S. VREELAND.
Wheels for Vehicles.

No. 136,567. Patented March 4, 1873.

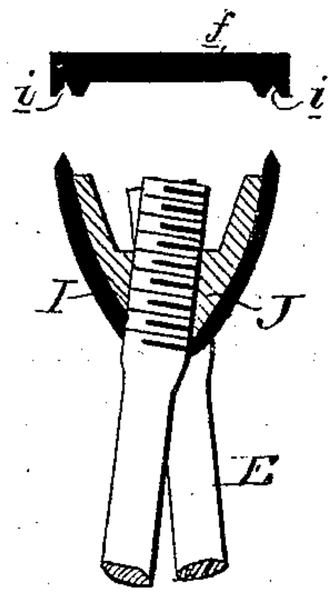

FIG.3.

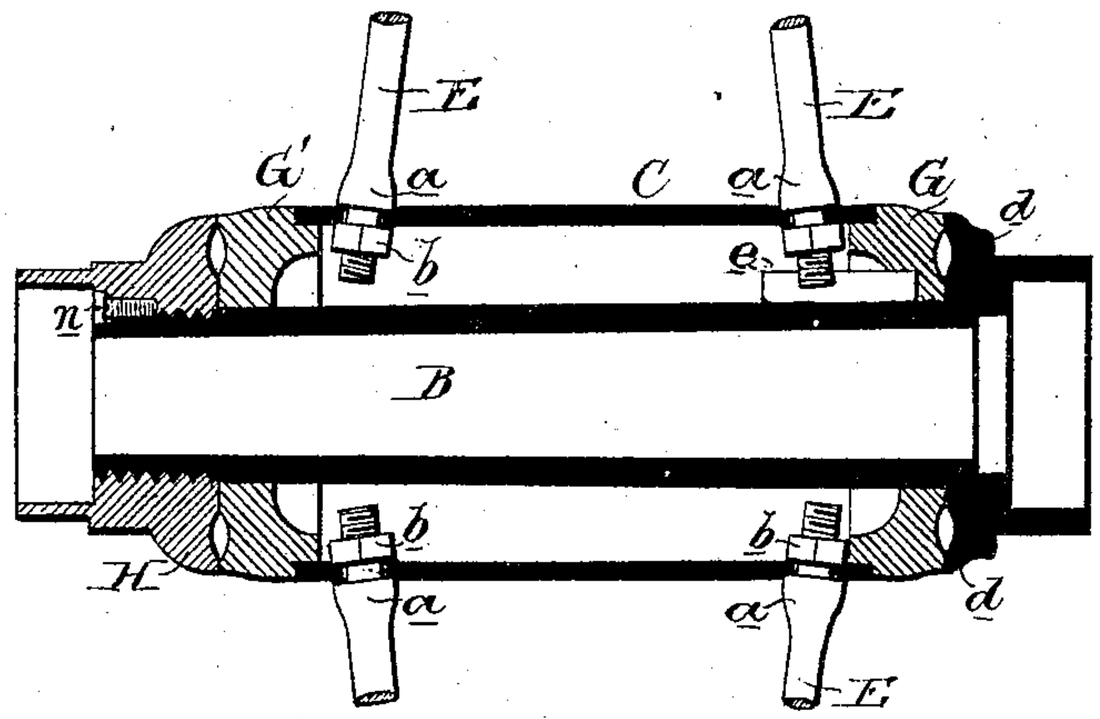

FIG.1.

