W. E. JACOBS.

WHEELBARROW.

No. 176,433. Patented April 25, 1876.

Fig. 5. Fig. 6.

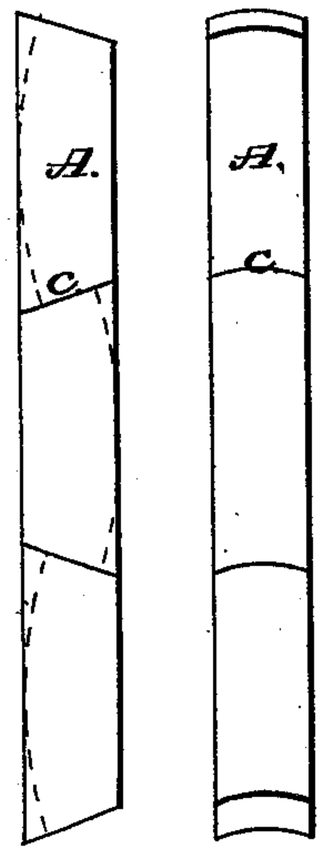


Fig. 1.

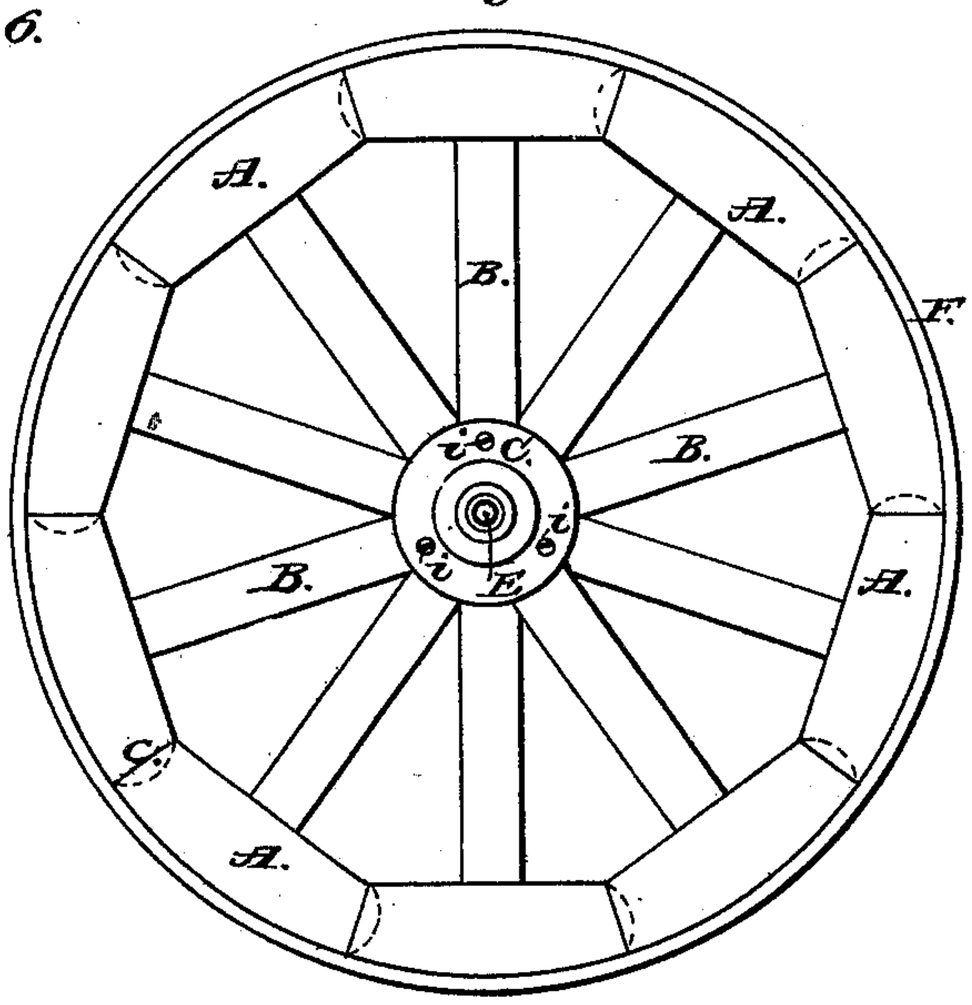


Fig. 3.

