

W. S. BISHOP.
Hubs for Vehicle-Wheels.

No. 148,168.

Patented March-3, 1874.

FIG. 1.

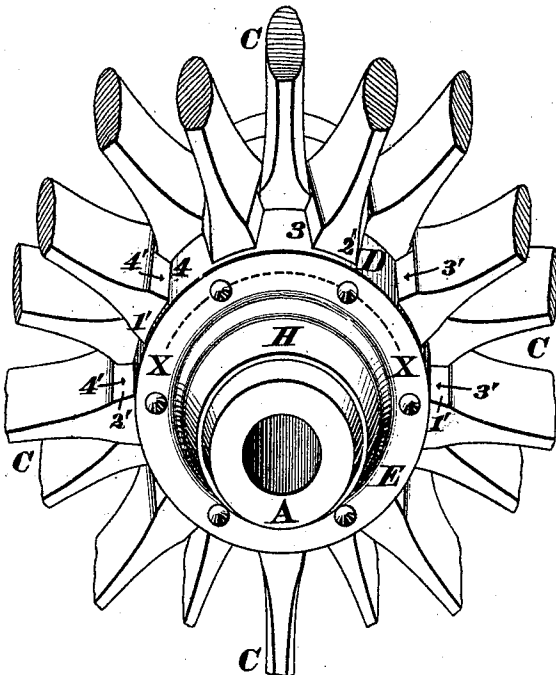


FIG. 3.

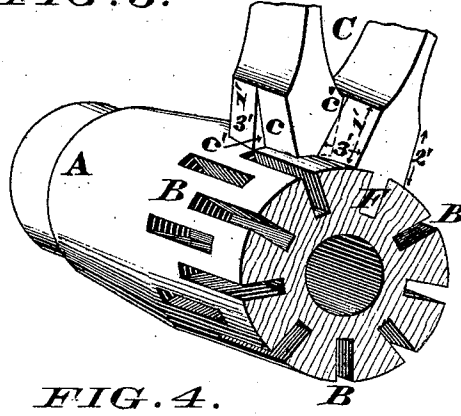


FIG. 4.

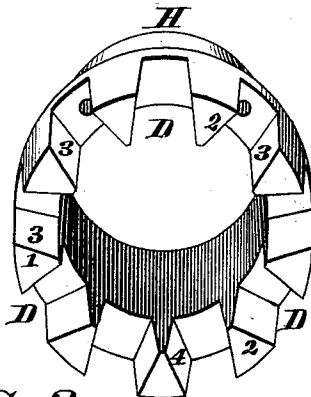
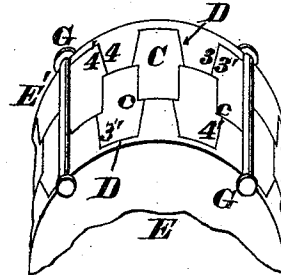


FIG. 2.

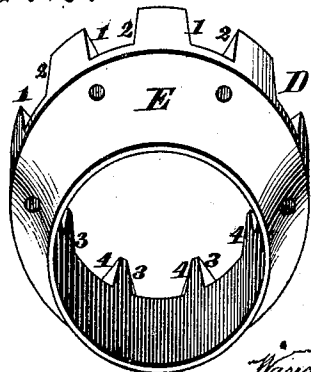


FIG. 5.

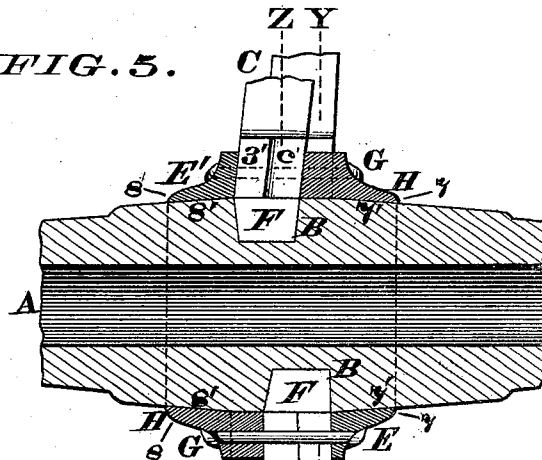
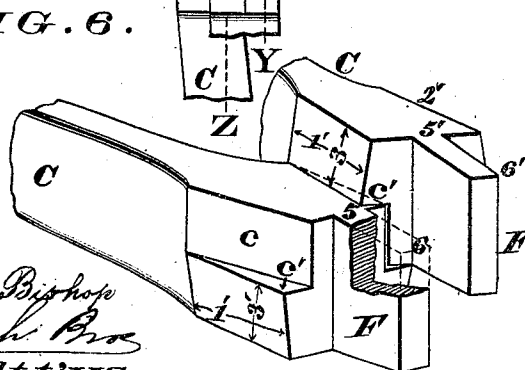


FIG. 6.



