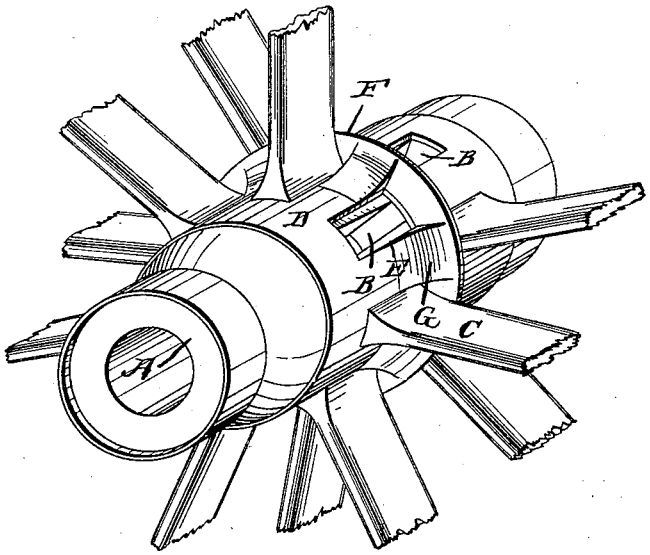
(No Model.)

J. A. SCHULER.

HUB.

No. 386,167. Patented July 17, 1888.

Fig. 1.



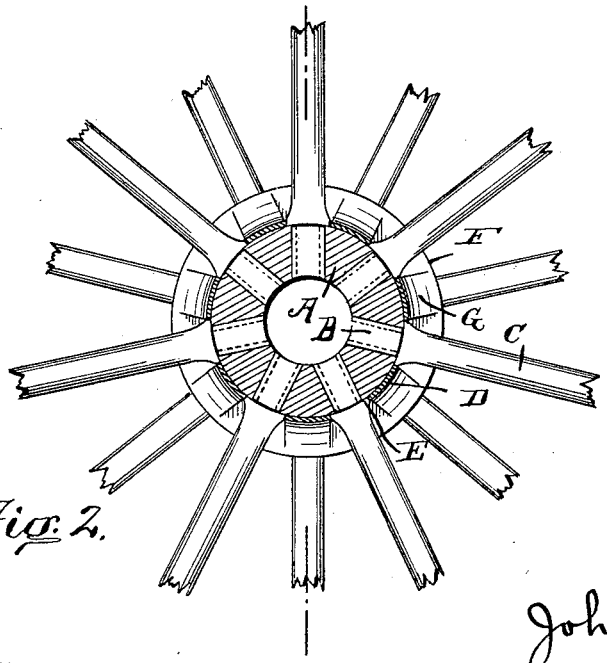
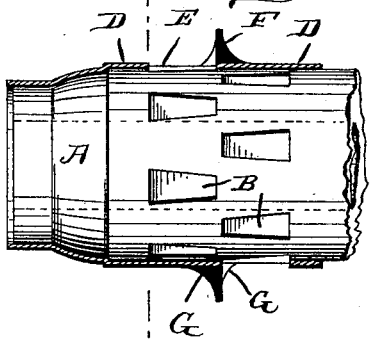


Fig. 2.

Fig. 3.



John A. Schuler.

Inventor.

Witnesses.

Carl Spengel.

W. A. Seward.

By his Attorney James N. See

UNITED STATES PATENT OFFICE.

JOHN A. SCHULER, OF MILLVILLE, OHIO.

HUB.

SPECIFICATION forming part of Letters Patent No. 386,167, dated July 17, 1888.

Application filed February 24, 1888. Serial No. 265,130. (No model.)

To all whom it may concern:

Be it known that I, JOHN A. SCHULER, of Millville, Butler county, Ohio, have invented certain new and useful Improvements in Hubs for Wheels, of which the following is a specification.

This invention relates to improvements in banded hubs for staggered wheels for vehicles, and will be readily understood from the following description, taken in connection with the accompanying drawings, in which—

Figure 1 is a perspective view of a hub embodying my improvements; Fig. 2, a vertical transverse section of the same; and Fig. 3 a side elevation of the same, with the band shown in vertical longitudinal section.

