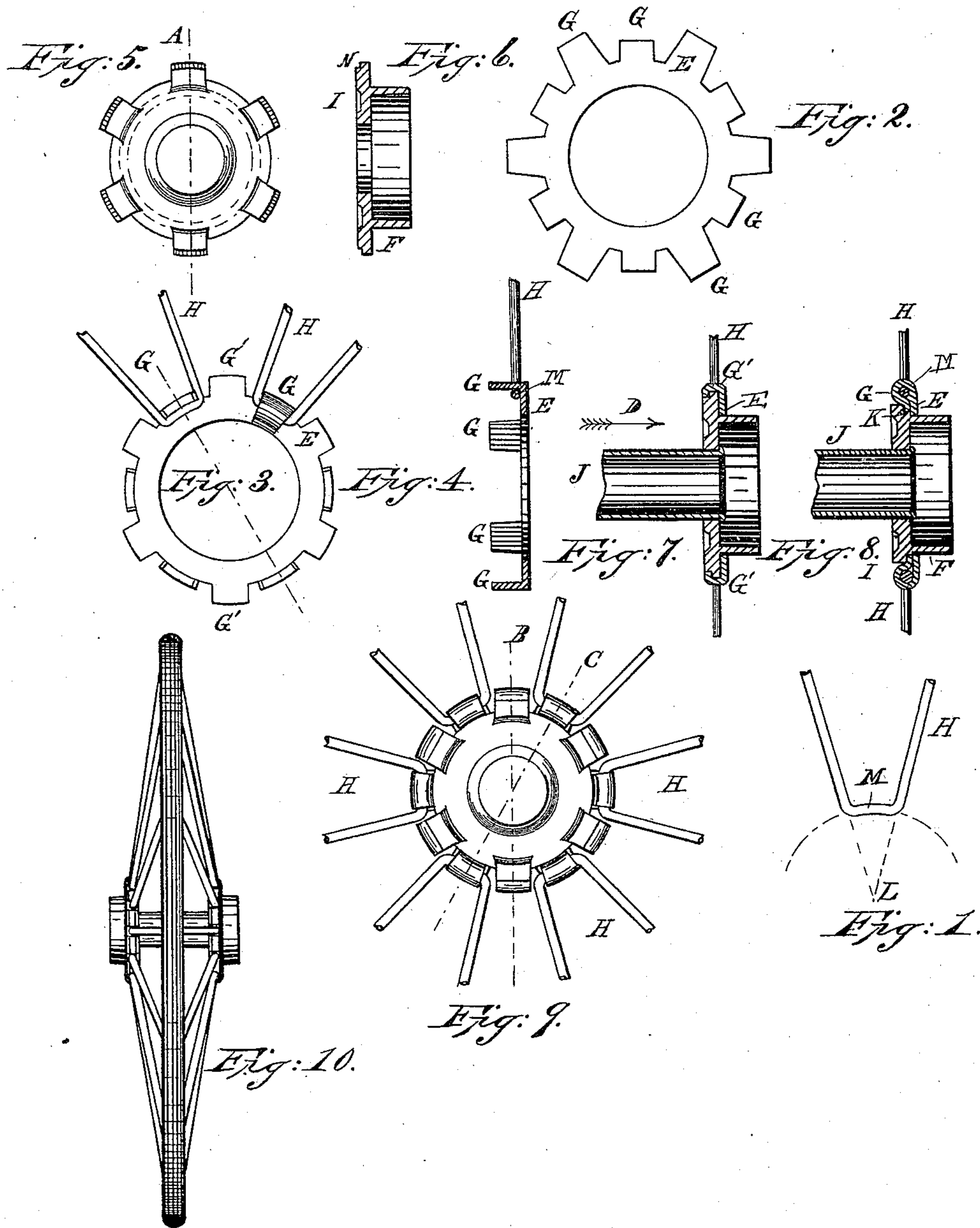


(No Model.)

A. L. H. MESSMER & C. H. LUTHMAN.
VEHICLE WHEEL.

No. 428,313.

Patented May 20, 1890.



WITNESSES:

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ALEXANDER L. H. MESSMER AND CHARLES HERMANN LUTHMAN, OF
HAMMOND, INDIANA.

VEHICLE-WHEEL.

SPECIFICATION forming part of Letters Patent No. 428,313, dated May 20, 1890.

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To all whom it may concern:

Be it known that we, ALEXANDER L. H. MESSMER and CHARLES HERMANN LUTHMAN, citizens of the United States of America, both residing at Hammond, in the county of Lake and State of Indiana, have invented certain new and useful Improvements in Vehicle-Wheels; and we do hereby 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.

Our invention relates to improvements in vehicle-wheels of that class in which a central cylindrical box has attached to its opposite extremities means—such as will be hereinafter shown and described—for securing to each of said extremities a separate set of radiating spokes, which spokes, in a well-known manner, as they radiate, incline toward a central plane intermediate between said extremities of said box and cutting the axial line thereof at right angles thereto; and the object of our invention is to provide simple and effective means for securing said spokes in such position.

The type of spokes which we employ, and which is in all particulars, except the bend at its lower extremity, common to this class of wheels, is made of wire, each piece being bent to form two integral spokes. We make no claim to any improvement in attaching said spokes to the exterior rim of the wheel, our invention consisting only in means for securing the said spokes to the journal-box.

