T. BROWN.
Vehicle-Wheel.

No. 209,856. Patented Nov. 12, 1878.

Fig. 1.

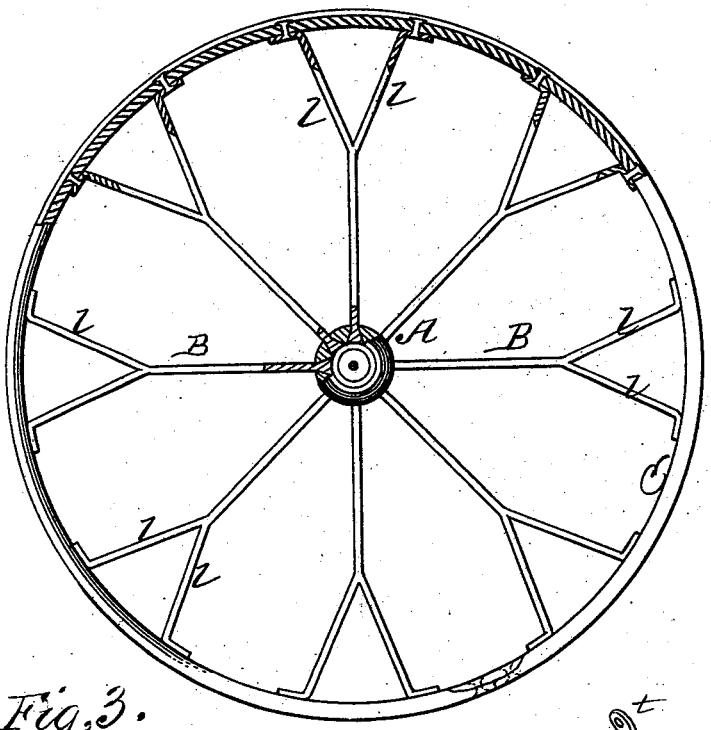


Fig. 2.

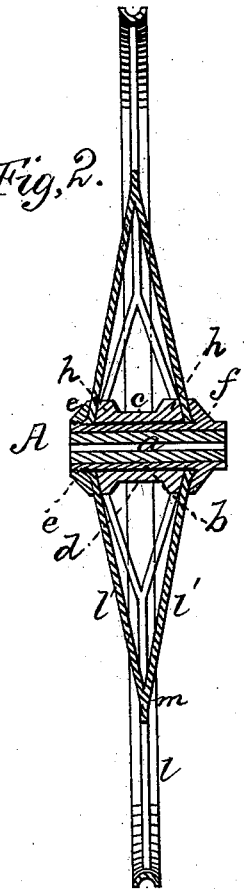
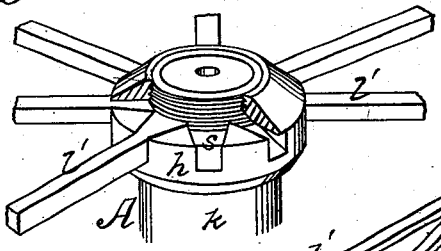


Fig. 3.



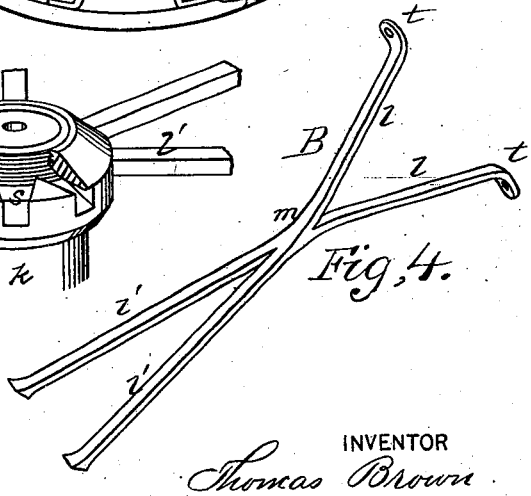


Fig. 4.

WITNESSES
Villette Anderson.
F. J. Masi.

INVENTOR
Thomas Brown
by E. W. Anderson,
ATTORNEY

UNITED STATES PATENT OFFICE.

THOMAS BROWN, OF FOREST LAKE, ASSIGNOR OF ONE-HALF HIS RIGHT TO M. B. WRIGHT, OF SUSQUEHANNA DEPOT, PENNSYLVANIA.

IMPROVEMENT IN VEHICLE-WHEELS.

Specification forming part of Letters Patent No. **209,856,** dated November 12, 1878; application filed October 26, 1878.

To all whom it may concern:

Be it known that I, THOMAS BROWN, of Forest Lake, in the county of Susquehanna and State of Pennsylvania, have invented a new and valuable Improvement in Metallic Wheels; 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 side view, part in section, of my improved wheel. Fig. 2 is a transverse section of the same, and Figs. 3 and 4 are perspective details.

This invention has relation to metallic road-wheels for carriages and other vehicles; and it consists in the construction and novel arrangement of the double-forked metallic spokes, and the felly or rim and hub connected thereby, as hereinafter more fully shown and described.

In the accompanying drawings, the letter A designates the hub, which consists of an inner core, *a*, of wood, and the outer metallic shell, *b*. This shell usually consists of three parts, the flanged body-tube *c*, the bracing-sleeve *d*, and the flange-nut *e*. The metallic hub-case or body-tube *c* is made with a flange, *f*, at one end, and is threaded at its other end upon its exterior surface to receive the flange-nut *e*. Between the flange and flange-nut is placed, upon the tube, the bracing-sleeve *d*, which is provided with a flange, *h*, at each end flush with its end openings. The sleeve-flanges *h* are separated from each other by the smooth portion *k* of the sleeve for a distance equal nearly to the length of the hub.

In the inside faces of the sleeve-flanges are radial marginal notches or sockets *s*, of dovetail form, into which the ends of the spokes are fitted.

The spokes B are of metal, and are double-forked, branching from a short thick portion, *m*, near the middle, forward and backward to the rim or felly C, as shown at *l*, and laterally to the hub, as indicated at *l'*, the outer fork being usually at a greater angle than the inner or hub fork, in order that the bearing ends *t* of the branches may be equidistant, or nearly so, all around the rim.

The ends of the branches *l'* of the inner fork are dovetailed or flanged to fit the sockets of the sleeve-flanges *h*, and are secured by the abutment of the tube-flange *f* at one end and the flange-nut *e* at the other end against the respective sleeve-flanges, the flange-nut *e* being screwed home on the threaded end of the tube *c*. The outer fork of the spoke is fastened to the rim or felly pieces by flanging the ends of the branches to secure firm bearings, and passing through the end flanges suitable rivets or bolts.

Sometimes it is preferred to weld the spoke ends to the rim, and occasionally it may be found desirable to make both of the flanges on the tube *c* movable, or both fixed. Any ordinary axle-box may be inserted in the wooden core of the hub. This wooden portion serves as an elastic cushion to the wheel, which is very solid in its construction, on account of the double bracing of the forked metallic spokes designed to resist direct as well as lateral strain.

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

A metallic wheel having a metal-cased hub, A, the metallic rim or felly C, and the double-forked spokes B, whereof the branches *l* spread directly outward to the rim, and the branches *l'* spread laterally inward to each end of the hub-case, substantially as specified.

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

THOMAS BROWN.

Witnesses:
S. M. BROWN,
C. F. WRIGHT.