

C. W., F. H. & E. A. BLUEMEL.
 METHOD OF MANUFACTURING HAND WHEELS.
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1,031,515.

Patented July 2, 1912.

Fig.1.

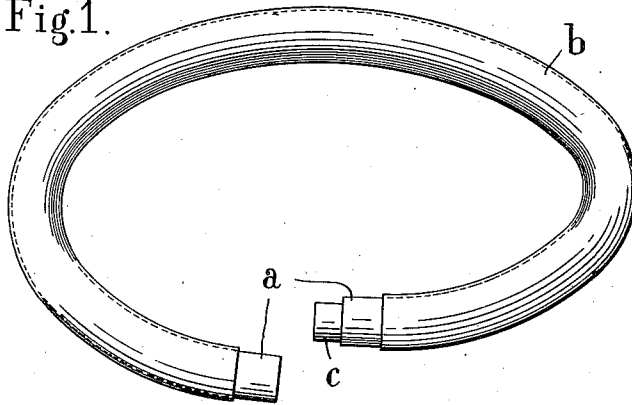


Fig.2.

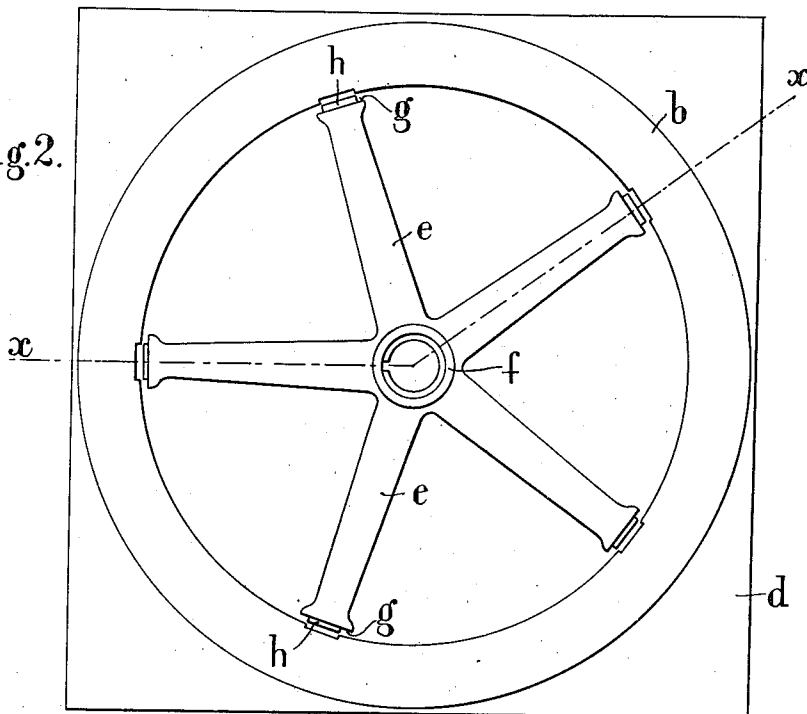


Fig.4.

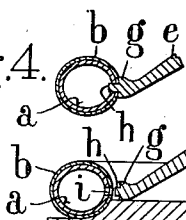
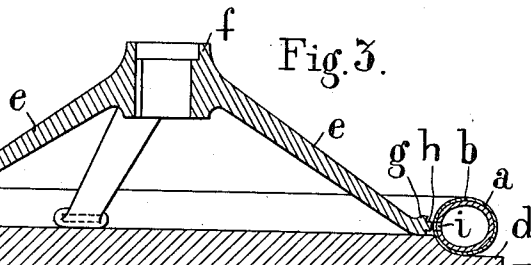


Fig.3.



Witnesses:

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UNITED STATES PATENT OFFICE.

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METHOD OF MANUFACTURING HAND-WHEELS.

1,031,515.

Specification of Letters Patent.

Patented July 2, 1912.

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To all whom it may concern:

Be it known that we, CHARLES WILLIAM BLUEMEL, FRANK HENRY BLUEMEL, and ERNEST ADOLPHUS BLUEMEL, subjects of the King of Great Britain, residing at Wolston, near Coventry, in the county of Warwick, England, have invented an Improved Method of Manufacturing a Hand-Wheel, of which the following is a specification.

