

(No Model.)

A. J. HANKS.

WHEEL.

No. 384,759.

Patented June 19, 1888.

Fig. 1.

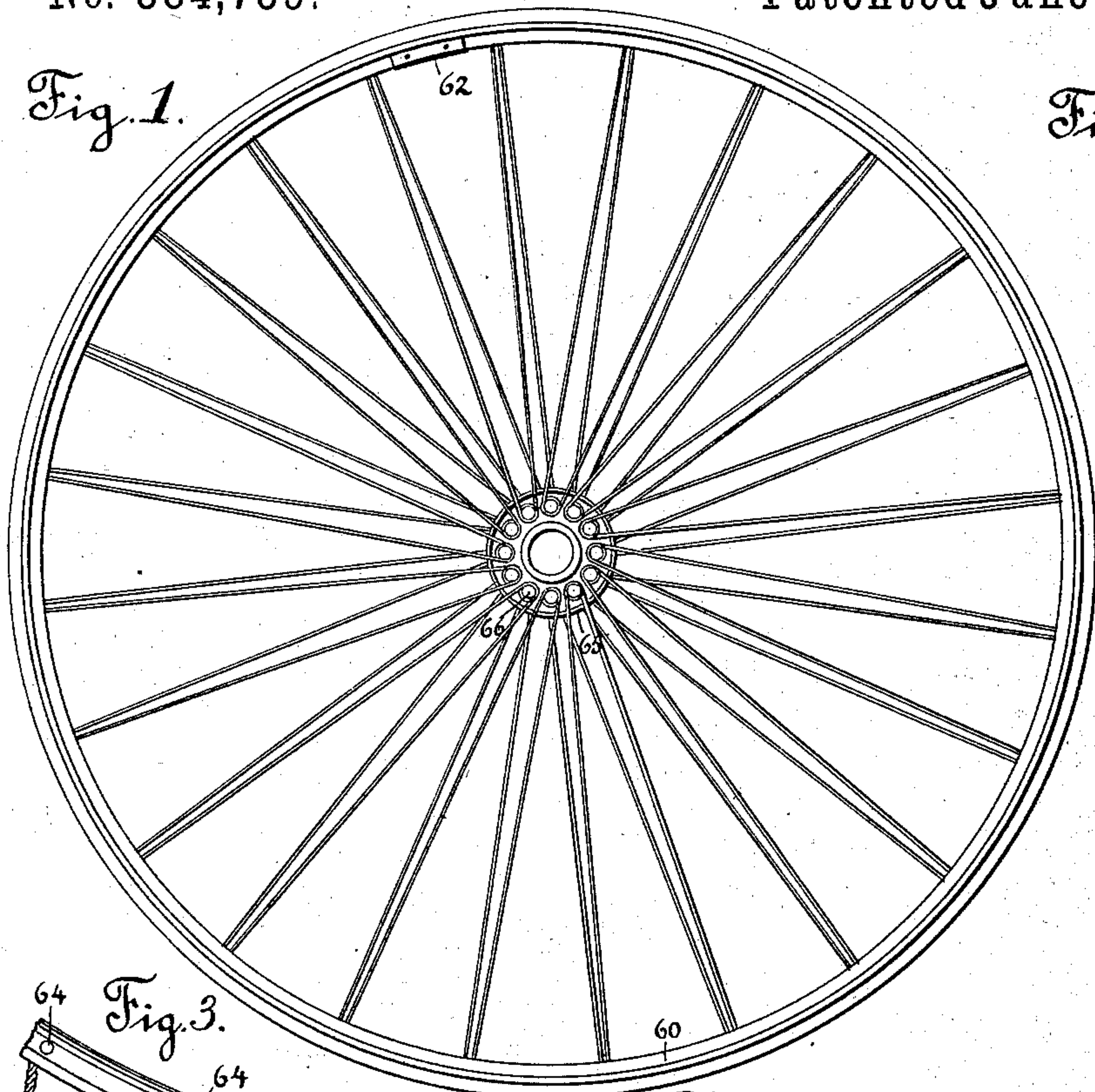


Fig. 2.

