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V. J. BASENER.

WHEEL CONSTRUCTION.

APPLICATION FILED APR. 19, 1916.

1,203,459. Patented Oct. 31, 1916.

Fig 1

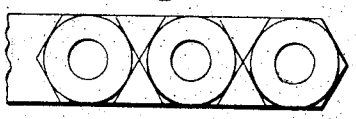


Fig 2

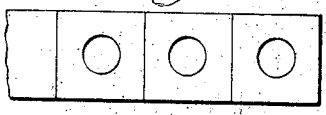


Fig 3

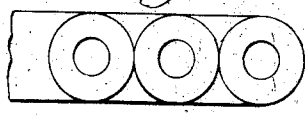


Fig 4

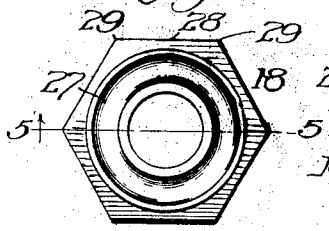


Fig 5

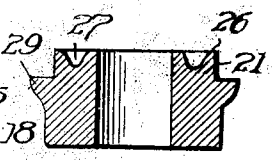


Fig 6.

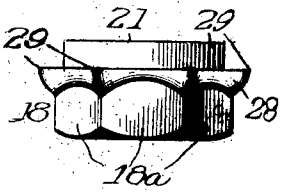


Fig 11

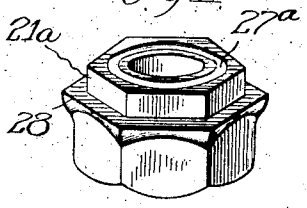


Fig 8

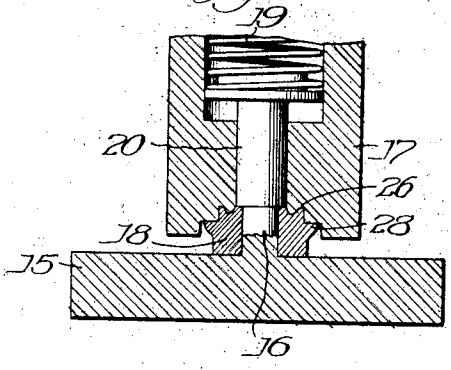


Fig 7

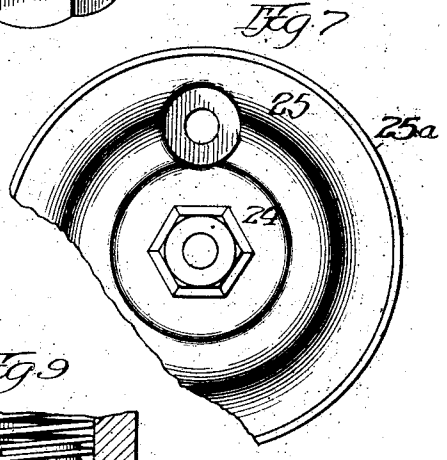


Fig 10

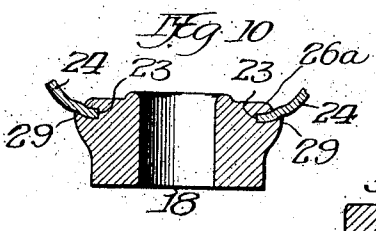
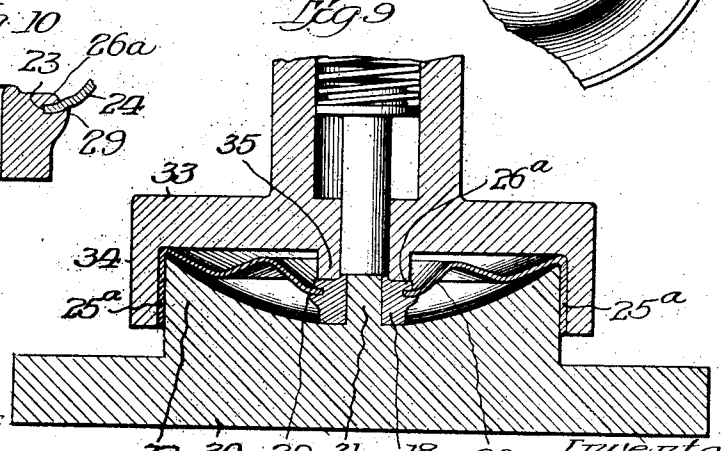


Fig 9



Witnesses

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UNITED STATES PATENT OFFICE.

