March 24, 1931. L. BLACKMORE 1,797,752

BEARING

Filed Dec. 24, 1926

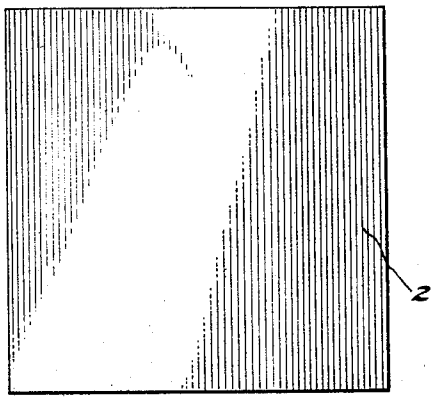


Fig. 1

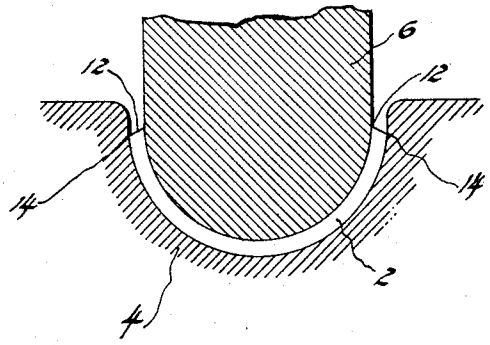


Fig. 2

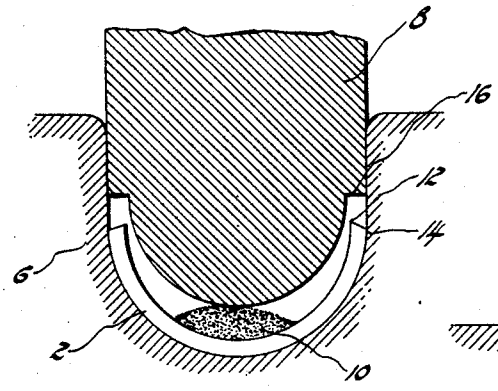


Fig. 3

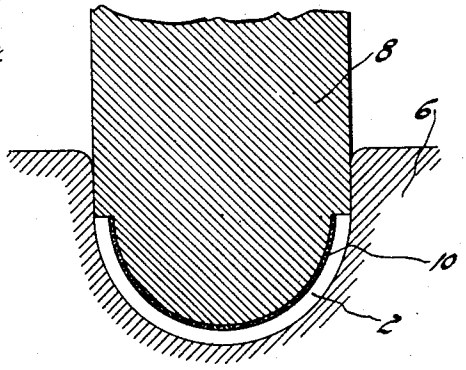


Fig. 4

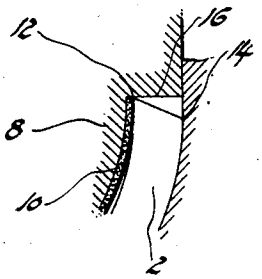


Fig. 5

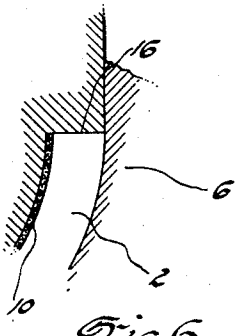


Fig. 6

Inventor

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UNITED STATES PATENT OFFICE

LLOYD BLACKMORE, OF HIGHLAND PARK, MICHIGAN

BEARING

Application filed December 24, 1926. Serial No. 156,905.

This is an improvement upon the process and apparatus for making lined bearings disclosed and claimed in the application of H. L. Barton, Ser. No. 75,078, filed December 12th, 1925.

In that application a blank is cut of proper size for a bearing back and the blank is then coined or pressed to reduce it to substantially finished shape and size. In some cases an additional broaching action is necessary along the parting line as well as at the ends of the blank. The blank thus formed is then placed in a die and the proper amount of powdered bearing metal is poured within it, whereupon it is subjected to a pressing action resulting in causing the particles of metal to adhere to the back forming a finished lined bearing.