We attain our object by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 represents the inner extremities of two integral spokes. Fig. 2 is a side elevation of a plain notched washer provided with radiating extensions. Figs. 3 and 4 represent the same washer shown in Fig. 2, except that in these figures it is bent more nearly into finished form. Fig. 5 is a side elevation of a washer formed with a sand-band extension upon one of its vertical flat sides. This band is preferably formed as an integral part thereof, but may be formed separately and attached thereto without changing the nature of our invention. Fig. 6 is a

vertical section of the washer shown in Fig. 5, this view taken on line A, Fig. 5. Fig. 7 is a vertical section of one end of a completed hub, taken on line B, Fig. 9. Fig. 8 is a vertical section of one end of a completed hub, taken on line C, Fig. 9. Fig. 9 is a side elevation of a finished hub as viewed in the direction of the arrow D, Fig. 7. Fig. 10 is a vertical edge view of the finished wheel with the outer rim attached.

Similar letters refer to similar parts throughout the several views.

Referring to the drawings, E is a plain notched washer, being suitably perforated to fit over the sand-band F. (Shown in Figs. 6, 7, and 8.)

In Fig. 4 the radial notch-extensions G are shown partly bent into position.

In Fig. 3 two of the radial extensions G are represented as being closed over the bent portion of the spokes H.

In Figs. 5 and 6 are represented a washer I, having a sand-band extension F. This washer I may be cast integrally with the said sand-band, or the sand-band may be made of a separate piece of metal and joined to the said washer in any convenient manner without changing the nature of our invention.

In Figs. 7 and 8 a tube J is shown having upon one end a hub-section assembled, and in these figures the notched washer E is placed over the sand-band F, and in Fig. 8 the notched extensions G are turned over the bends of the spokes H and pressed into the notches K in the washer I, while the notched extensions G' are bent over upon the periphery of the washer I and into the notches N, as shown in Fig. 7.

In Fig. 9 is shown the finished inner side of a hub-section.

In Fig. 1 a two-spoke section-piece H is shown, having its inner extremity M bent on a curve around the center L, which center L represents the center of the wheel and its hub, as shown in the several figures.

The assembling of this wheel is as follows: Upon the central tube or journal-box J is tightly placed the washer I with its sand-band extension F, over which is placed and held in a concentric position the notched washer E, its notched extensions G having been previously bent over the central bend

of the spokes H, when the several parts I, H, and E are securely fastened together by turning the notched extensions G' over upon the washer I, as shown in Figs. 7, 9, and 10. It is thus shown that the bent extensions G, besides having the rigidity of their own metal to hold the spokes securely, are again re-enforced and strengthened by the radial extensions G' being closed over upon the washer I, thus forming a double lock for the spokes. Again, the spoke-connection M, by being made in a form to adapt it to more closely fit the periphery of the washer I, between which parts only the bent part of the notched extension G' intervenes, renders the wheel far more rigid than most of the old methods of construction, which left the inner side of the bends of the spokes unsupported.

Having described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. A notched outer washer, a part of the notched extensions of which are adapted to be closed over the inner bend of a pair of integral spokes, while other notched extensions of the same washer are adapted to be closed over the periphery of an inner washer and to lock the said spokes to the said inner washer, in combination with a journal-box, substantially as shown and described.

2. A journal-box, an inner washer attached near the end thereof, and provided with a sand-band extension, in combination with a notched washer, a part of the notched extensions of which are adapted to be closed upon and to lock the said inner washer itself and a series of bent pairs of spokes together, substantially as shown and described.

3. A journal-box, an inner washer attached near the end thereof, and provided with a sand-band extension, in combination with a notched washer, one series of the notched extensions of which are adapted to be closed upon a series of pairs of bent spokes, locking them to the said notched washer, while another series of the said notched extensions are adapted to be closed over and upon the said inner washer and locking the said spokes and the said notched washer to the said in-

ner washer, substantially as shown and described.

4. In a vehicle-wheel, the combination of an inner washer I, having an outwardly-projecting sand-band extension F, and provided with a series of notches K in its outer edge, with a notched washer E, fitting upon said sand-band extension, a series of double spokes H, the notched extensions G of said notched washer embracing the inner bends M of said double spokes and their tips being seated in said notches K, and means, substantially as described, for securing said washers together, as set forth.

5. In a vehicle-wheel, the combination of an inner washer I, having an outwardly-projecting sand-band extension F, and provided with a series of notches N in its inner edge, with a notched washer E, fitting upon said sand-band extension, the notched extensions G' of said notched washer embracing the edge of said inner washer and their tips being seated in said notches N, a series of spokes H, and means, substantially as described, for securing said spokes to said notched washer, as set forth.

6. In a vehicle-wheel, the combination of an inner washer I, having an outwardly-projecting sand-band extension F, and provided with a double series of alternating notches K and N upon its outer and inner edges, respectively, with a notched washer E, fitting upon said sand-band extension, and a series of double spokes H, the notched extensions G of said notched washer embracing the inner bends M of said double spokes and their tips being seated in said outer notches K, and the alternate notched extensions G' thereof embracing the edge of the inner washer and their tips being seated in said inner notches N, substantially as described.

In testimony whereof we affix our signatures in presence of two witnesses.

ALEXANDER L. H. MESSMER.
CHARLES HERMANN LUTTMAN.

Witnesses:

THOS. HAMMOND,
THOMAS B. PHILLIPS.