

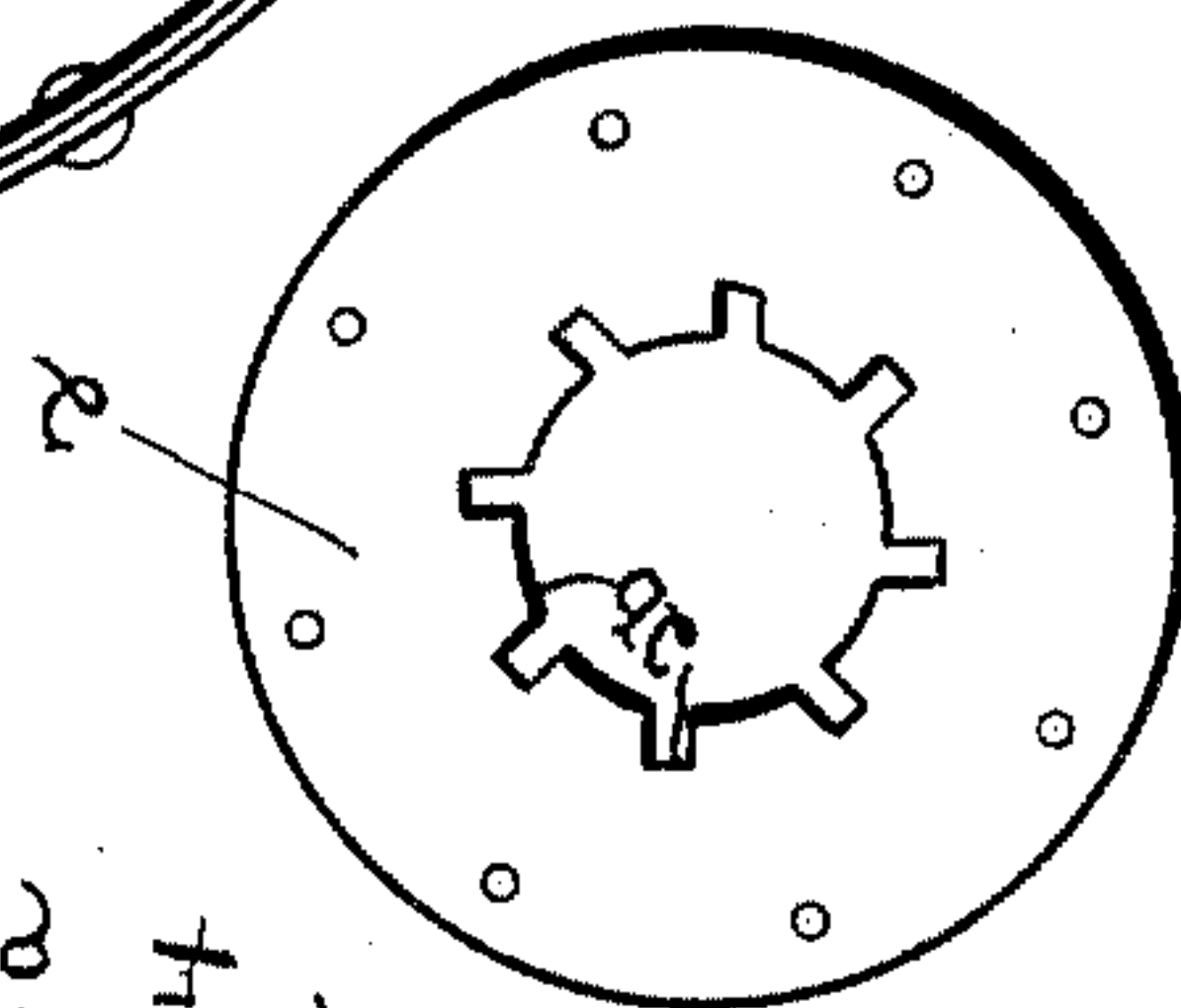
