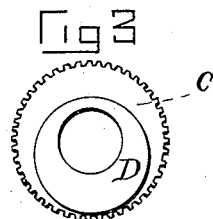
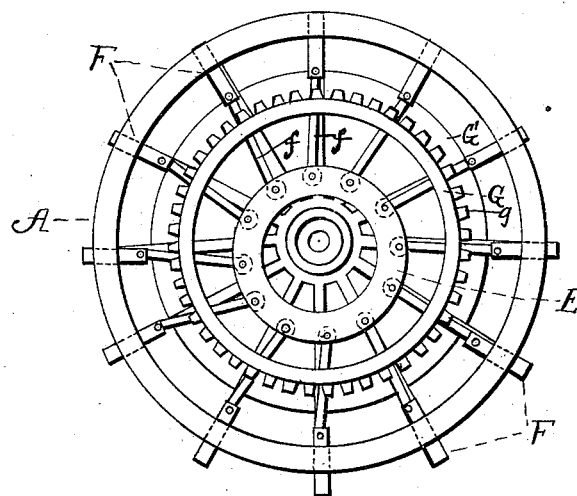
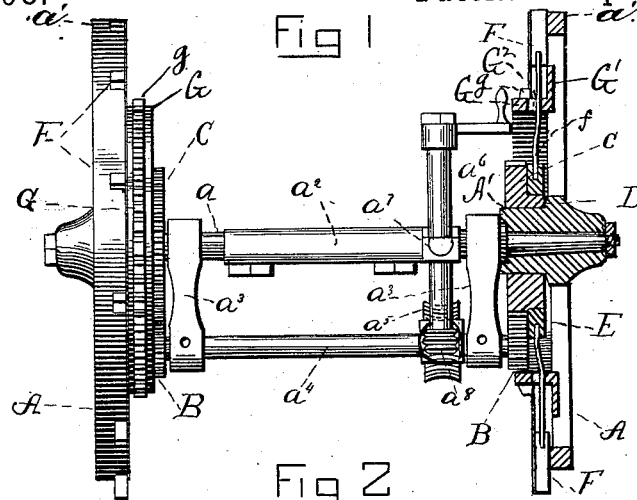


(No Model.)

W. M. BEINDORF.
TRACTION WHEEL.

No. 304,598.

Patented Sept. 2, 1884.



WITNESSES

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UNITED STATES PATENT OFFICE.

WILLIAM M. BEINDORF, OF LITCHFIELD, ILLINOIS.

TRACTION-WHEEL.

SPECIFICATION forming part of Letters Patent No. 304,598, dated September 2, 1884.

Application filed June 19, 1884. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM M. BEINDORF, a citizen of the United States, residing at Litchfield, in the county of Montgomery and State of Illinois, have invented certain new and useful Improvements in Traction-Wheels; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

The invention relates to that class of wheels in which the necessary amount of traction is obtained by pins projecting outward from the circumference of the wheel; and it consists in making the traction-pins radially adjustable upon the wheel by connecting their inner ends with an eccentric-ring surrounding an eccentric-cam attached over the hub of the wheel, which cam may be rotated by proper mechanism fixed to the machine.

In the drawings accompanying and forming part of this specification, Figure 1 represents an end view of a machine with the invention attached, the parts broken away on one side to show the attachment of the eccentric-ring and pins. Fig. 2 is a view of one wheel with eccentric and pins attached, and Fig. 3 is a detail view of the gear-wheel and cam that carries the eccentric-ring.

In the accompanying drawings, A A represent the wheels of a traction-machine turning on the axle a , each of which wheels has a circumferential flange, a' , extending inward from its rim, and provided with proper holes at equal distances apart for the radial traction-pins to pass through.

a^2 is a sleeve fixed over and bolted to the axle a , and $a^3 a^3$ are similar arms depending from the axle, which is fixed through their upper ends, having the sleeve a^2 situated between them.

a^4 is a rod uniting the lower ends of the arms $a^3 a^3$, lying parallel to the axle a , and provided a short distance within one of the arms a^3 with a proper worm-wheel, a^5 , as shown in Fig. 1.

a^6 is a vertical shaft, provided at its upper

end with a proper horizontal handle to rotate it in its central bearing, a^7 , formed in a proper rearward projection on the sleeve a^2 and vertically above the worm-wheel.

a^8 is a worm on the lower end of the shaft a^6 , by means of which and said rod the worm-wheel a^5 is rotated.