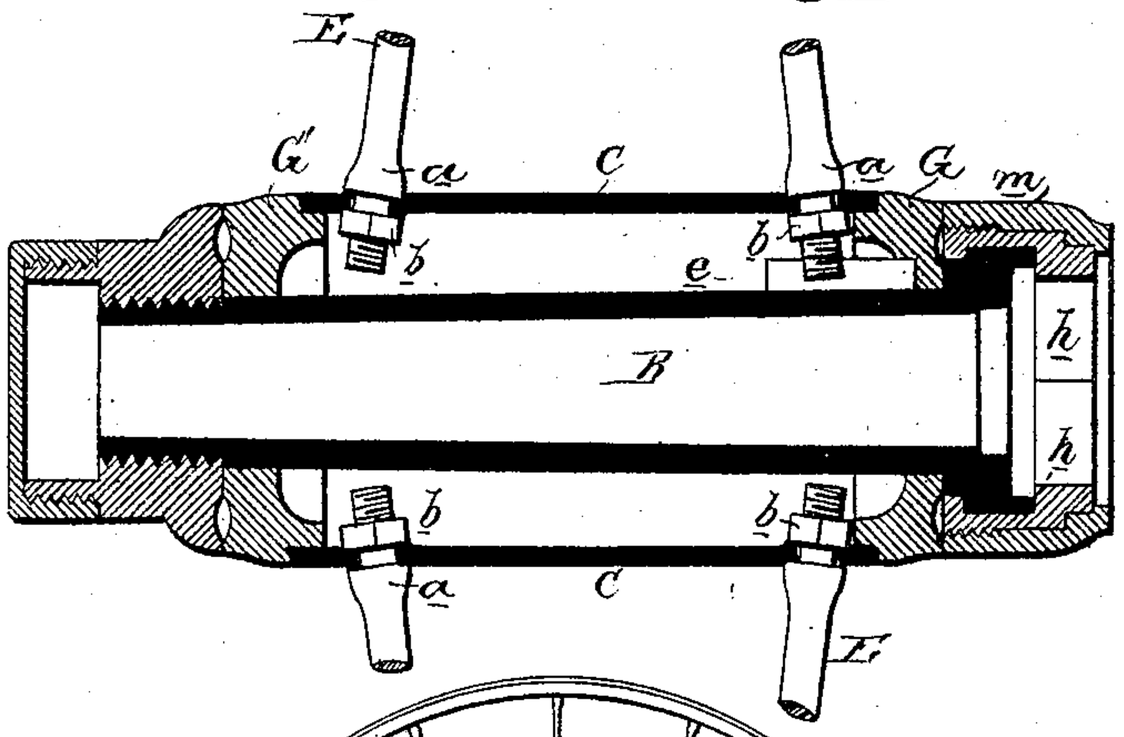

FIG.2.

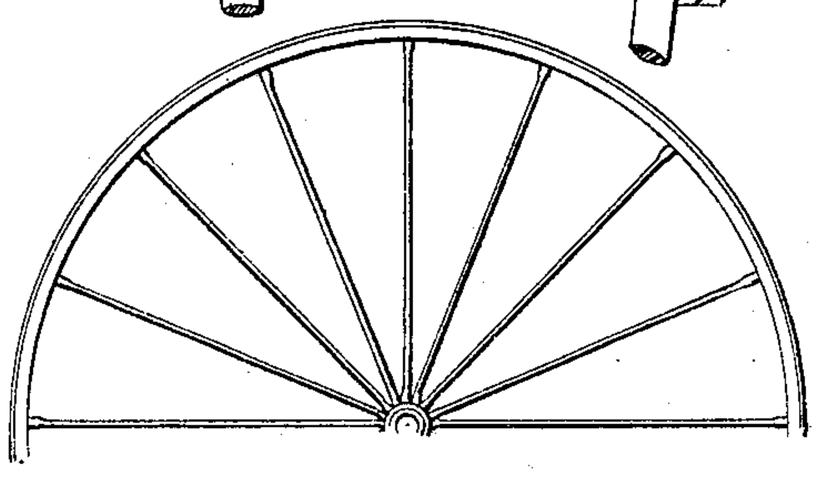

FIG.4.

WITNESSES Thomas. M. Rogers
Harry Smith

Simon Vreeland
by his Attys.
Howson and Son

UNITED STATES PATENT OFFICE.

SIMON VREELAND, OF POTTSTOWN, PENNSYLVANIA, ASSIGNOR TO METALLIC SUSPENSION-WHEEL COMPANY, OF SAME PLACE.

IMPROVEMENT IN WHEELS FOR VEHICLES.

Specification forming part of Letters Patent No. **136,567**, dated March 4, 1873.

To all whom it may concern:

Be it known that I, SIMON VREELAND, of Pottstown, county of Montgomery, Pennsylvania, have invented certain Improvements in Wheels for Vehicles, of which the following is a specification:

My invention relates to an improvement in the carriage-wheel for which Letters Patent No. 92,915 were granted to me on the 20th day of July, 1869; and the object of my present improvement is to simplify the construction of the hub of the wheel, and render it more substantial, and easier to take apart and put together, than the hub described in my said patent.

