May 9, 1933. C. C. HALL 1,907,537

METHOD OF MAKING PACKING RINGS

Filed March 31, 1930

Fig. 1.

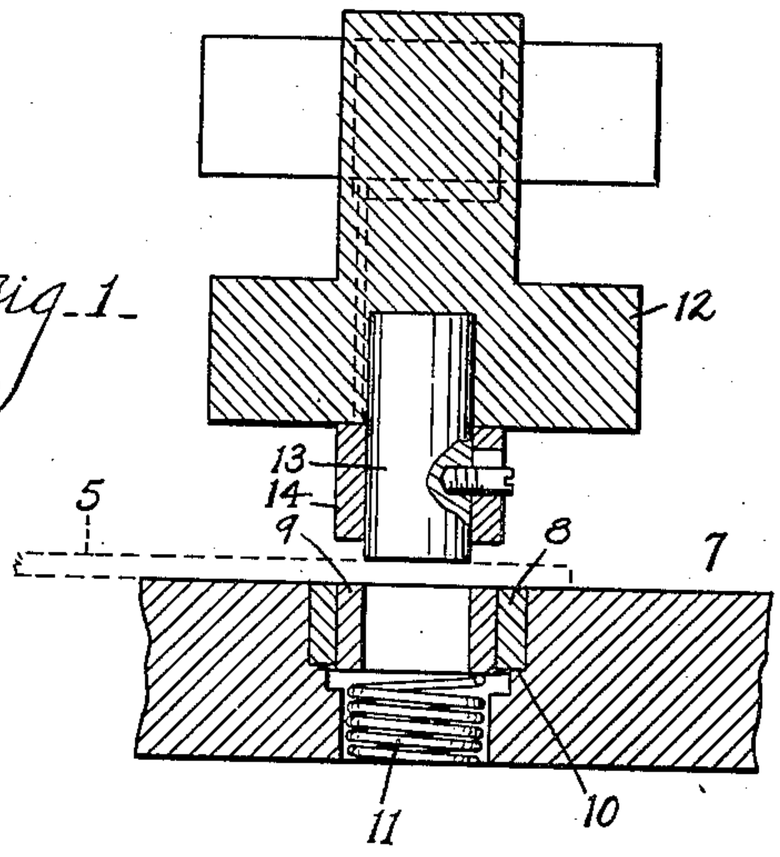



Fig. 5.

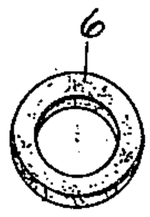



Fig. 2.


Fig. 3.

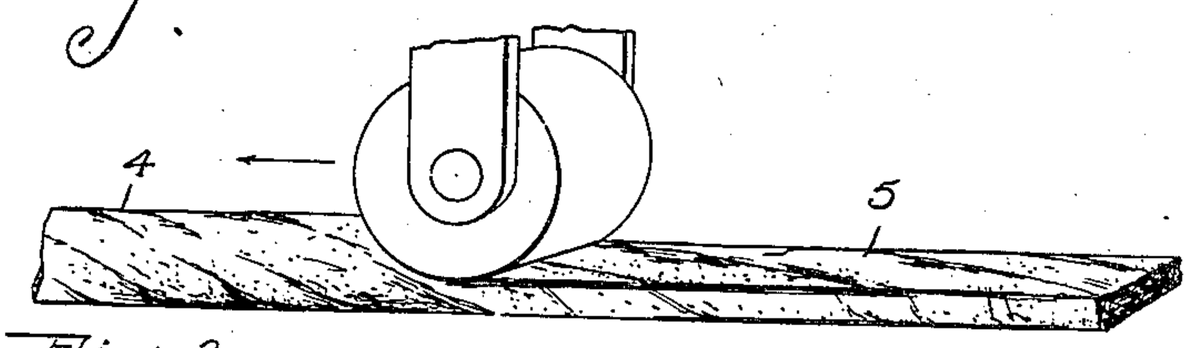
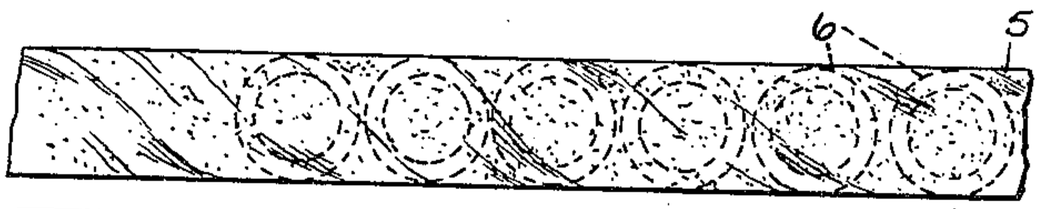



Fig. 4.

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# UNITED STATES PATENT OFFICE

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## METHOD OF MAKING PACKING RINGS

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The main objects of this invention are:

First, to provide an improved packing ring which may be formed of several kinds of metal, these being quite uniformly distributed throughout the ring.

Second, to provide an endless packing ring made up of metal foil which is of uniform dimension and of substantially uniform density throughout.

Third, to provide a method of making packing rings of metal foil which enables the very rapid production of packing rings having the advantages above indicated.

Objects relating to details and economies of my invention will appear from the description to follow. The invention is defined and pointed out in the claim.

A structure which is a preferred embodiment of my invention is illustrated in the accompanying drawing, in which:

Fig. 1 is a fragmentary sectional view of a punch employed by me in performing one of the steps of my improved method of making packing rings.

Fig. 2 is a fragmentary view illustrating one of the steps of making my improved packing ring, namely, the twisting of metal foil into a strand.

Fig. 3 is a fragmentary perspective view illustrating another step of my method, namely, the compressing of the strand of spirally twisted metal foil into a flat strip.

Fig. 4 is a fragmentary plan view illustrating the manner of cutting or punching the rings from the strip shown in Fig. 3.

Fig. 5 is a perspective view of my improved packing ring.

In the practice of my method, I twist a plurality of strands of thin metal or metal foil as 1, 2 and 3 into a strand 4, the metal being spirally twisted as indicated.

The thin metal strips may be of different kinds of metal as, for example, lead, copper and treated aluminum.

Prior to twisting into the strand, the strips are preferably coated with a lubricant in the form of a lubricating oil and powdered graphite, the material being crumpled and wrapped together by a twisting operation, the lubricant being effectively retained in pockets so that it does not escape when subjected to pressure.

The strand 4 is rolled or pressed into a flat strip 5 as indicated in Figs. 3 and 4 and the rings 6 punched from this flat strip as indicated by dotted lines in Fig. 4. These rings are of practically uniform density throughout, have very substantial strength, may be rapidly produced and in use present very uniform surface to the parts packed.

In Fig. 1 I illustrate a punch which I have found very satisfactory for the purpose, this consisting of a bed member 7 having a pair of female die members 8 and 9 disposed one within the other, the member 8 being supported on a shoulder 10 within the bed member while the member 9 is yieldingly supported by the spring 11. The punch head 12 carries the male member 13 having a collar 14 secured thereto providing in effect a second die member, the member 12 coacting with the female member 9 while the member 14 coacts with the female member 8 so that the rings 6 are formed on a single actuation of the plunger.

My improved packing rings are very economically produced, the rings being endless and of uniform density and of substantial strength. Where a plurality of metals are used these are quite uniformly distributed throughout the ring.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:

The method of making packing rings consisting of spirally twisting a plurality of strips of metal foil into a strand, compressing the strand into a flat strip of uniform thickness, and punching the rings from the strip.

In witness whereof I have hereunto set my hand.

CHARLES C. HALL.