

(No Model.)

H. ARIENS.
TREAD WHEEL.

No. 528,066.

Patented Oct. 23, 1894.

Fig. 1.

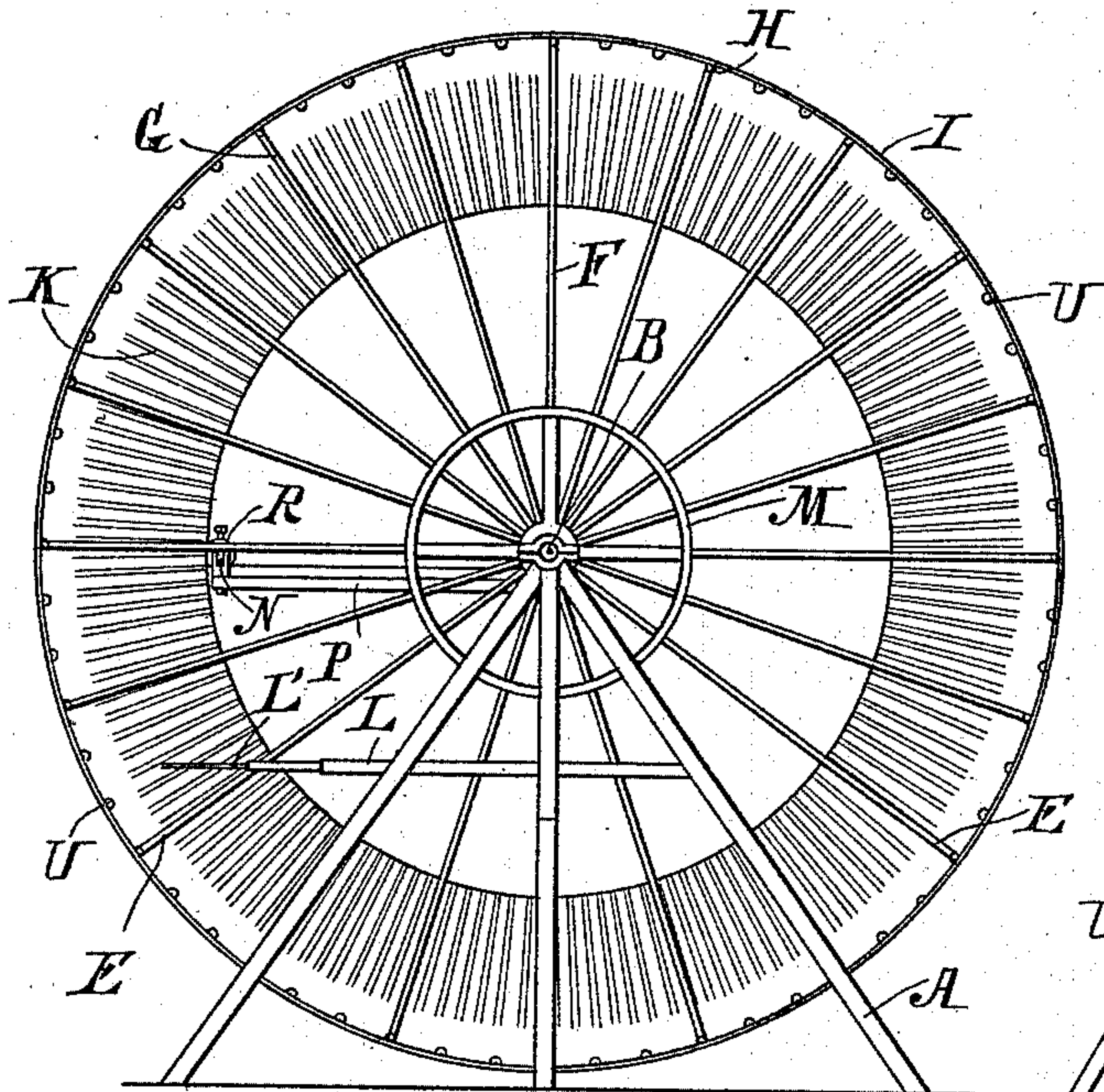


Fig. 2.

