No. 810,649. PATENTED JAN. 23, 1906.

C. HEART.

WHEEL.

APPLICATION FILED MAY 25, 1905.

Fig. 1.

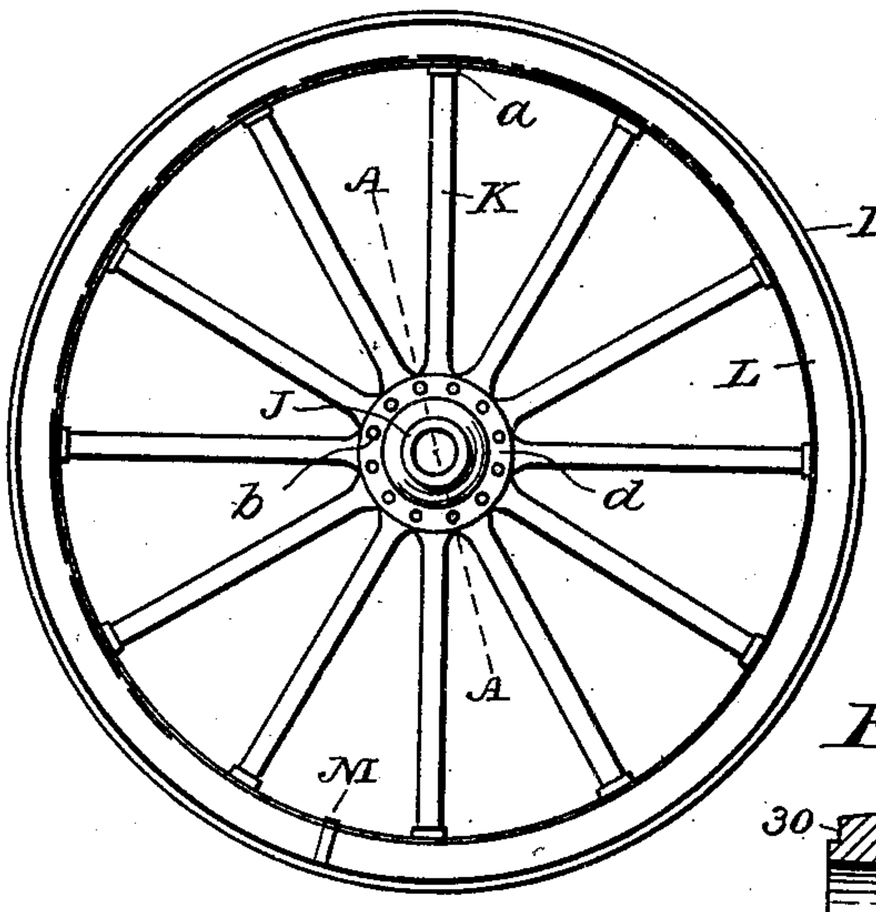


Fig. 2.

