

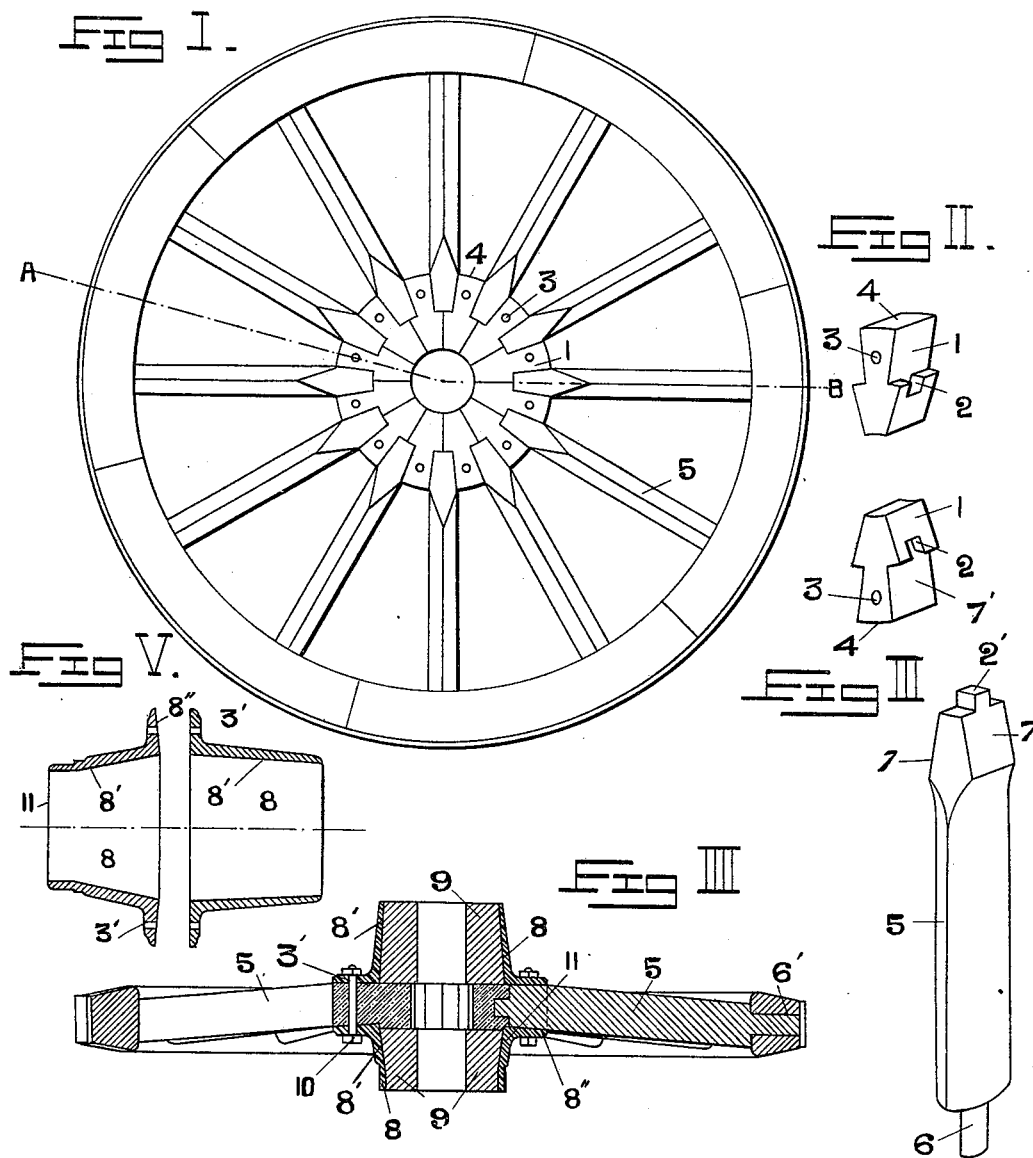
No. 646,028.

Patented Mar. 27, 1900.

J. LIVERSIDGE.  
WHEEL FOR ROAD VEHICLES.

(Application filed Dec. 26, 1899.)

(No Model.)



Witnesses  
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# UNITED STATES PATENT OFFICE.

JARRATT LIVERSIDGE, OF LONDON, ENGLAND.

## WHEEL FOR ROAD-VEHICLES.

SPECIFICATION forming part of Letters Patent No. 646,028, dated March 27, 1900.

Application filed December 26, 1899. Serial No. 741,632. (No model.)

*To all whom it may concern:*

Be it known that I, JARRATT LIVERSIDGE, residing at 196 Old street, London, England, have invented certain Improvements in  
5 Wheels for Road-Vehicles; 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 appertains to make and use the same.

