H. A. HOUSE, JR.

WIRE WHEEL.

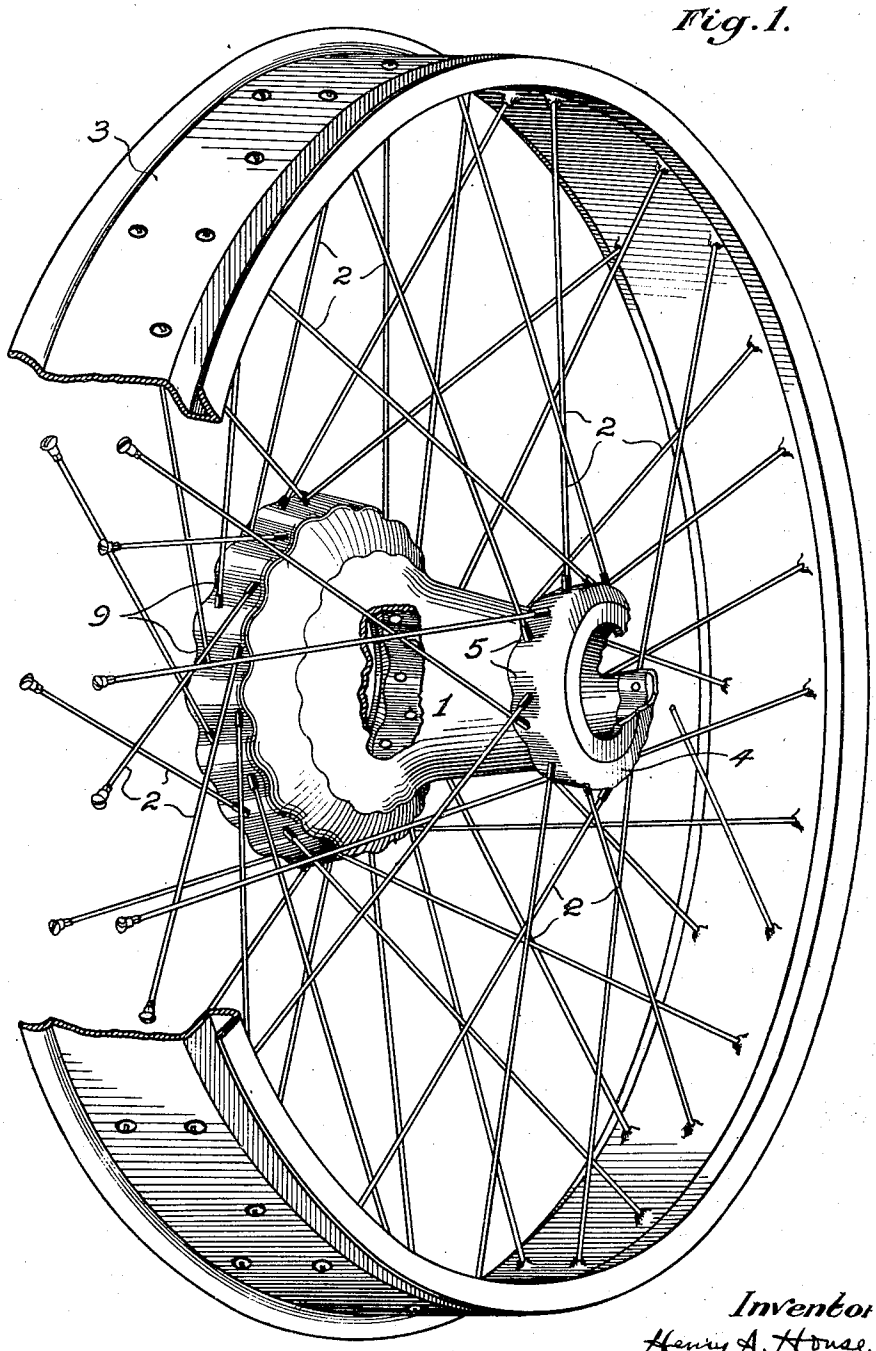
APPLICATION FILED MAR. 22, 1918.

1,353,394.

Patented Sept. 21, 1920.

4 SHEETS—SHEET 1.

Fig. 1.



Inventor:
Henry A. House, Jr.
By his Attorney
J. Edward Thebaud

H. A. HOUSE, JR.

WIRE WHEEL.