Spokes E, of wrought iron or steel, are attached to a hollow cylinder, C, which is made of like material, and which forms a part of the hub, as shown in the sectional Figure 1 of the accompanying drawing; but the spokes, instead of simply passing through the holes in the cylinder, and having heads within the same, as in my said patent, are bolted to the cylinder, as shown in the drawing, each spoke being enlarged at *a*, so as to form a shoulder, and being threaded at the end to receive a nut, *b*, the latter bearing against a flattened portion of the interior of the cylinder. B represents the box for receiving the axle; and between a collar, *d*, on the box and one end of the cylinder C intervenes a disk or washer, G, which may be of cast-iron, and which is recessed to receive the end of the said cylinder. A similar disk or washer, G′, is adapted to the opposite end of the cylinder, and confined thereto by a nut, H, adapted to the threaded end of the box B. I have found that a much more satisfactory result as regards the strength and durability of the hub, is attained by the introduction of the washers G G′ in the manner described than by forcing one end of the cylinder directly against a fixed collar on the axle by a nut bearing directly against the opposite end of the cylinder, as in my aforesaid patent. In order to prevent the cylinder from turning on the box under any circumstances, I cast on said box a feather, or projection *e*, adapted to a slot in the washer G, so that the turning of the latter on the box is out of the question, while a spoke catching against the feather prevents the cylinder from turning independently of the washer. The hub in Fig. 1 is retained on the axle by a nut adapted to the outer end of the same, and contained within the recessed portion of the nut H; but the hub, Fig. 2, is retained on the axle by a ring, *h*, made in two parts, a portion of the ring overlapping the collar-band of the axle, and another portion overlapping the inner end of the box, to which the severed ring is confined by a screw-ring, *m*, in a manner too readily understood by reference to the drawing to need description.

The felly I may be made in one piece or in segments, and is composed of sheet or bar steel or iron, bent to the sectional form shown in Fig. 3, or to an approximate form; and the rim or tire of the wheel consists of a steel bar, *f*, shrunk onto the felly, and having grooves *i i*, adapted to the edges of the bent plate or plates, which form the said felly.

I lay no claim to this plan of constructing the felly, and of combining it with the tire, as it is fully described and claimed in the Letters Patent No. 64,974 granted to Arthur Prentiss May 14, 1867.

The outer end of each spoke is enlarged, and on the enlarged end is cut a screw-thread, adapted to a similar thread in a nut, J, which is made to conform to the interior shape of the felly.

In putting the wheel together the outer ends of the spokes are first passed through the felly and screwed into the nuts J, after which the inner ends are inserted into the holes in the cylinder C of the hub, and then secured by nuts *b*—not too tightly, however, to prevent the spokes from being turned round—until the concentricity of the cylinder with the felly is insured, and the proper degree of tension is imparted to the spokes, when the nuts may be permanently tightened, after which the cylinder may be connected to the box in the manner described. After the nut H has been screwed tight, it may be retained by a set-screw, *n*, screwed partly into the nut and partly into the box.

It will be observed that the washers G G′, when applied to their places in the hub, prevent the nuts *b* from becoming loosened by the vibrations to which the spokes are subjected.

The enlargement of the outer threaded ends of the spokes is an important feature, inasmuch as it has been found to be the best mode of neutralizing the effect of the vibration of the spokes, this vibration, but for the enlargement, having a tendency to loosen the hold which the nuts J have on the spokes, the enlargement having a tendency to arrest the vibration before it reaches the threaded portion which enters the nut. This feature, however, is illustrated in my former patent of July 30, 1869.

I claim as my invention—

1. The combination of the inner ends of the spokes with the hollow cylinder C, which is rigidly connected to the spokes by and between permanent collars and nuts on the spokes as set forth.

2. The combination of the washers, G G′, box, B, and nut H.

3. The combination of the severed ring *h* adapted to the axle, the box B, and screw-ring *m*.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

SIMON VREELAND.

Witnesses:
WM. A. STEEL,
HARRY SMITH.