Attest.
Geo. H. Layman,
Walter Allen

Wayne S. Bishop
By *Knigh Bros*
Att'ys.

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FIG. 7.

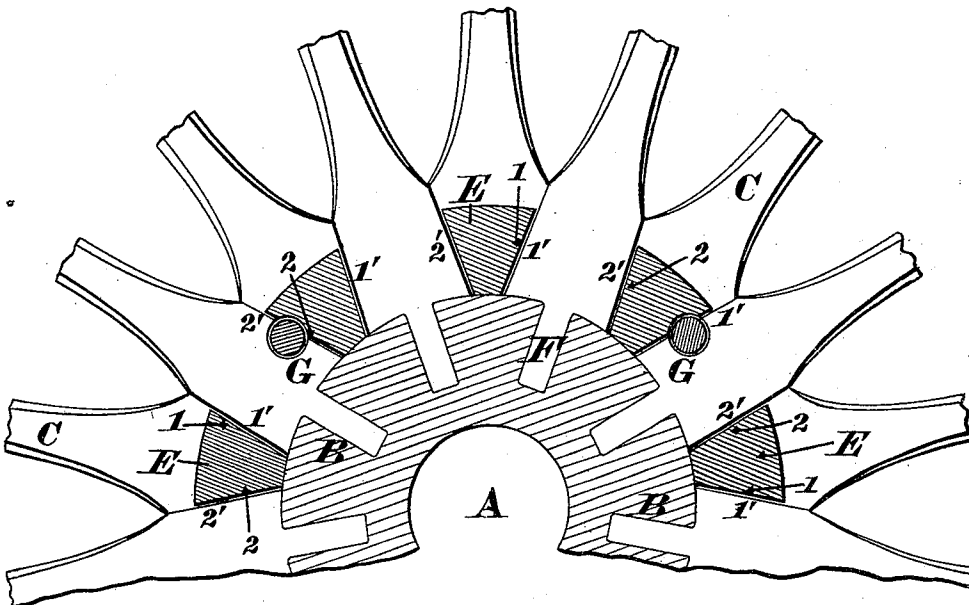
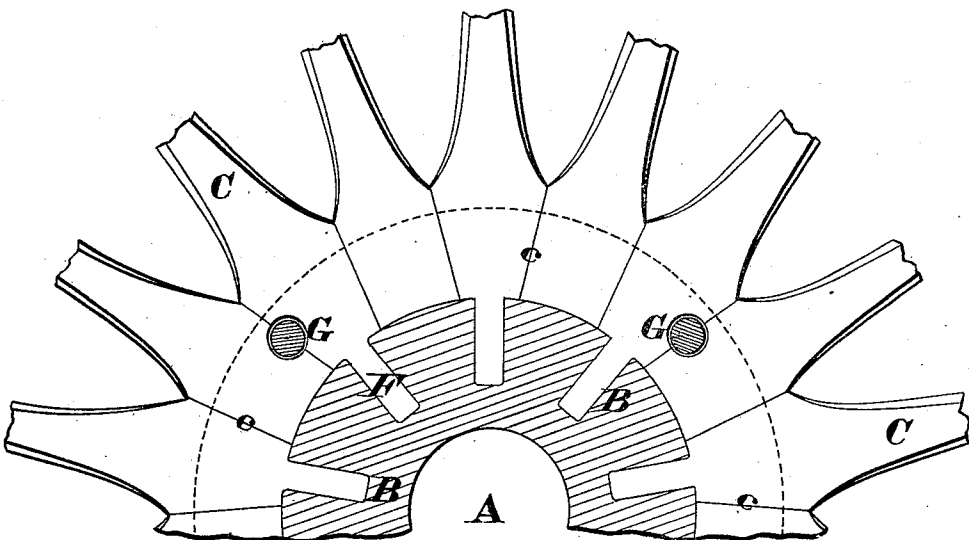


FIG. 8.



Attest.
per H. Layman,
Walter Allen

Wayne S. Bishop
By [Signature]
Att'ys.

UNITED STATES PATENT OFFICE.

WAYNE S. BISHOP, OF OWENSBOROUGH, KENTUCKY.

IMPROVEMENT IN HUBS FOR VEHICLE-WHEELS.

Specification forming part of Letters Patent No. **148,168**, dated March 3, 1874; application filed January 23, 1874.

To all whom it may concern:

Be it known that I, WAYNE S. BISHOP, of Owensborough, Davies county, Kentucky, have invented a new and useful Wheel for Vehicles, of which the following is a specification:

This is an improved form of those wagon and carriage wheels whose hub and spokes are strengthened by a pair of metallic hoops, bands, or collars; and my invention combines several beneficial features never, to my knowledge, united in a single wheel, said features co-operating to subserve the purposes of strength and durability. My improvements relate wholly to those parts of the wheel which include and immediately surround the hub, and comprise a wooden hub proper, whose mortises are "dodged" to any desired amount less than their length, and whose spokes are gained or relished together, so as to interlock, and to entirely occupy the interval between the bands, said bands having flared eyes to fit and bind upon the conical periphery of the hub, and having peculiarly-formed dovetailed and flaring notches, which receive the alternate spokes, and operate to bind the whole firmly and securely together.