APPLICATION FILED MAR. 22, 1918.

1,353,394.

Patented Sept. 21, 1920.

4 SHEETS—SHEET 2.

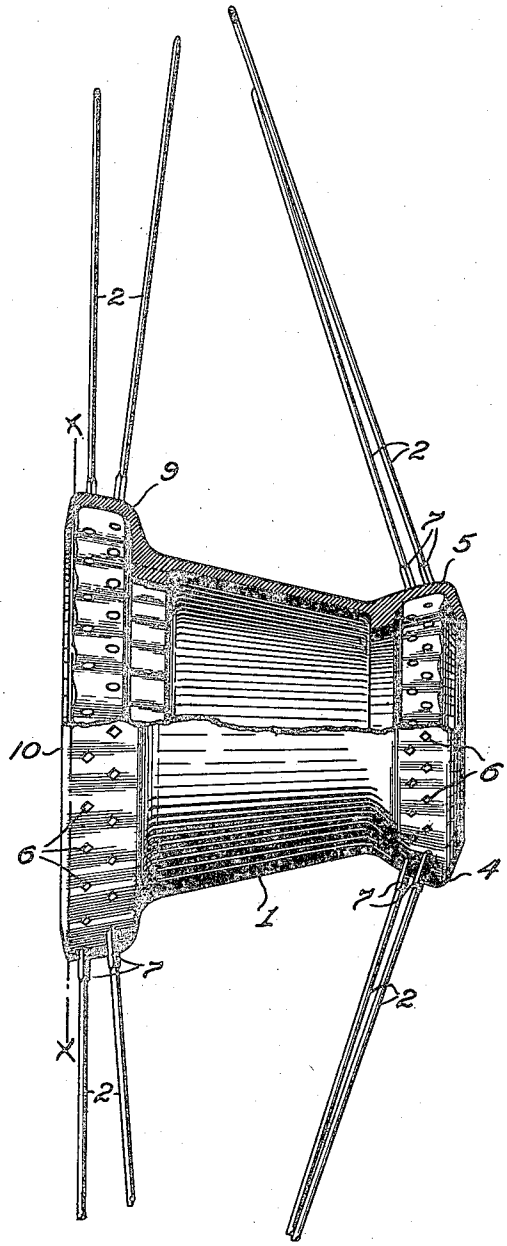


Fig. 2.

Inventor.
Henry A. House Jr.
By his Attorney:-
J. Edward Thebaud.

H. A. HOUSE, JR.

WIRE WHEEL.

APPLICATION FILED MAR. 22, 1918.

1,353,394.

Patented Sept. 21, 1920.

