F. H. GREEN.

Wheels for Vehicles.

No. 166,272. Patented Aug. 3, 1875.

Fig. 1.

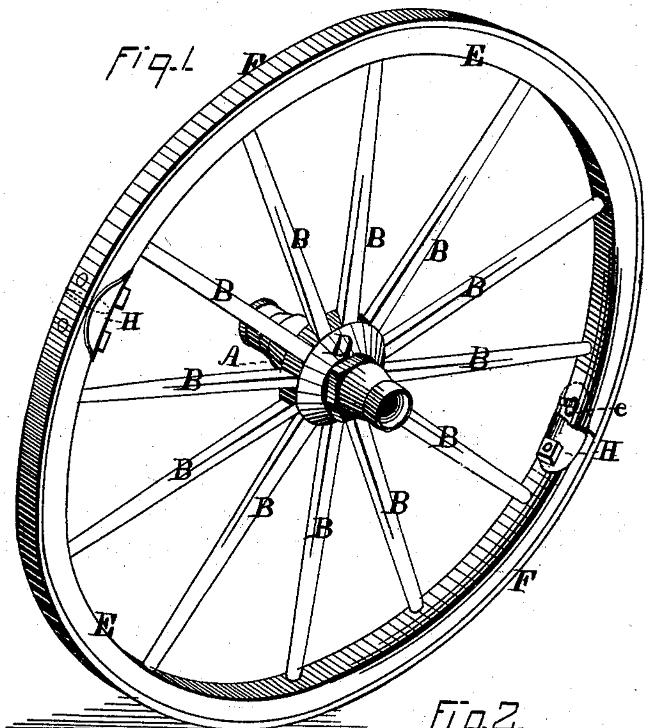


Fig. 2.

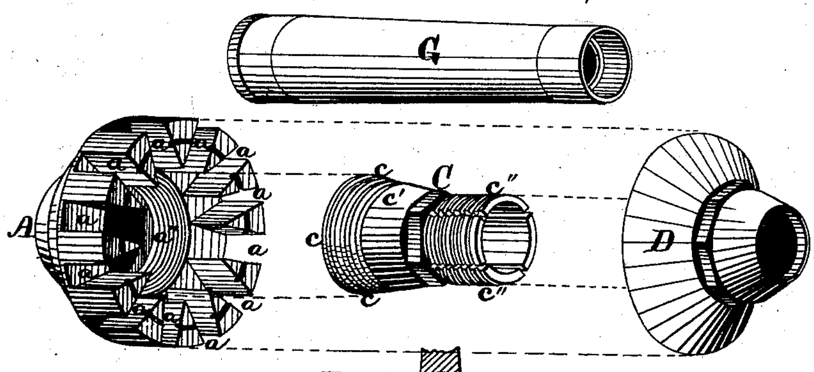
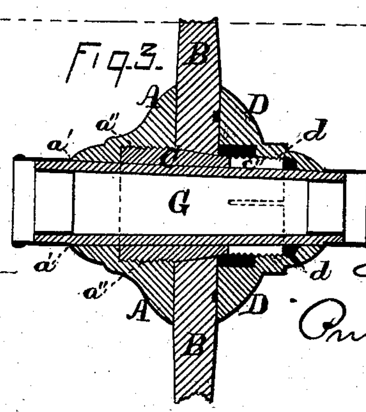


Fig. 3.



WITNESSES:
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UNITED STATES PATENT OFFICE.

FRANCIS H. GREEN, OF EAU CLAIRE, WISCONSIN.

IMPROVEMENT IN WHEELS FOR VEHICLES.

Specification forming part of Letters Patent No. **166,272**, dated August 3, 1875; application filed December 9, 1874.

