April 12, 1932. J. E. BATIE 1,853,952

APPARATUS FOR FORMING WHEEL HUBS

Filed Oct. 15, 1928

Fig. 1.

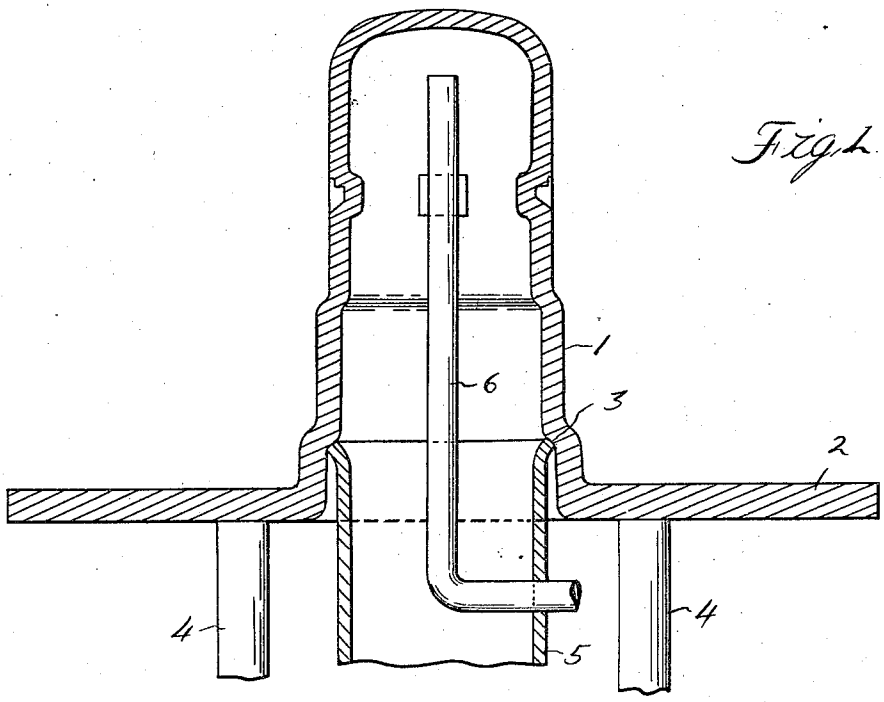
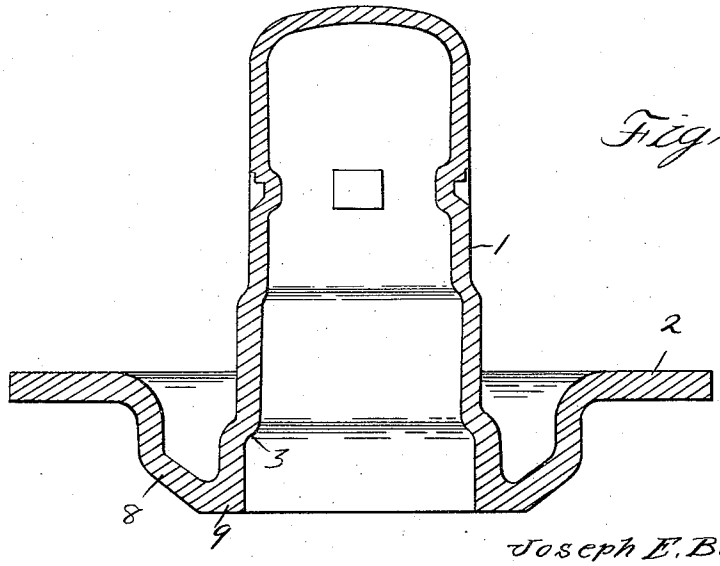


Fig. 2.



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UNITED STATES PATENT OFFICE

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APPARATUS FOR FORMING WHEEL HUBS

Application filed October 15, 1928. Serial No. 312,690.

The invention relates to vehicle wheel hubs and refers more particularly to the method of and apparatus for forming the same. One of the objects of the invention is to economically manufacture a wheel hub having a square corner at the end of the barrel connecting into the fixed flange. Another object is to provide a simple apparatus for cooling part of a hot wheel hub blank without cooling another part so that in a subsequent step of the operation the hot part may be forged to the desired or predetermined shape. With these as well as other objects in view, the invention resides in the novel features of construction and combinations and arrangements of parts as more fully hereinafter set forth.

In the drawings:—

Figure 1 is a sectional elevation, showing a wheel hub and the apparatus for operating on the same during one step of the operation;

Figure 2 is a sectional view, showing the wheel hub at the end of the operation.

In the present state of the art, wheel hubs have been formed from a flat blank by cupping to form the cylindrical barrel portion and the annular flange portion with a round fillet between the barrel and flange portions. With my invention the flange portion is formed with a bend near the barrel portion and the part of the bend at the junction with the barrel portion is flat to form a square shoulder. To economically manufacture this hub, a sheet metal blank is first cold fashioned by the usual cupping operations to form a blank having the cylindrical barrel portion 1 and the outwardly extending annular flange portion 2 at the end thereof, the barrel portion being enlarged near the flange portion to form the annular shoulder 3.

This blank is then heated and placed upon a cooling apparatus with the flange portion 2 supported upon the posts 4 and the annular shoulder 3 of the barrel portion 1 engaging the end of the cylindrical sleeve 5. 6 is a pipe extending upwardly through the sleeve 5 and having its open discharge end located near the closed end of the barrel portion. This pipe is adapted to conduct a suitable cooling medium, such as water, which is discharged against the closed end of the barrel portion and runs down along the inner side of this barrel portion and is deflected therefrom by the sleeve 5 which shields the part of the barrel portion 1 near the flange portion 2 and also the flange portion from the cooling medium. As a result, the part of the barrel portion 1 above the annular shoulder 3 may be cooled without cooling the remaining part of the barrel portion and the flange portion.

The blank is then inserted into a drawing apparatus where the hot part of the barrel portion and the hot flange portion are forged to form the flange portion with the bend 8 near the barrel portion and having the flat face 9 at the junction with the inner face of the barrel portion to form a square shoulder, the metal being upset in forming the square shoulder and the upsetting being possible by reason of the fact that the metal of the cooled part of the barrel portion is set prior to the upsetting.

It will thus be seen that with my method and apparatus, a wheel hub blank having the desired shape with a square corner at the junction of the barrel and flange portions may be economically manufactured.

What I claim as my invention is:

1. In an apparatus for forming wheel hubs from blanks each of which includes a barrel portion, the combination of a sleeve telescopically engageable with the barrel portion of a hot blank, and means for conducting a cooling medium to the barrel portion beyond the sleeve.

2. In an apparatus for forming wheel hubs from blanks each of which includes a barrel portion, the combination of a sleeve insertable into the barrel portion of a hot hub blank and adapted to have an annular engagement therewith, and means for conducting a cooling medium into the barrel portion beyond the sleeve.

3. In an apparatus for forming wheel hubs, the combination with a support for a hot hub blank having barrel and flange portions, of a sleeve adapted to have an annular engagement with the inner surface of the barrel portion near the flange portion, and means for conducting a cooling medium into the barrel portion beyond the sleeve.

4. In an apparatus for forming a wheel hub from a hot hub blank having a flange portion and a barrel portion with an annular shoulder near the flange portion and a closed end, the combination with a support engageable with the flange portion, of a sleeve engageable with the annular shoulder of the barrel portion and a pipe for conducting a cooling medium adapted to extend within the barrel portion and having a discharge opening near the closed end.

In testimony whereof I affix my signature.

JOSEPH E. BATIE.