Jan. 5, 1943. J. D. REDDICK 2,307,335

METHOD OF MAKING VEHICLE WHEELS

Filed Nov. 4, 1939

Fig. 1

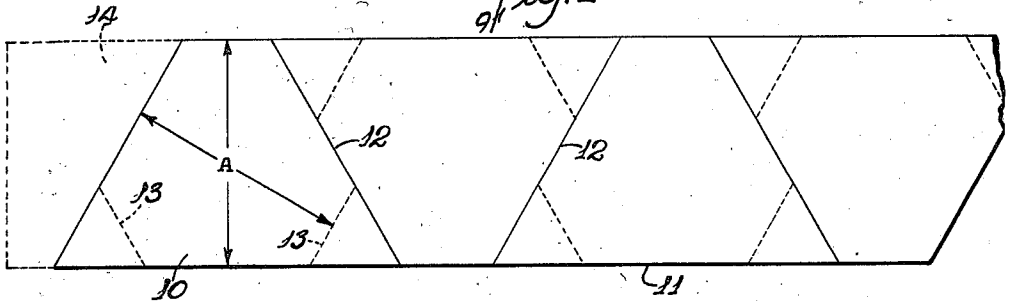


Fig. 2

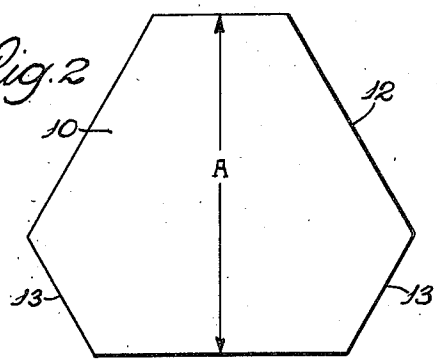


Fig. 3

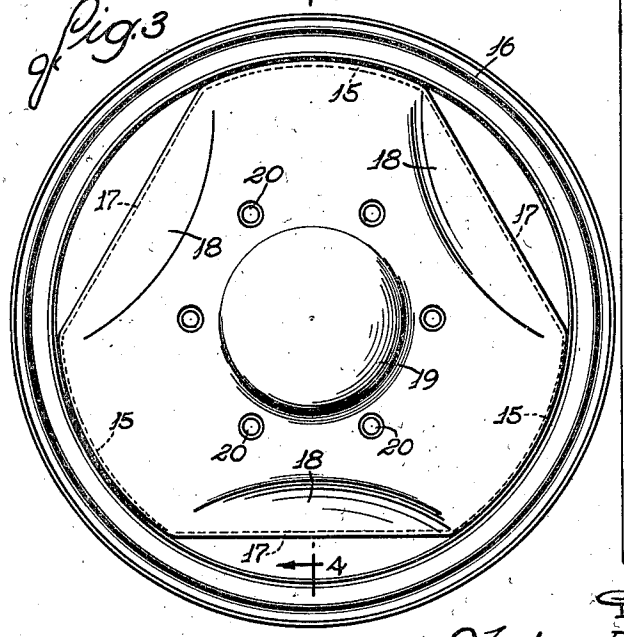
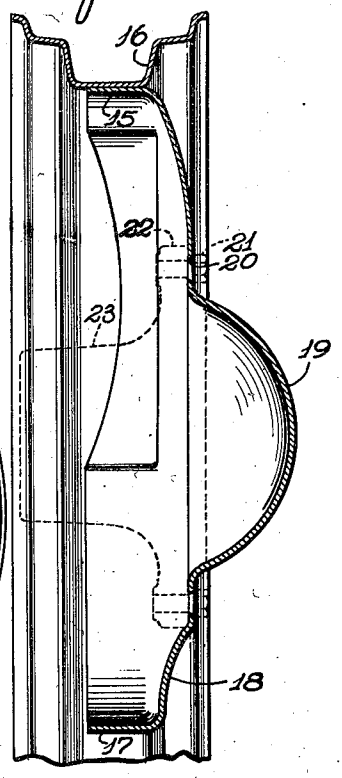


Fig. 4



INVENTOR

John D. Reddick

By Parker, Carlson, Pippen & Hubbard

ATTORNEYS

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METHOD OF MAKING VEHICLE WHEELS

John D. Reddick, Quincy, Ill., assignor to Electric Wheel Co., Quincy, Ill., a corporation of Illinois

Application November 4, 1939, Serial No. 302,842

3 Claims. (Cl. 29—159.03)

The invention relates to a method of making metallic wheels and more particularly to forming wheel bodies by pressing and stamping operations for assembly with conventional rim and hub constructions.

