(No Model.)

G. W. HOWELL.

WHEEL.

No. 405,093. Patented June 11, 1889.

Fig. 1.

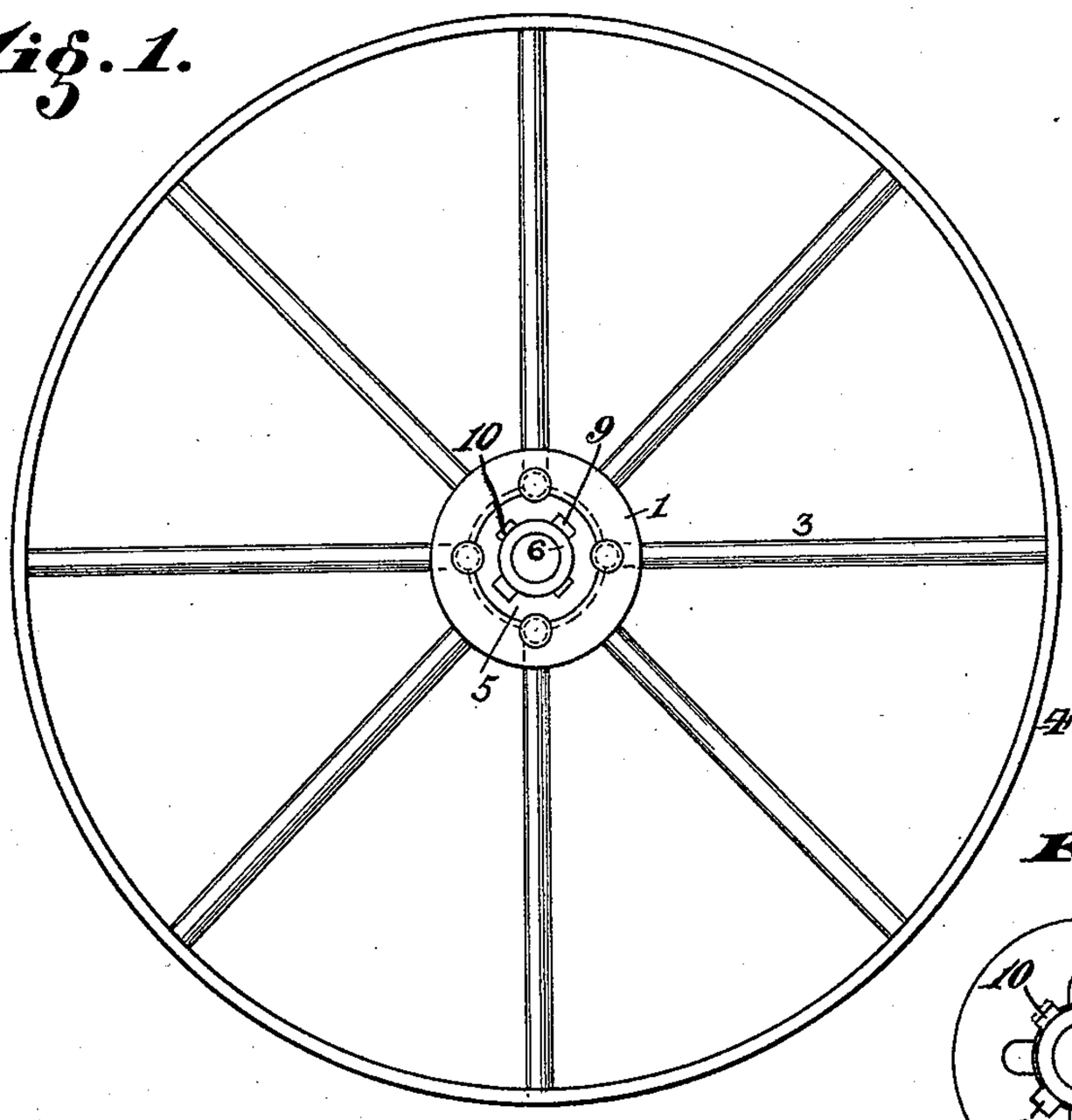


Fig. 6.

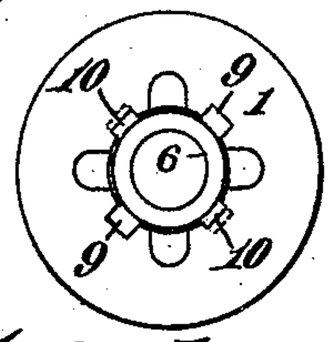


Fig. 3.