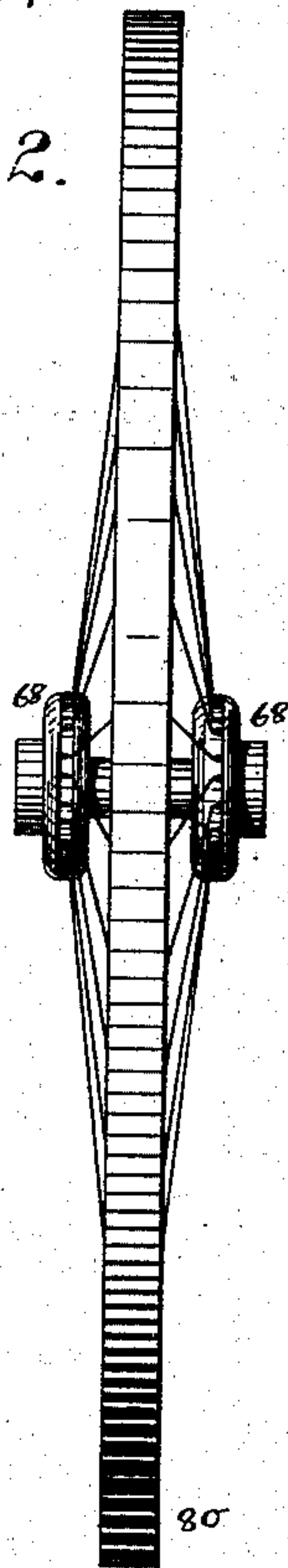


Fig. 3.

