

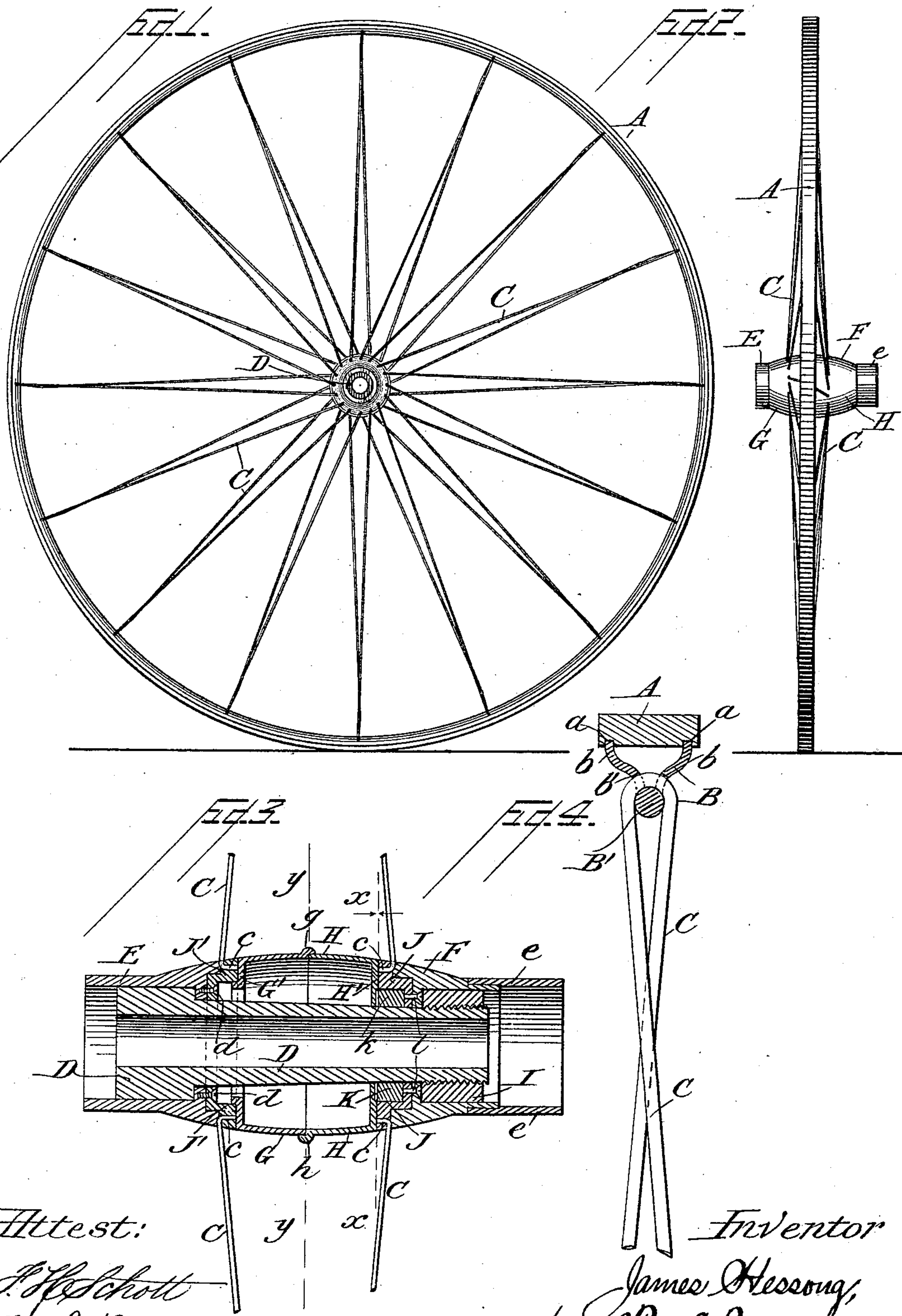
(No Model.)