4 SHEETS—SHEET 3.

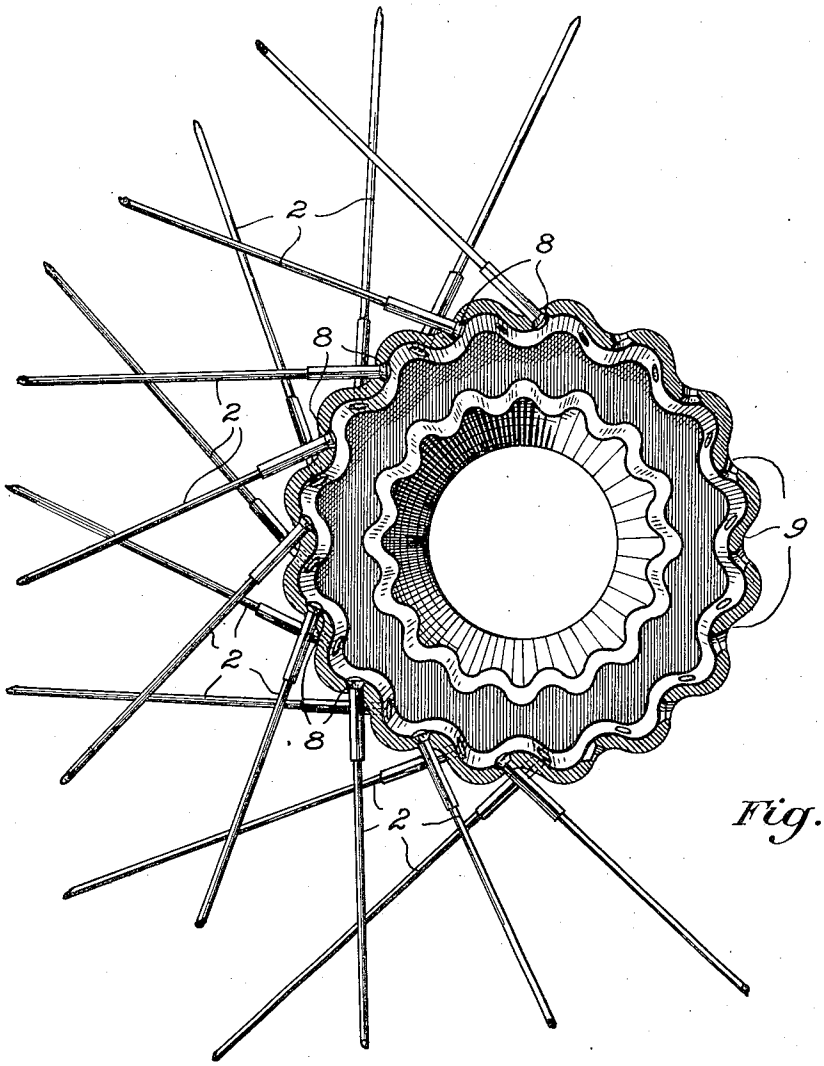


Fig. 3.

Inventor.

Henry A. House, Jr.

By his Attorney.

J. Edward Thebaud.

H. A. HOUSE, JR.

WIRE WHEEL.

APPLICATION FILED MAR. 22, 1918.

1,353,394.

Patented Sept. 21, 1920.

4 SHEETS—SHEET 4.

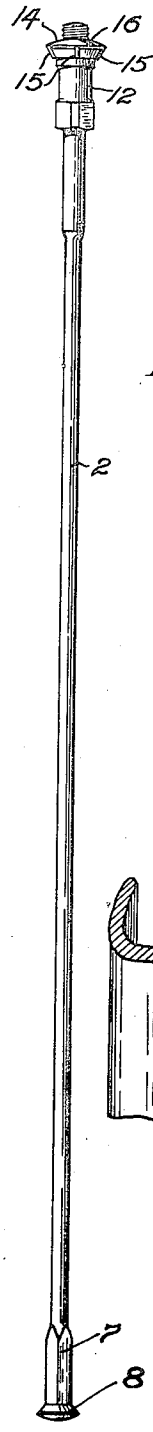


Fig. 4

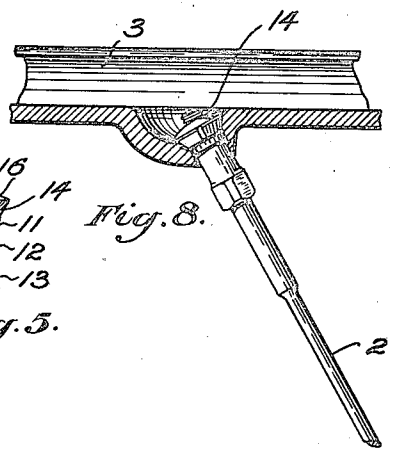


Fig. 8.

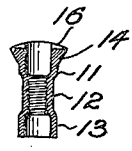


Fig. 5.

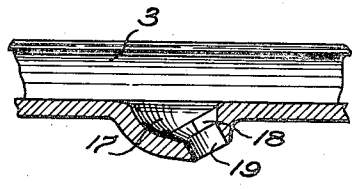


Fig. 7.

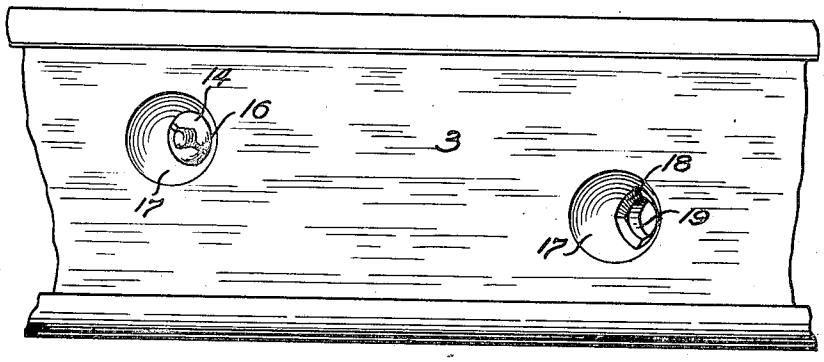


Fig. 6.

