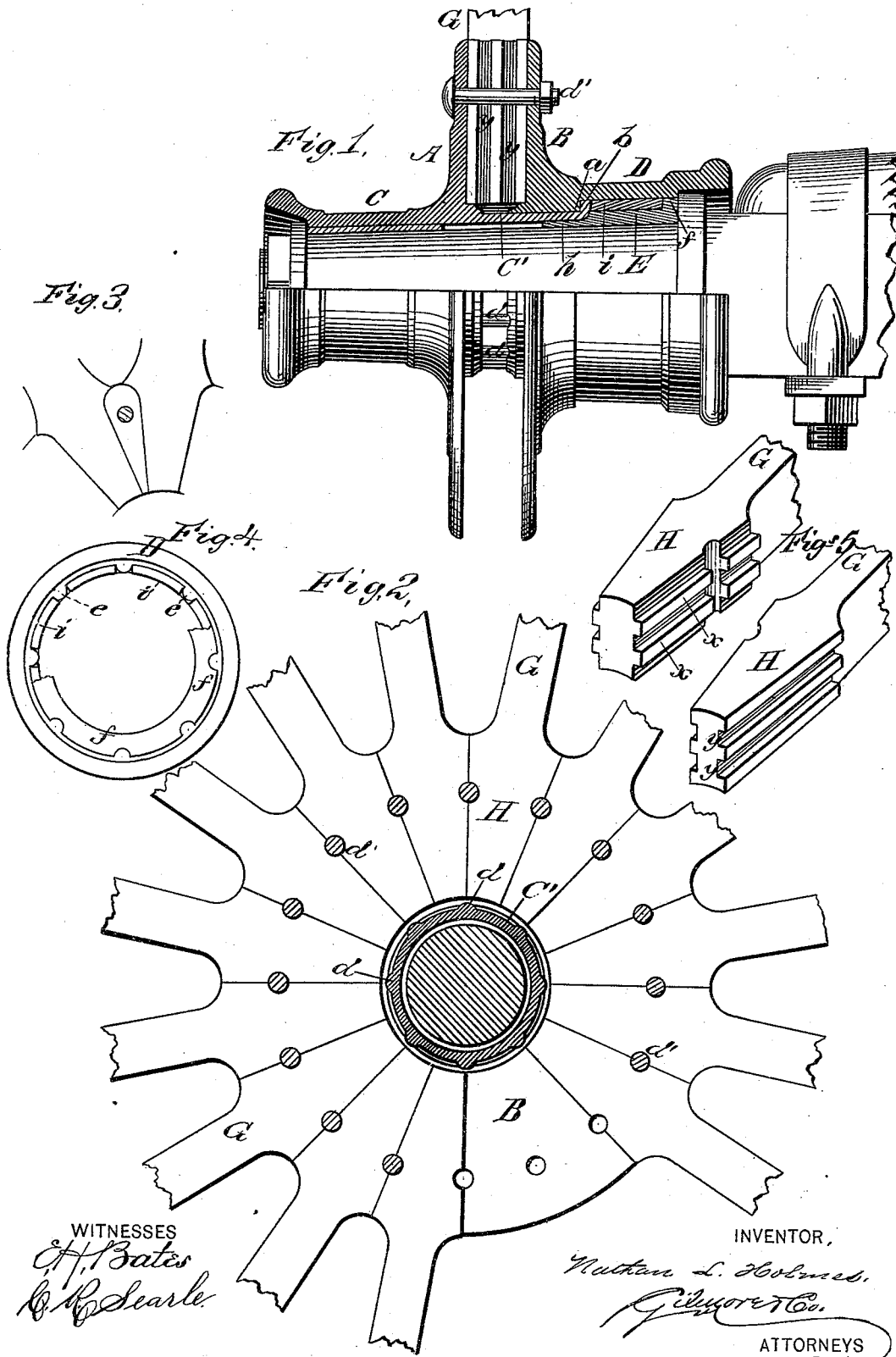


N. L. HOLMES.
VEHICLE-HUBS.

No. 181,441.