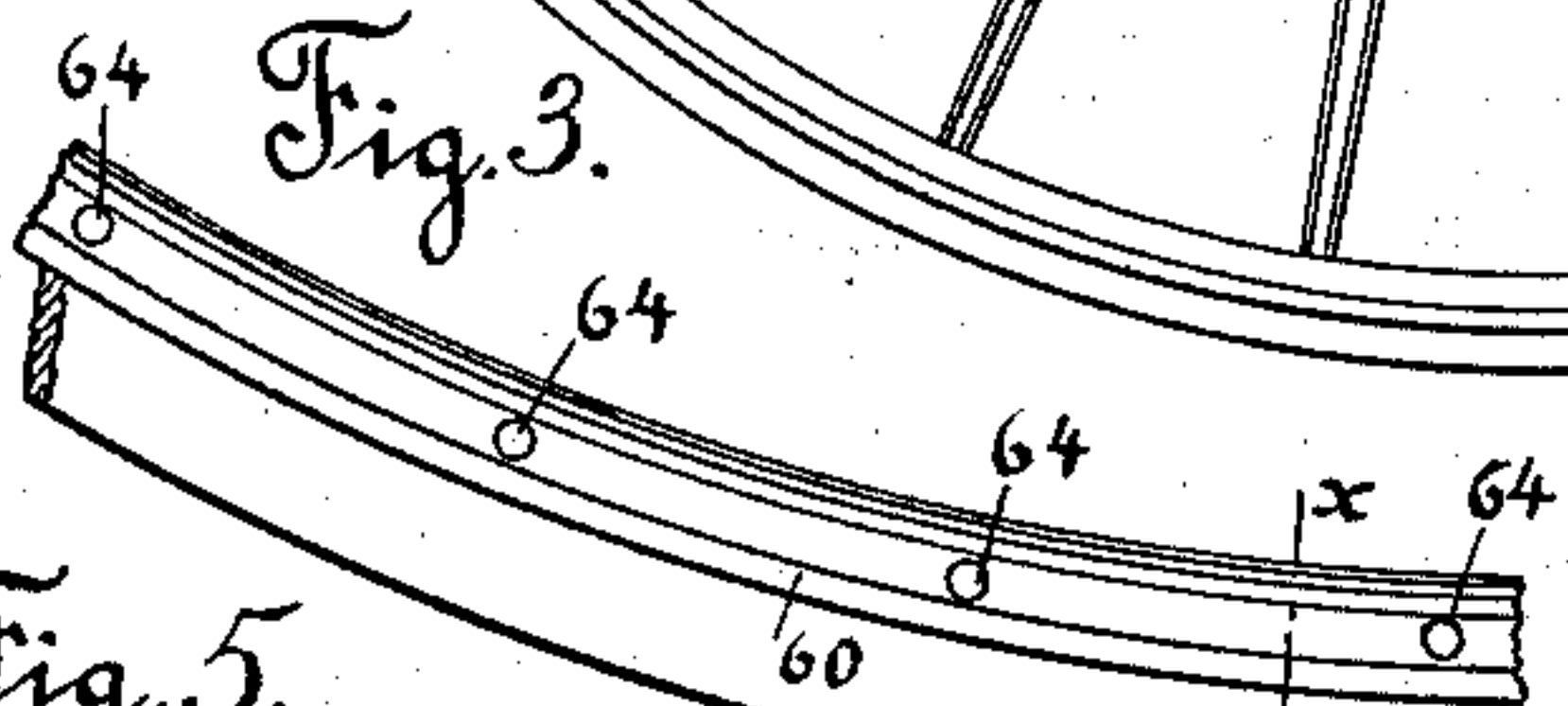


Fig. 5.

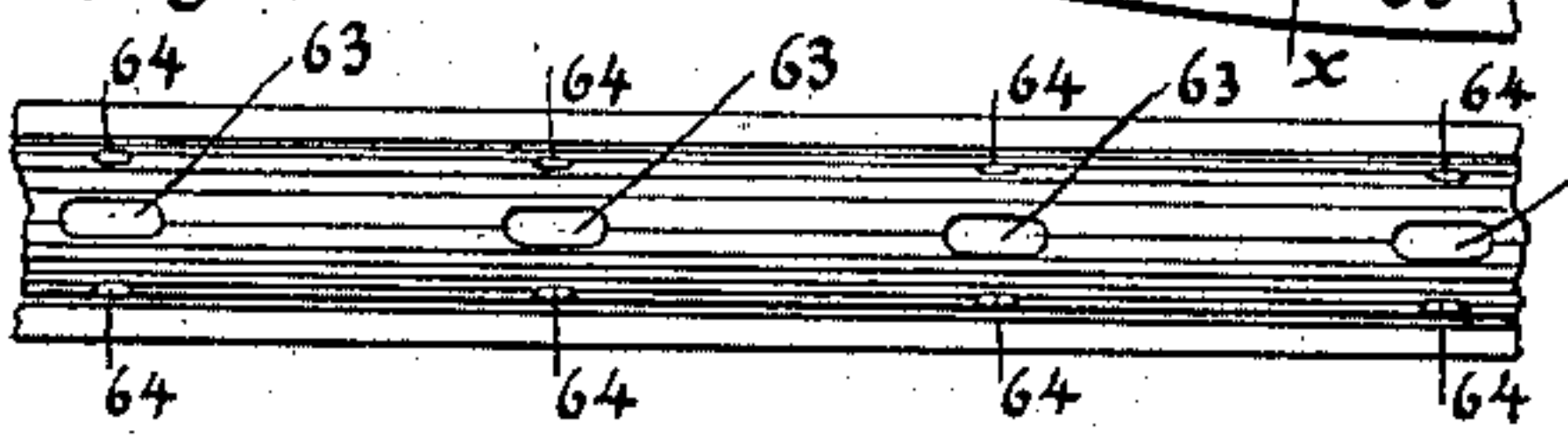


Fig. 4.

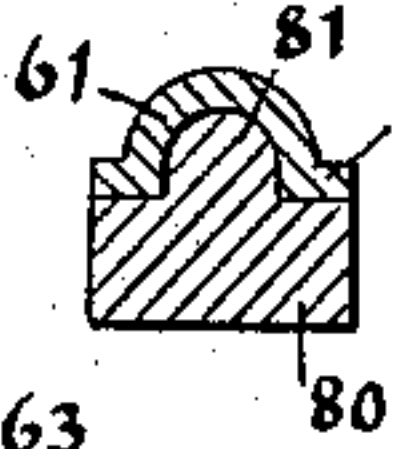


Fig. 6.