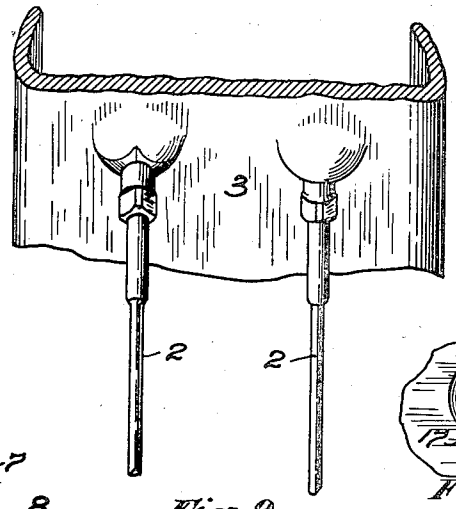


Fig. 9.

Fig. 13.

Fig. 14.

Fig. 15.

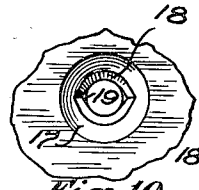


Fig. 10.

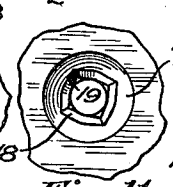


Fig. 11.

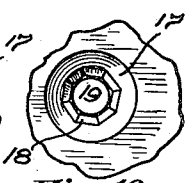


Fig. 12.

Inventor.

Henry A. House, Jr.

By his Attorney

J. Edward Thebaud

UNITED STATES PATENT OFFICE.

HENRY A. HOUSE, JR., OF SPRINGFIELD, MASSACHUSETTS, ASSIGNOR TO WIRE WHEEL CORPORATION OF AMERICA, OF BUFFALO, NEW YORK, A CORPORATION OF NEW YORK.

WIRE WHEEL.

1,353,394. Specification of Letters Patent. Patented Sept. 21, 1920.

Application filed March 22, 1918. Serial No. 224,070.

To all whom it may concern:

Be it known that I, HENRY A. HOUSE, Jr., a citizen of the United States, residing in Springfield, in the county of Hampden and State of Massachusetts, have invented certain new and useful Improvements in Wire Wheels; and I do hereby declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to figures of reference marked thereon, which form part of this specification.

Like figures of reference refer to like parts.

This invention relates to wire wheels, particularly to that class thereof having straight or unbent spokes.

One object of this invention is to provide a wheel having a hub and rim adapted in construction to the anchorage of straight or unbent spokes.

Another object of this invention is to provide means for locking both the head and the nipple of the spoke against accidental turning, and thereby prevent the spokes from becoming loose while in actual use.

Another object is to produce a stronger wheel than one made having the spokes bent near their heads.

A further object is to provide a corrugated structure in the hub, which will lend itself in providing seating surfaces normal to the axes of the respective spokes.

And a further object is to provide such shape to the seating sockets of the rim, for the heads of the nipples, as to form a locking feature therewith, having the heads of the nipples to conform with such shape.

With these and other objects in view, my invention consists in a certain construction, one embodiment of which is illustrated in the drawings as hereinafter described, the assembling of the parts is pointed out, and what is claimed is set forth.

In the drawings,

Figure 1 is a perspective view of one form of a wire wheel embodying my invention, having parts broken away, to show the construction thereof.

Fig. 2 is a sectional side elevation of the hub, shown in Fig. 1 illustrating the spoke attachment thereto.

Fig. 3 is a sectional end elevation, taken on the line X—X of Fig. 2.

Fig. 4 is an elevation of a full length straight spoke, and the nipple.

Fig. 5 is a sectional elevation of my special form of spoke nipple.

Fig. 6 is a top plan of a fragment of rim, showing a special form of seating pocket for the seating of the head of the nipple, and also showing another pocket having a nipple seated therein.

Fig. 7 is a longitudinal section of a fragment of rim, showing the formation of a seating pocket.

Fig. 8 is a similar sectional elevation to that shown in Fig. 7, but having in addition thereto a portion of spoke and nipple anchored therein.