According to my invention the bearing back blank is pressed to the desired curvature as in the Barton process. This results in the upper edges of the blank assuming an inclined position with the high sides toward the center of the bearing. The blank is then placed in a suitable die, soft bearing metal preferably in powdered form is placed within it, and the die plunger is driven home forcing the soft metal into intimate contact with the bearing back and at the same time straightening the edges of the blank. This method possesses the advantage that the high sides of the blank serve as dams for the powdered metal, retaining it in position during the initial spreading operation and when the shoulders on the die plunger engage the high sides of the edges of the blank, a good seal is provided confining the bearing metal within the back for the remainder of the pressing operation. At the same time the step of finishing the edge of the blank prior to lining it is dispensed with.

In the drawings:

Fig. 1 is a plan view of the blank;

Fig. 2 illustrates diagrammatically the blank undergoing the initial shaping operation.

Fig. 3 is a similar view showing the lining operation at the beginning of the effective portion of the stroke of the plunger;

Fig. 4 is a view similar to Fig. 3 showing the die plunger in its lowermost position.

Figs. 5 and 6 are enlarged details showing the effect produced on the edges of the blank by the shoulders on the die plunger and the manner in which the edges serve to retain the bearing metal in place.

Reference character 2 indicates a blank of sheet metal from which the bearing back is formed. I have found steel or brass to be suitable metals for this purpose. Fig. 2 shows the blank 2 forced into die 4 by plunger 6. By this or similar means the blank is given the desired curvature.

Figure 3 shows the blank 2 in a second die 6 with which die plunger 8 cooperates. 10 indicates the soft bearing metal, here shown as in powdered form, which it is the function of the plunger to spread upon the interior of the blank and secure thereto in intimate contact.

It will be noted that the pressing operation shown in Figure 2 has left the edges of the blank 2 extending at an angle with the inner sides 12 rising higher than the outer sides 14. This result follows from the bending operation. Referring now to Figure 5 it will be noted that when the shoulder 16 on the plunger 8 engages the high side 12 of the edge of the blank, a seal is formed which prevents the bearing metal indicated at 10 from spreading over the edges of the blank. Subsequent downward movement of the plunger 8 will crowd the metal of the blank from the high point 12 toward the low point 14 straightening the edge of the blank. At the same time the bearing metal is forced into intimate contact with the metal of the back and is caused to adhere thereto.

By the described process, not only is the separate step of straightening the edges of the blank dispensed with, but the high sides of the edges are made use of to retain the bearing metal in desired position.

I claim:

1. The method of making a lined bearing which consists in providing a suitable blank, bending the blank to the desired curvature for a bearing back, and thereby cause the inner sides of the edges of the blank to assume

a position higher than the outer sides thereof, placing the back in a suitable die, applying soft metal to the interior of the blank and subjecting the bearing to a pressing operation to cause the soft metal to adhere to the blank and to simultaneously straighten the edges of the blank.

2. The steps in the method of making a lined bearing, comprising: bending a flat sheet blank into a curved bearing back and thereby cause the inner edges of the sides of the curved back to assume a position higher than the outer edges thereof, placing the curved back in a suitable die cavity and applying soft metal loosely upon the interior of said curved back, and then forcing a die plunger into said die cavity to form the soft metal into a bearing lining adhering to said back and to cause said plunger to engage said inner edges of said back to form a substantial seal to prevent said soft metal from flowing beyond the edge of said back.

3. The steps in the method of making a lined bearing, comprising: providing a curved bearing back having the inner edges of its sides higher than the outer edges thereof, placing the curved back in a suitable die cavity and applying soft metal loosely upon the interior of said curved back, and then forcing a die plunger into said die cavity to form the soft metal into a bearing lining adhering to said back and to cause said plunger form a substantial seal to prevent said soft to engage said inner edges of said back to metal from flowing beyond the edge of said back.

In testimony whereof I affix my signature.

LLOYD BLACKMORE.