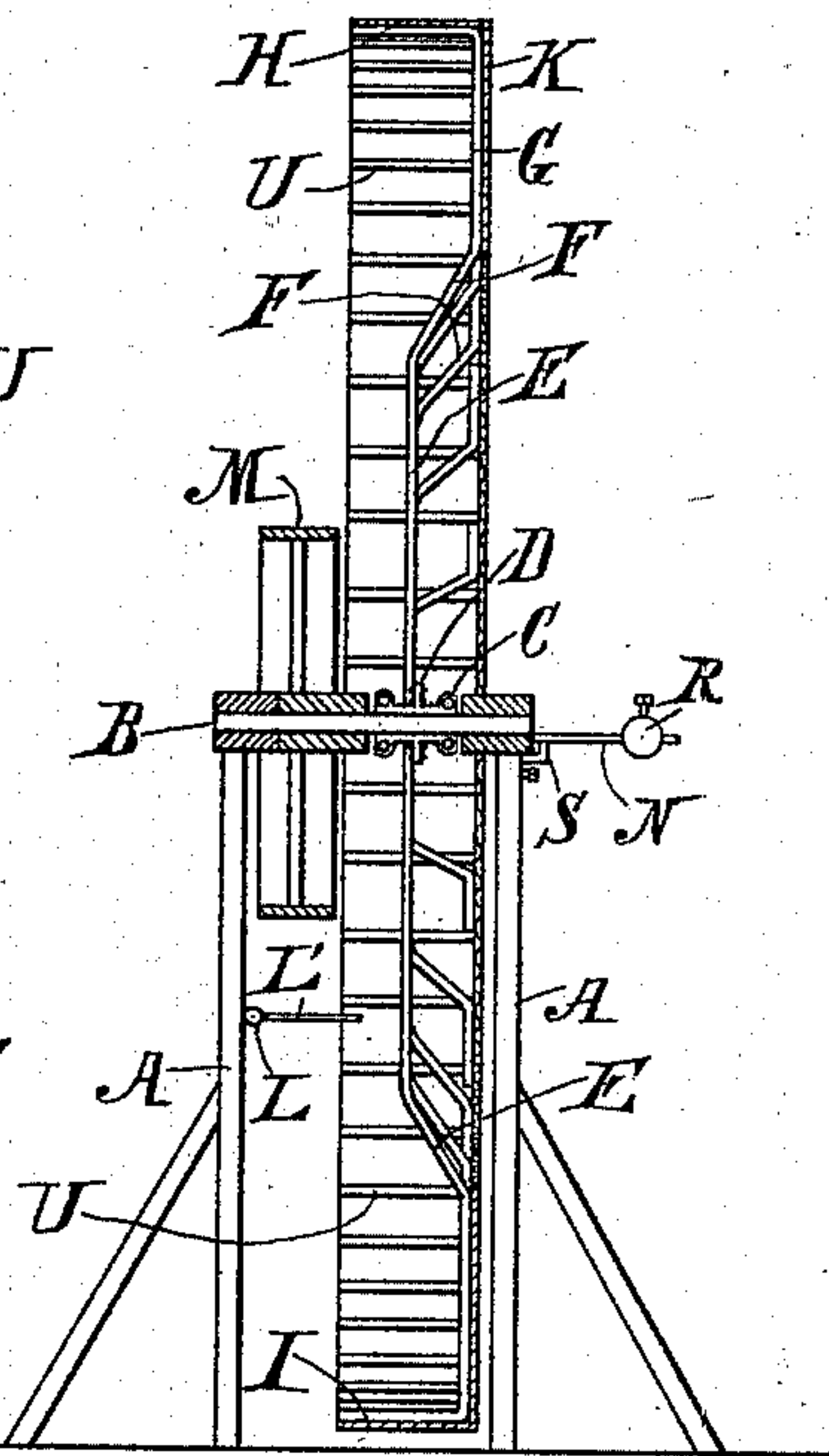


Fig. 3.

