J. LEDWINKA.

METHOD OF MAKING SHEET STEEL WHEELS.

APPLICATION FILED OCT. 11, 1918.

1,434,713. **Patented Nov. 7, 1922.**

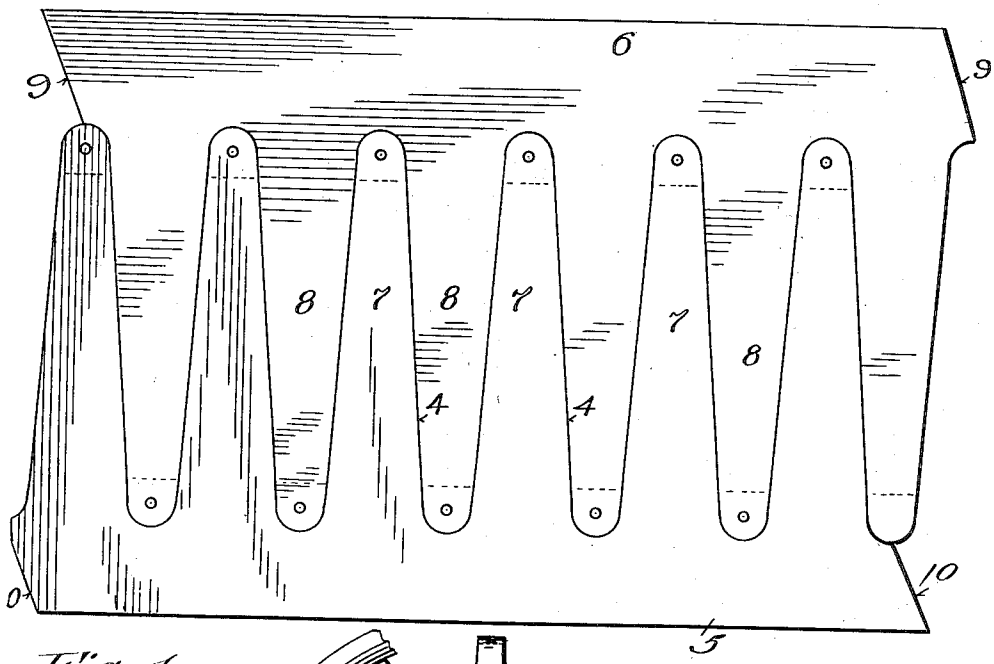


Fig. 1.

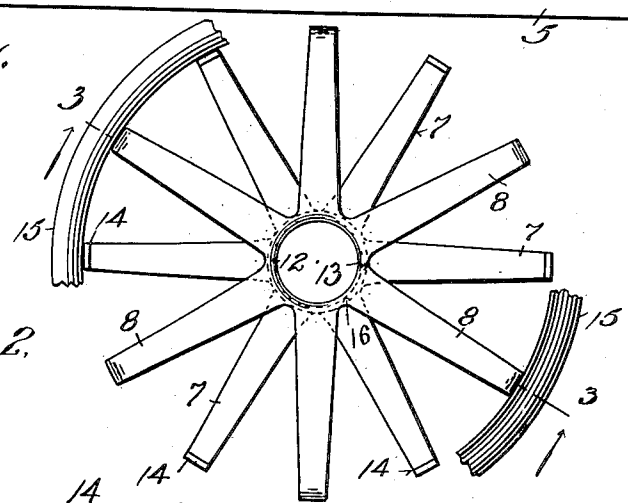


Fig. 2.

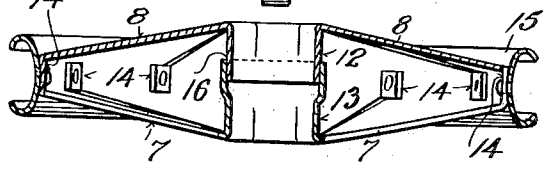


Fig. 3.

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UNITED STATES PATENT OFFICE.

JOSEPH LEDWINKA, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR, BY MESNE ASSIGNMENTS, TO BUDD WHEEL COMPANY, OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

METHOD OF MAKING SHEET-STEEL WHEELS.

Application filed October 11, 1918. Serial No. 257,704.

To all whom it may concern:

Be it known that I, JOSEPH LEDWINKA, a citizen of the United States, residing at Philadelphia, county of Philadelphia, State of Pennsylvania, have made a certain new and useful invention in a Method of Making Sheet-Steel Wheels, of which the following is a specification.

This invention relates to a method of making sheet steel wheels.

The object of the invention is to provide a method of making sheet steel wheels, which is simple, economical, and efficient.

A further object is to avoid waste of material in cutting out the blank portions from which the wheel is constructed.

Other objects of the invention will appear more fully hereinafter.

The invention consists substantially in the mode of operation, all as will be more fully hereinafter set forth, as shown in the accompanying drawing, and finally pointed out in the appended claims.

In the drawing: Fig. 1 is a plan view illustrating the method of stamping out the blank portion required to produce a sheet steel wheel in accordance with the principles of my invention.

Fig. 2 is a view in side elevation, parts broken off, showing a completed sheet steel wheel structure embodying my invention.

Fig. 3 is a view in section on the line 3, 3, Fig. 2, looking in the direction of the arrows.