10 My improvements consist in forming that part called the "stock," "nave," or "hub" of wheels for road-vehicles with a built-up wooden center, the objects I have in view being as follows:

15 First. To enable a new spoke or spokes to be driven into the stock or removed therefrom without disturbing the other component parts thereof.

20 Second. By means of the particular form of segments and the spokes to form practically a solid wooden center.

25 Third. By means of the flange-plates, which are fastened by bolts or rivets passing through the segments, the full section and strength of the spokes are preserved and the component parts of the hub are rigidly held together. The horizontal portion of the metal flange-plates is tapered and fitted with wood when  
30 any ordinary form of axle-box is employed. The usual forms of metal hub, flange, or flange and hub combined, or metal hub and box combined, or metal flange and box combined can be used, so long as part of any one of the above forms the necessary flange to cover  
35 the feet of the spokes and the wedging of the spokes and segments is not interfered with.

Fourth. A fewer number of spokes can be employed than in wheels whose centers are composed of spokes only, thus lightening the  
40 wheel.

The particular construction by means of which I attain these objects will be readily understood by means of the accompanying drawings, in which—

45 Figure 1 is a front elevation of the wheel with flange-plate removed. Fig. 2 is a perspective view of segment. Fig. 3 is a perspective view of spoke. Fig. 4 is a sectional plan on line A B, Fig. 1. Fig. 5 is a section of  
50 flange-plates.

Similar figures refer to similar parts in all the views.

1 is one of the double wedge-shaped segments, which is grooved or recessed on either side of each shoulder, as at 2, and bored for  
55 the bolt, as at 3. The exterior of each segment is slightly rounded, as at 4, so as to preserve the external contour of the stock or nave 5.

Fig. 3 shows a spoke. This is turned or  
60 otherwise tooled to the usual rounded or other shape 6 at its outer end, so as to fit a corresponding hole or mortise 6' in the felly. The inner end of each spoke is wedge-shaped, as at 7, on either side, the taper being the same  
65 as that formed upon the outer part of each segment, as at 7', and at the foot I may form a cross-tenon 2', which exactly fits the half-mortise or recess 2 formed on either side of each segment. Each flange-plate 8, which is  
70 usually a casting in malleable iron, gun-metal, steel, or other suitable metal, or may be stamped, welded up, or otherwise formed, is drilled with a series of holes 3', so as to exactly correspond with those formed in the seg-  
75 ments, the horizontal portion of each plate being tapered, as at 8', and filled in with wood 9.

The wheel is built up as follows: A series of segments and spokes are ranged in order.  
80 The rounded or other-shaped end of each spoke is next inserted in the corresponding hole formed in the felly, the whole of which, as well as the spokes, are then forced inward by pressure. The plates are then bolted, as  
85 at 10, or riveted on.

If the wheel is to be built with straight spokes, the flanges of both plates will be square with their horizontal axis. If, however, the spokes are to be dished, the flange  
90 of the outer plate 11 is beveled, as at 8'', to the dish of the spoke, and that part of the segment against which the flange-plate comes is shaped so as to be flush with the spoke, the  
95 hinder portion or foot of spoke being cut to bevel of dish.

It will be seen that by means of my invention an old spoke can be taken out and replaced, as in the case of an ordinary wheel, without, however, destroying the solidarity  
100 of the hub. Moreover, as the segmental tapering is radial it follows that the central portion of the nave, stock, or hub, although built up in the manner described, is wedged

by the pressure so tightly together as to form practically a solid wooden center. For a similar reason it is obvious that the spokes are firmly keyed in position; but as no bolt passes through them the strength of their whole section is secured.

In some cases I may dispense with the cross-tenon 2', leaving the foot of spoke plain and omitting the recess 2 in the segment.

10 What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a wheel for road-vehicles the combination of a hub formed of double wedge-shaped segments having their lower wedge-shaped halves contiguous to each other, spokes adapted to fit in the spaces between the upper wedge-shaped halves of said segments and flange-plates securing said segments and spokes together, substantially as set forth.

20 2. In a wheel for road-vehicles the combination of a hub formed of double wedge-shaped segments having their lower halves

contiguous and provided with recesses in their shoulders adapted to come opposite each other thus forming larger recesses at the bottoms 25 of the spaces between the upper halves of said segments, spokes adapted to fit into said spaces and provided with cross-tenons at their feet which fit into said recesses, flange-plates securing said segments and spokes together, and bolts or rivets passing through said flange-plates and segments, substantially as set forth. 30

3. In a wheel for road-vehicles the combination of a hub built up of segments, dished spokes fitted into said hub, flange-plates securing said spokes and hub together and beveled to correspond to the dish of said spokes, substantially as set forth. 35

In witness whereof I have hereunto set my hand in presence of two witnesses.

JARRATT LIVERSIDGE.

Witnesses:

FRANCIS HERON ROGERS,  
J. PHILLIPS CRAWLEY.