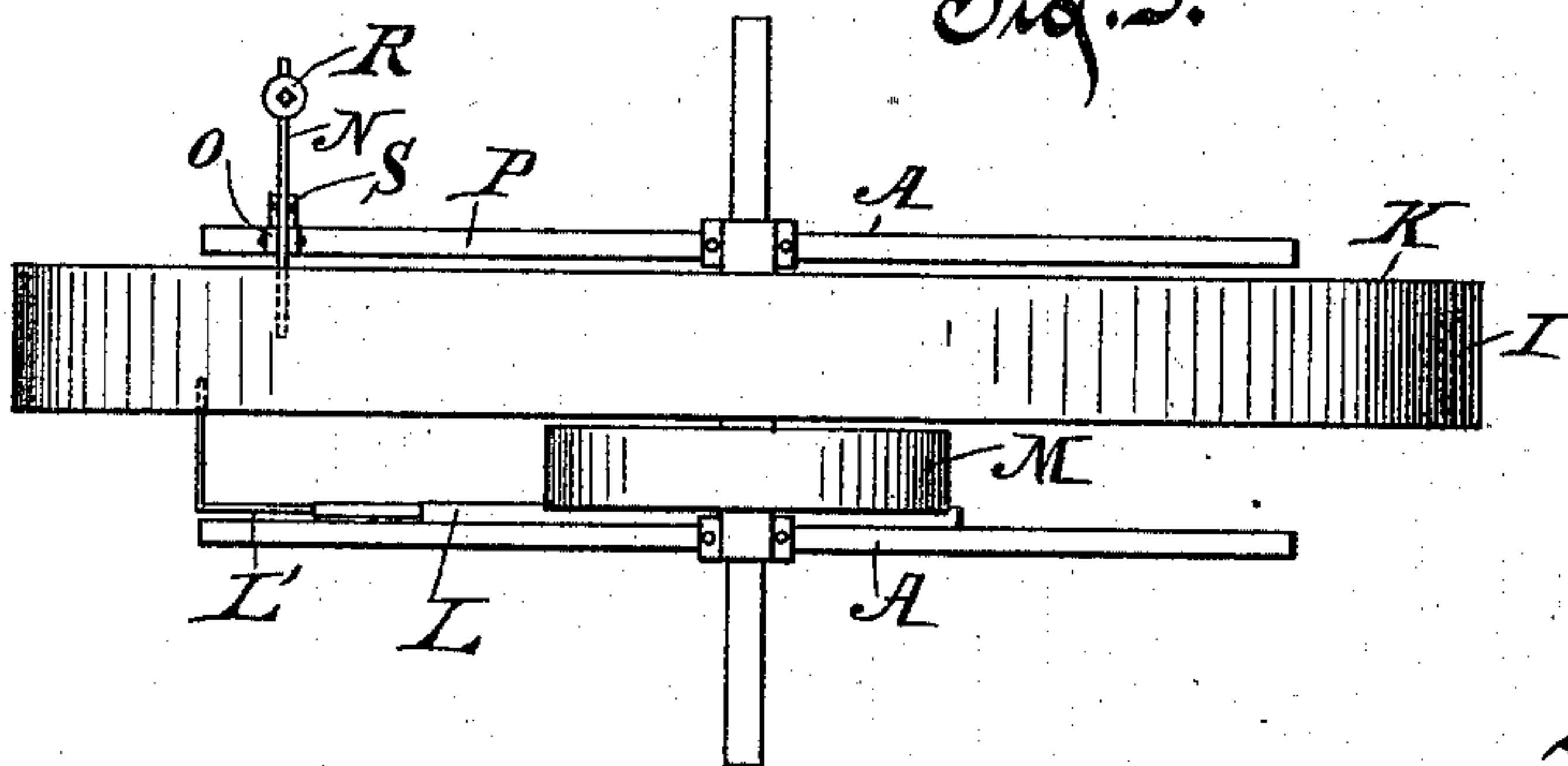


Fig. 4.