This invention relates to an improved method of manufacturing hand wheels chiefly intended for use as steering hand wheels for automobiles.

According to our invention, the rim of the wheel is made from weldless drawn steel tube of oval or circular cross-section bent into ring-shape and upon which is threaded, before the ends of the bent tube are joined to complete the ring, a tubular sheath of celluloid. The arms of the wheel are inclined to the axis so as to lie in the surface of a cone, and the outer end of each arm is provided with a shoulder and a projecting tongue. The rim on its inner side is pierced or slotted with a series of openings which are milled to correspond in size and position with the tongues on the ends of the arms, and the hub and arms are then attached to the rim by placing the same in position within the rim resting on a suitable support and then applying pressure to flatten the angle of the arms somewhat, thus causing the ends of the arms to spread outwardly and enter the holes in the rim, the shoulders of the arms bearing tightly against the rim.

In the accompanying drawing, Figure 1 is a perspective view of a wheel rim embodying the present improvements, in course of construction. Fig. 2 is a plan view of a completed wheel rim with a hub and arms shown in position ready to be secured thereto. Fig. 3 shows a section on the line *x, x*, Fig. 2, and Fig. 4 is a detail view, in section, showing the joint between one arm and the rim, in a completed wheel.

Referring to the drawing *a* is a weldless drawn metal tube bent approximately to a ring shape with the ends out of alinement, over which a tubular sheath *b* of celluloid is drawn. The ends of the sheath *b* are at first forced back to leave the ends of the tube *a* exposed as shown in Fig. 1. After a short sleeve or liner *c* has been inserted in the tube *a* the ends of the latter having

been brought into alinement are butted together around the liner and united by welding, or otherwise. The ends of the celluloid sheath are then stretched to overlap one another covering the joint in the tube *a*, and are themselves united by cementing or in any suitable manner. By bending the metal tube, which may be of oval, circular or other convenient cross-section, in a spiral form so that the ends are out of alinement, the drawing on of a seamless celluloid sheath of corresponding cross-section is facilitated.

Figs. 2 and 3 show a completed rim seated on a table or bed *d* ready to receive the ends of arms or spokes *e* radiating from a hub *f*. The arms or spokes and the hub may be cast integrally in suitable malleable metal, or stamped from sheet metal, or built up of parts welded together. The arms or spokes are inclined so as to lie on the surface of a cone and each arm is formed at its outer end with a shoulder *g* and tongue *h*. Slots *i* corresponding to the tongues *h* are formed in the rim and the said tongues are forced into the slots by supporting the rim and arms on the bed *d* and then applying pressure to the hub to flatten the angle of the arms thus causing the ends of the arms to move outwardly into the slots *i* with the shoulders *g* bearing tightly against the inner periphery of the rim.

The improved method of construction enables the rim of a steering hand-wheel to be covered with celluloid tubing which is a cheaper and better method than covering a finished rim with celluloid applied by means of dies. Moreover the wheel constructed as described is much stronger than a wheel having a built up rim.

What we claim is:

1. A method of manufacturing a hand-wheel, consisting in bending a metal tube approximately to the shape of a ring with the ends of the tube out of alinement, drawing a tubular sheath of celluloid on to the bent tube leaving exposed, at both ends, parts of the said tube, bringing the ends of the tube into alinement and uniting them, bringing the ends of the sheath together to entirely cover the metal tube, uniting these ends of the sheath and finally fitting a hub and spokes to this ring.

2. A method of manufacturing a hand-wheel, consisting in bending a metal tube approximately to the shape of a ring with

the ends of the tube out of alinement, drawing a tubular sheath of celluloid on to the bent tube leaving exposed, at both ends, parts of the said tube, bringing the ends of the tube into alinement and uniting them, bringing the ends of the sheath together to entirely cover the metal tube, uniting these ends of the sheath thus forming a rim, providing slots in the said rim facing the center of the rim, further providing a hub, and spokes which radiate conically from said hub, providing shoulders on the spokes and tongues projecting beyond the shoulders, ar-

ranging said tongues in line with said slots in the rim, and applying pressure to flatten the conical disposition of the spokes, thus forcing the tongues of the spokes into the slots in the rim and pressing the shoulders tightly against the rim.

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