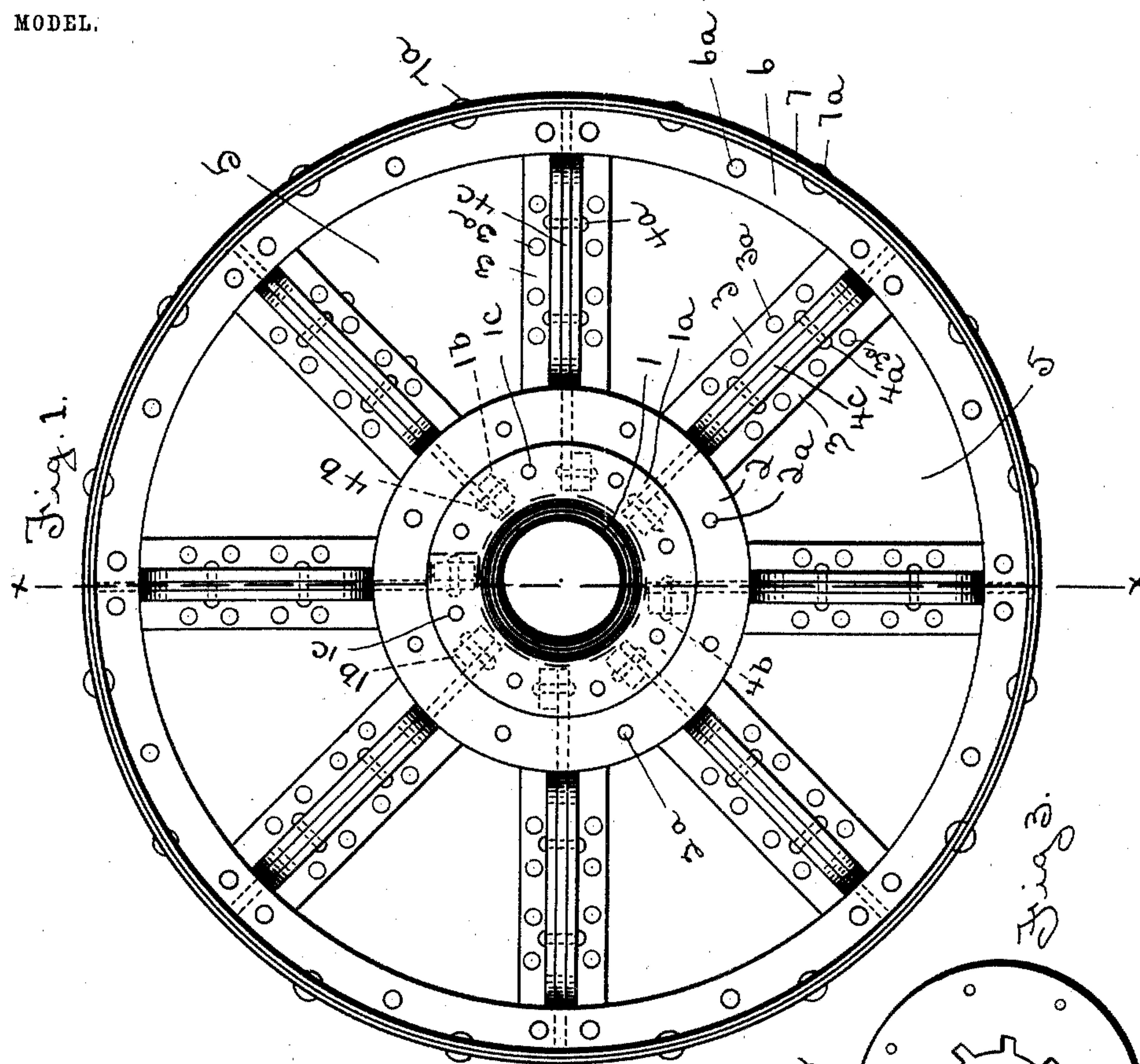
No. 759,000.