In the drawings, A indicates the wooden hub of the wheel; B, the mortises therein for the reception of the spokes, these mortises being arranged in two circumferential series, side by side, so as to produce a staggered wheel, these mortises being narrow at their inner ends, as clearly shown in Fig. 3—that is to say, the two sets of mortises have their small ends toward each other; C, the spokes, having their tenons fitting these mortises; D, the band encircling and tightly fitting the central portion of the hub, Fig. 3 showing this band as being prolonged at one end the full length of the hub—a feature not essential; E, two series of mortises through the band corresponding in position with the mortises in the hub; F, a flat ring tightly fitting the exterior of the band and disposed between the two series of mortises, and G prongs projecting from the side faces of the ring and reaching between the spokes and bearing tightly against the periphery of the band.

The band D will, by preference, be made of malleable cast-iron, and it should be fitted as tightly as possible upon the wooden hub. The ring F, which may be formed with or without the prongs G, as desired, should be of metal of extraordinary strength—as of wrought iron or steel, or of an extra strong grade of malleable cast-iron—and it should fit as tightly as possible upon the band, and fitting between and sidewise against the spokes, so as to take up all of the strains from the thin band. The prongs, if employed, serve to give special side stiffness to the ring, and at the same time serve to exert inward pressure upon the weak portions of the band between the spokes of the series. The ring may be placed upon the band without any special force, and the band may then be forced upon the hub, thus compressing the hub and expanding the band and causing the band to tightly engage the ring.

Important advantages result from the peculiar shape and relative location of the mortises B. The mortises are of extra width at their outer ends, thus giving an extraordinary strength and width of bearing for the spoke-tenons. At the inner ends of the mortises they are narrower, thus adding to the strength of the hub in a diagonal line between the corners of diagonally-contiguous mortises. This narrowing of the mortises and consequent narrowing of the tenons detracts, of course, from the bearing-surfaces of the tenons at their inner points; but at these points this lack of surface is compensated for by the side bearing of the spokes against the faces of the ring.

It is to be distinctly understood that my present invention does not comprehend and cannot be exemplified by any manner of hub-band provided with a mere re-enforcing ring formed integrally therewith — such, for instance, as is illustrated in Patent No. 342,641, granted to me in 1886, and Patent No. 65,385, granted to Hoxie in 1867. My present invention constitutes distinct improvements upon these older constructions and overcomes serious objections inherent in them. Mere strength in a hub-band, whether such strength be secured by means of a heavy band or by means of a light band re enforced by an integrally-formed encircling-ring, will not at all insure the quality that is most wanted—namely, a tight and proper fit of the band upon the wooden hub—and in the employment of malleable cast-iron, and in fact any cast material, for such hub-bands the matter of differential shrinkage enters seriously against the proper disposition of strength in a band and against the true conformation of the band.

I claim as my invention—

1. A hub for wheels, consisting of a wooden hub, A, provided with two circumferential series of spoke-receiving mortises, B, metallic band D, compressively encircling said wooden hub and provided with mortises correspond-

ing with the mortises in said hub, and flat metallic ring F, separable from said wooden hub and metallic band and compressively encircling said band between said two series of mortises, said band being clamped between the outer circumferential surfaces of said wooden hub and between the circumferential surfaces of said ring, combined substantially as and for the purpose set forth.

2. A hub for wheels, consisting of the wooden hub A, provided with two circumferential series of spoke-receiving mortises, metallic band D, compressively encircling said wooden hub and provided with mortises corresponding with the mortises in said hub, and flat metallic ring F, compressively encircling said band between said two series of mortises and provided with prongs G, reaching outwardly from its face in opposite directions between the spokes, said band being clamped between the circumferential outer surfaces of said wooden hub and the circumferential inner surfaces of said ring and prongs, combined substantially as and for the purpose set forth.

3. A hub for wheels, consisting of the wooden hub A, provided with two circumferential series of spoke-receiving mortises, flat metallic ring F, encircling said hub and acting compressively thereon, and provided with prongs G upon its opposite faces, reaching outwardly between said mortises and exerting compressive force inwardly upon said hub between said mortises, combined substantially as and for the purpose set forth.

JOHN A. SCHULER.

Witnesses:
J. W. SEE,
W. A. SEWARD.