April 2, 1929. E. P. KERRUISH 1,707,400

INDENTING APPARATUS

Filed Dec. 27, 1926

Fig. 1.

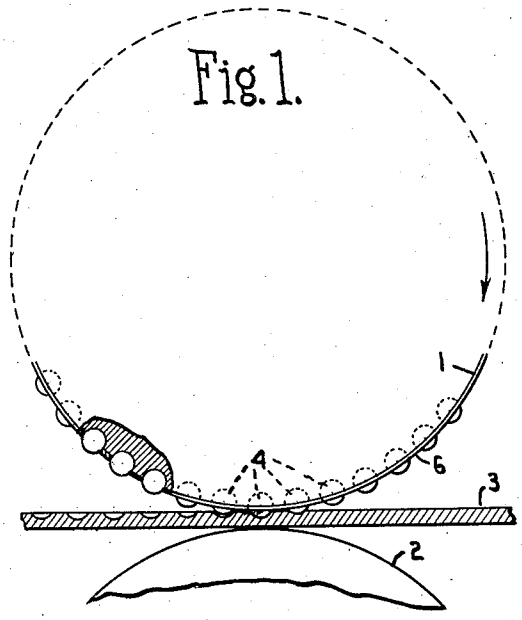


Fig. 2.

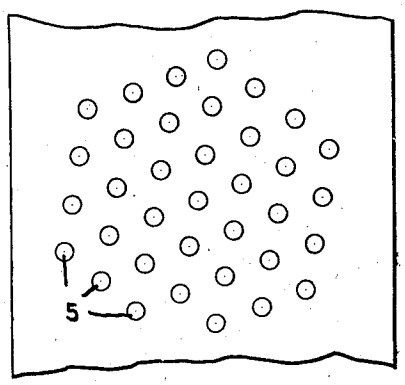
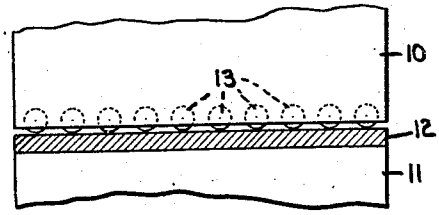


Fig. 3.



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Patented Apr. 2, 1929. 1,707,400

UNITED STATES PATENT OFFICE.

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INDENTING APPARATUS.

Application filed December 27, 1926. Serial No. 157,049.

The present invention, relating as indicated, to an indenting apparatus is more particularly directed to an apparatus for forming spaced indentations in the internal surfaces of bearing members of that type now in general use which are formed of rolled sheet metal properly sized and formed and then cut and reformed if necessary into flat and cylindrical bearings for various uses. The present apparatus is intended to scarify one or both surfaces of the rolled sheet metal while it is still in that form and prior to the subsequent blanking and reforming of the metal sheets into the desired bearings. To the accomplishment of the foregoing and related ends, said invention, then, consists of the means hereinafter fully described and particularly pointed out in the claims.

The annexed drawing and the following description set forth in detail certain mechanism embodying the invention, such disclosed means constituting, however, but one of various mechanical forms in which the principle of the invention may be used.

In said annexed drawing:

Fig. 1 is a side elevation of one form of apparatus contemplated by the present invention; Fig. 2 is a plan view of a strip which has been treated by the said apparatus; and Fig. 3 is an elevation of another form of apparatus contemplated by the present invention.

Fig. 1 discloses two cooperative rolls 1 and 2 between which a strip 3 of metal is adapted to be passed. One or both of the rolls 1 and 2 may be provided with a series of recesses which may be placed in any relation, but which are preferably equidistant. The recesses 8 are semi-sperical and are adapted to receive balls 4, the diameter of each ball being substantially equal to the diameter of the recess 8 in which said ball is received. I have shown the recesses 8 all of the same dimensions, and equidistantly spaced, but it is to be understood that said recesses may be of varying sizes and spaced as may be desired. If recesses of different sizes are used, of course balls of correspondingly different sizes will be provided.

The roll 1 is adapted to receive on its external surface a sheet 6, said sheet being provided with a plurality of apertures 7 adapted to register with the recesses 8. Said apertures 7 are so formed that each one is of slightly less diameter than the particular recess with which it registers when the sheet 6 is applied to the roll 1. It will be obvious that the sheet 6 comprises a retaining means for the balls 4, and yet allows said balls to project beyond the surface formed by said sheet 6. It will be apparent from an inspection of Fig. 1 that, as the sheet 3 is passed between the rolls 1 and 2, the projecting portions of the ball 4 will form correspondingly shaped and spaced recesses in said sheet 3.

A modification of the above apparatus is disclosed in Fig. 3, said modification consisting of opposed dies 10 and 11, the die 10 being movable toward and away from the die 11 to act upon strips 12 of bearing material which are inserted between the two dies. The upper die 10 is provided with a series of semi-spherical recesses 14 for the reception of balls 13, and it is to be understood that a flat sheet similar to the sheet 6 above described is provided to retain the balls 13 in place in said die 10. As in the modification disclosed in Fig. 1, the size and spacing of the recesses 14, balls 13, and apertures in the retaining sheet may be varied according to the requirements of the particular use to which the device is to be put. It will be seen that the present invention provides an inexpensive and efficient mechanism for forming part-spherical recesses in work, and it is further noted that the device herein disclosed is considerably more economical in use than any other device for a similar purpose known to me, since, in the event of breakage of or damage to any one of the balls 4 or 10, the damaged member may be replaced at a very slight cost. Where work of a similar type is done by rolls including integral projections, the breakage of or damage to one of the said projections necessitates replacement of the entire roll.

I claim:

1. An indenting member provided with a plurality of semi-spherical recesses in its surface, balls seated in said recesses, and a retaining sheet secured to said surface and provided with apertures registering with said recesses.

2. An indenting member provided with a plurality of semi-spherical recesses in its surface, balls seated in said recesses, and a retaining sheet secured to said surface and provided with apertures registering with said re-

cesses, the diameter of each of said apertures being less than the diameter of the recess with which it registers.

3. Indenting apparatus comprising a cylinder provided on its peripheral surface with a plurality of semi-spherical recesses, a ball in each recess, the diameter of each ball being equal to the diameter of the recess in which it is seated, and a retaining sheet secured over said surface of said cylinder and provided with apertures adapted to register with said recesses, the diameter of each of said apertures being less than the diameter of the recess and ball with which it registers.

Signed by me, this 17th day of December, 1926.

EDWARD P. KERRUISH.