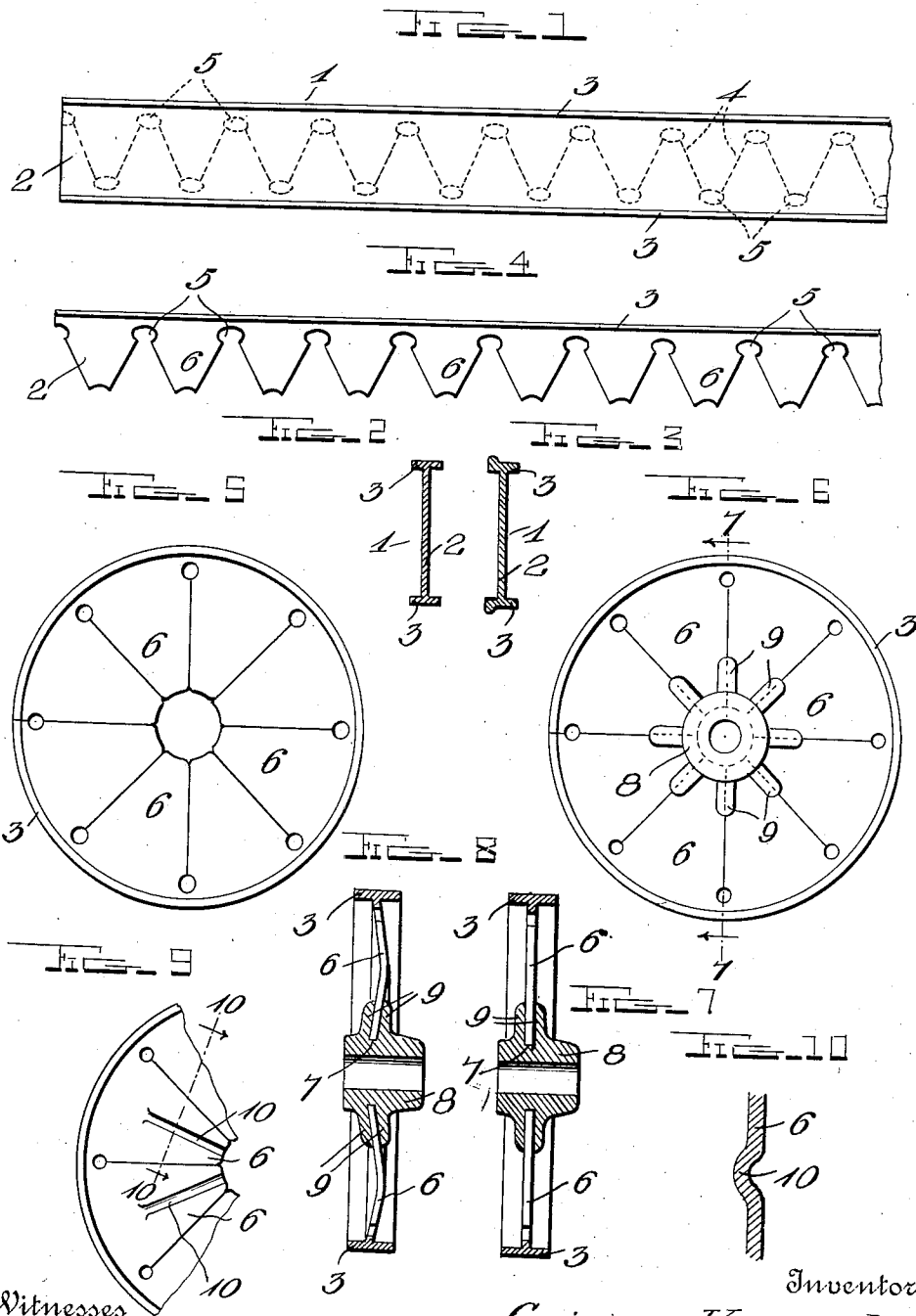


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METHOD OF MANUFACTURING METAL WHEELS.
APPLICATION FILED MAR. 5, 1909.

939,714.

Patented Nov. 9, 1909.



Witnesses
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UNITED STATES PATENT OFFICE.

GRIGORY KOWARSKY, OF RIGA, RUSSIA.

METHOD OF MANUFACTURING METAL WHEELS.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, GRIGORY KOWARSKY, a subject of the Czar of Russia, residing at Riga, Russia, have invented certain new and useful Improvements in Methods of Manufacturing Metal Wheels; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in the method of manufacturing metal wheels.

The object of the invention is to provide a wheel formed from cast steel ingots forged under the hammer and rolled into bars which are cut into sections of the proper shape, and said sections bent to form the body portion and rim of the wheel.