VICTOR J. BASENER, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-THIRD TO WAYMOND D. WRIGHT, AND ONE-THIRD TO BURRELL D. JONES, BOTH OF CHICAGO, ILLINOIS.

WHEEL CONSTRUCTION.

1,203,459. Specification of Letters Patent. Patented Oct. 31, 1916.

Application filed April 19, 1916. Serial No. 92,134.

To all whom it may concern:

Be it known that I, VICTOR J. BASENER, a citizen of the United States, and resident of the city of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Wheel Construction, of which the following is a specification.

My invention relates to wheel construction, and has more particular reference to metallic wheels, the hubs for same, and the method of making same.

The invention is peculiarly advantageous in the construction of wheels for hand-propelled carpet cleaners and the like.

It is not new to construct wheels of stamped metal, nor to secure a hub therein by riveting or overturning a portion of the metal of the hub. Heretofore, however, such hubs have been formed in lathes, from fairly large stock requiring numerous operations. For instance, in my own prior practice I used round stock three-fourths of an inch in diameter, and by means of a lathe or "screw machine," performed the following operations to form a single hub, namely, boring the hole for the axle, turning a central stem with a shoulder, countersinking the hole for swaging and then cutting off the hub from the stock. Such operations are very costly of time, labor and materials.

The principal objects of my present improvements are to cheapen very notably the construction of such wheels by the saving of a large part of time, labor and materials heretofore employed, and, as compared with a wheel of the older construction, a stronger wheel of the same weight, one wherein the hub is more tightly secured, and, within the required strength of construction for practical use, a lighter wheel.

It is an object also to provide in a simple and economical manner a wheel construction of the character described in which the hub is maintained strongly against axial movement relative to the web of the wheel.

Other objects and advantages will appear hereinafter.

In the accompanying drawings, which form a part of this specification, I have shown a preferred embodiment of these improvements and have illustrated various steps in forming and assembling parts.

In these drawings Figures 1, 2 and 3 are plan views of metallic bars from which the hubs may be stamped, the figures showing in outline several forms of blanks, that of Fig. 1 being the preferred outline; Fig. 4 is a plan or face view of the preferred hub construction; Fig. 5 is a medial horizontal sectional view of the same hub, as on the line 5—5 of Fig. 4; Fig. 6 is a side elevation of the same; Fig. 7 is a fragmentary side elevation showing the inside of the wheel complete with its hub; Fig. 8 is a sectional elevation of a punch and die for forming the hub from a blank cut from the bar of Fig. 1, or from an ordinary hexagonal nut of commerce; Fig. 9 is a sectional elevation of the punch and die used in setting the hub in the wheel; Fig. 10 is an enlarged sectional elevation of the preferred hub construction in a wheel, only fragments of the wheel being shown; and Fig. 11 is a perspective showing a stamped hub having a central stem of polygonal outline.

While I may punch hexagonal, square, round or other forms of blanks from bar iron, I prefer to use the ordinary nut blanks of commerce, preferably hexagonal nut blanks, which are already punched to shape and contain the hole adapted to receive the axle of the wheel, such nuts being obtainable in the market almost as cheaply as the bar from which they are cut. According to these improvements I am therefore enabled to use substantially the cheapest metal, which is at the same time in the most desirable form, to be obtained.

The nut blanks are placed in a suitable press on a die, as 15, upon its centering pin 16, and the punch 17 at a single blow conforms the blank to the shape of the hub 18 as shown for instance in Figs. 4, 5, 6, and 8. On the upward movement of the punch the spring 19 forces downward the stripper punch 20 releasing the hub 18 from the punch. As this formed the hub is preferably provided with a cylindrical projection 21 adapted to fit into a central opening 23 (Fig. 10) in the web 24 of the wheel 25. The hub is also preferably formed with the

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annular projection 26, formed by impressing into the hub the annular groove 27, the metal of the rim 26 being adapted to be overlaid, swaged, or riveted upon the web of the wheel. Very importantly a shouldered projection 28 is formed caused by a shearing and pressing downward of the metal of the blank by the die, as 17, this flange 28 being considerably wider or greater in diameter than was the original blank, as well shown in Fig. 6 wherein the hexagonal part 18ª indicates the original construction and diameter of the blank. Importantly also there are thus provided points 29 in the flange or annular projection 28 adapted to engage the web of the wheel and lock the hub against axial movement with respect to the wheel 25. By this construction a relatively wide flange or support 28 is provided from a minimum of metal, it being pointed out that if the same diameter of flange were provided from round stock in a lathe the stock would have to be of the diameter of the flange itself.