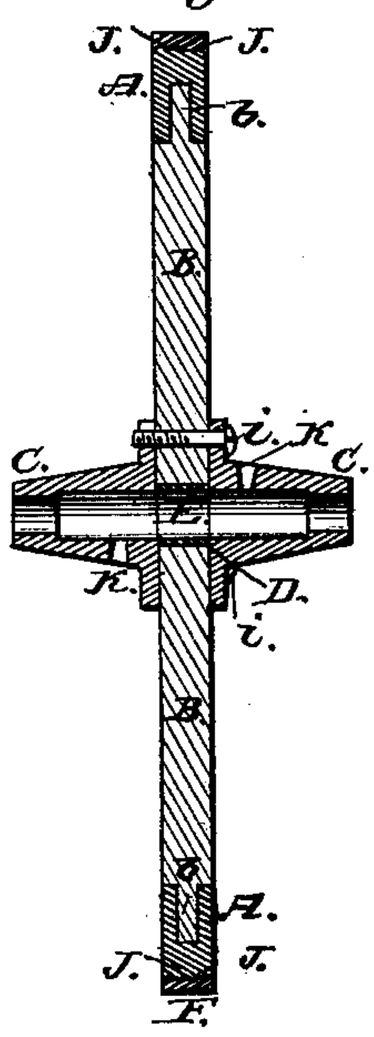
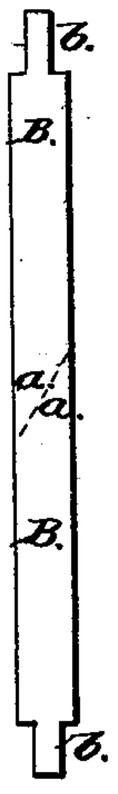


Fig. 7.



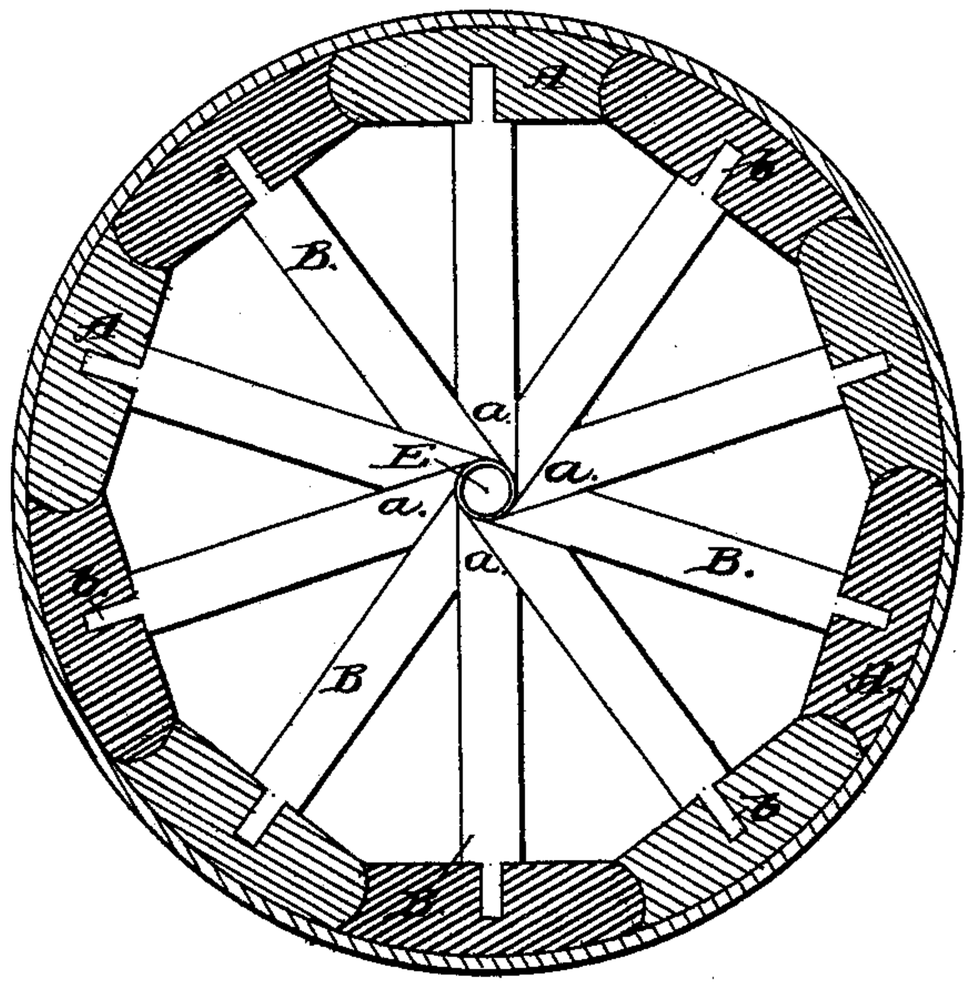
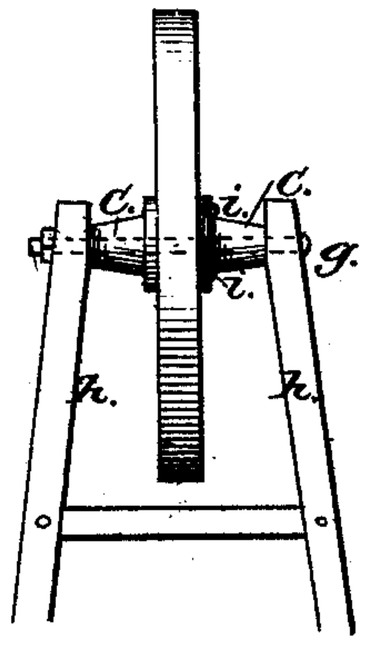


Fig. 4.



Witnesses:

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Inventor:

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UNITED STATES PATENT OFFICE.