2 Sheets—Sheet 1.

J. HESSONG.
WHEEL FOR VEHICLES.

No. 471,117.

Patented Mar. 22, 1892.



Attest:

J. H. Schott
Wm. L. Boyden

Inventor
James Hesson,
per Chas. E. Parker,
his Atty.

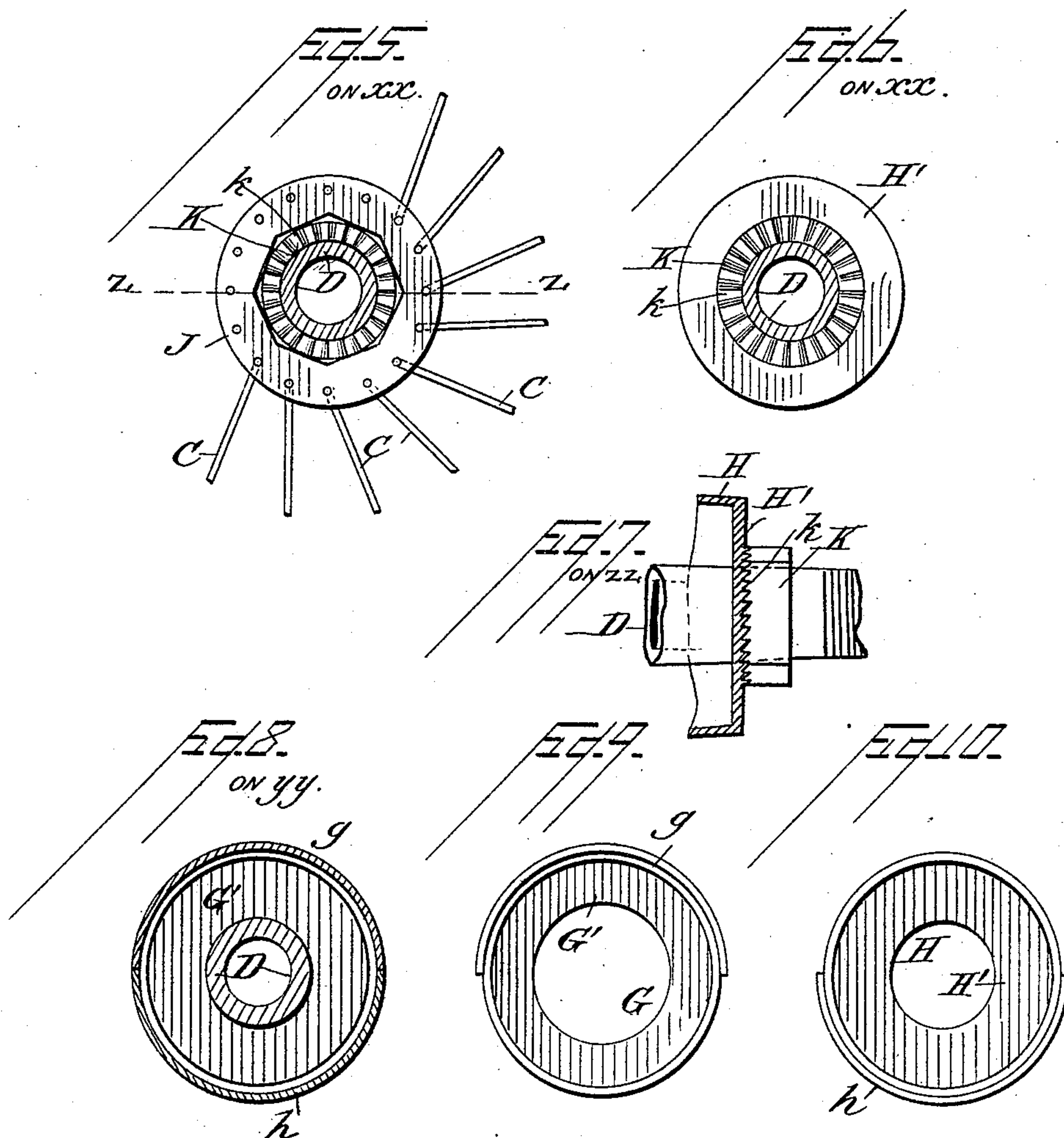
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UNITED STATES PATENT OFFICE.

