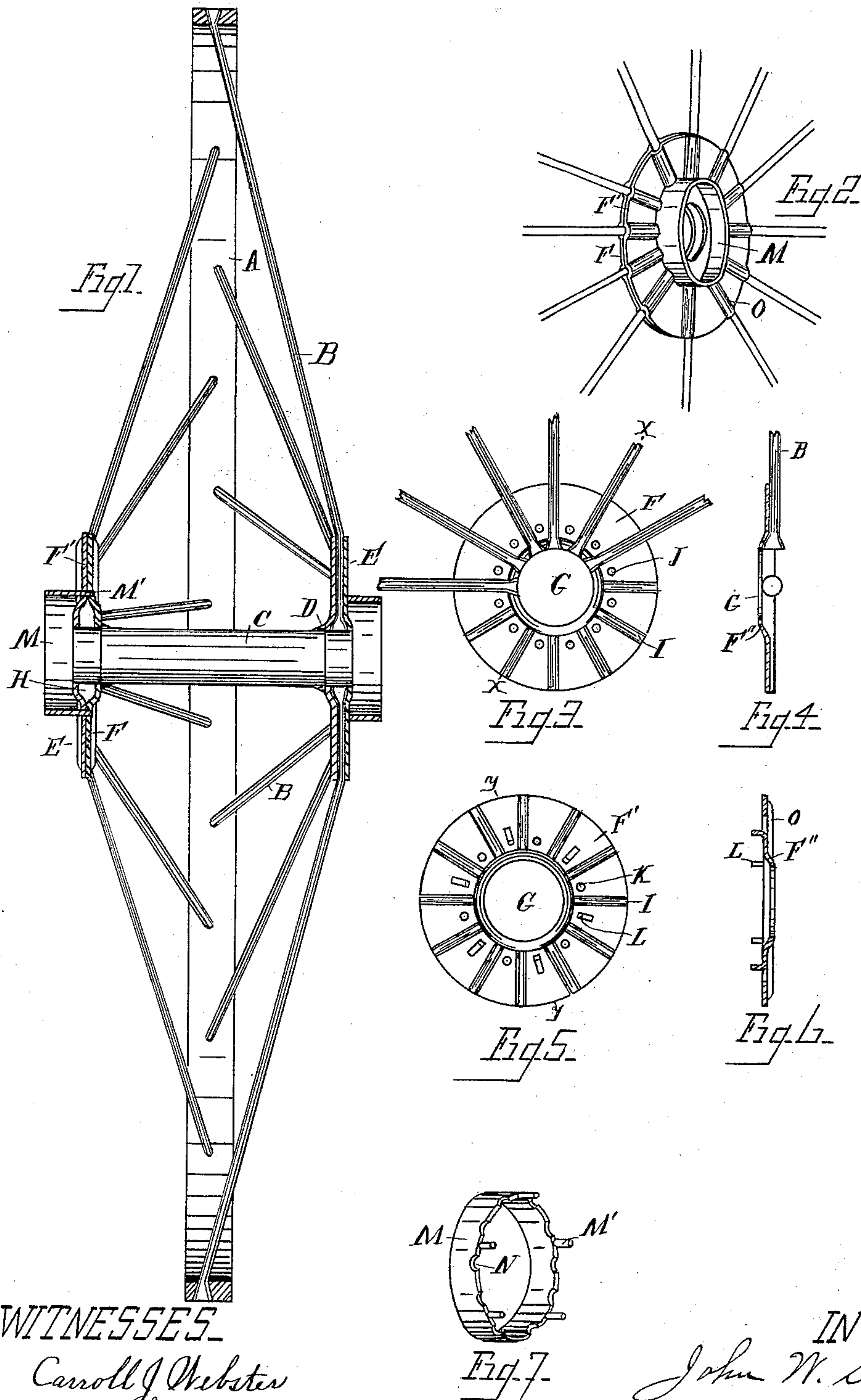


(No Model.)

J. W. SAVENE.
METAL WHEEL.

No. 405,327.

Patented June 18, 1889.



WITNESSES.

Carroll J. Webster
Anna J. Lehaney.

INVENTOR

John W. Savene
By William Webster
Atty

UNITED STATES PATENT OFFICE.

JOHN W. SAVENE, OF TOLEDO, OHIO.

METAL WHEEL.

SPECIFICATION forming part of Letters Patent No. 405,327, dated June 18, 1889.

Application filed March 11, 1889. Serial No. 302,828. (No model.)

To all whom it may concern:

Be it known that I, JOHN W. SAVENE, a citizen of the United States, residing at Toledo, in the county of Lucas and State of Ohio, have
5 invented certain new and useful Improvements in Metal Wheels; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it ap-
10 pertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification.

