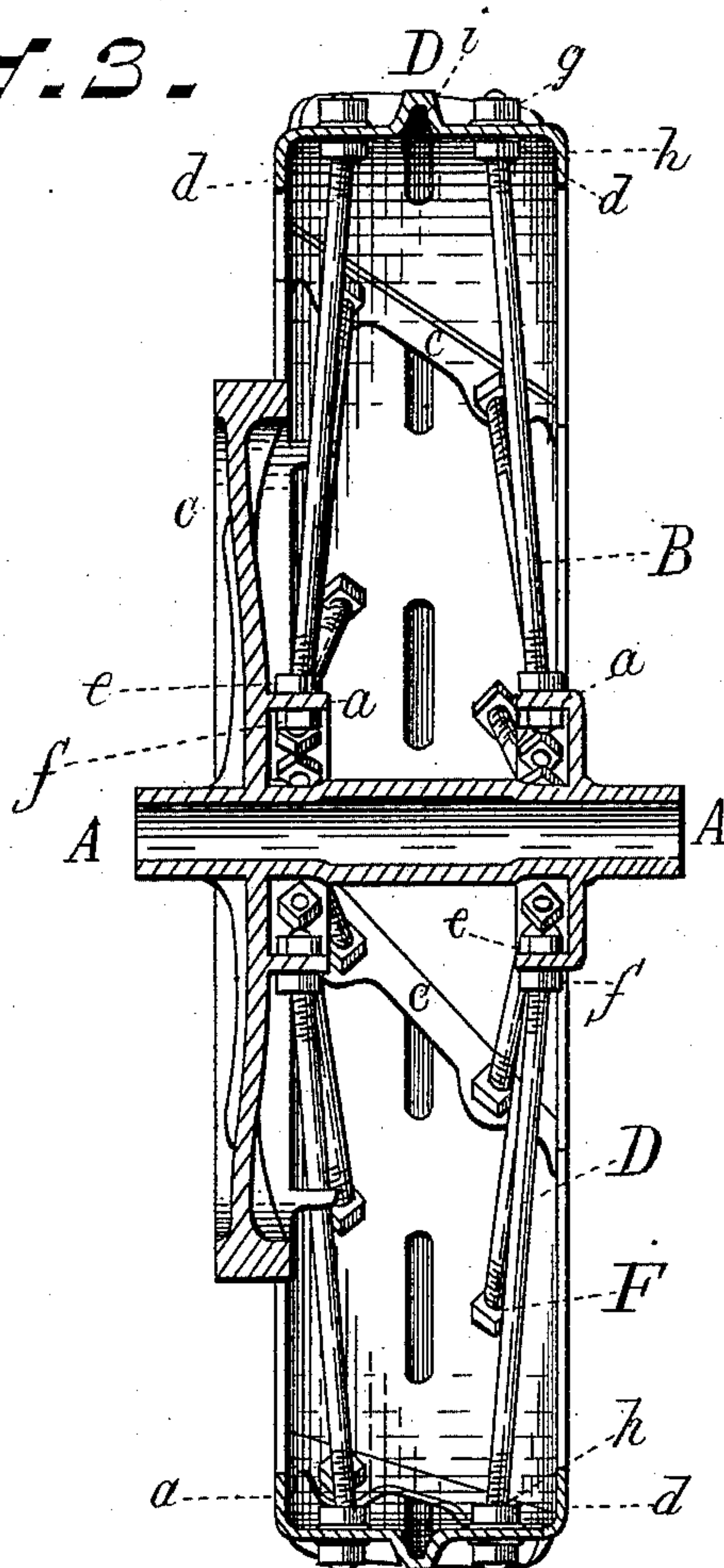
D. M. OSBORNE.

TRACTION WHEEL.