To all whom it may concern:

Be it known that I, FRANCIS H. GREEN, of Eau Claire, in the county of Eau Claire and in the State of Wisconsin, have invented certain new and useful Improvements in Wagon-Wheels; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings making a part of this specification, in which—

Figure 1 is a perspective view of my improved wheel, looking from the outer side. Fig. 2 is a like view of the parts composing the hub, said parts being separated from each other; and Fig. 3 is a central longitudinal section of said hub as complete.

Letters of like name and kind refer to like parts in each of the figures.

The design of my invention is to increase the strength, efficiency, and ease of adjustment of wagon-wheel hubs composed of wood and metal, and principally in the means employed for confining the wooden thimble within the metal hub, substantially as is hereinafter shown. It consists, further, in the means employed for expanding the wheel, substantially as and for the purpose hereinafter set forth.

In the annexed drawings, A represents a metal collar, having exteriorly the form shown in Figs. 2 and 3, and provided within its inner face with radial recesses *a a*, &c., which correspond to and receive the inner ends of a series of spokes, B B, &c. At its radial center the collar A is provided with a central opening, *a'*, that extends entirely through from side to side, which opening is recessed out at its inner end, and such recess *a''* provided with a screw-thread. Within the recess *a''* is fitted a thimble or sleeve, C, which interiorly corresponds in size to the dimensions of the opening *a'*, and exteriorly at one end is provided with a screw-thread, *c*, that corresponds to and engages with the thread of said recess, and enables said sleeve to be screwed into or from the same. From its threaded end *c* outward the sleeve C decreases regularly in size until beyond the line of the spokes B, and from such tapering portion *c'*, to its outer end has a uniform size, and is provided with a screw-thread, *c''*, over which is fitted a second collar, D, that corresponds in general exterior shape to the form of the collar A, and when in place bears against the inner face of the latter, and against the edges of said spokes. The ends of the spokes B B, &c., conform to the slope *c'* of the sleeve C, and have such length as to bear firmly upon the same when said sleeve is screwed inward to its farthest point, when, by screwing said sleeve outward, said spokes will be moved radially outward, and the fellies E E, &c., caused to bear firmly against the tire F.

In order to tighten the wheel within its tire it is only necessary to remove the outer collar D, and, by means of a wrench applied to a squared portion, *c'''*, of the sleeve C, screw the latter sufficiently outward, after which said collar may be restored to place. The central openings through the collars and sleeve decrease slightly in size from the inner end of the hub outward, and within the same is fitted a correspondingly-shaped wooden thimble, G, which, at its ends, is protected by suitable external and internal metal rings.

In order that when in place the thimble, G may be securely fastened the smallest portion *c''* of the sleeve C is slotted longitudinally, and the recessed threaded portion *d* of the collar D is made somewhat tapering, so that when said collar is screwed to place it shall compress said slotted sleeve end and cause the same to firmly gripe said thimble. The plates H and H, which connect together the ends of fellies E and E, extend outward and embrace the sides of the latter, so as to obviate the necessity for the employment of the usual dowel-pins for holding said felly ends in relative lateral position.

In order to provide for the circumferential expansion of the fellies as the wheel is expanded within the tire, the bolt-openings *e* and *e* through the ends of said fellies are elongated, as shown.

The wheel described is strong, durable, easily and quickly repaired, and can be furnished at no greater expense than those of ordinary construction.

Having thus fully set forth the nature and merits of my invention, what I claim as new is—

1. In combination with the thimble G, the

sleeve C and the collar D, provided with the tapering threaded recess *d*, which fits over and compresses the divided threaded portion *c'* of said sleeve, substantially as and for the purpose shown.

2. In combination with the spokes B B, &c., fitted into the radial recesses *a a*, &c., of the collar A, the sleeve C, provided with the threaded portion *c*, that fits into the threaded recess *a''* of said collar, and having a tapered portion, *c'*, which bears against the inner ends of said spokes, substantially as and for the purpose set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 24th day of November, 1874.

FRANCIS H. GREEN.

Witnesses:

J. A. ELLIS,

ABEL DAVIS.