An object of the invention is to provide a new and improved method of wheel construction from flat sheets or strips of metal stock with minimum waste.

Another object is to provide a novel method of making a wheel body structure of substantially triangular shape providing three rim engaging portions, the mid-points of each of which lie approximately on the apexes of an equilateral triangle circumscribed by the internal circumference of the rim.

Another object is to provide a novel method of forming a wheel body of the character above set forth in which the blank from which the body is fashioned has a substantially equilateral triangular shape with truncated apex portions, the altitude dimension of the truncated triangle being the width of the strip or sheet from which the blank is formed.

In conjunction with the foregoing, an object is to provide a novel method in which a blank is formed from a strip or sheet having a diagonal or angular end edge corresponding to the angularity of a side of the triangular blank.

Other objects and advantages will become apparent in the following description and from the accompanying drawing, in which:

Figure 1 illustrates somewhat diagrammatically the formation according to the invention of blanks from a strip or sheet of metal stock.

Fig. 2 is a plan view of a body blank.

Fig. 3 shows a completed wheel body.

Fig. 4 is a diametrical sectional view through the wheel body.

Metal wheel bodies have commonly been formed by pressing or stamping the bodies from sheet metal blanks of various configurations. The diminution of metal lost as waste or scrap is a factor of considerable importance in the manufacture of such wheel bodies. According to the present invention the quantity of waste or scrap metal produced per body unit is minimized without utilization of more metal in a wheel body than is actually required.

With reference to Fig. 1 of the drawing, the wheel blanks 10 are fashioned from a piece of sheet metal stock 11. This stock may, as shown in Fig 1, be a sheet of metal lengthwise dimensioned to contain a plurality of blanks without waste and it may, as well, be a substantially continuous strip of stock of indeterminate length. The body blanks, as shown in Figs. 1 and 2, are substantially in the form of truncated equilateral triangles and the altitude dimension of the truncated triangle (designated by the letter "A" Fig. 1) is equal to the width of the stock strip or sheet 11. Thus, the blanks may be formed from the sheet or strip of stock by cutting the strip of stock in equal or aliquot parts along transverse lines 12 extending at angles of approximately 60° with respect to the side edges of the stock. The blanks are thus reversely arranged on the stock sheet and each blank has one truncated apex. To complete a body blank the remaining two apexes are cut off along the dotted lines 13 to form a truncated triangle having the same altitude dimensions. In this manner, the only waste material is represented by the two cut off apex portions of the blank. Where the blanks are formed from sheets of such length that only a comparatively few blanks may be obtained therefrom a further saving of opposite end portions of the sheet, as represented by the numeral 14, may be effected when the sheets are cut from a continuous strip by cutting the sheet ends angular with respect to the sheet sides, the angularity corresponding with that of a side of the blank. Such an end formation is shown at the right-hand side of the sheet in Fig. 1. If a square end sheet (left-hand side of Fig. 1) is used, each end portion will be a half-blank. These halves may be welded together to form a full size blank, thus eliminating end waste.

After the blank, having the truncated equilateral shape as shown in Fig. 2, has been formed, the margins of the blank across each truncated portion are turned at substantially right angles to the plane of the blank to provide flanges 15 (Fig. 3) which are longitudinally arcuate approximately on the radius of the rim to be supported by the wheel body. The flanges 15 constitute rim supporting seats to which the rim structure, indicated generally at 16, may be secured in any suitable manner. The blank and wheel body are dimensioned so that the mid-points of the wheel engaging portions of the body fall approximately at the apexes of an equilateral triangle circumscribed by the internal circumference of the rim. The wheel body, therefore, provides an adequate three-point support for the rim and tire assembly.