In assembling the wheel blank and hub I employ a suitable punch press having the die 30 provided with a centering pin 31 over which the hub is placed and having also the centering flange 32 over which the rim 25ª of the wheel fits. Thus the hub 18 and the wheel 25 are held positively concentrically. The punch 33 is provided with the flange 34 which fits over the outside of the rim 25ª of the wheel and is provided also with the central swaging punch 35 which, on descending, swages over the projection 26, as indicated at 26ª, thus locking the hub and wheel together while they are held in concentric registration. In this connection it is pointed out that through the action of the punch 33 in assembling the hub and wheel the corners, as 29, on the flanges of polygonal shaped hubs become inclined upward, or toward the web 24, and, as they extend outwardly from the axis beyond the overturned rib 26ª they indent the metal of the web 24 of the wheel, as shown in Fig. 10, thereby locking the hub additionally against rotation relative to the web 24.

Fig. 11 illustrates a hub having a polygonal projection 21ª and flange 28ª, the projection 21ª being adapted to interfit with a hole of like shape in the web of the wheel, and thus providing a positive driving relation between the hub and the web, more important in wheels of such construction where they may be employed as pulleys or in other applications of driving force. The hub of Fig. 11 may be formed by dies and assembled with the wheel web as in the case of the preferred form described. Hand or power tools may be employed in each of the several operations.

I desire also to point out that for some purposes I have obtained excellent results in assembling the wheel parts by the use of hubs which have not been provided with the annular groove 27 or 27ª and the rib as 26. Where the rib 26 is omitted the punch 35 smashes down the metal corresponding to the rib, and other metal thereabout, riveting the parts together; but a deeper bead, as 26ª, is formed where the hub is provided with a projection, as 26, and a stronger construction thereby obtained.

I claim:

1. A hub for a wheel of the class described, said hub having a flange polygonal in outline intermediate its ends, and having a stem-like projection extending axially from said flange, said flange being adapted to support the web of a wheel, said projection being adapted to be riveted upon such web.

2. A hub for a wheel of the class described, said hub having a flange intermediate its ends, and having a stem-like projection polygonal in outline extending axially from said flange, said flange being adapted to support the web of a wheel, said projection being adapted to be riveted upon such web.

3. A hub for a wheel of the class described, said hub having a flange polygonal in outline intermediate its ends, and having a stem-like projection extending axially from said flange, said projection having an annular groove in its free end and forming thereby an annular projection adapted to be swaged over upon the web of the wheel when such web is against said flange.

4. A wheel of the class described having a hub with a flange polygonal in outline and a central stem projecting axially from said flange and passing through a central hole in the web of the wheel, a portion of said stem being swaged over to engage the web between said flange and said turned over portion.

5. The method of making hubs for wheels of the class described which consists in stamping a metallic blank polygonal in outline whereby a flange polygonal in outline and of greater diameter than that of the blank is formed intermediate the ends of the blank and whereby an axial projection is formed outstanding from said flange.

6. The method of making a wheel of the class described which comprises forming from sheet metal a wheel body having a web with an axial hole therethrough, stamping from a blank a hub having a projection intermediate its ends extending substantially radially to the axis and adapted to support the web of the wheel, said hub having a projection in the direction of the axis thereof and extending from said flange, said

last mentioned projection being adapted to pass through the hole in the web of the wheel body, assembling the hub and wheel body with the axial projection of the hub extending through the hole of the web and the web resting against said substantially radial projection, and riveting a portion of said axial projection upon the web while holding the wheel body and the hub in concentric relation to each other.

VICTOR J. BASENER.

Witnesses:
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