WILLIAM E. JACOBS, OF COLUMBUS, OHIO.

IMPROVEMENT IN WHEELBARROWS.

Specification forming part of Letters Patent No. **176,433**, dated April 25, 1876; application filed April 15, 1875.

To all whom it may concern:

Be it known that I, WILLIAM E. JACOBS, of Columbus, Ohio, have invented an Improvement in Wheelbarrows, of which the following is a specification:

My invention relates to an improvement in wheelbarrows, and consists principally in the wheel and its connection to the barrow, as will be hereinafter explained.

In the accompanying drawings, Figure 1 is a view of one side of my improved wheel. Fig. 2 is a sectional view taken centrally through the wheel in the plane of the face thereof. Fig. 3 is a section taken diametrically through the wheel. Fig. 4, on a miniature scale, shows a top view of the wheel, and a portion of the barrow to which the wheel is connected. Figs. 5 and 6 show how to cut the sections of the felly; and Fig. 7 shows how to cut the spokes and their tenons.

A represents the felly-sections of the wheel, which are cut from a piece of straight stuff, as shown in Figs. 5 and 6, by means of a suitable tool, termed a cylindrical saw, by which one end of the felly-section is cut concave, and at the same time the other end of the next felly-section is cut convex, as shown at *c c*, Figs. 5 and 6, so that they fit snugly together when placed as shown in Figs. 1 and 2. The concave and convex ends of the fellies will keep the sections in their proper places, and thus do away with the common dowel-pins.

Thus it will be seen that with one cut or motion of the cylindrical saw both the concave and convex ends of the felly-section are cut to the right bevel, and the doweling is at the same time completed; or, in other words, at each passage of the saw through the stick one felly-section is completed, as relates to the ends thereof. The hole for the spoke-tenon *b* is then bored, and the outer edge of the section cut round, as indicated by the dotted lines in Fig. 5, both of which are done in the usual well-known manner. B B represent the spokes of wheel, which are also cut from straight stuff, as shown in Fig. 7. The outer tenons *b* are made round with a suitable tool, as is usually done in common wheels, but the inner tenons *a* are completely made by sawing the stick through obliquely with a straight saw, as shown by the dotted lines in Fig. 7, thus completing the inner tenons of two spokes, and cutting them both to their proper lengths by passing the saw once through the stick, so that when the spokes are placed around in their proper places in the wheel they will form close joints where they meet each other, leaving a hole through the center of the wheel, as shown in Fig. 2. C represents metallic hub-sections, which are bolted, one on each side of the wheel, with bolts *i*. These sections are made hollow longitudinally, and thus form the hub of the wheel, leaving an open hole through the entire wheel for the purpose hereinafter shown. D represents a ferrule or tube driven between the inner ends of the spokes, as shown in Figs. 2 and 3, to keep them in their proper places. This ferrule is one of the most important parts of the whole wheel, and is driven into its proper place after the spokes and fellies are put together and the tire set, and is held to its proper place by the hub-sections C resting against it on both sides of the wheel. It may be well here to state that before this ferrule is put into its place the spokes will be so forced together in the center of the wheel as to partly or nearly close up the hole or space E, which must then be opened or widened by forcing the spokes out longitudinally against the fellies with a suitable tool which is pointed at one end, and of the diameter and size of the ferrule D at the other end, the ferrule then entering the hole and following the tool as it is driven through the wheel. E represents the opening or hole through the entire wheel of the size to admit of the bolt *g*. F represents the tire of the wheel, which is put on in the usual well-known manner, but has one or more ridges, J, on the inner side, running longitudinally with the tire. These ridges are made a part of the tire, and are intended to press or embed themselves into the outer sides of the fellies as it is shrunk on the wheel, thus keeping the tire fast to the wheel, doing away with punching or drilling holes and driving nails. *g* represents a bolt of suitable length and diameter, and passes through suitable holes in the pieces *h* of the barrow-frame and through the hole E of the wheel, as shown by the dotted lines in Fig. 4. Thus it will be readily seen that I form a new, simple, and durable bear-

ing or journal and connection of the wheel to a wheelbarrow, and at the same time effect a suitable and good stay or support to the ends of the barrow-sticks *h*, the wheel revolving loosely around the bolt *g*, and bearing on the bolt on the outer ends of the hub C. These bearings are lubricated by a supply of oil poured through the holes *k* into the chamber or space E.

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

1. The combination of the ferrule or tube D, spokes with beveled ends *a*, and hub-sections C C of the wheel, substantially as described.

2. The felly-sections of the wheel, formed at their meeting ends with surfaces which are concave and convex, respectively, or segments of the inside and outside of a hollow sphere, substantially as described.

3. The narrow self-embedding ridges formed on the inside of the tire, in combination with the wheel, having the surface of the outer periphery of its wooden felly or rim made plain, substantially as described.

4. The hub-sections C C of the wheel, formed with bearing-sleeves, and the ferrule E between the sections for the spokes to bear upon and for holding the spokes in position, in combination with the stationary rod *g* on the bearing-extensions of the barrow-frame, substantially as described.

WILLIAM E. JACOBS.

Witnesses:
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