B B are similar pinions on each end of the rod a^4 outside the depending arms, and meshed with similar gear-wheels, C C, fitted on the inner ends of the hubs, as shown in Fig. 1. Each gear-wheel C has on its inner surface the circular eccentric-cam D, as shown in Fig. 3. While the gear-wheels C fit tightly enough on the hubs to rotate with the wheels, their position may be changed, if desired, by means of the described pinions and the worm-wheel and actuating-shaft a^6 . The cams are situated exactly opposite each other, and are rotated equally by the pinions B and wheels C.

E E are rings, each of which surrounds one of the cams D, and is reciprocated by its rotation.

F F are the radial pins, of any proper cross-section, but preferably made angular, so as to take better hold of the ground over which the wheel passes. The pins F on each side pass into and through the holes in the flange a' , and have their inner ends pivoted to the outer ends of the links $f f$, the inner ends of which are pivoted at equal distances apart to the ring E, situated on the same side, as shown in Fig. 2. The hubs of the wheels, it will be seen, are formed with inwardly-projecting extensions A' , which are adapted to serve as bearings and supports for the cams or eccentrics presently described. By this construction I support the cams or eccentrics on the wheel proper, and thus adapt the wheel for application to any of the usual forms of traction-engines, as will be understood.

The wheels may be rotated by any desired means, such as chains or gear-wheels. G shows such a gear proper attached to one wheel A. This gear G is projected laterally from an annular plate, G' , which is secured to the spokes of the wheel A. The teeth g of gear-wheel G are formed near the edge of same, and between the teeth and the plate G' , I form slots G^2 through the wheel G, for the passage of the links f , which connect pins F and ring

E. These slots are elongated slightly in a circumferential direction, so as to permit a slight play of the links in such direction. This is advantageous in that it permits a slight play of the links desirable in the movement of the eccentric before described, and yet it prevents the rotation of the eccentric-ring, as will be understood.

If it is not desired to use the pins, they are drawn in from the points of contact of the wheels with the ground by means of the pinions B B and described actuating mechanism, and the revolution of the wheels will then, by means of the gear-wheels B B, continually draw them in as the wheels come with contact with the grounds at successive points. It is evident that the pins can, by the same means, be adjusted to any distance of their length out of the opening in the flanges *a'*, when the wheels and ground come in contact, and that the revolution of the wheels will bring the following arms successively as far out.

While I prefer the construction shown and before described, it is manifest many modifications or slight variations may be made without involving a departure from the broad principles of my invention. For instance, the eccentric D might be formed independently of the gear C, and be rotated by hand to secure the desired adjustment. Instead of arranging said eccentric on the inner side of the wheel, it might be secured on the outer side of same, being properly secured on the end of the spindle. Instead of making such eccentric of the circular contour shown, it might be made of other suitable cam shape, the ring or carrier E being conformed to such desired shape. It is also manifest that the cam might be made

with an eccentric-flange or lateral shoulder operating in the guide D on the framing, which in such case would be suitably formed to receive such eccentric. In case the eccentric is revolved by hand it would be desirable to employ a clamping set-screw or other well-known expedient to secure it at any point to which it may be adjusted. These slight modifications will involve no departure from the broad principles of my invention, though I prefer to employ the devices and construction as shown and before more fully described.

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

1. A traction-wheel having pins projected at intervals through and movable beyond the rim, a ring, and links connecting said pins and ring, and having its hub extended at *A'* inward, and adapted to serve as a bearing for the eccentric, and the eccentric journaled on the extension *A'* of the hub, and provided with a gear ring or wheel suited to be engaged by a proper gear on the framing; substantially as set forth.

2. The combination, with the wheel, the eccentric secured on the framing, the ring E, and pins F, of the wheel G, secured to the spokes midway the hub and felly, and provided with slots *g*, and the links *f*, passed through slots *g*, and pivotally secured at their opposite ends to the pins and ring E, substantially as and for the purposes specified.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM M. BEINDORF.

Witnesses:

C. ZINCK,

THEO. LOESCHER.