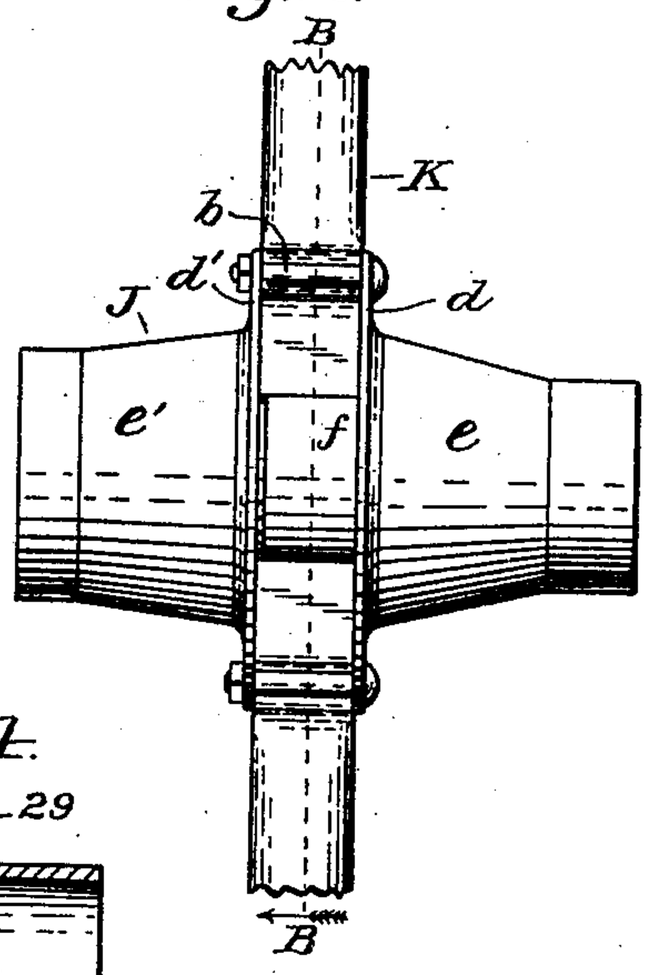


Fig. 4.

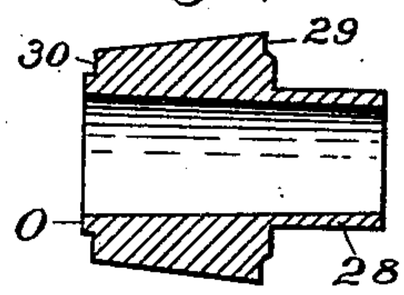


Fig. 3.

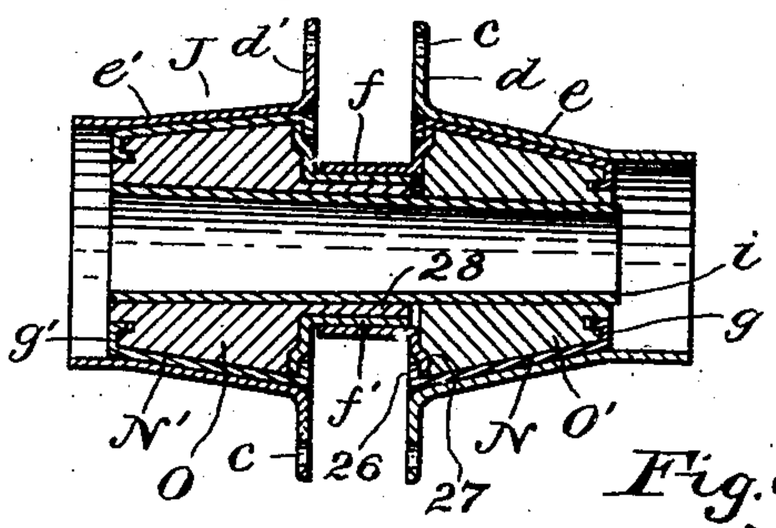
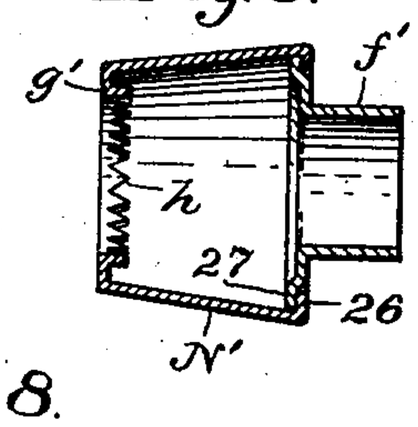


Fig. 5.



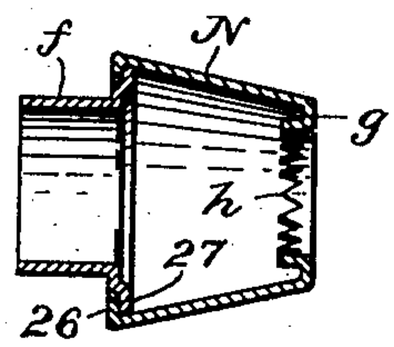


Fig. 6.

Fig. 8.