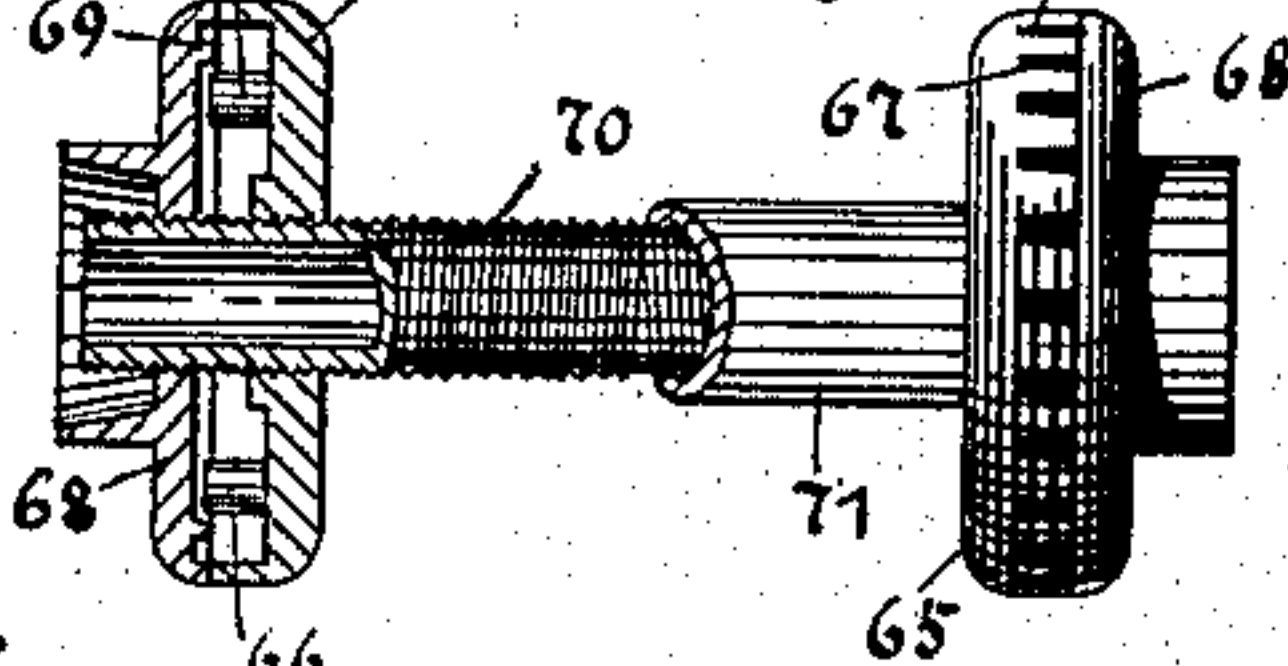


Fig. 7.