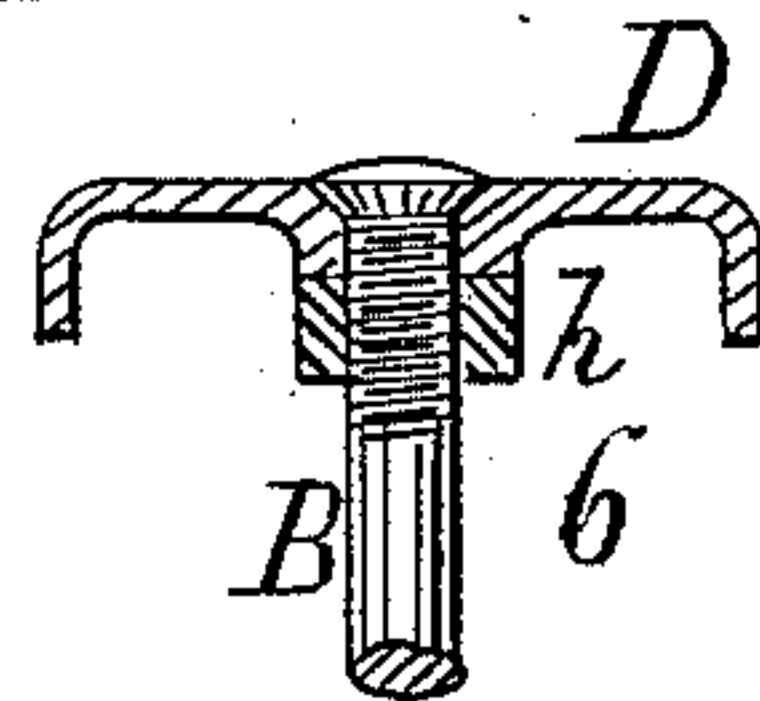
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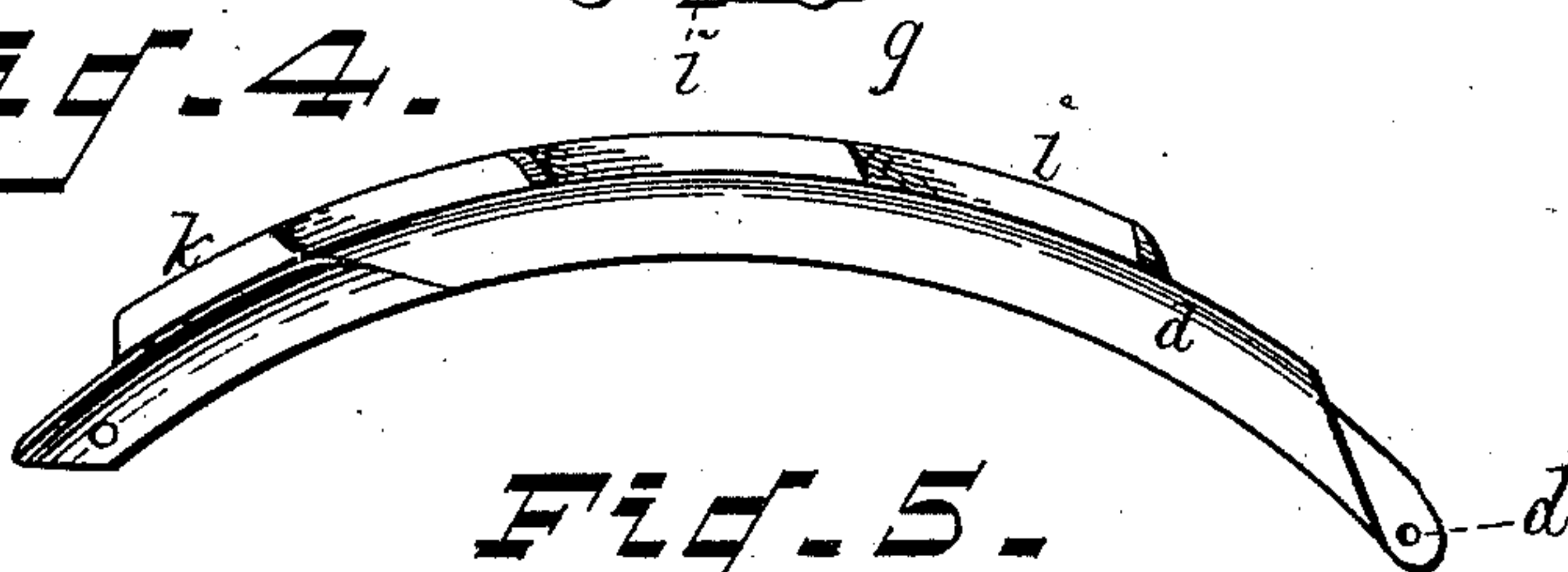
*Fig. 3.*