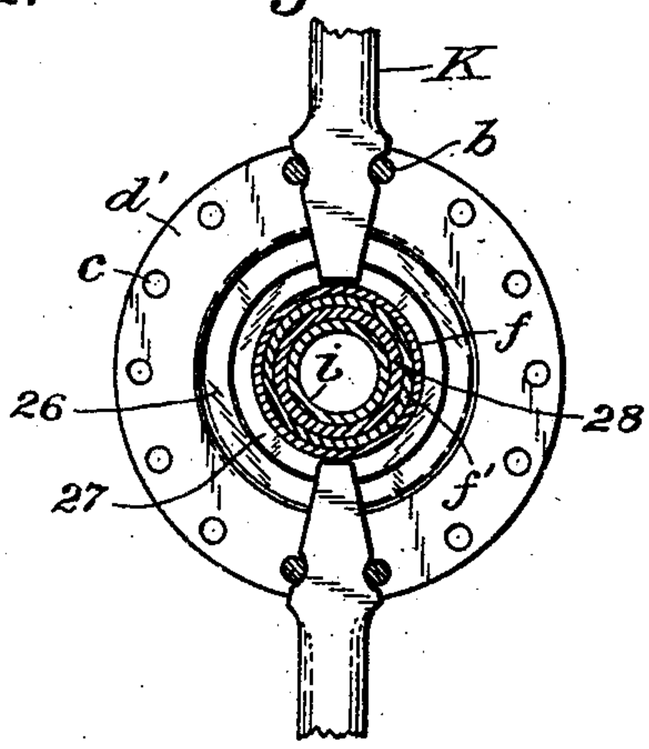


Fig. 7.

Fig. 9.

Witnesses:

Dow W. Vorhies.

Stella Snider.

Inventor:

Charles Heart,

by E. T. Silvius,

Attorney.

UNITED STATES PATENT OFFICE.

CHARLES HEART, OF ALEXANDRIA, INDIANA, ASSIGNOR TO HEART METAL WHEEL AND GEAR COMPANY, OF ALEXANDRIA, INDIANA, A CORPORATION OF INDIANA.

WHEEL.

No. 810,649. Specification of Letters Patent. Patented Jan. 23, 1906.

Application filed May 25, 1905. Serial No. 262,114.

To all whom it may concern:

Be it known that I, CHARLES HEART, a citizen of the United States, residing at Alexandria, in the county of Madison and State of Indiana, have invented new and useful Improvements in Wheels; and I do declare the following to be a full, clear, and exact description of the invention, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to metallic vehicle-wheels that are composed of various separately-formed parts, most of which are formed of sheet metal, the invention having particular reference to improvements in the hubs of the wheels.

The objects of the invention are to provide an improved wheel-hub that may combine the maximum strength with the minimum weight and which will be durable and economical in use.

With the above-mentioned and other objects in view the invention consists in certain novel features of construction in wheel-hubs, adapting them to be formed of sheet-metal material so as to be light and durable; and the invention consists, further, in the parts and combinations and arrangements of parts, as hereinafter particularly described and claimed.

Referring to the drawings, Figure 1 is a front elevation of a vehicle-wheel containing the improvements; Fig. 2, a side elevation of the wheel-hub in which are fragments of two spokes; Fig. 3, a longitudinal sectional view of the hub approximately on the line A A in Fig. 1; Fig. 4, a longitudinal sectional view of the part of the body of the hub corresponding to a part shown in Fig. 3; Figs. 5 and 6, longitudinal sectional views of parts forming the shell of the hub corresponding to parts shown in Fig. 3; Fig. 7, an end of a detached part of the shell part shown in Figs. 5 or 6; Fig. 8, a transverse sectional view of the hub on the line B B in Fig. 2 with the spokes in elevation; Fig. 9, an end view of an incomplete shell part of the hub.

Similar reference characters in the several figures of the drawings designate corresponding elements or features.

In the drawings, J designates the hub; K, the spokes; and L the felly or rim of the wheel; L′, the wheel-tire, which may be of any suitable type adapted to fit the felly, and M a joint-piece for the felly. The outer ends of the spokes extend into sockets *a* of thimbles that are attached thereto and are inclosed in the felly. The inner ends of the spokes are held in the hub partly by means of bolts *b*, extending through holes *c* in flanges *d* and *d′* of conical casings *e* and *e′*, that surround end portions of the hub at either side of the spokes and extend beyond the ends of the body of the hub, said casings being of well-known forms.