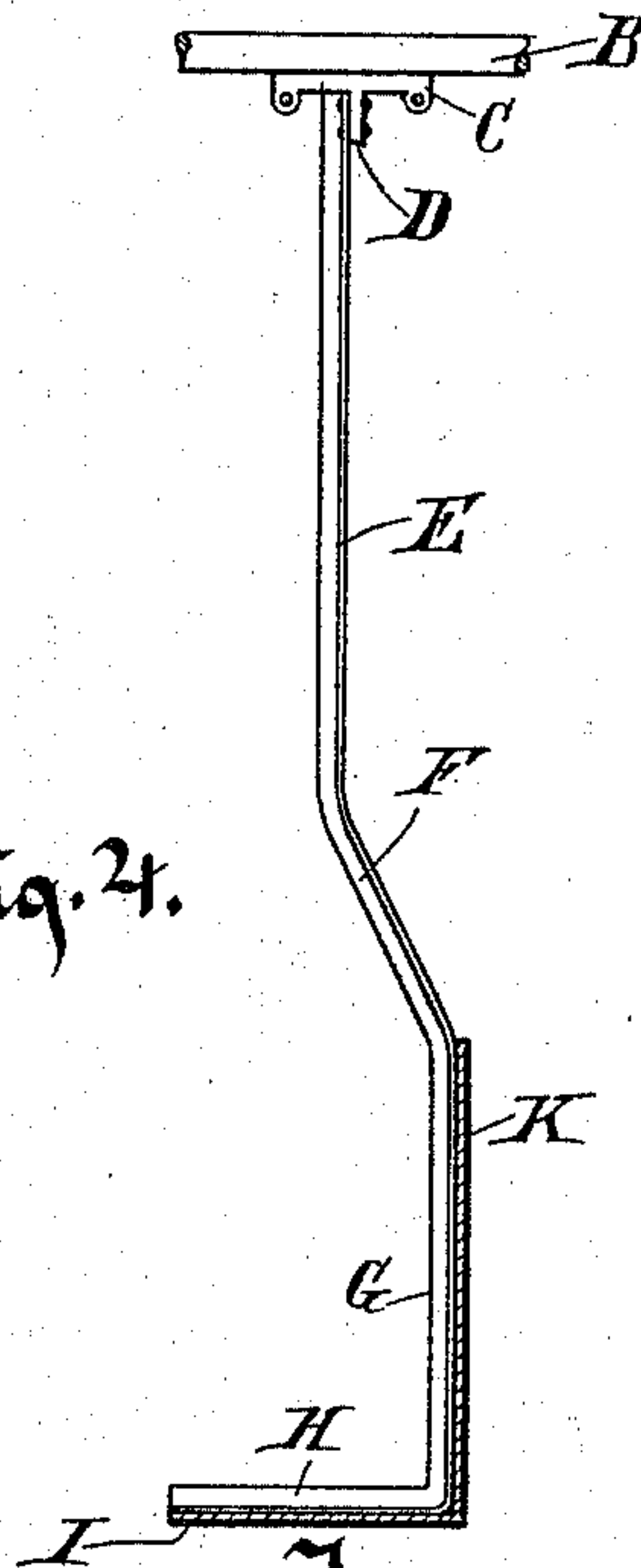
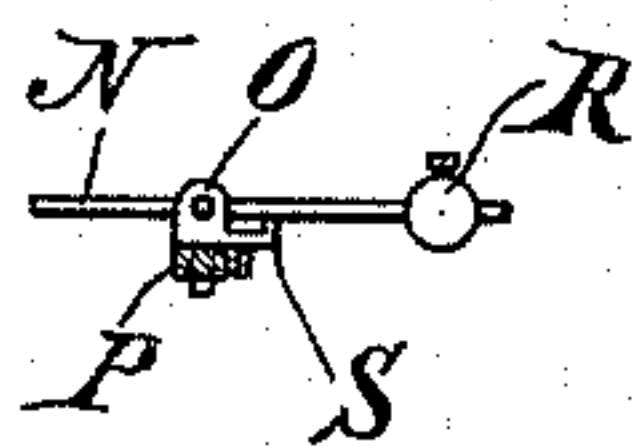


Fig. 5.



Witnesses.

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UNITED STATES PATENT OFFICE.

HENRY ARIENS, OF BRILLION, WISCONSIN, ASSIGNOR OF ONE-HALF TO
ROBERT WITTKE, OF SAME PLACE.

TREAD-WHEEL.

SPECIFICATION forming part of Letters Patent No. 528,066, dated October 23, 1894.

Application filed June 28, 1894. Serial No. 515,939. (No model.)

To all whom it may concern:

Be it known that I, HENRY ARIENS, of Brillion, in the county of Calumet and State of Wisconsin, have invented a new and useful Improvement in Tread-Wheels, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

My invention relates to a tread wheel, to be operated by the gravity or weight of an animal, as a dog, goat or sheep, treading continuously upwardly on the inside of the rim, at its lower part, and is adapted to produce a limited amount of power, such for instance as is necessary to run a milk or cream separator, a churn, a pump, a sewing machine, a washing machine, a printing press, or other mechanism where the power required is small.

The object of the invention is to provide a wheel that is strong, light of weight and easily operated; that is convenient and well adapted in form for introducing and securing therein the animal to operate it, and is suitably provided with appliances for the easy travel of the animal therein; and the speed of which is readily and suitably regulated.

The invention consists of the devices and their parts and combinations as hereinafter described and claimed or their equivalents.

In the drawings, Figure 1, is an elevation of the improved wheel. Fig. 2, is a central vertical section of the wheel and devices shown in Fig. 1. Fig. 3, is a top plan view of the same wheel and devices. Fig. 4, is a detail of one of the spokes of the wheel with a fragment of the shaft, and the rim in cross section. Fig. 5, is a detail, of the mounting of the tumbling-bob, that serves for a governor.

