

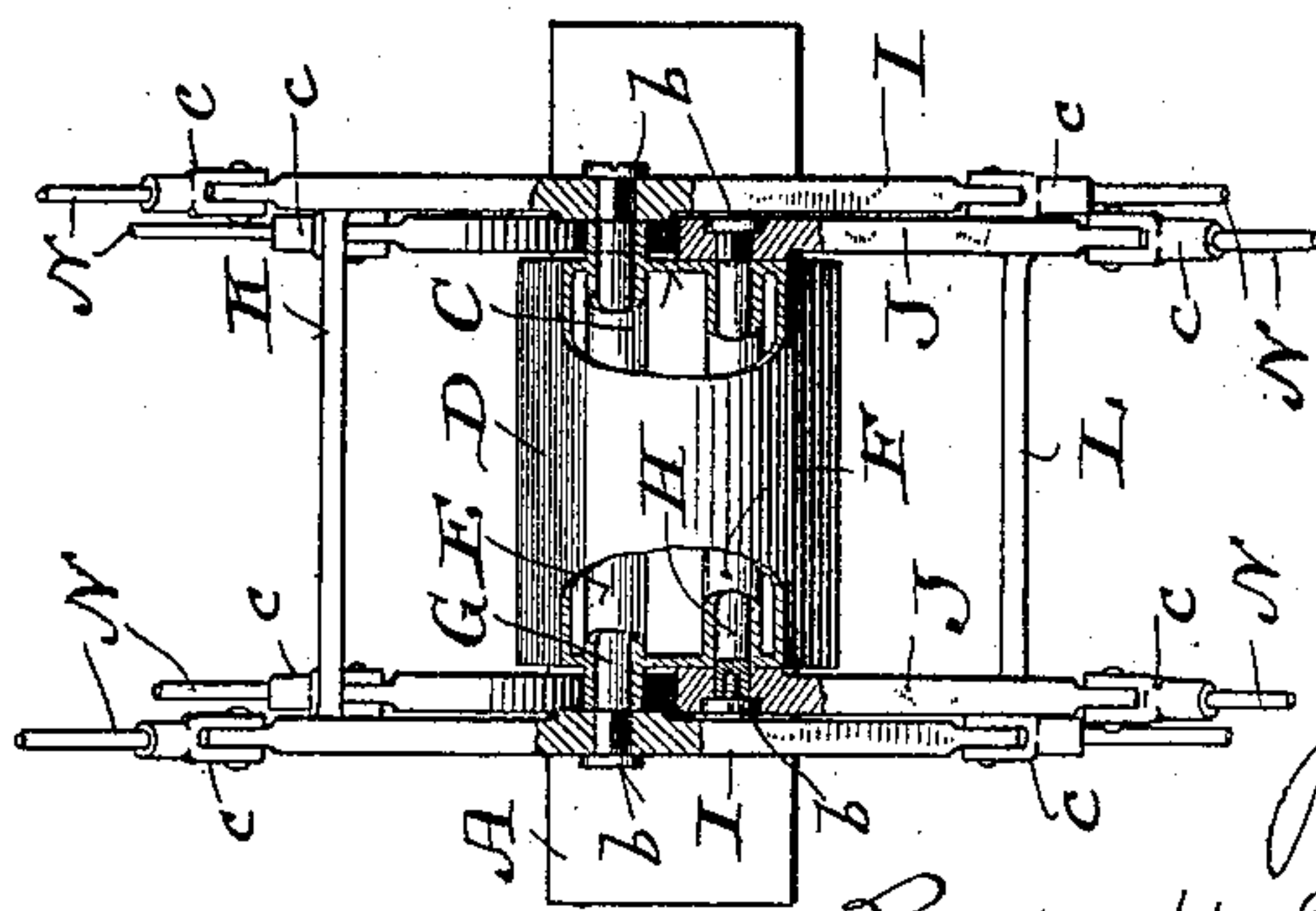
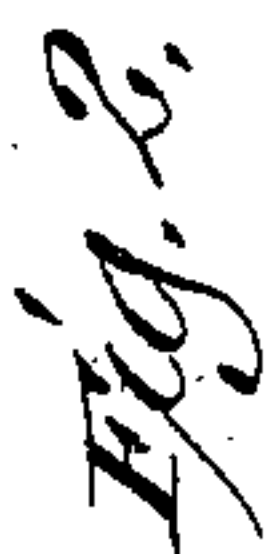
