(No Model.)

J. M. COMBS.

WHEEL.

No. 542,184. Patented July 2, 1895.

Fig. 1.

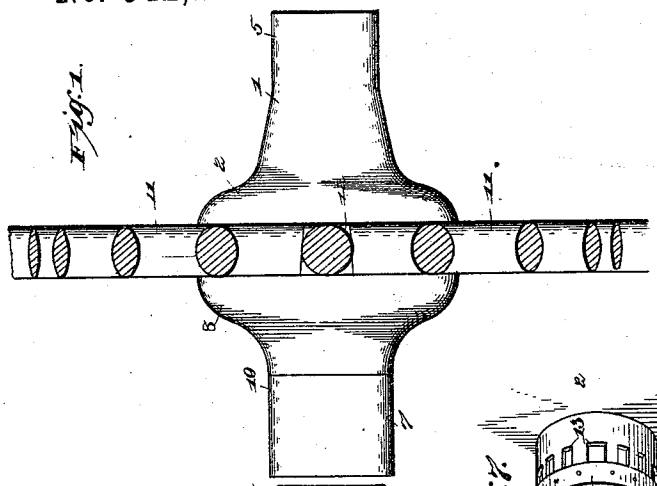


Fig. 5.

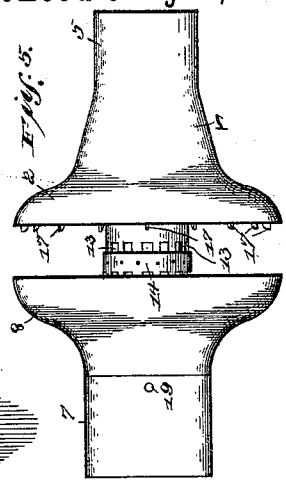


Fig. 2.

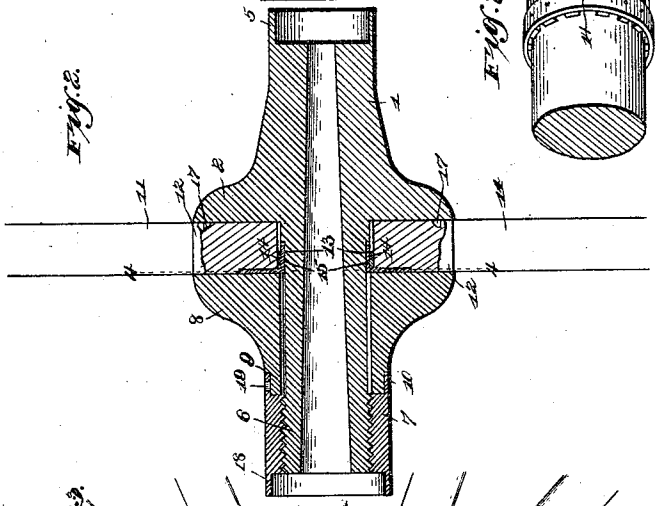


Fig. 6.

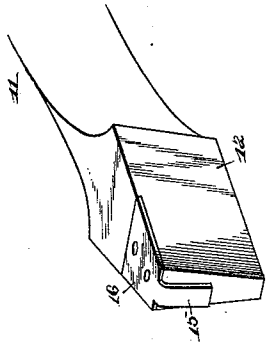


Fig. 3.

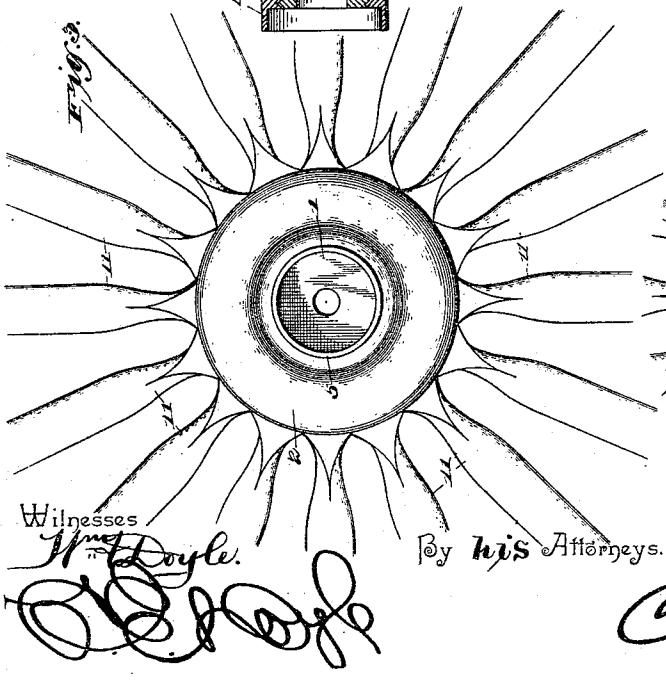
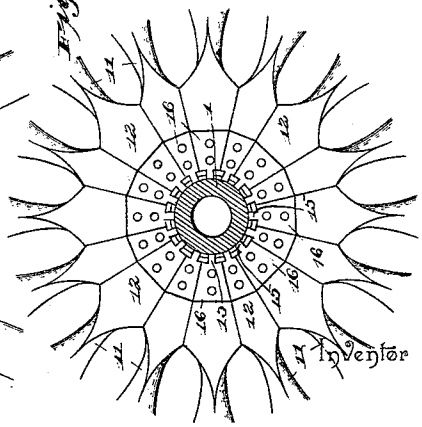


Fig. 4.



Witnesses
Wm. T. Doyle.
[illegible]

By his Attorneys.
James M. Combs.
Inventor
C. A. Snow & Co.