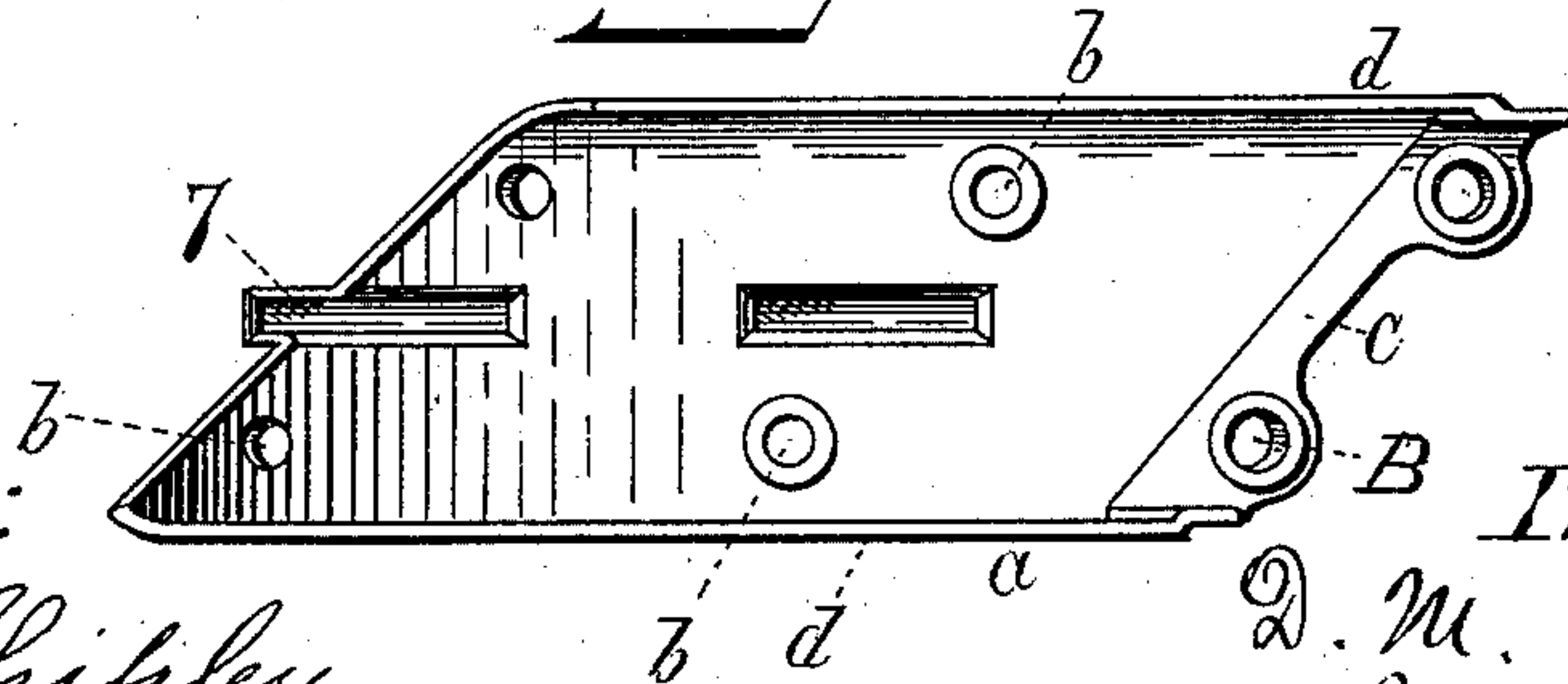
*Fig. 6.*



*Fig. 4.*



*Fig. 5.*



Witnesses:

Harry Shipley  
Newton Wyckoff

Inventor:

D. M. Osborne  
By his Attorney  
Philip T. Dodge.



# UNITED STATES PATENT OFFICE.

DAVID M. OSBORNE, OF AUBURN, NEW YORK.

## TRACTION-WHEEL.

SPECIFICATION forming part of Letters Patent No. 303,588, dated August 12, 1884.

Application filed April 29, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, DAVID M. OSBORNE, of Auburn, in the county of Cayuga and State of New York, have invented certain Improvements in Traction-Wheels, of which the following is a specification.

The aim of this invention is to produce a carrying and driving wheel for agricultural machinery, which shall combine the elements of strength, lightness, and durability, and which may be produced at a cost not exceeding that of the wheels now in use.

To this end the invention consists in a sectional wheel constructed with a cast-metal hub or center, with a sectional metal rim, and with radial metallic spokes, the ends of which are threaded and secured to the rim and hub, respectively.

It also consists in constructing the hub with flanges or ears to receive the spokes, and with a gear-wheel or geared rim thereon to impart motion to the mechanism of the machine.

Referring to the accompanying drawings, Figure 1 represents a side elevation of my improved wheel; Fig. 2, an edge view of the same; Fig. 3, a vertical central section through the wheel; Fig. 4, an edge view of one of the sections of the rim or felly; Fig. 5, an inside face view of the same. Fig. 6 is a view illustrating a modification of my construction.

A represents the hub or central portion of the wheel, constructed of cast metal in a tubular form, and provided at or near its ends with encircling flanges or projections *a*, the outer edges of which are extended laterally inward, in order to receive the inner ends of the spokes B. I also prefer to cast upon the hub, integral therewith, the wheel or rim C, provided with gear-teeth to impart motion to the other parts of the machine. This gear may, however, be constructed in a separate piece and bolted to the hub.