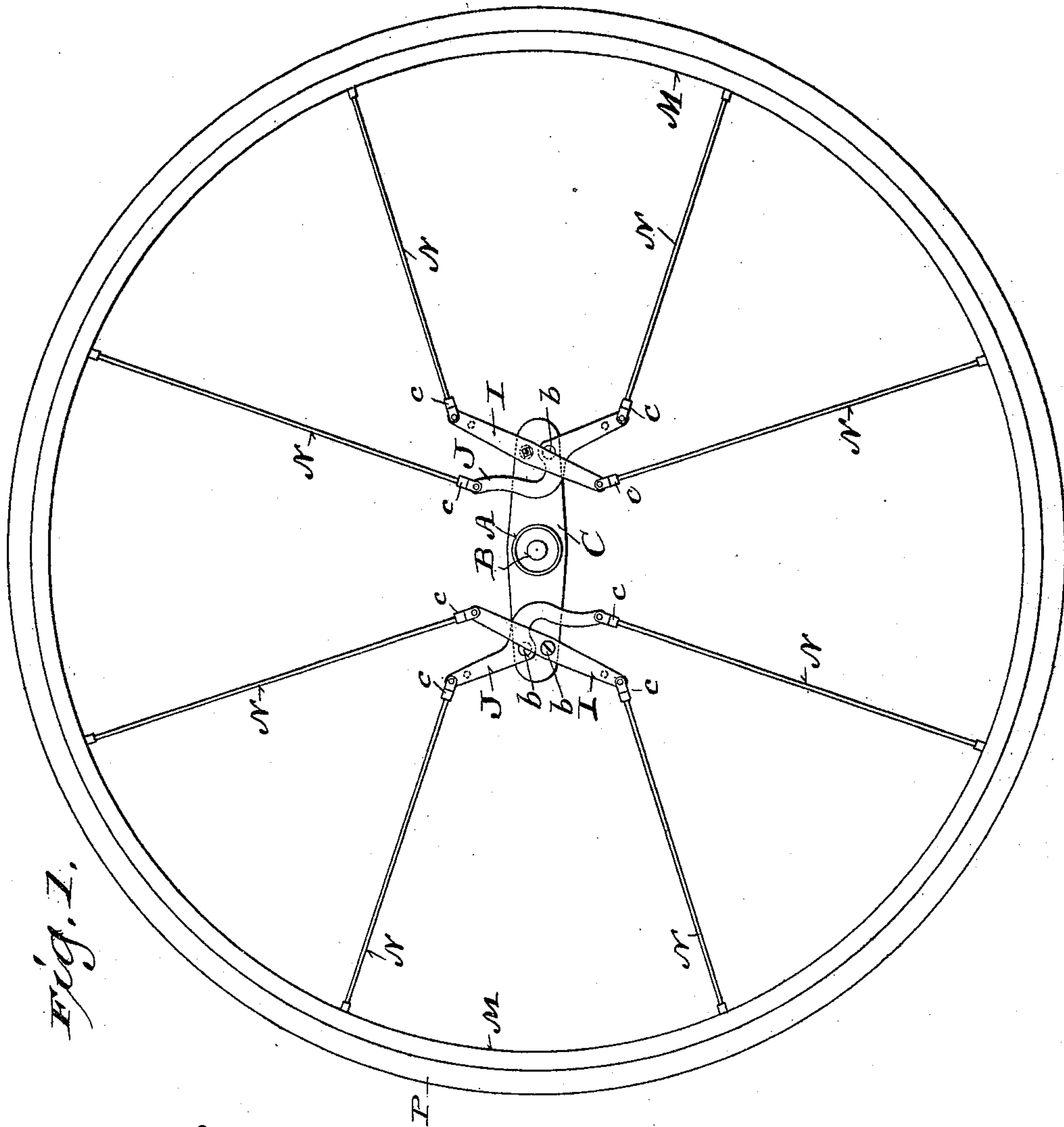
No. 635,687.