JAMES HESSONG, OF CHILLICOTHE, OHIO.

WHEEL FOR VEHICLES.

SPECIFICATION forming part of Letters Patent No. 471,117, dated March 22, 1892.

Application filed May 29, 1891. Serial No. 394,534. (No model.)

To all whom it may concern:

Be it known that I, JAMES HESSONG, a citizen of the United States, residing at Chillicothe, in the county of Ross and State of Ohio, have
5 invented certain new and useful Improvements in Vehicle-Wheels; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it ap-
10 pertains to make and use the same.

My invention relates to an improvement in vehicle-wheels, and more particularly to that class of wheels which I technically denominate "suspension-wheels," the object of the inven-
15 tion being to provide a simple, cheap, strong, and readily-constructed wheel which will be light and serviceable for various kinds of vehicles; and the invention therefore consists in the arrangement, construction, and combina-
20 tion of the several parts, substantially as will be hereinafter described and claimed.

In the annexed drawings, illustrating my invention, Figure 1 is a side elevation of my improved vehicle-wheel. Fig. 2 is an edge
25 view of the same. Fig. 3 is a longitudinal section of the hub. Fig. 4 is a cross-section of the tire and felly and indicates a portion of one of the spokes in elevation, this figure being delineated on an enlarged scale. Fig.
30 5 is a sectional elevation on the line $x x$ of Fig. 3, looking in the direction of the arrow, which points toward the right hand. Fig. 6 is a similar sectional elevation on the line $x x$ of Fig. 3, looking in the direction of the ar-
35 row pointing toward the left hand. Fig. 7 is a cross-section on the line $z z$ of Fig. 5. Fig. 8 is a transverse section on the line $y y$ of Fig. 3. Fig. 9 is a detail elevation of one of the middle bands that constitute a part of
40 the hub, and Fig. 10 is a similar detail elevation of the other metal band, which is located at the central part of the hub contiguous to the band shown in Fig. 9.

Similar letters of reference designate corresponding parts throughout all the different
45 figures of the drawings.

The felly of my improved wheel consists of a strip of metal B, which is shaped so as to have a sort of a V or Y form in cross-section,
50 as shown in Fig. 4, the Y-shaped strip thus made being bent into a circular shape, so as to constitute the entire rim of the wheel.

The Y-shaped felly B has two inclined or curved sides $b b$ and the central inwardly-located stem or rib B'. The felly B is perfo- 55
rated with a series of holes or openings b' , cut transversely therein, to permit the passage therethrough of the wire or rod-like spokes of the wheel.

A designates the tire. It is a circular bar 60
of metal and is provided on its inner face with two parallel grooves $a a$, properly located and shaped to receive the edges of the felly sides $b b$, which I have just referred to. Therefore, after the tire A has been shrunk 65
onto a felly in the usual manner, the grooves will fit tightly and neatly over the sides or ribs $b b$, and thus the tire will be held firmly and immovably connected to the wheel-rim without the aid of bolts, rivets, or any other 70
kind of fastenings. In this way not only is the expense of tire-bolts and the drilling of the transverse spoke-holes avoided, but also many disadvantages are likewise obviated—
such as, for instance, the weakening of the 75
felly and tire by the drilling of the holes through them—and, moreover, a much neater, simple, and more efficient combination is provided—one that does not get out of order easily and one which remains firm and solid at all 80
times.

It will be observed, of course, that I am not restricted to the precise and exact form or shape which I have represented in the draw-
ings for the felly B, inasmuch as the precise 85
and exact form thereof may vary somewhat. However, I desire to have it constructed in the hollow V or Y form which I have shown, so that the two side ribs $b b$ may be provided to engage parallel grooves on the inner face 90
of the circular tire.