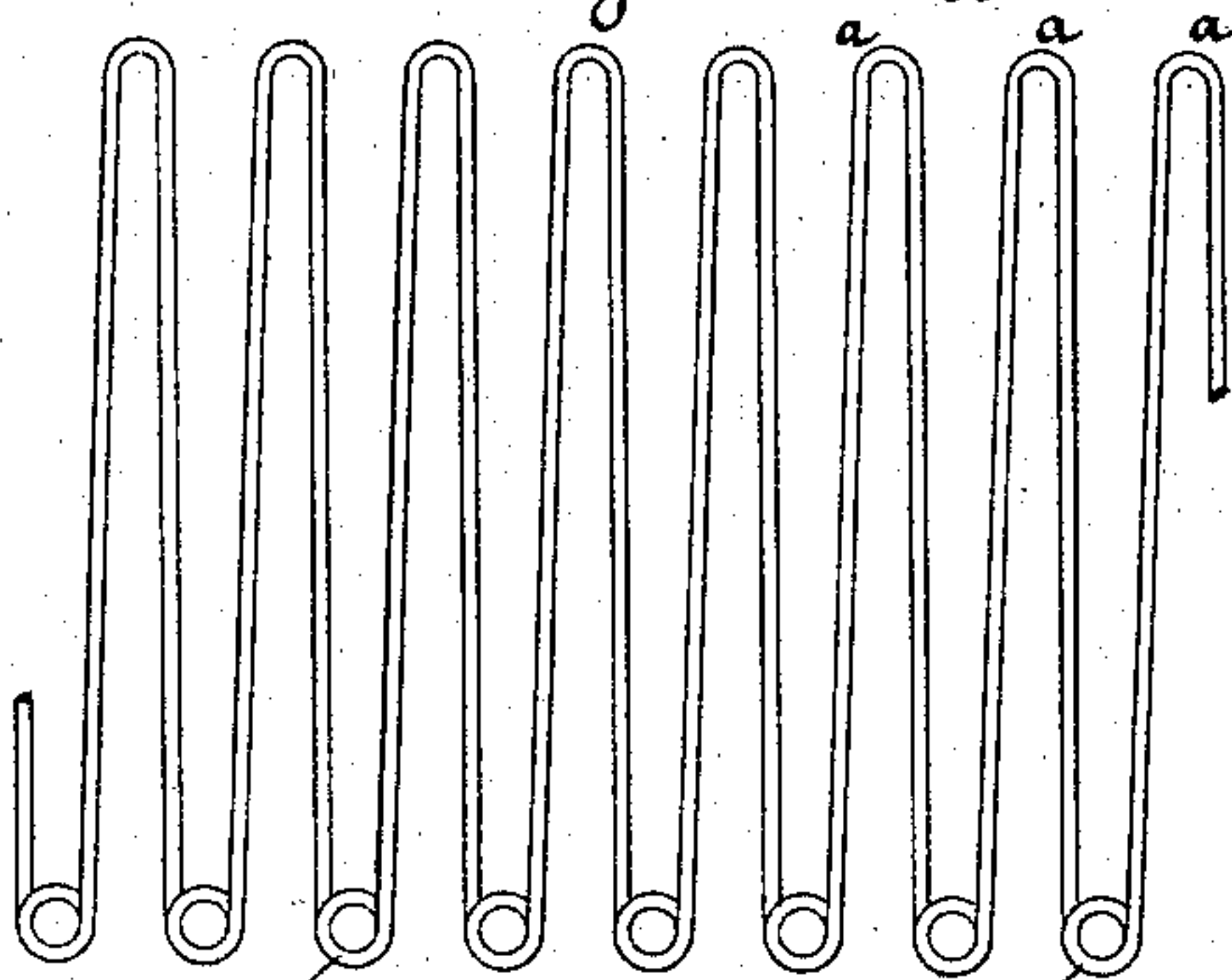
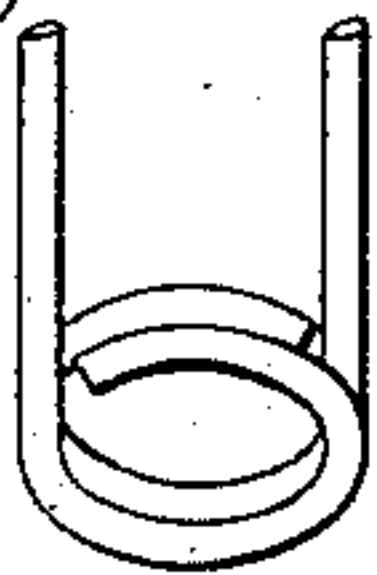


Fig. 8.



WITNESSES:

D. C. Reusch.  
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Fig. 9.

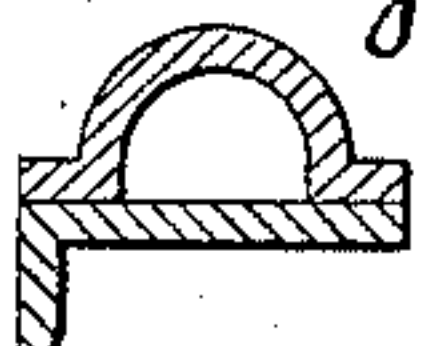


Fig. 10.



BY

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# UNITED STATES PATENT OFFICE.

AUSTIN J. HANKS, OF WILMINGTON, OHIO.

## WHEEL.

SPECIFICATION forming part of Letters Patent No. 384,759, dated June 19, 1888.

Application filed July 15, 1887. Serial No. 244,379. (No model.)

*To all whom it may concern:*

Be it known that I, AUSTIN J. HANKS, of Wilmington, in the county of Clinton and State of Ohio, have invented a new and Improved Wheel, of which the following is a full, clear, and exact description.

This invention relates to improvements in that class of wheels known as "suspension-wheels;" and the invention consists in the peculiar construction and arrangements of parts, as hereinafter fully described, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures and letters of reference indicate corresponding parts in all the views.