Patented Oct. 24, 1899.

J. H. JUDGE.
VEHICLE WHEEL.

(Application filed Mar. 23, 1899.)

(No Model.)



Witnesses:
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UNITED STATES PATENT OFFICE.

JOSEPH H. JUDGE, OF MILWAUKEE, WISCONSIN.

VEHICLE-WHEEL.

SPECIFICATION forming part of Letters Patent No. 635,687, dated October 24, 1899.

Application filed March 23, 1899. Serial No. 710,158. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH H. JUDGE, a citizen of the United States, and a resident of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Vehicle-Wheels; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention has for its object to provide simple, economical, and resilient suspension-spoke vehicle-wheels.

Therefore it consists in certain peculiarities of construction and combination of parts, hereinafter particularly set forth with reference to the accompanying drawings and subsequently claimed.

Figure 1 of the drawings represents a side elevation of a vehicle-wheel constructed according to my invention; and Fig. 2, a plan view of a portion of the same, partly in section.

Referring by letter to the drawings, A indicates the hub of my improved vehicle-wheel, and in practice this hub may be made to have ball-bearing on its axle B, this being the preferred construction. Rigid with the hub are parallel plates C, that extend therefrom an equal distance in opposite directions, and it is preferable to have these plates joined to an intermediate continuous shield D, as herein shown.

In rigid connection with the plates C, in opposite directions from hub A, are transverse tubes EF, in which rods GH have their bearings, and crossed levers IJ are made fast to the ends of these rods outside of said plates, each lever being extended an equal distance in opposite directions from the rod to which it is fastened. As a matter of detail, the tubes E for the rods G extend laterally from each plate C, and the levers J are bowed, as herein shown, to clear said tubes. As another matter of detail, the levers may have detachable angular fit upon the ends of the rods, set-screws b being employed in connection with said rods to hold said levers in place.

As a matter of preference, the levers I are connected by a tie-rod K, and a similar rod L is employed in connection with the levers J, these rods being in opposite directions from the plates C, above specified.

In pivotal connection with the extremities of each lever, by shackle c or otherwise, are the inner ends of taut wire spokes N, and the outer ends of these spokes are secured to a flexible rim M, having a flexible yielding tire P, the material of the rim being either wood or metal, and said spokes are practically at equal distances apart at the rim, but tangent to a circle concentric of the hub.

Under conditions of load and resistance, with respect to the wheel, there is oscillation of the levers IJ while said wheel is in revolution, and these levers being fulcrumed midway of their extremities the spokes in connection therewith are always taut no matter how much the aforesaid wheel may change from circular to elliptical form owing to said conditions. It is also to be understood that the wheel readily yields to obstructions in its path, and therefore the otherwise disagreeable shock or vibration is avoided.

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

1. A wheel comprising a hub, parallel plates radiating in opposite directions from the hub with which they are rigid, rods having their bearings transversely of the plates, crossed levers in rigid connection with the ends of the rods, a flexible rim, and spokes connecting the lever extremities with the rim.

2. A wheel comprising a hub, parallel plates radiating in opposite directions from the hub with which they are rigid, rods having their bearings transversely of the plates, crossed levers in rigid connection with the ends of the rods, tie-rods connecting parallel levers, a flexible rim, and spokes connecting the lever extremities with the rim.

3. A wheel comprising a hub, parallel plates radiating in opposite directions from the hub with which they are rigid, tubes fast in the plates, rods loose in the tubes, crossed levers in rigid connection with the ends of the rods, a flexible rim and spokes connecting the lever extremities with the rim.

4. A wheel comprising a hub, parallel plates radiating in opposite directions from the hub, an intermediate continuous shield joined to the plates, rods having their bearings transversely of the plates, crossed levers in rigid

connection with the ends of the rods, a flexible rim, and spokes connecting the lever extremities with the rim.

5 5. A wheel comprising a hub, parallel plates radiating in opposite directions from the hub, an intermediate continuous shield joined to the plates, tubes fast in the plates, rods loose in the tubes, crossed levers in rigid connection with the ends of the rods, a flexible rim,
10 and spokes connecting the lever extremities with the rim.

6. A wheel having a flexible rim and the

spokes thereof pivotally connected at their inner ends to extremities of oscillative levers for which fulcrums are rigid with the wheel- 15 hub in opposite directions therefrom.

In testimony that I claim the foregoing I have hereunto set my hand, at Milwaukee, in the county of Milwaukee and State of Wisconsin, in the presence of two witnesses.

JOS. H. JUDGE.

Witnesses:

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B. C. ROLOFF.