UNITED STATES PATENT OFFICE.

JAMES MARCUS COMBS, OF AUBURN, NEBRASKA.

WHEEL.

SPECIFICATION forming part of Letters Patent No. 542,184, dated July 2, 1895.

Application filed January 10, 1895. Serial No. 534,455. (No model.)

To all whom it may concern:

Be it known that I, JAMES MARCUS COMBS, a citizen of the United States, residing at Auburn, in the county of Nemaha and State of Nebraska, have invented a new and useful Wheel, of which the following is a specification.

My invention relates to improvements in wheels, the objects in view being to provide a simple, strong, and durable wheel in which the spokes are devoid of tenons and the hub is not provided with sockets for the reception of tenons, thus avoiding the weakening of the spoke; to provide improved means for attaching the spokes to the hub, whereby the former may be fitted in place without driving the same as in the ordinary practice; to provide means whereby the spokes are clamped laterally and may be tightened by adjusting the clamping devices to take up lost motion due to shrinkage, and to provide means whereby the spokes are held in place temporarily during their adjustment and during arrangement of the clamping devices which permanently secure them to the hub.

Further objects and advantages of the invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claim.

In the drawings, Figure 1 is a side view of a portion of a wheel constructed in accordance with my invention. Fig. 2 is a longitudinal section of the same. Fig. 3 is a front view. Fig. 4 is a transverse section on the line 4 4 of Fig. 2. Fig. 5 is a side view of the box with the spokes omitted to show the sockets for the tongues on the inner ends of the spokes. Fig. 6 is a detail view in perspective of the inner end of a spoke. Fig. 7 is a detail view in perspective of a portion of one of the hub-sections to show the pockets for the reception of the tongues on the inner ends of the spokes.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

1 designates the box which is constructed interiorly to fit the spindle for which it is designed, and cast integral with this box is a flange 2, having a flat or plain inner face arranged perpendicular to the axis of the box. The outer end of the body portion of the box is extended to form a flange 5. The inner end of the box is reduced, as shown at 6, and said reduced portion is exteriorly threaded to engage the threaded bore of the adjustable collar 7, and between this adjustable collar and the fixed flange 2 is a removable flange 8, provided at its inner side with a reduced thimble 9, over which fits the flange 10 at the outer end of the adjustable collar to break the joint. The outer surface of the removable flange is arranged parallel with the inner surface of the fixed flange 2, and is spaced therefrom a distance equal to the width of the spokes 11, which fit therebetween. The inner ends of the spokes are enlarged instead of being reduced to form tenons, as shown at 12, and these enlarged inner extremities which fit between the flat facing-surfaces of the fixed and removable flanges are tapered radially to cause their contiguous surfaces to lie in planes corresponding with the radii of the wheel, and said inner extremities are cross-sectionally dovetailed alternately in opposite directions, whereby they serve to lock each other in place and insure the accurate fitting of the parts. This cross-sectionally dovetailed construction also provides for the inner ends of the spokes being fitted more snugly around the center without involving difficulty in arranging the same.

The exterior surface of the box in the space between the facing-surfaces of the fixed and removable flanges is provided with longitudinal pockets 13, consisting of grooves formed in the surface of the box and closed laterally by the band 14, and the inner extremities of the spokes are provided with longitudinally-disposed tongues 15, which are adapted to fit in said pockets, the same being inserted from the inner ends of the pockets. Said tongues are attached to the spokes by means of plates 16, which are let into the material of the spokes to lie flush at their outer surfaces with the surfaces of the inner sides of the spokes. The fixed flange is provided upon its inner surface with a series of spurs 17, one for each spoke, and arranged, respectively, radially opposite the pockets on the surface of the box, whereby when the spokes are arranged with their tongues in engagement with the pockets the spurs may be engaged with the spokes by striking the latter upon their inner sides

and driving their outer sides against the inner surface of the fixed flange. This construction provides for holding the spokes in place during their arrangement in the proper positions around the hub, and after such arrangement has been completed the removable flange is fitted to place and is secured by means of the threaded collar. The adjustment of this collar forces the removable flange firmly against the inner surfaces of the spokes and thus clamps them between said removable flange and the fixed flange.

The above construction provides for the removal and replacement with facility of a broken or injured spoke, or a number of such parts, and also provides for taking up lost motion by tightening the threaded collar when the spokes are loosened by shrinkage. Said construction also provides for building the wheel with facility, and inasmuch as the spokes are not reduced at their inner ends to form tenons but are enlarged to lie in contact at their contiguous sides in planes corresponding with the radii of the hub, insures great strength and rigidity and also reduces the labor of constructing the wheel.

The removable collar at the inner end of the hub is provided with an inner flange 18, to form a dust-guard, as in the ordinary construction, and said collar is provided with an opening or socket 19, for engagement by a wrench of any suitable construction for applying and removing the collar.

It will be understood that in practice, various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

It is obvious that the construction of the box and the outer section of the hub is such as to avoid the necessity of setting the box, and prevent the same from becoming loosened in the hub, as in the ordinary wheel.

Having described my invention, I claim—

In a wheel, the combination of a box having a fixed flange, and a series of longitudinal grooves formed in the surface of the box adjacent to the flange, a band 14 surrounding the box adjacent to the flange to close the outer sides of the grooves and thereby form pockets, a removable flange fitted upon the box, means for securing the removable flange in place, and spokes fitted at their inner ends between said flanges and provided at their extremities with tongue 15 arranged parallel with said extremities to fit in the pockets on the box, said tongues extending outwardly or from the removable flange, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JAMES MARCUS COMBS.

Witnesses:
THOMAS LEE HALL,
WM. H. HAY.