PATENTED MAY 3, 1904.

W. E. MITCHELL.  
VEHICLE WHEEL.

APPLICATION FILED SEPT. 15, 1903.

NO MODEL.



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# UNITED STATES PATENT OFFICE.

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## VEHICLE-WHEEL.

SPECIFICATION forming part of Letters Patent No. 759,000, dated May 3, 1904.

Application filed September 15, 1903. Serial No. 173,277. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM E. MITCHELL, a citizen of the United States, residing at Stockton, county of San Joaquin, and State of California, have invented certain new and useful Improvements in Vehicle-Wheels for Heavy Hauling; and I do 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 appertains to make and use the same, reference being had to the accompanying drawings, and to figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in wheels, and more particularly to that class used on traction-engines and in house-moving or the like; and it consists in the strong and durable construction hereinafter described.

It has for its object to produce a wheel which will not be easily broken or disabled by the jar and strain of heavy hauling. This object I accomplish by means of iron plates put in the place of the spokes and such other devices and combination of devices as will be fully described in the following specification and particularly pointed out in the claims appended.

In the annexed drawings, Figure 1 is a plan elevation of my improved vehicle-wheel for heavy hauling. Fig. 2 is an end view of same shown in section through a line X X of Fig. 1. Fig. 3 is a reduced detached plan view of a plate to which the hub is attached, showing a suitable central orifice.

Similar figures of reference indicate corresponding parts in the several views.

1 designates the hub, of suitable material, of my improved wheel. 1<sup>a</sup> designates flanges on same at the ends thereof.

1<sup>b</sup> designates cross-pieces running longitudinally along the hub 1 at suitable distances apart and forming integral parts of the hub 1 and the flanges 1<sup>a</sup>.

1<sup>c</sup> designates bolts or rivets by which the flanges 1<sup>a</sup> are fastened to plates 2, hereinafter described.

2 designates plates of suitable material hav-

ing central orifices adapted to fit over the hub 1 and the cross-pieces 1<sup>b</sup>, attached to plates 5, hereinafter described, by the bolts or rivets 2<sup>a</sup>. Said plates may be cast over the hub or made in two parts, which after being placed over the hub may be joined by any suitable means.

2<sup>b</sup> is the suitable central orifice in the plates 2, adapted to fit closely over the hub 1 and cross-pieces 1<sup>b</sup>.

3 represents angle-irons attached to the plates 5 in pairs, with a small space or slot between the parts of each pair, by means of rivets 3<sup>a</sup>, said angle-irons 3 being adapted to be attached to and to hold in position cross-plates 4, hereinafter described. One pair of said angle-irons on one face is arranged directly opposite one pair on the other face of the wheel.

3<sup>a</sup> designates the rivets adapted to attach angle-irons 3 to plates 5.

4 designates cross-plates of suitable material extending the width of the wheel and provided with suitable longitudinal tongues 4<sup>c</sup>, adapted to fit into the space between the angle-irons 3 and attached thereto by means of rivets 4<sup>a</sup>. Said plates 4 are attached at their lower ends to the cross-pieces 1<sup>b</sup> by means of rivets or bolts 4<sup>b</sup>.

5 designates plates forming outer faces or surfaces of the wheel, to which are attached the plates 2 by means of the rivets or bolts 2<sup>a</sup>, the angle-irons 3 by means of rivets 3<sup>a</sup>, and angle-irons 6, hereinafter described, by means of rivets 6<sup>a</sup>.

6 designates angle-irons connecting a rim or tire 7 to the plates 5 by means of rivets 7<sup>a</sup> and 6<sup>a</sup>.

Having described in detail the different parts of my improved wheel and their relative functions, I will now endeavor to clearly point out wherein my wheel is an improvement over those now in use. It is a well-known fact that the vulnerable points of the wheels now in use are the hubs and the points of contact of the spokes and the rim and that a heavy strain will invariably weaken if not break the wheels at these points. Now it can be plainly seen



that by the use of the plates 4, attached to the plates 5 by means of angle-irons 3 and rivets 3<sup>a</sup> and 4<sup>a</sup> and to the hub by means of cross-pieces 1<sup>b</sup> and rivets or bolts 4<sup>a</sup>, the strain is received equally all over the wheel, and thus there are no vulnerable points, because when the strain falls on one side the plates on the other side being of equal strength and extending from face to face of the wheel receive and withstand an equal part of said strain, and thus tend to neutralize it.

It will be noticed that plates 4 take the place of the usual spokes and are much more durable.

Although I have mentioned the use of angle-iron herein, I reserve the right to substitute for it channel-iron if I so desire.

My wheel, of course, may be provided with suitable grousers, if desired, though they are not shown in the drawings, as I cannot claim them as new.

In practice there may be as many of the cross-pieces 1<sup>b</sup> and cross-plates 4 as is desirable, but for the purpose of clearly illustrating my invention I have shown eight of each. Neither do I wish to confine myself to the exact number of rivets, bolts, or angle-irons 3 shown in the accompanying drawings.

The plates 5 may have apertures of any suitable size or shape cut in their centers, thus lightening the wheel.

I have entered into a detailed description of the construction and relative arrangement of parts embraced in the present and preferred embodiment of my invention in order to impart a full, clear, and exact understanding of the same. I do not desire, however, to be understood as confining myself to such specific construction and arrangement of parts, as such changes and modifications may be made in practice as fairly fall within the scope of my claims.