D represents the rim or felly of the wheel, constructed of metal in numerous sections, which are joined end to end, each section being of the full width of the face of the wheel. These segmental sections are of the form plainly represented in Figs. 4 and 5, each section being provided with a series of holes, *b*, to receive the spokes; also provided at one end

with a lip or flange, *c*, to overlap the inner face of the next section, where it is joined thereto, and also provided along each side with an inwardly-turned flange, *d*. The openings for two spokes are formed in the projecting lip or flange *c*, in such position that when one section is joined to the end of the next the openings in the lip of one will coincide with the openings in the body of the other, so that the spokes may pass through the overlapping ends of the two sections.

B represents the cylindrical metallic spokes, which may be made solid or tubular, and which are threaded at the two extremities. Each spoke is inserted at the inner end through one of the flanges *a* on the hub, and secured by means of two nuts, *e* and *f*, applied thereto on opposite sides of the flange. At the outer end each spoke is passed through the rim or felly, and provided with nuts on the inside and outside, as shown; or they may be provided simply with a head on the outer side of the rim, as in Fig. 6, in which case dependence will be placed entirely on the nuts at the inner ends to effect the necessary adjustment. Each of the rim-sections receives ordinarily six spokes—two in the middle and two at each end. It will be understood that the spokes at the ends pass through the extremities of the two adjoining sections, and that, in connection with their nuts *g* and *h*, the spokes bind the adjacent ends of the sections firmly together. In this manner it will be seen that the various sections are united one to another in such manner as to constitute a continuous and rigid rim for the wheel. The side flanges, *d*, of each section are also arranged to overlap the ends of the flanges of the next section, and are united thereto by means of transverse bolts or rivets *l*, applied as shown in the drawings, these connections serving to give additional stability to the wheel.

In practice it is found advisable to form the sections of the rim with oblique ends, so that the joints between the sections shall extend across the wheel at an angle to the axis; but it will be understood that the joint may be extended in line with the axis.

In order to insure the rotation of the wheel, I propose to form on the outer surface of the



rim-sections diagonal and longitudinal lips or projections *i* and *k*. These projections may be made hollow, or cored out on the inside, as represented in the drawings, in order to reduce the weight. While these lips will in most cases be necessary, it is to be understood that they do not constitute a necessary feature of my wheel, and that in their place I may employ flanges or plates separately from the rim and bolted thereto.

The flanges *d* at the sides of the rim serve the twofold purpose of giving the same additional stiffness, and of preventing earth from passing to the inner surface of the rim, so as to be carried upward thereby and deposited in the gearing.

It will be apparent to the skilled mechanic that the form of the interlocking ends of the rim-sections may be modified without departing from the spirit of my invention, the only requirement in this regard being that the sections shall be united firmly at the ends. In practice I usually construct the rim-sections of malleable cast-iron, each section coming from the mold-plate in condition for immediate use.

My wheel may be advantageously used in connection with reaping, mowing, and binding machines, corn-planters, traction-engines, and generally on all machines requiring strong supporting-wheels.

It is to be noted that in my wheel the connection of the spokes with the hub and the rim is such that the rim-sections are tied inward to the hub, any tendency of the rim to move outward being resisted by the tensile strain of the spokes. In this regard the wheel differs essentially from those in which the spokes are seated loosely in sockets in the inside of the rim.

Having thus described my invention, what I claim is—

1. The improved wheel, consisting of the hub having flanges or projections thereon, the rim composed of metallic sections joined end to end and lapped one upon another, and the spokes having their ends secured firmly to the

hub and the rim-sections, respectively, in substantially the manner described and shown, whereby they are adapted to tie the hub and the rim together.

2. In a wheel, the combination of metallic rim-sections joined end to end and lapped one upon another, and spokes passed through the overlapping ends of the sections, whereby the spokes are caused to unite the sections one with the other.

3. The combination, with a metallic rim-section, substantially such as described, of a second section provided with a flange or lip overlying the first section on the inner side, a spoke passed through the overlapping ends of the two sections, and two nuts, or their described equivalents, applied to the spoke, and confining the rim-sections between them, substantially as described and shown.

4. In a wheel, a rim composed of metallic sections united end to end, each section formed with inwardly-extending flanges *d*, and with spoke-openings *b*.

5. The improved rim-section for a driving-wheel, constructed in one piece of cast metal, with the spoke-openings and the side flanges.

6. In a driving-wheel, the combination of a central hub, the spokes extending outward therefrom, and a rim composed of sections united to each other by means of the spokes.

7. In combination with the sectional rim and the spokes uniting said sections, the central hub having the flanges to receive the spokes, and the gear-wheel C, cast integral therewith.

8. In a wheel, the combination of the central hub, a rim composed of sections joined end to end, and a series of spokes connecting the hub and rim, and applied, substantially as described, to tie the rim-sections inward, as distinguished from spokes which are seated against the inside of the rim to hold the same outward.

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Witnesses:

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FRANK H. KEYES.