Intermediate the rim engaging portions of the wheel body defined by the flanges 15, the marginal sides of the triangular blank are turned to provide longitudinally straight flanges 17 which, in assembly, are spaced from the rim.

The body of the blank as a whole is preferably gently dished outwardly and portions of the body radially inwardly of the flanges 17 may be reversely dished, as indicated at 18, to increase the strength of the body structure.

Centrally of the blank an enlarged rounded or spherical boss 19 may be pressed from the plane of the blank to provide a hub cap or cover which is integral with the wheel body. Surrounding this boss is a series of apertures 20 conventionally formed to receive bolts 21 for securing the wheel body to the bolting-on flange 22 of the wheel hub assembly 23.

From the foregoing it will be evident that I have produced an improved wheel body by a novel method which minimizes the weight of stock material required for each body unit. While the invention is susceptible of various modifications and alternative constructions, I have shown in the drawing and have herein described in detail the preferred embodiment, but it is to be understood that I do not thereby intend to limit the invention to the specific form disclosed, but intend to cover all modifications and alternative constructions falling within the spirit and scope of the invention as expressed in the appended claims.

I claim as my invention:

1. The method of forming a plurality of wheel bodies each having three point support for a rim to be carried thereby comprising the steps of cutting a series of like blanks from a strip of stock having substantially parallel opposite edges, each of said blanks having the form of an equilateral triangle with one truncated apex, the dimension of said strip between said edges being equal to the dimension of the blanks measured perpendicularly from the line of truncation to the blank side opposite thereto, said blanks being reversely cut from the strip with the lines of truncation on adjoining blanks lying alternately coincident with the opposite side edges of the strip, said blanks being cut from immediately adjoining portions of said strip so that the same transverse cut forms a side of two blanks without waste of material, cutting each blank to similarly truncate the remaining apexes, and bending each of the truncated portions of the blanks adjacent their lines of truncation to form thereof three rim supporting flanges on each blank.

2. The method of forming a plurality of wheel bodies each having three point support for a rim to be carried thereby comprising the steps of cutting in aliquot parts an elongated strip of stock having parallel side edges and parallel end edges related to the side edges at an angle of approximately 60°, each of said blanks having the form of an equilateral triangle with one truncated apex, the dimension of said strip between said edges being equal to the dimension of the blanks measured perpendicularly from the line of truncation to the blank side opposite thereto, said blanks being reversely cut from the strip with the lines of truncation on adjoining blanks lying alternately coincident with the opposite side edges of the strip, said blanks being cut from immediately adjoining portions of said strip so that the same transverse cut forms a side of two blanks and each end edge of said strip forming a side of the blank cut from the adjoining end portion of the strip, whereby a plurality of blanks are formed from the strip without waste of material, cutting each blank to similarly truncate the remaining apexes, and bending each of the truncated portions of the blanks adjacent their lines of truncation to form thereof three rim supporting flanges on each blank.

3. The method of forming a plurality of wheel bodies each having three point support for a rim to be carried thereby comprising the steps of cutting a series of like blanks from an elongated strip of stock having parallel side edges and at least one end edge perpendicular to the side edges, said strip having the line of an end cut running at an angle of approximately 60° to the side edges from a corner defined by a side edge and the perpendicular end edge to provide a triangular end piece, the strip between its ends being cut in aliquot parts, each of said blanks having the form of an equilateral triangle with one truncated apex, the dimension of said strip between said side edges being equal to the dimension of the blanks measured perpendicularly from the line of truncation to the blank side opposite thereto, said blanks being reversely cut from the strip with the lines of truncation on adjoining blanks lying alternately coincident with the opposite side edges of the strip, said blanks being cut from immediately adjoining portions of said strip so that the same transverse cut forms a side of two blanks without waste of material, cutting each blank to similarly truncate the remaining apexes, and bending each of the truncated portions of the blanks adjacent their lines of truncation to form thereof three rim supporting flanges on each blank.

JOHN D. REDDICK.