The hub comprises in addition to the casings *e* and *e′* a pair of shells N and N′, formed of pressed steel, the main portions of which have contours similar to frustums of cones and fit into the casings, being forced therein. Body parts O and O′, composed of wood or of other suitable material, are fitted into the shells, the larger ends of the main portions of which have straight circular spoke-seats *f* and *f′* attached thereto, one spoke-seat telescoping with the other one. The smaller ends of the main portions of the shells have inwardly-extending flanges *g* and *g′*, provided with saw-tooth projections *h*, extending toward the opposite ends of the main portions into the ends of the body parts O and O′, thus securing a shell and body part together against relative rotative movements. The main portions of the shells have each an inwardly-turned flange 26, engaging a flange 27, that is formed on each one of the spoke-seats, the flange 26 being formed after the body part has been forced into the shell portion. The body part O has a projection 28, that extends into the spoke-seat *f′*, and each body part has annular recesses 29 and 30 to receive portions of the flanges 27 and *g* and *g′*, as shown. The outer faces of the flanges 26 are flush with the bearing-faces of the flanges *d* and *d′* and with portions of the flanges 27, which are pressed into the recesses 29. The spokes are seated against the spoke-seat *f*, and then the two principal parts of the hub are drawn tightly by the bolts *b* against the spokes, the latter being engaged by the flanges *d* and *d′* and also by the flanges 26 and 27. After the wheel has been otherwise completed in construction and assembled the body parts O and O′ are bored true and tapering and the ordinary tapering axle-box *i* is forced into the bore thereof, thus completing the wheel, it being understood that, if desired,

wooden spokes may be used in connection with the improved hub and also that a wooden felly may be employed when preferred; also, various suitable types of axle-boxes may be used.

In practical use the wheel will be stiff and strong, while being less rigid than metal wheels that are composed of solid parts and if accidentally damaged may be readily repaired.

Having thus described the invention, what is claimed as new is—

1. A wheel including a hub having a body comprising two parts, two shell parts embracing the body parts and provided with projections forced into ends of the body parts, a spoke-seat arranged between the opposing ends of the shell parts, a plurality of spokes seated against the spoke-seat, a felly attached to the spokes, and means forcibly holding the spokes between the opposing ends of the shell.

2. A wheel including a hub having a body comprising two parts provided each with an inclosing shell having a circular hub-seat attached thereto and telescoping one with another, a plurality of spokes engaging one of the hub-seats, a felly attached to the spokes, and means engaging the shells of the two parts of the hub-body and forcing the same against opposite sides of the plurality of spokes.

3. A wheel including a hub comprising two companion parts, each part composed of a body part, a shell embracing the body part and secured thereto, and a flanged casing embracing the shell, one shell having a circular spoke-seat attached thereto and to the body part; a plurality of spokes engaging the spoke-seat, means engaging the casings and forcing the shells therewith against opposite sides of the plurality of spokes, and a felly attached to the plurality of spokes.

4. A wheel including a hub comprising two companion parts, each part composed of a body part, a shell embracing the body part and having flanges at opposite ends thereof turned over portions of the ends of the body part, the shell being secured to the body part, each shell having a circular flanged spoke-seat attached thereto and to the body part by means of a flange of the shell and the flange of the spoke-seat, a plurality of spokes engaging the spoke-seat, a felly attached to the plurality of spokes, and means engaging the shells and thereby forcing the two companion parts of the hub against opposite sides of the plurality of spokes.

5. A wheel including a hub comprising two companion parts, each part composed of a body part of which one part has a projection at an end thereof, a shell embracing the body part and having flanges at ends thereof turned over portions of the ends of the body part, the shell being secured to the body part, each shell having a circular flanged spoke-seat attached thereto and to the body part by means of the flanges thereof, one of the spoke-seats extending over the projection of the body part and into the other spoke-seat, a plurality of spokes engaging one of the spoke-seats, a felly attached to the plurality of spokes, and a flanged casing attached to the shell; and means engaging the casings of the two companion parts and forcibly holding the plurality of spokes between the two companion parts of the hub.

6. A wheel including a hub comprising two companion parts, each part composed of a conical wooden body part, a conical metallic shell embracing the body part and having a flange at the larger end thereof turned over a portion of the larger end of the body part and also having a flange at the smaller end thereof provided with projections forced into the smaller end of the body part, the shell having a circular spoke-seat having a flange extending between the larger end of the body part and the turned-over flange of the shell, the spoke-seat of one part extending about the spoke-seat of the other part and movable thereon, a plurality of spokes engaging the outer one of said spoke-seats, a felly attached to the plurality of spokes, casings attached to the companion parts, means securing the casings and the companion parts against the plurality of spokes, and an axle-box in the body parts of the hub.

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

CHARLES HEART.

Witnesses:
WM. H. PAYNE,
E. T. SILVIUS.