Figure 1 is a perspective view, showing the hub and portions of the surrounding spokes of my improved wheel. Fig. 2 is a perspective view of the two notched bands, detached from the central core or wooden member of the hub. Fig. 3 is a perspective view of the wooden core of the hub, showing some of the spokes seated therein, the hub itself being sectioned, and the bands detached therefrom. Fig. 4 is a circumferential section through the bands and their attached spokes at the line X X. Fig. 5 is an axial section through the hub; and Fig. 6 is an enlarged perspective view, showing the tenon-ends of two contiguous spokes. Figs. 7 and 8 are sections at the lines Y Y and Z Z, respectively.

The central portion or hub proper A is of wood, and is pierced with a customary series of "dodged" or "staggered" mortises, B, whose stagger (deviation from a common plane) may be to any amount less than the common length of the mortises from front to rear, or longitudinally of the hub. My spokes C are notched (*c c'*) to enable them to be gained or relished

to one another, as shown in Figs. 4 and 6, and to bear solidly against each other all around the hub, like the voussoirs of an arch; and my said spokes flare, butt-wise, in the plane of rotation, as shown at 1' 2', the spokes of each respective set being also chamfered laterally, (3' 4',) so as to enter and fill the corresponding dovetailed and flaring notches D in the opposing faces of the metallic bands or collars E E'—that is to say, the flare 1' 2' fitting the dovetail surfaces 1 2 of the notches, and the chamfers 3' 4' fitting the flare 3 4 of the same notches. The tenons F of the spokes may be chamfered (5 6 5' 6') on their rear sides for any desired dish. Bolts or rivets G, being passed through suitable holes *e* in the metallic bands E E', operate to bind them firmly to the spokes and hub. The eyes H of the metallic bands flare inwardly, as at 7 8, to bind upon and tightly embrace the correspondingly-conical periphery 7' 8' of the hub, as they are driven thereupon.

My improved composite wheel is constructed as follows: The hub, having been mortised as explained, a set of spokes, prepared as above indicated, are driven so as to interlock, as seen in Fig. 3. The metallic bands are then driven, and operate very effectually to bind all the parts firmly and immovably together. As the bands are driven on, their flaring surfaces 3 4 bind with increasing firmness on the chamfered surfaces 3' 4' of the spokes, and, at the same time, the dovetailed surfaces 1 2 of the said notches, acting on the flaring surfaces 1' 2' of the spokes, drive them forcibly endwise into and against the hub, so that the united shoulders of the spoke-butts tightly embrace the hub over all that portion of its periphery included between the bands, the interval between which the spokes completely fill, as well as forming a continuous arch of interlocking members outside the bands. At the same time, the flare 7 8 of the respective band-eyes enables them to bind tightly upon and to embrace the conical portions 7' 8' of the hub, which are situated in front and rear of the spokes.

It will be perceived that the above mode of construction enables the use of a hub weakened as little as possible by mortises, the same not being cut through into each other, and in

which the shoulders of the spokes cover so much of the hub's periphery, and are so tightly wedged, interlocked, and inclosed, as to impart the greatest possible strength and endurance to both hub and spoke. My arrangement also enables the use of large and stout spokes, which are so wedged and interlocked inside of the metallic bands, and for some distance outside of said bands, where the chief strain is, and so braced against one another by the stagger as to impart the maximum strength possible with given material. It is also manifest that the notches on the metallic bands, being made wider at the hub than at the outer surface of the band, the spokes are so dovetailed in as to hold them immovably in place. At the same time the open form of the mouths of the notches enables them to receive the spokes without fracturing the wood, and to close in powerfully thereon as the bands are driven onto the hub, which makes everything solid within the surface of the band, and secures all the strength possible within the prescribed limits, disclaiming novelty in the provision of metallic bands having alternately

deep and shallow recesses for staggered spokes upon a wooden core or hub proper, such being old and well known.

I claim as new and of my invention—

1. In a composite wheel, two opposing metallic bands, suitably recessed to receive the notched and interlocking spokes C, which form a continuous arch of wood around the hub, and within and outside of said bands, all combined substantially as and for the purpose set forth.

2. In a composite wheel, the dovetailed, notched, chamfered, and staggered spokes C, filling the space between the conical bands E E', the recesses D of which have a compound flare, all combined as and for the purposes designated.

In testimony of which invention I hereunto set my hand.

WAYNE S. BISHOP.

Attest:

GEO. H. KNIGHT,
S. W. LONG,
T. H. GUTHRIE.