Fig. 9 is a sectional elevation of a fragment of wheel rim, taken across the plane of the rim, and showing two spokes anchored with their nipples in pockets in said rim. These two spokes lie in opposite directions.

Figs. 10, 11 and 12 show plans of three kinds of pockets, each having a plurality of angular depressions in the seats thereof. Fig. 10 has two angular depressions, Fig. 11 has four, and Fig. 12 has eight angular depressions.

Fig. 13 is an under side view of a nipple head having two lugs positioned to engage a form of seat shown in Fig. 10.

Fig. 14 is an under side view of a nipple head having four lugs adapted to engage the form of seat shown in Fig. 11.

Fig. 15 is an under side view of a nipple head having eight lugs adapted to fit the form of seat shown in Fig. 12.

In the figures, referring particularly to Figs. 1, 2, and 3, radiating from the hub, 1, are spokes, 2, connected with the rim, 3, the arrangement of spokes being what is commonly called triple spoke lacing. In the small end 4, of the hub shell 1, are formed a series of corrugations 5, each having a square hole 6, to engage the square shank 7, of the spoke 2, 8 being the head, while the large end 9 is similarly corrugated, having square holes 10, adapted to fit shank 7, and the head 8, of the spoke 2, anchored therein.

The nipple 11 has a contracted middle section 12, internally threaded for engage-

ment with the threaded end of the spoke, a polygonal section 13, for the reception of a wrench, a tapered head 14 having lugs 15—15, and a slot 16, on the top thereof.

The rim 3 is provided with rounded pockets or depressions 17 each of which terminates in an angularly notched seat 18, and a hole 19. The nipple 11 passes through the hole and its head 14 occupies the seat 18, angular notches being provided therein with which the lugs 15—15 engage when the nipple occupies certain positions. The nipple shown in Figs. 4 and 8 has four equally spaced lugs 15 but it is obviously immaterial how many lugs are provided. For example in Figs. 6 and 13 there are two such lugs while in Fig. 15 there are eight. The seats 18 of the pockets 17 are in practice provided with depressions corresponding to the form of nipples used.

In assembling the wheel, the spokes are put in, in the usual way and tightened uniformly by turning the nipples, the lugs on the under side of which, work in and out of the angular depressions in the nipple seats, coming to rest in any angular position on the respective seats. If when the spoke is properly tightened, the lugs 15 are seated in the depressions of the rim, the nipple will be locked against accidental turning and if the lugs are not so seated they will, if turned back intentionally or accidentally, so seat and lock themselves as to prevent any further accidental unturning. The depressions in the rim, however, are so made that the nipples can be released forcibly by the use of the proper tool.

By means of the corrugations in the hub, there is provided a series of angularly positioned interior surfaces in which to seat the heads of the straight spokes, without necessitating bending the shank near the head, as is the present custom, in other wheels. An unbent spoke is much stronger than a bent one, hence a wheel made up with unbent spokes is much stronger than one having the usual bent ones.

Having described my invention, I claim,

1. A wheel having in combination, a hub, a rim, spokes connecting the hub with the rim, said rim having round pockets peripherally spaced therein, each of said pockets having an angularly depressioned seat and a hole in said seat, and nipples in threaded engagement with said spokes, having heads with their under sides adapted to cofit with the said angular depressions, to prevent the accidental unturning of the nipples on their respective spokes.

2. A wire wheel comprising in combination, a hub, a rim having nipple locking sockets therein, and straight shanked spokes connecting said hub with said rim, each spoke having a polygonal shank terminating in a head and fitting similarly shaped holes in said hub, a nipple fitting each of said spokes and seated in said sockets, the underseating side of each nipple being shaped to lock on the seats of said nipple locking sockets.

3. A wire wheel comprising in combination a hub having a corrugated zone at each end, spokes extending through and from said zones, each of said spokes having angular portions adjacent the head and said zones having correspondingly shaped holes for the spokes so that the latter are held firmly against rocking or turning, and a rim into which said spokes are fastened.

4. A wire wheel comprising in combination, straight spokes, spoke nipple heads, a hub having a corrugated zone at each end in which the spoke heads are mounted, said zones and heads being shaped so as to coact and prevent turning of the spokes and a rim having annular rows of depressions in which the spoke nipple heads seat.

HENRY A. HOUSE, JR.