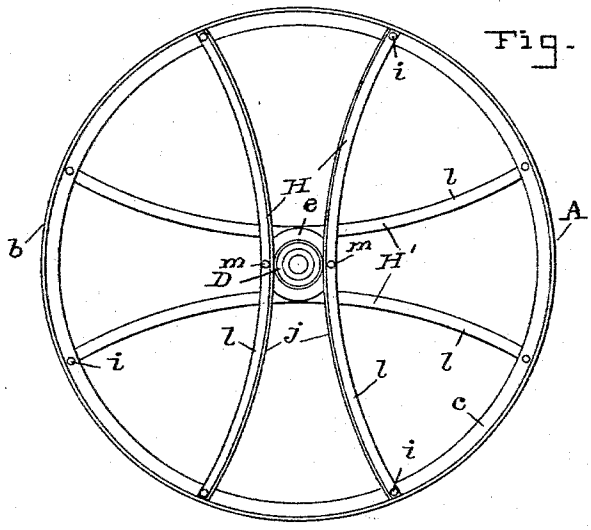
(No Model.)

# C. E. GUIDER.

## WHEEL.

No. 589,652. Patented Sept. 7, 1897.

Fig. 1.



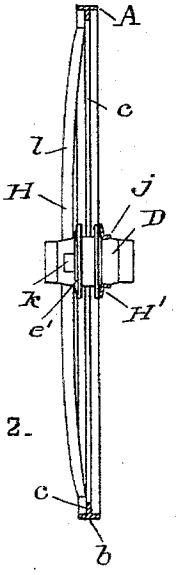
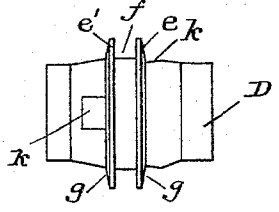




Fig. 2.

Fig. 3.



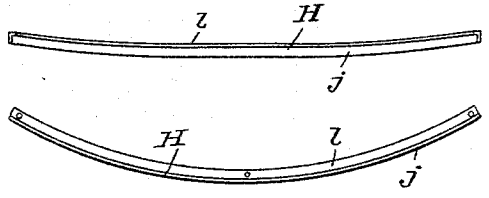




Fig. 4.

WITNESSES :-

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# UNITED STATES PATENT OFFICE.

CHARLES E. GUIDER, OF BALTIMORE, MARYLAND.

## WHEEL.

SPECIFICATION forming part of Letters Patent No. 589,652, dated September 7, 1897.

Application filed July 22, 1896. Renewed August 2, 1897. Serial No. 646,831. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES E. GUIDER, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Wheels, of which the following is a specification.

This invention relates to an improved wheel for use on vehicles.

The object of the invention is to provide an all-metal wheel of such construction as will permit of the rim, spokes, and hub being readily separated from each other and readily put together again without requiring the use of other tools than a wrench.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a side view of the wheel. Fig. 2 is a diametrical section of same. Fig. 3 is a view of the hub. Fig. 4 is a view of one of the "spoke-bars."

The entire wheel may be made of steel. The rim A may be a T-shaped angle in cross-section and comprises a tread and a flange. The tread *b* is flat, and an annular inward-projecting flange *c* is all around the inner side of said tread. The hub D has two collars *e e'* either cast on it or shrunk tightly around it. A central space *f* is between the two collars. On the outer side each collar is slightly beveled, as at *g*. The hub may have a removable box to fit on the axle-arm in the manner of ordinary wheel-hubs.

The spoke-bars H H' have a uniform curve from end to end and in cross-section are angle-shaped. Each spoke-bar has three bolt-holes—one at each end and one in the middle. Each spoke-bar extends from one side of the wheel-rim to and past the hub to the opposite side of said rim. Thus one bar forms the equivalent of two spokes. A bolt *i* secures each end of the spoke-bar to the inward-projecting flange *c* on the rim or to lugs on the rim instead of said flange, and the outward-curved flange *j* of said spoke-bar is in contact with a slightly-flattened seat *k*, formed on the cylindric surface of the hub, close to the collar. The other flange *l* of the said spoke-bar is in close contact with the slightly-beveled side *g* of the collar, and a bolt *m* through the middle hole secures said flange to the collar. Four spoke-bars are employed. Two of them, H, or one pair extend across the wheel in the same general direction—one each side of the hub—and these are both bolted to one collar, *e*, and the other two, H', extend across the wheel in a direction as nearly as possible at right angles with respect to the other pair and one each side of the hub, and these are both bolted to the other collar, *e'*. It will be seen that the spoke-bars are in pairs, H H'. The ends of one pair are bolted to the flange *c* at one side, and the ends of the other pair are also bolted to the flange, but at the opposite side, and the two bars comprising each pair have their outward-curved flanges *j* abutting against opposite sides of the hub, the two bars thus forming reverse arches which strengthen the wheel.

As the arch or middle of each spoke-bar abuts or is seated closely against a flattened seat *k* on the hub it will be seen the strain of the load does not come wholly on the middle bolt *m*, but said bolt largely serves to keep the parts in proper relative position.

While two collars are shown on the hub, one collar only may be used and all the spoke-bars bolted to the same collar.

In case repairs are necessary any spoke-bar can easily be detached by simply removing the bolts *i m*.

This wheel is strong and elastic and can be produced at little cost.

Having thus described my invention, what I claim is—

An all-metal wheel having in combination a hub provided with a collar whose outer side is beveled as at *g*, said hub having on its cylindric surface a flattened seat, *k*, close to said collar; a rim having a flange or lugs projecting inwardly from the tread part; and curved spoke-bars which in cross-section have angle-shaped flanges, extending from one side of the wheel-rim to the other side, said spoke-bars forming arches one flange, *j*, of which abuts against the said flattened seats of the hub while the other flange is secured to the said beveled hub-collar by bolts—each end of the said spoke-bars being secured by a bolt to the said flange or lugs on the rim.

In testimony whereof I affix my signature in the presence of two witnesses.

CHARLES E. GUIDER.

Witnesses:

CHARLES B. MANN, Jr.,

LEE I. VAN HORN.