C designates the hooks, which are made of strong tough wire formed from any suitable metal or material, or they may be considered as small stiff rods. They are passed through 95
the openings b' , which are made along the length of the felly B at suitable distances apart. The wire or metal of these spokes C is bent, as shown in the figures of the draw-
ings, so as to form two arms for each spoke. 100

Referring now to the hub, which is shown in longitudinal section in Fig. 3 and in detail in the figures on the second sheet, it will be seen that D designates the axle-box. This

box D is surrounded at one end with the ring or band E, which forms one end of the hub, and at the other end by the ring or band F, which forms the other end of the hub, said band F carrying the supplemental cylindrical band *e*, which is neatly supported thereon and constitutes the outer projecting end of the hub. On the outer end of the axle-box D, which is screw-threaded for the purpose, there is located an internally-screw-threaded nut I, which is adapted to rotate and screw thereon and by means of which the several parts of the hub and wheel are firmly united together in the manner which I shall presently describe. The nut I rests partly within a recess in the ring F and bears against the internally-flanged portion of said ring, which is shown in Fig. 3 as immediately encircling the axle-box D.

J and J' denote annular angular rings or hat-shaped pieces of metal, which are provided with series of holes or perforations drilled therein near their outer peripheries. These annular angular rings J J' are shown in cross-section in Fig. 3, and the ring J, with its series of perforations, is shown in Fig. 5. The ring J is located close up against the ring F, and the ring J' is located close up against the ring or band E. The ring J, being angular cross-section, provides shoulders which fit against corresponding shoulders on the opposing face of the ring F, and similarly the ring J', being angular, provides shoulders which fit against corresponding shoulders in the adjoining ring or band E. The ring J is connected to the ring F by means of the pins or screws *l*, while the ring J' is connected to the band E by means of the screws *d*. The holes in the hat-shaped pieces J and J' correspond in number to the holes in the felly B, and they are adapted for the purpose of receiving the inner bent ends of the spokes C. It will furthermore be noted that the rings E and F, adjoining to the rings J and J', have radial grooves therein corresponding to the holes in the rings J and J', which are made to fit the spokes, so that said spokes may be easily and neatly fitted into place and securely held in the manner shown in Fig. 3.

G and H designate two hollow metallic bands or rings, which together constitute the central portion of the hub and are located around the axle-box D between the rings J and J', said band G having an internal annular flange G', which fits up against the ring, and said band H having the internal annular flange H', which fits up against the ring J. Referring to Figs. 8, 9, and 10, we shall perceive clearly the construction and arrangement of these middle bands G and H. The band G is provided on the edge adjoining the band H with a semicircular peripheral projecting rib or flange, which forms a square shoulder and receives under it the edge of half the periphery of the adjoining band H, and, furthermore, the band H is provided on its edge adjacent to the other half of the

band G with a similar semicircular projecting rib or flange *h*, which receives under it the plain peripheral edge of half of the said band G. In this manner the two bands G and H are neatly and firmly connected together, and the circumferential ribs *g* and *h* make a neat appearance encircling their point of union and making a neat joint thereat.

K designates an annular ring, which encircles the axle-box D and is located within an annular recess in the hat-shaped annular ring J. The face of the ring K adjacent to the internal flange H' of the band H is provided with a series of ratchet-teeth *k*, which engage with similar teeth on the adjoining face of the band-flange H'.