Patented Aug. 22, 1876.



WITNESSES
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UNITED STATES PATENT OFFICE.

NATHAN L. HOLMES, OF RACINE, WISCONSIN.

IMPROVEMENT IN VEHICLE-HUBS.

Specification forming part of Letters Patent No. 181,441, dated August 22, 1876; application filed January 29, 1876.

To all whom it may concern:

Be it known that I, NATHAN L. HOLMES, of Racine, in the county of Racine and State of Wisconsin, have invented a new and valuable Improvement in Wagon-Hubs; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a longitudinal vertical section of my hub, and Fig. 2 is a transverse vertical sectional view of the same. Figs. 3, 4, and 5 are detail views thereof.

The nature of my invention consists in the construction and arrangement of a hub for wheels for vehicles, as will be hereinafter more fully set forth.

In the annexed drawings, A and B represent, respectively, the front and back flanges of the hub, between which the tenons of the spokes are inserted, said flanges provided or formed, respectively, with the central boxes C and D. The front box C is formed with a connecting portion, C', sufficiently long to allow the flanges to stand far enough apart to receive the tenons of the spokes. This extension C' passes through the central portion of the back flange B and into its box D far enough to admit of its being clinched or beaded over a shoulder, *a*, therein, the same as a boiler-flue, as shown at *b*, thereby preventing the central portion of the hub from spreading, and also preventing the lower ends of the spoke-tenons from working or getting loose. The outer edges of the flanges are prevented from spreading by means of rivets or bolts *d'* that pass through flanges and between the spokes.

This central or connecting portion C' is provided with small ribs *d* on the outer side, which ribs pass through corresponding grooves in the central part of the back flange. The object of these ribs is to prevent the parts from turning back or forward when clinching or riveting, and to add to the strength of the center of the hub.

The inner side of the back end of the hub—or, in other words, of the box D—has small ribs *e* running lengthwise the hub, and in this end of the hub is inserted a sleeve, E, which has an outwardly-projecting circumferential flange, *f*, at its rear end, with notches or

grooves in said flange to correspond with the ribs *e*, to prevent said ring from turning in the hub. The inner or front end of the ring or sleeve E is turned down, as shown at *h*, small enough to allow it to pass into the connecting portion C' of the hub sufficiently far to hold it firmly in the same.

The ring or sleeve E is held firmly in its proper place by placing strips *i*, of wood or other suitable material, in the inner side of the hub, and then driving or pressing the sleeve in its proper place. The object of this ring or sleeve is to form a box that can be easily removed, when worn out, and replaced with another.

When it is necessary to use the box that is already fitted to the axle, I remove the ring and drive in a block of wood, and bore it out to fit the box; and the same in the front as in the back end.

G G are the spokes, having tenons H formed on their inner ends. The sides of these tenons are formed with interlocking-tongues *x* and grooves *y*, to prevent them from working or getting loose in the hub. When properly fitted, they are strong as a solid block of wood.

In large wheels the spaces between the spoke-tenons are filled with wooden blocks, united to the spoke-tenons by tongues and grooves in the same manner, and firmly held in their places by bolts or rivets passing through them, instead of between the spokes.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination of the flange B, having hub or box D, with interior shoulder *a*, and the flange A, with box C, having extension C', fitting in box D and clinched or beaded over the shoulder *a*, for the purpose herein set forth.

2. The longitudinal ribs *d* on the exterior of the hub-extension C', in combination with the flange B, having grooves in its hub, for the purpose herein set forth.

3. The combination of the hub D with interior ribs *e*, the sleeve E with notched flange *f* and turned-down part *h*, the hub-extension C', and packing *i*, all as and for the purpose set forth.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

Witnesses: NATHAN L. HOLMES.
E. A. ELDERKIN,
A. HOLMES.