Figure 1 is a side view of one of the wheels with the outer cap removed. Fig. 2 is an edge view of the wheel. Fig. 3 is a view of a portion of the felly and tire of the wheel. Fig. 4 is a cross sectional view taken on line *x x* of Fig. 6. Fig. 5 is a detail view representing the inner face of a portion of the felly. Fig. 6 is a detail view of the hub of the wheel, the left-hand portion being shown in central section and the dust-case being broken away to disclose the construction of the box of the hub. Fig. 7 is a view of a portion of the wire employed to form the spokes, said wire being represented as it appears when first taken from the former. Fig. 8 is a detail view illustrating the connection between the ends of the spoke-forming wire. Figs. 9 and 10 are cross-sectional views of modified forms of tire.

In constructing the wheel illustrated in the drawings I provide a felly, 60, which is formed with a groove, 61, in its outer face, the felly being bent to circular form and united in any manner desired—for instance, by means of a plate, as 62. In the walls of the groove 61, I form apertures 63, in connection with which there are formed smaller apertures 64, the purpose of which will be presently explained.

The hub of my improved form of wheel is made up of two pairs of disks, the inner disks, 65, being formed with corks 66, twelve of said corks being formed upon each disk, and through the peripheral walls of the disks 65 there are formed apertures 67, twenty-four of these apertures being provided in each disk.

The outer disks, 68, are formed with internal ribs or flanges, 69, which fit closely against and serve as supports for the corks 66. The two pairs of disks are internally but inversely threaded and are arranged to engage with a threaded sleeve, 70, which is formed with a right and left hand thread, as illustrated, and between the two pairs of disks, when they are applied to the sleeve 70, there is fitted a dust-guard, 71, which may be made of rubber or any other proper material, the outer dust-guard of the wheels being formed upon the outer disks, 68. The disks 65 are keyed to the sleeve 70 and thus held from turning.

The spokes of the wheels are all formed from a single length of wire, which wire is made of annealed steel, this wire being bent upon a former by which single loops *a* and double loops or eyes *b* are made, the distance between the loops *a* and the eyes *b* being equal to the length of the spokes. The ends of the wire are brought together and connected by soldering or welding, as illustrated in Fig. 8. After the wire has been bent, as described, and as illustrated in Fig. 7, the loops *a* are inserted in order within the apertures 63 of the felly 60, and are held in place by rivets or pins that are passed through the apertures 64 and through the loops *a*. The overlapping wire forming the eyes *b* is soldered at each eye, thus preventing the slacking of the tension should one or more of the spokes be broken.

In setting up the wheel every alternate eye *b* is brought into engagement with the corks 66 of one of the disks 65, the tube 70 at this time being held by a proper center-pin, the axis of which corresponds with that of the felly. Then, after all of the corks of one of the disks have been filled, the outer disk, 68, is connected to the tube 70 and the remaining eyes are brought into engagement with the corks of the other disk 65, the tube 70 being turned at this time so as to force the two pairs of disks apart, and consequently to impart a proper tension to the wires.

After all parts have been adjusted as above described a flat-faced rubber tire, 80, formed with a continuous rib, 81, that is adapted to fit within the groove 61, is placed upon the felly.

In Fig. 9 I illustrate a felly and tire ar-



ranged for use on a hand-car, while in Fig. 10 I show a tire for light wagons.

The wheel above described, although especially designed for tricycles, will be found to be applicable for use in connection with any form of light vehicle, and as the wheel is strong and light and can be cheaply manufactured it will be found to be an exceedingly desirable form of wheel.

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

1. The herein-described wheel, consisting of the right and left hand threaded sleeve 70, the disks 65 and 68, the disks 65 being provided with the lugs 66 and the apertures 67 and the disks 68 with the flanges 69, the grooved and

apertured felly 60, the spokes formed of a single piece of wire and provided with loops or eyes *a b*, pins for securing the spokes to the felly, and the tire 80, provided with the rib 81, fitting in the groove of the felly, as specified.

2. In a wheel, the combination of the right and left hand threaded sleeve 70, the disks 65, provided with the apertures 67 and the lugs 66, the disks 68, provided with the flanges 69, and the dust-guard 71, fitted on the sleeve between the disks 65, substantially as herein shown and described.

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Witnesses:

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