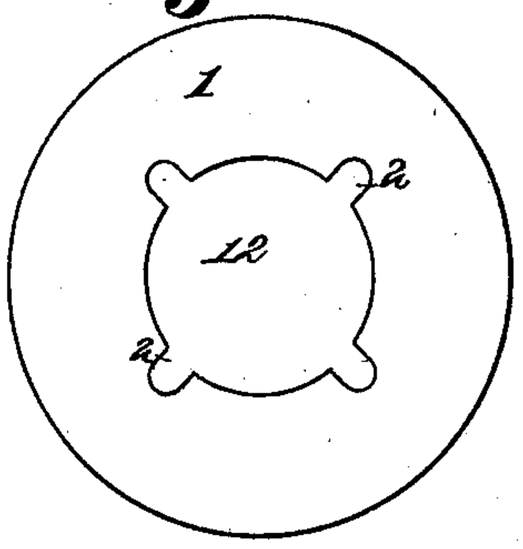


Fig. 2.

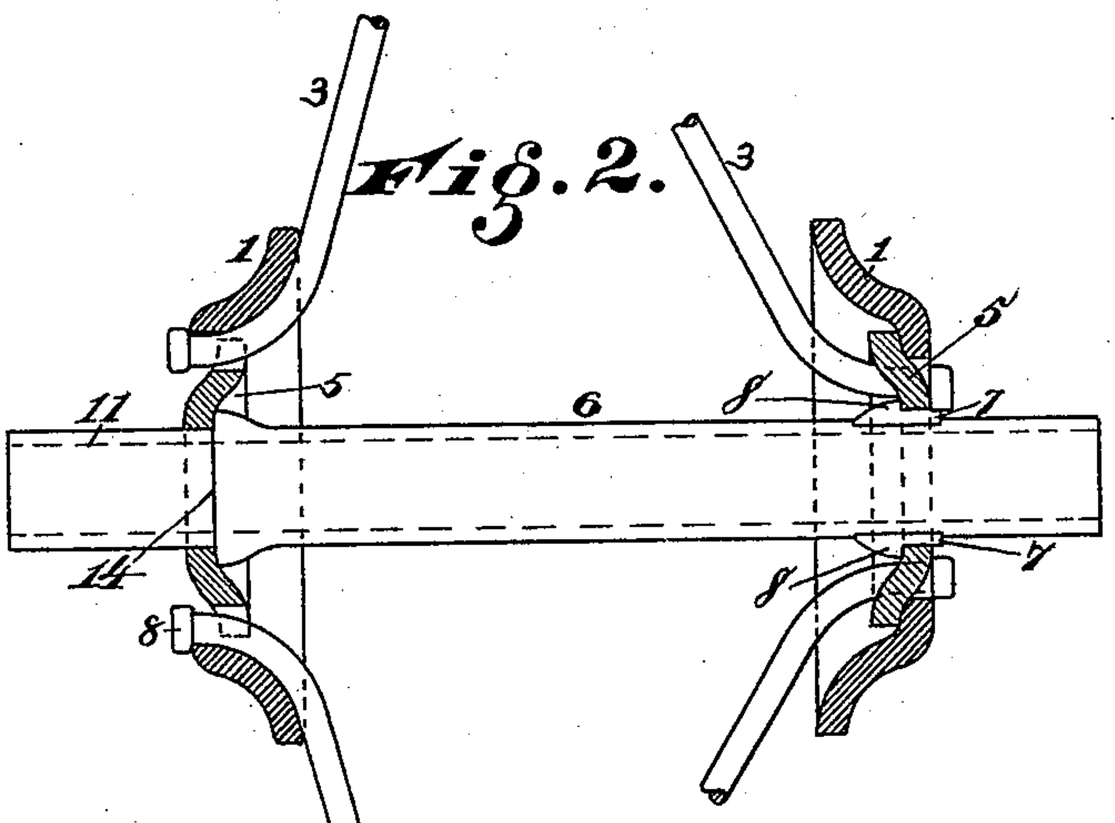


Fig. 4.

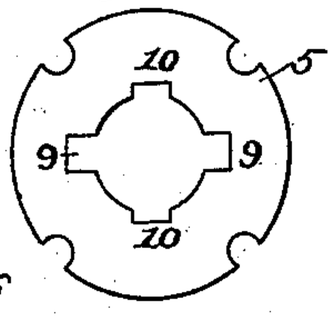
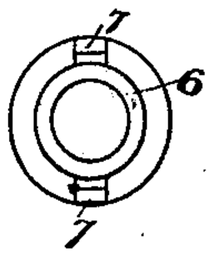


Fig. 5.