With these and other objects in view, the invention consists of certain novel features of construction, combination and arrangement of parts, as will be more fully described and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a side view of one of the bars from which the wheels are formed showing in dotted lines the manner in which the bar is cut for forming the wheels; Fig. 2 is a cross sectional view of the same; Fig. 3 is a similar view showing a cross section of a bar rolled to form a wheel having a flanged rim; Fig. 4 is a side view of one of the sections into which the bar, shown in Fig. 1, is cut in the process of forming the wheel; Fig. 5 is a side view of a partly formed wheel; Fig. 6 is a similar view of the wheel completely formed; Fig. 7 is a cross sectional view through the wheel as shown in Fig. 6; Fig. 8 is a similar view showing the manner in which the wheel may be curved or bent; Fig. 9 is a detail side view of a portion of a wheel showing the body portion thereof corrugated; and Fig. 10 is a detail sectional view on the line 10-10 of Fig. 9.

In carrying out the invention I provide bars 1 which are preferably formed from steel ingots which are forged under the hammer and afterward rolled to form the bar 1 which comprises a body portion or web 2, the edges of which are provided with oppositely projecting flanges 3 which form the rim of the wheel. In Fig. 2 of the drawings is shown a bar rolled to form a

plain flat rimmed wheel, while in Fig. 3 the bar is shown as being rolled to form a wheel having a flanged rim.

In the process of forming the wheel from the bar 1, the latter is divided lengthwise by a staggered or zigzag cut 4 and by a series of perforations 5 formed at the apex of each pair of the staggered cuts, as shown. By thus cutting the bar the body portion or web thereof is separated in the form of a series of substantially triangular sections 6. After the bar has thus been separated each part is cut into suitable lengths and said lengths are bent into circular form, which operation will bring the adjacent edges of the triangularly-shaped sections 6 into engagement, thus forming the body portion of the wheel as clearly shown in Fig. 5 of the drawings. After the lengths of the bar have thus been bent into circular form the meeting edges of the flanged edge 3 are welded together and thus form the rim of the wheel.

In the process of bending the lengths of the bar 1 to form the wheel the inner ends of the section 6 are projected into a groove formed in the outer side of a cylindrical hub or boss 8 which is arranged in the center of the body portion of the wheel as clearly shown in Fig. 6 of the drawing. The hub or boss 8 is formed with a series of radially projecting bifurcated lugs 9 which also engage the sections 6 of the bar over the meeting edges of said sections, as shown. The hub and lugs 9 are preferably welded to the sections 6, but may however be riveted or bolted thereto to firmly secure the inner ends of the sections 6 in operative position. After the wheel has thus been formed the sections 6 may be bent or curved to provide a curved wheel, as shown in Fig. 8. If desired I may press or otherwise form in the sections 6 a series of channels or corrugations, as shown in Figs. 9 and 10, whereby the rigidity of the sections and the strength of the wheel will be increased.

From the foregoing description, taken in connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion and the minor details of construction may be resorted to without departing from the prin-

ciple or sacrificing any of the advantages of this invention as defined in the appended claims.

I claim as my invention—

5 1. A method of constructing metal wheels which consists in dividing a bar longitudinally by a staggered cut to form two members, then bending each of said members into circular form and uniting the ends thereof, and then mounting a hub on the free end
10 of the cut portion of each member.

2. A method of constructing metal wheels which consists in dividing a bar longitudinally by a staggered cut to form two sections
15 each having substantially triangular laterally extending members with V-shaped recesses between them, then bending each of said sections into circular form and uniting the ends thereof, and then mounting a hub
20 on the free ends of the cut portion of each section.

3. A method of constructing metal wheels which consists in dividing a bar longitudinally by a staggered cut to form two members, with an aperture arranged at the apex
25 of each element formed by said staggered cut to provide a plurality of truncated tri-

angular members, then bending each of said members into circular form and uniting the ends thereof, and then mounting a hub on
30 the free ends of the truncated triangular members.

4. A method of constructing metal wheels which consists in dividing a bar longitudinally on a staggered line, then dividing the
35 so cut sections transversely into suitable lengths, then bending said lengths into circular form and uniting the meeting edges thereof, and then mounting a hub on the free ends of the cut portion of each section. 40

5. A method of forming metal wheels from flanged iron bars which consists in dividing a bar longitudinally into sections by a staggered cut, then bending said sections
45 into circular shape to form the body portion and rim of the wheel, and then mounting a hub at the center of said body portion.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

GRIGORY KOWARSKY

Witnesses:

HERNANDO DE SOTO,
LAURANCE HILL.