It will be observed that the inner end of each of the arms of each of the spokes C is bent at right angles. This is clearly shown in Fig. 3. When the spokes are made in the proper shape to be placed in position in the construction of the wheel, I provide lengths of suitable metal—soft-steel wire can be used, if preferred—and these lengths have their ends bent at right angles, as I have just stated, and then the wires are bent exactly in the center, so that the prongs will be parallel and of about the same distance apart as the thickness of the rib B' of the felly, so that the bent ends are both opened outwardly. One end of each spoke is then inserted through the hole *b'* in the felly B and drawn through as far as the bend at the middle point of the spokes, and then the ends are crossed in the manner shown in Fig. 4, so that the bent ends will point inwardly. One end of each spoke is then inserted in one of the holes in the annular ring-piece J'. Then the hub end E is firmly connected to the said ring J' by means of the screws *d*, thus holding the ends of the spokes C perfectly firm and solid. The other end of each spoke is then inserted in the hole in the other ring J and then the hub-section F is firmly screwed to the ring J in the same manner that the ring J' is connected to the hub-section E. It is observed that the inner recess within the ring J is not circular, but is octagonal or of some other polygonal form, so that the ring K, which fits therein may be held firmly and kept from turning or slipping. Now after the spokes have all been fastened in position and connected as I have stated to the rings J and J', I draw said rings apart laterally until the proper tension is given to the spokes. This drawing apart is accomplished by means of a machine especially constructed and adapted for the purpose; but it is unnecessary to refer to the same at any length herein. Next the ratchet-ring K is inserted in its place within the polygonal recess in the ring J. Then the bands G and H are slipped into place between the rings J and J', thereby holding said rings apart, the adjoining edges of the bands G and H being in engagement, as I have hitherto specified. The axle-box D can now be inserted in its place, and then if the spokes still need any

more tension the ends of the hub may be twisted in opposite directions until the proper tension is given. The spokes will then stand in the position shown in Fig. 1. Then the
 5 nut I will be screwed up tightly, thereby clamping the several parts of the hub together, and by means of the pins or screws *l*
l, against which the said nut I bears, the ratchet-ring K will be pushed inwardly until
 10 its teeth engage with the teeth on the adjacent face of the flange H', and thus the parts are all prevented from turning and a strong, efficient, and solid combination is effected.

Numerous details in the precise arrangement of the several parts of the hub, as well as in the structure and location of other parts of the wheel, may be made without departing from this invention, and I reserve the liberty of making such slight changes as may be de-
 20 manded at different times.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a vehicle-wheel, the combination of
 25 the felly B, having the sides *b b*, the series of perforations *b'*, and the inner rib B', and the tire A, grooved at *a a*, said groove receiving the felly sides *b b*, the perforated plates forming a part of the hub, said plates being en-
 30 gaged by the bent ends of the spokes, together with the rod-like spokes, substantially as described.

2. In a vehicle-wheel, the combination, with the spokes, of the perforated angular hat-shaped rings that are engaged by said spokes, the axle-box, the rings encircling the same, and the intermediate bands located between the angular rings, substantially as described.

3. In a vehicle-wheel, the combination of
 40 the axle-box D, the rings or bands E and F, located thereon, the perforated angular rings J and J', that are engaged by the bent ends of

the spokes C, and the intermediate bands G and H, interposed between the rings J and J', substantially as described.

4. In a vehicle-wheel, the combination of the axle-box, the rings E and F, encircling the same at opposite ends, the perforated angular hat-shaped plates J and J', likewise encircling the axle-box and connected, respectively, to the rings F and E, the flanged bands G and H, located between the rings J and J', the ratchet-ring K, located within the recess in the ring J' and engaging ratchet-teeth on the flange H' of band H, and a nut I on the end
 55 of axle-box D, substantially as described.

5. In a vehicle-wheel, the combination of the axle-box D, the perforated rings J and J', the bands G and H, located between said rings J and J', said band G having a flange G' and a circumferential rib *g* and said band H having a flange H' and a circumferential rib *h*, and a ring K, located within the recess in the ring J, said ring K being of polygonal form and having its receiving-recess correspondingly shaped, the teeth of said ring engaging teeth on the adjoining face of the flange H', all substantially as described.

6. In a vehicle-wheel, the herein-described hub, consisting, essentially, of two perforated plates adapted to be engaged by the bent ends of the spokes and the intermediate pair of bands between said plates serving to keep the latter apart and at the proper tension, together with the axle-box and the encircling
 75 parts thereof, which constitute the remainder of the hub, substantially as described.

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

JAMES HESSONG.

Witnesses:

EDWARD E. REEVES,
 JOHN SCHWEITZER.