Attest

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UNITED STATES PATENT OFFICE.

GEORGE WASHINGTON HOWELL, OF COVINGTON, KENTUCKY.

WHEEL.

SPECIFICATION forming part of Letters Patent No. 405,093, dated June 11, 1889.

Application filed February 21, 1889. Serial No. 300,731. (No model.)

To all whom it may concern:

Be it known that I, GEORGE WASHINGTON HOWELL, a citizen of the United States, and a resident of Covington, in the county of Kenton and State of Kentucky, have invented certain new and useful Improvements in Wheels, of which the following is a specification.

My invention has for its object to improve the metallic vehicle-wheel for which Letters Patent No. 360,156 were issued to me March 29, 1887; and the invention consists in the novel construction and combination of devices hereinafter described and claimed, reference being made to the accompanying drawings, in which—

Figure 1 is a side elevation of a wheel embodying my invention; Fig. 2, a detail sectional view of the same; Fig. 3, a plan view of one of the notched disks; Fig. 4, a plan view of the inner supporting-ring; Fig. 5, an end view of the sleeve to be applied to the axle, and Fig. 6 a detail view showing a modification.

In order to enable those skilled in the art to make and use my invention, I will now describe the same in detail, referring to the drawings, wherein—

The numerals 1 1 indicate two similar disks, each having a central circular orifice 12, in the edge of which is formed a series of recesses 2, with which engage the heads at the inner ends of the spokes 3, the latter being secured at their outer ends to the usual wheel-rim 4. A supporting-disk 5 is arranged on the inner side of each outer disk 1, and such inner disks have their outer edges provided with recesses 13 corresponding to the recesses 2 of the outer disks 1, for engaging with the inner headed ends of the spokes. The inner disks 5 are each provided with a central orifice, and the edge of the orifice in one of these inner disks is provided with two sets of notches 9 and 10, the set 9 being somewhat deeper than the set 10.

The axle 11, which may be tubular or solid, is adapted to fit into a tube or sleeve 6, having a lateral shoulder 14 at one end to abut against one of the inner disks 5, and the axle is adapted to entirely fill the orifice in the inner disk, against which the shoulder 14 of the tube or sleeve 6 abuts. The tube or sleeve adjacent to its opposite end portion is furnished with external radially-projecting lugs 7, having projecting shoulders 8, in such manner that the lugs and shoulders can be passed through the deepest notches 9, and then by rotating the tube or sleeve until the lugs are opposite the notches 10 the shoulders 8 of the lugs 7 will seat into and engage the edges of such notches 10 for the purpose of holding the wheel in its true and straight position. Instead of the spokes being hooked over and conforming to the disks, the spokes can be confined at their inner ends, as in my Letters Patent alluded to.

I do not confine myself to the employment of the inner supporting-disks 5, as set forth and shown, for that the two sets of notches 9 and 10 of different depth may be formed in one of the outer disks 1, as represented in the modification Fig. 6.

In placing the parts together to produce the wheel, the spokes are inserted through the wheel-rim 4 and engaged by their inner headed ends with the recesses 2 of the disks 1, and the tube or sleeve 6 being on the axle 11 and the disks strained apart, the lugs and shoulders 7 8 will pass through the notches 9 until the shoulders 8 are inside the inner surface of the disk, when by rotating the tube or sleeve the shoulders 8 are carried out of coincidence with said notches 9 and can be made to seat in and engage the edges of the notches 10, thereby firmly holding all parts rigidly together when the pressure used to strain the disks 1 apart is removed.

In the features of the tube or sleeve 6, having the lugs 7, provided with shoulders 8 and the notched disk behind which the shoulders engage when the tube or sleeve is rotated, my invention differs from prior constructions.

Having thus described my invention, what I claim is—

1. The combination, in a vehicle-wheel, of the rim, the spokes, the disks having central orifices, the edge of one of which is provided with notches, the axle, and the sleeve on the axle abutting a disk at one end and having adjacent to its other end the lateral shoulders adapted to pass through the said notches in

the other disks, so that when the sleeve is turned the shoulders engage the edge of the opening in the notched disk, substantially as described.

2. A wheel composed of disks 1, having the spokes 3, engaging with the rim 4 at one end and with notches 2 of the disks at the opposite end, the axle 11, and the tube or sleeve 6, provided with lugs 7, having shoulders 8, which seat in the notches 10, substantially as described.

In testimony whereof I have hereunto set my hand.

GEORGE WASHINGTON HOWELL.

Witnesses:
E. E. WOOD,
WM. F. ROSS.