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

1. In a vehicle-wheel for heavy hauling the combination of a hub 1 provided with flanges 1<sup>a</sup>, cross-pieces 1<sup>b</sup> forming integral parts of said hub 1 and flanges 1<sup>a</sup>, bolts or rivets 1<sup>c</sup>, plates 2, bolts or rivets 2<sup>a</sup>, angle-irons 3 arranged in pairs, rivets 3<sup>a</sup>, cross-plates 4 provided with tongues 4<sup>c</sup> adapted to fit between and be riveted to each pair of angle-irons 3 and also riveted or bolted to cross-pieces 1<sup>b</sup>, plates 5, angle-irons 6, rivets 6<sup>a</sup>, rim or tire 7, and rivets 7<sup>a</sup> all substantially as set forth.

2. In a wheel of the kind described the combination of a suitable hub, flanges at the ends thereof, suitable cross-pieces running longitudinally along the hub and forming integral parts of the hub and flanges, plates 2 provided with central orifices adapted to closely fit over the said hub and cross-pieces, said plates being attached to plates 5 by suitable bolts or rivets, angle-irons 3 attached to plates 5 in pairs by

suitable bolts or rivets, cross-plates 4 extending from one face of the wheel to the other provided with tongues 4<sup>c</sup> fastened between each pair of angle-irons, said plates being also attached at their lower ends to the cross-pieces 1<sup>b</sup> by suitable bolts or rivets, and angle-irons 6 riveted to the plates 5, and a rim or tire 7 riveted to said angle-irons, all substantially as set forth.

3. In a vehicle-wheel for heavy hauling the combination of the cross-plates 4 provided with tongues 4<sup>c</sup>, each tongue being fastened between a pair of angle-irons 3, said angle-irons riveted to plates 5, plates 2 riveted or bolted to the plates 5, said plates 2 being centrally orificed, said orifices fitting closely over a hub 1 and cross-pieces 1<sup>b</sup>, flanges 1<sup>a</sup> on the ends of said hub, said cross-pieces forming integral parts of said hub and flanges, rivets 4<sup>b</sup> adapted to securely attach the lower ends of cross-plates 4 to the cross-pieces 1<sup>b</sup>, angle-irons 6 attached to the plates 5 and a rim or tire 7 riveted to said angle-irons, all substantially as set forth.

4. In a wheel of the kind described a hub 1 provided with flanges 1<sup>a</sup>, said flanges being bolted or riveted to the plates 2, cross-pieces 1<sup>b</sup> running longitudinally along the hub 1 and forming integral parts of said hub and its flanges, cross-plates 4 extending from one face of the wheel to the other and attached by bolts or rivets at their lower ends to the cross-pieces 1<sup>b</sup>, the plates 2 having central orifices adapted to fit closely over the hub 1 and cross-pieces 1<sup>b</sup>, said plates being riveted or bolted to plates 5, angle-irons 3 riveted in pairs to the plates 5, tongues 4<sup>c</sup> on the cross-plates 4, each tongue adapted to fit between the parts of and be riveted to one of the pairs of angle-irons 3, angle-irons 6 riveted to the plates 5 and a rim or tire 7 riveted to said angle-irons all substantially as set forth.

5. In a wheel of the class described a hub 1 having flanges 1<sup>a</sup> on the ends thereof, said flanges being suitably attached to the plates 2, said plates being suitably attached to the plates 5, cross-plates 4 provided with tongues 4<sup>c</sup>, the lower ends of said plates being riveted or bolted to the cross-pieces 1<sup>b</sup>, said cross-pieces forming integral parts of the hub 1 and its flanges 1<sup>a</sup>, angle-irons 3 riveted to the plates 5 in pairs each pair adapted to inclose and be riveted to one of the tongues 4<sup>c</sup> of the cross-plates 4, angle-irons 6 riveted or bolted to plates 5, and a rim or tire 7 riveted to the angle-irons 6, all substantially as described.

6. In a vehicle-wheel for heavy hauling the combination of a tire or rim 7 riveted to angle-irons 6, said angle-irons riveted to the plates 5, cross-plates 4 extending from face to face of the wheel and provided with tongues 4<sup>c</sup>, angle-irons 3 riveted to plates 5 in pairs, the tongues 4<sup>c</sup> suitably inclosed by and riveted to said pairs of angle-irons, the plates 2 riveted

or bolted to the plates 5, flanges 1<sup>a</sup> of the hub  
1 riveted or bolted to said plates 2, the hub 1,  
the cross-pieces 1<sup>b</sup> running longitudinally to  
the hub 1 and forming integral parts of said  
5 hub and its flanges, and the lower ends of the  
plates 4 riveted or bolted to said cross-pieces,  
all substantially as described.

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

WILLIAM E. MITCHELL.

Witnesses:

PERCY S. WEBSTER,  
JOSHUA B. WEBSTER.