In carrying out my invention a sheet of steel of suitable dimensions is stamped out or cut, as indicated in Fig. 1, along the symmetrically curved line 4, to separate the same into two sections, each section including a plane uncut body portion 5, 6, along one side edge of the blank sheet or section with tongues 7, 8, formed integrally therewith and extending from the opposite side edge of such blank section. The tongues 7, 8, taper in width outwardly or away from the uncut body portions 5, 6, with which they are respectively joined integrally, and are therefore symmetrically cut out in intermeshed or interlocking relation to each other, as clearly shown, thereby avoiding any waste of material in the stamping or cutting operation. The end edges of each uncut body portion 5, 6, are cut along lines substantially parallel to each other but inclined relative to the side edges of said sections, as indicated at 9, 10. After the blank sections are stamped or cut out, as above described, each is rolled into tubular form and the end edges of the body portion thereof are suitably joined together by welding, or otherwise, to form a central tubular hub sleeve portion, as indicated at 12, 13, Fig. 3. The tongues 7, 8, of each section are bent out radially to form the wheel spokes. The outer ends of spoke portions are bent laterally to form feet 14, which are secured to the wheel rim 15 by welding or otherwise.

From the foregoing description it will be seen that two sections are required to form a wheel, each section including a tubular central sleeve portion from one end of which radiate spoke portions which are joined integrally to the sleeve, the outer ends of the radiating spokes being bent to form outwardly or radially presenting flat feet. To assemble the sections in completing the wheel the ends of the two tubular sleeves 12, 13, which are not formed with spokes are presented towards each other and secured together. This may be effected in any suitable or convenient manner. A simple arrangement is shown wherein the end of one of the tubular sleeve portions is somewhat enlarged and the proximate end of the other sleeve is inserted telescopically into said enlarged end, as shown at 16, Fig. 3, the telescoping ends being welded or otherwise secured together. The wheel rim is then applied over and secured to the feet 14 at the outer ends of the spokes.

A wheel structure such as above described is light, strong, durable and efficient, is economical to manufacture and the parts composing it are easily and quickly assembled, and there is no waste of material in cutting or stamping out the portions which compose the hub and spokes. The finished wheel comprises three members, namely, the rim and the two body sections, each body section consisting of a tubular hub sleeve portion and radial spoke portions formed integrally therewith at one end thereof. When the two wheel body sections are assembled to complete the wheel they may be secured together, in which case, if welded together, they become substantially one integral structure.

Having now set forth the objects and nature of my invention, and the manner of

carrying the same into operation, what I claim as new and useful, and of my own invention, and desire to secure by Letters Patent is:—

1. The method of making wheels which includes piercing or cutting a blank along a zig-zag line running back and forth across the central portion of the blank to form simultaneously a pair of wheel body sections having oppositely disposed alternating tongues or projections along the severed edges thereof and uncut portions along their remote edges, and bending said tongues or projections from their original plane to form dished wheel body sections.

2. The method of making wheels which includes piercing or cutting a blank along a zig-zag line running back and forth across the central portion of the blank to form simultaneously a pair of wheel body sections having oppositely disposed alternating tongues or projections along the severed edges thereof and uncut portions along their remote edges, bending said tongues from their original plane to form dished wheel body sections, and rolling the uncut portions of each wheel body section into tubular form joining the ends of said uncut portion together.

3. The method of making wheels which includes piercing or cutting a blank along a zig-zag line running back and forth across the central portion of the blank to form simultaneously a pair of wheel body sections having oppositely disposed alternating tongues or projections along the severed edges thereof and uncut portions along their remote edges, rolling the uncut portion of said wheel body section into tubular form and joining the ends together, and bending said tongues from their original plane into position to form spokes of dished wheel body sections.

4. The method of making wheels which includes piercing or cutting a blank along a zig-zag line running back and forth across the central portion of the blank to form simultaneously a pair of wheel body sections having oppositely disposed alternating tongues or projections along the severed edges thereof and uncut portions along their remote edges, then rolling the uncut portion of each section into tubular form and bending out the tongues at one end thereof into radial relation to form wheel spokes, then assembling the two sections with the uncut ends of the tubular portions thereof presented towards each other and securing the same together and then applying a rim to the free ends of the spokes.

5. The method of making wheels which includes piercing or cutting a blank along a zig-zag line running back and forth across the central portion of the blank to form simultaneously a pair of wheel body sections having oppositely disposed alternating tongues or projections along the severed edges thereof and uncut portions along their remote edges, then rolling the uncut portion of each section into tubular form and bending out the tongues at one end thereof into radial relation to form wheel spokes, then telescoping the opposite ends of the tubular sleeve portions, the one into the other, and securing the same together, and finally applying a rim to the free ends of the spokes.

6. The method of making wheels which includes piercing or cutting a blank along a zig-zag line running back and forth across the central portion of the blank to form simultaneously a pair of wheel body sections having oppositely disposed alternating tongues or projections along the severed edges thereof and uncut portions along their remote edges, then rolling the uncut portion of each section into tubular form and bending out the tongues at one end thereof into radial relation to form wheel spokes, and bending the free ends of the spokes to form flat feet, then assembling the tubular sleeve portions with the ends thereof which are not formed with spokes presented towards each other and securing the same together and finally applying a rim to the flat feet at the free ends of the spokes.

In testimony whereof I have hereunto set my hand on this 21st day of August A. D., 1918.

JOSEPH LEDWINKA.