In the drawings, A A are the posts or frame on which the wheel is supported. The shaft B is journaled in suitable boxes therefor, on the frame. A hub C is constructed in two longitudinal parts suitably bolted together and thereby clamped to the shaft, which hub is provided with a medial annular flange D. The spokes E E are bolted to the flange D and radiate therefrom. The spokes are preferably made of T-iron or steel. These spokes project radially in a plane at a right angle to the shaft for some distance from the hub

and then bend laterally obliquely forming a part F to a plane parallel with the former plane of the spokes, but at a distance therefrom equal to about one-half of the width of the rim of the wheel, and project radially in this latter plane a suitable distance forming a portion G and then turn at a right angle and extend parallel with the shaft a distance equal to the width of the rim forming a part H adapted to receive and support the rim thereon. A rim I, preferably of sheet metal is secured to the part H of the spokes, the outer surface of which rim is fitted and adapted to receive a belt thereon, for transmitting power to mechanism to be run therefrom. The inner surface of the rim serves as a continuous track, for the travel thereon of the animal that operates the wheel.

The rim H is wide, and the distance between the rim and the bend F of the spokes, provides sufficient space for the convenient travel therein of the dog or other animal that runs the wheel.

Preferably the metal of the rim I is turned inwardly against the part G of the spokes, being suitably crimped or corrugated therefor, as shown in Fig. 1, and is secured to the spokes, thus forming a side wall K, which serves as a protection or side to the track on which the animal travels.

A pole L secured at one extremity to the frame A, is provided with an extension L', which telescopes in the part L, and is thereby made extensible, which at its free extremity turns inwardly and serves as a device to which to tie the hitching strap of the animal, while traveling in the wheel.

A belt pulley M, or chain sprocket wheel, of considerably smaller size than the large wheel, is fixed on the shaft, which may be used for transmitting power therefrom, when greater power and less rapidity of motion are desired.

As a means for regulating the rapidity of the revolutions of the wheel, a governor is provided, which consists of the lever N pivoted medially in the head O which head is swiveled on an arm P projecting rigidly from the frame. A weight R is adjustable on the outer arm of the lever N. The head O is provided with a stop S, adapted to prevent

the weighted arm of the lever from falling below a horizontal position. The lever N is so located that, when swung at substantially a right angle to the plane of the spokes, its inner end engages releasably each spoke as it passes the end of the lever, and the weight is thereby lifted against the resistance of its gravity, a short distance, when the inner end of the lever slips off the spoke permitting the weight to fall, to be again lifted by each succeeding spoke as it passes the lever. The lifting of the weight of this tumbling-bob by each successive spoke is such a resistance to the free movement of the wheel as to considerably retard it. The extent of the resistance and the consequent rapidity of the movement of the wheel may be regulated by adjusting the weight R on the lever N. Transverse half round ribs U on the inner surface of the rim I form low ledges, against which the feet of the animal rest and prevent their slipping rearwardly on the surface of the rim.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A tread wheel comprising a wide rim, spokes secured to the inner surface transversely thereof, said spokes all turning inwardly toward the axis of the wheel at the same edge of the rim and extending inwardly toward the axis for a considerable distance in a radial plane substantially that of the said edge of the rim of the wheel, thence turning laterally to a radial plane cutting the rim of the wheel midway between its edges, and thence inwardly to the hub in said last named plane, and the hub to which the spokes are fixed, substantially as described.

2. In a tread wheel, a shaft, a hub provided

with an annular flange, spokes secured to the annular flange and radiating therefrom, which spokes project radially a distance therefrom in a plane at a right angle to the shaft, that thence bend laterally to a plane parallel with and at a distance from the former plane, thence extending radially in the latter plane a distance and thence turning laterally substantially parallel with the shaft and intersecting the first mentioned plane, substantially as described.

3. The combination with a tread wheel having spokes and revolving in a vertical plane, of a governor consisting of a lever pivoted medially in a head swiveled on a fixed support, a weight on the outer arm of the lever, the lever being so disposed that when in action its unweighted arm is successively engaged and released by the spokes of the revolving wheel, and a stop adapted to prevent the weighted arm from falling below a horizontal position, substantially as described.

4. In a tread wheel, the combination with the shaft and spokes having their outer portions in a radial plane at a distance from the plane of the attachment of the spokes to the hub, and a rim secured to the spokes intersecting the plane of their attachment to the hub, of transverse ribs on the inner surface of the rim, and a side wall secured to the spokes adjacent to and extending inwardly a distance from the rim, substantially as described.

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

HENRY ARIENS.

Witnesses:

W. V. McMULLEN,
A. F. WERNER.