H. D. FORSLUND.

METHOD OF PRODUCING CLAMPING SLEEVES.

APPLICATION FILED AUG. 27, 1917.

1,256,672. Patented Feb. 19, 1918.

Fig. 1.

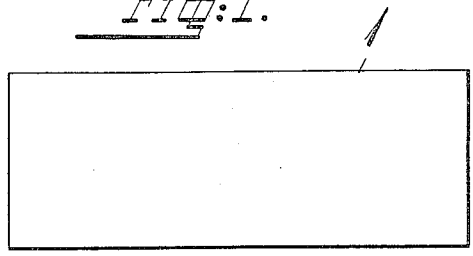


Fig. 2.

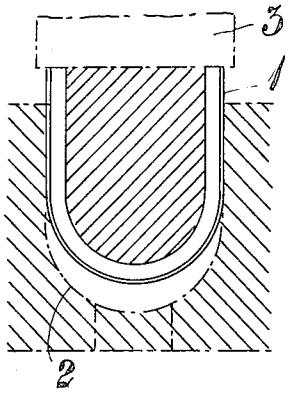


Fig. 3.



Fig. 4.

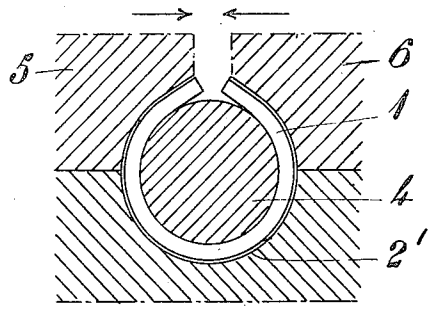


Fig. 5.

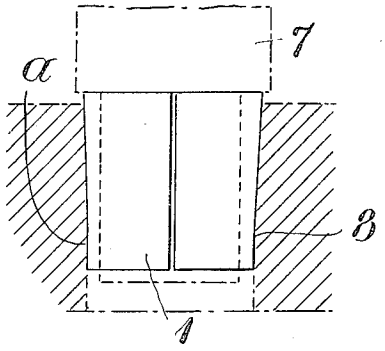
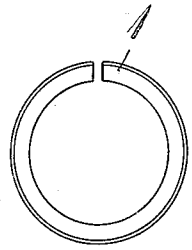


Fig. 6.



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METHOD OF PRODUCING CLAMPING-SLEEVES.

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Application filed August 27, 1917. Serial No. 188,475.

To all whom it may concern:

Be it known that I, HENNING DANIEL FORSLUND, a subject of the King of Sweden, residing in Gottenborg, Sweden, have invented a certain new and useful Method of Producing Clamping-Sleeves, of which the following is a specification, reference being had to the drawing accompanying and forming a part thereof.

This invention relates to a method of producing clamping sleeves and more particularly clamping sleeves used in connection with ball and roller bearings and adapted to secure the inner bearing ring to the shaft.

Heretofore, clamping sleeves of this kind have generally been made of pipes which are turned at the inner and at the outer side, then preferably polished and cut into pieces of the required length, said pieces being, finally, cut lengthwise to allow the necessary compression in tightening the bearing.

Such a method is, however, rather expensive owing to the tedious turning, cutting and polishing operations and, besides, to the considerable loss of material caused by the turning operation.

The object of this invention is to prevent the above mentioned inconveniences and to afford a simple, cheap and accurate production of clamping sleeves of the aforesaid kind.

To attain this object the clamping sleeve, according to this invention, is made of a preferably cold-drawn plate of steel or other suitable material by pressing operations, thus saving time and preventing loss of material.

In the drawing, Figure 1 shows the sleeve blank viewed from the side. Fig. 2 is a cross-section of said blank. Fig. 3 is a sectional view showing the sleeve blank after the first pressing operation. Fig. 4 is a similar view showing the sleeve blank after the second pressing operation. Fig. 5 is a side-view of the sleeve during the so-called precision pressing operation. Fig. 6 shows the finished clamping sleeve viewed from one end.

Referring first to Fig. 1, the sleeve blank preferably consists of a rectangular plate the cross-section of which is formed, for the one part, of a trapezium and, for the other part, of a rectangle, as shown in Fig. 2, the plate narrowing from the upper side, for instance up to the point *a*, and being below said point of equal width throughout. One side of the section is, preferably, rectilinear. This form of section is chosen with a view of giving the outer side of the finished sleeve a partly conical and partly cylindrical form, the cylindrical portion of the sleeve being adapted to be provided, in a wellknown manner, with threads for the clamping nut.

The plate 1 is placed with the broken side downward on the press form 2, Fig. 3, and is then bent into U-form, as shown in said figure, by means of the press tool 3. The lower surface of the press tool 3 is, preferably, cylindrical throughout, whereas the corresponding surface of the form or block 2 is preferably partly conical and partly cylindrical, corresponding to the desired form of the sleeve. The sleeve blank 1, having been bent in this manner, is then placed on a cylindrical mandrel 4, Fig. 4, and inserted together with said mandrel into a press-form or block 2′ having a working surface corresponding to the surface of the lower portion of the block 2 shown in Fig. 3. The upright shanks of the sleeve blank are then pressed, by means of jaws 5 and 6 movable in a direction toward and away from each other, against the cylindrical mandrel 4, thus giving the sleeve blank the form shown in Fig. 4. The form of the inner surfaces of the jaws 5 and 6 corresponds, preferably, to the form of the working surface of the block 2′.

The pressing operations above described may also be effected in continuous succession without the necessity of removing the sleeve blank from the press machine, if the upper portion of the form or block 2 having plane sides, Fig. 3, be replaced by the jaws 5 and 6, Fig. 4. In this case the sleeve blank is placed in the manner above described on the separated jaws and, by means of the press tool 3, obtains the form shown in Fig. 3. Then the press tool is removed and replaced by the mandrel 4, whereupon the jaws 5 and 6 are moved against each other in the manner shown in Fig. 4.

Finally, the sleeve blank thus prepared is placed on the cylindrical lower portion of a press tool 7, Fig. 5, and is pressed, by means of this tool, into the form or block 8, the form of which corresponds accurately to the desired form of the clamping sleeve. By this pressing operation the sleeve obtains exact inner and outer size, and at the same time the pressing and sliding movement on

the working surface of the block 8 will effect a polishing action on the outer surface of the sleeve, thus rendering the customary polishing operation unnecessary.

The finished clamping sleeve shown in Fig. 6 has an inner cylindrical surface, the outer surface being partly cylindrical and partly conical.

As hereinbefore mentioned, the cylindrical portion of the sleeve, for instance up to the point *a*, Fig. 5, is finally provided with threads in a wellknown manner.

I claim as my invention:—

The method of producing clamping sleeves, especially for ball and roller bearings, which consists in producing a preferably rectangular plate having a cross-section which is partly wedge-shaped and partly of equal width, pressing said plate to a sleeve having interiorly a cylindrical form and having exteriorly a partly cylindrical and partly conical form and provided with a slit which allows a yielding compression of the sleeve, and thereupon threading the outer side of the cylindrical portion of the sleeve.

In testimony whereof I have signed my name.

HENNING DANIEL FORSLUND.