My invention relates to metal wheels of
15 the character used for children's carriages, bicycles, tricycles, and velocipedes, and has especial relation to the construction of the hub, whereby a series of single spokes may be firmly held between two disks, and also to
20 the novel means employed for holding the disks in close relation.

The object of the invention is to construct a light, neat-appearing wheel consisting of but few parts, the whole possessing great strength
25 and rigidity. I attain these objects by the construction illustrated in the accompanying drawings, in which—

Figure 1 represents a diametrical sectional view of a wheel, the thimble being shown in
30 full lines. Fig. 2 is a perspective view of one section of hub with the spokes in place. Fig. 3 is a plan view of one of the inner disks that compose a section of hub with a portion of the spokes in place, the outer disk being re-
35 moved to disclose the arrangement of the spokes. Fig. 4 is an edge view of the same on lines *x x*, Fig. 3. Fig. 5 is a plan view of the outer disk of a section of hub. Fig. 6 is an edge view of the same on lines *y y*, Fig. 5.
40 Fig. 7 is a perspective view of the sand-band.

A designates the rim of the wheel, to which are secured the outer ends of spokes B in the usual manner.

C designates a thimble formed with an annular shoulder D near each end, against which
45 bear hub-sections E, each section being formed of an inner disk F and an outer disk F', respectively.

Each disk has a central circular opening G
50 of a diameter to allow the insertion of the end of thimble C. Each disk is flared outwardly,

annularly surrounding the opening G at F'', whereby there is formed a circular chamber H, surrounding the opening G when the two disks are secured together, as shown in Fig. 1. 55 Each disk is formed with semicircular recesses I, radiating from the chamber H to the periphery. The inner disks F are formed with a row of perforations J concentric to the opening G, there being a perforation between each
60 radial recess I. The outer disk F' is formed with coincident perforations K between each alternate radial recess or groove in the disk, there being but one-half the number of perforations in disk F that there are in disk F'. 65 Between each alternate radial recess or groove there is stamped from the disk a portion of the metal, which, when turned at right angles thereto, forms projections L in annular coincidence with perforations J and K, the projec-
70 tions being for the purpose of passing through each alternate perforation J of disk F and by riveting the outer ends of the projections assist in holding the disks closely assembled, as will be more fully described. 75

M designates a sand-band, of a diameter corresponding to the diameter of the annular row of perforations in disk F, and having pro-
80 jections M', adapted to pass through the alternate perforations J and K of the disks and be riveted in a like manner with projections L, heretofore described. The inner edge of sand-band M is cut away in semicircular form at N to receive corrugations O upon the outer
85 side of disk F', caused by forming the radial recesses I, as shown in Fig. 2. The inner end of each spoke is upset, thereby forming a conical enlargement, as shown in Figs. 3 and 4, this form being of a size to fit closely within
90 the circular chamber H and allow the inner end of the spokes to rest firmly upon the thimble.

In assembling the parts to form a complete wheel the enlarged ends of the spokes are placed within the chamber H of disk F, with
95 the spoke resting in the semicircular recesses or grooves I. The outer disk F' is placed upon disk F, with projections L entering each alternate perforation J. The sand-band is then placed upon the outer side of disk F, with the
100 projections M' thereof entering the alternate perforations J in disk F, and the outer ends

of projections L and M', which pass through the disk F, are riveted, thereby drawing the disks closely together, with the metal thereof completely encircling the spokes and holding the same firmly in place. When each section of hub, with its complement of spokes, has been assembled and secured by riveting the projections, the ends of thimble C are inserted in the central openings G, and the outer ends of the spokes are secured in the rim in any preferred manner.

It will be understood that in light wheels, or when a sand-band is not needed, I may hold the sections solely by riveting the projections upon disk F' and omit the sand-band; or in some cases I may hold the sections together by means of the projections upon the sand-band, dispensing with the projections upon disk F'.

By reason of the annular chamber H and the recesses or grooves I radiating therefrom to the periphery the cone-shaped ends of the spokes, as well as the portion of the same inclosed between the disks, are entirely surrounded by the metal of the disks, thereby holding the spokes firmly in place.

What I claim is—

1. In a metal wheel, a hub formed of two sections and a transverse spindle, each section comprising two disks, one of which has a concentric row of perforations, the opposite disk having projections registering with and adapted to pass through a number of perforations and be riveted to hold the disks in engagement with spokes between the same, as and for the purpose set forth.

2. In a metal wheel, hub-sections formed of two disks, between which the spokes are held by means of metal projections integral with a sand-band by the projections being passed through both sections and riveted, as and for the purpose set forth.

In testimony that I claim the foregoing as my own I hereby affix my signature in presence of two witnesses.

JOHN W. SAVENE.

Witnesses:

WILLIAM WEBSTER,
CARROLL J. WEBSTER.