Cl 153

Published May 11, 1943

Serial No. 373,697

ALIEN PROPERTY CUSTODIAN

METHOD FOR THE MANUFACTURE OF HIGH GRADE METAL BARS, RODS OR THE LIKE

Rudolf Schmidt, Vienna X, Austria; vested in the Alien Property Custodian

No Drawing. Application filed January 8, 1941

This invention relates to a method of producing high grade twisted metal rods, bars and the like (particularly for concrete reinforcing inserts) which have uniform strength properties throughout, the material being automatically tested by the process of production, i. e. a test for the material being combined therewith. Defects in the material of such rods or the like become so clearly apparent during the process of manufacture that the rods or the like may be easily sorted out.

The method according to the invention consists in that rods, bars, wires and the like of any desired section, while being twisted in the cold in known manner are subjected to an axial tensile force not exceeding the tensile yield point of the material, so that no stretching of the entire cross-section of the material occurs.

It is known to twist in the cold square section rods with the aid of clamping heads maintained a fixed clamping distance apart. If such square section rods are twisted with the aid of clamping heads which are freely movable in their longitudinal direction, they become shorter. But if during the twisting the clamping distance remains constant, shortening becomes impossible, therefore the tensile yield point is exceeded during the twisting, i. e. the material is stretched.

It has also been proposed to provide a method according to which rods are twisted axially or are intertwisted and are simultaneously stretched. During the twisting the clamping distance is maintained constant to ensure contact throughout between the intertwisted rods.

Since in the intertwisting of two or more rods shortening tends to occur, the material is stretched by keeping the clamping distance constant, i. e. is subjected to stresses beyond the tensile yield point, as in the case of the square section rods. If now, in addition, the clamping heads are moved apart during the twisting, the material is additionally stretched. The tensile forces which arise during the twisting by the longitudinal movement of the clamping heads are accordingly so great that the material is subjected to stresses above the tensile yield point, i. e. is stretched. Similar phenomena arise in the case of single rods twisted in a similar manner.

As is known, rods are twisted per se or are intertwisted in the cold to increase the strength of the rod material. But if during twisting an additional tensile force in excess of the yield point is simultaneously exerted, i. e. additional stretching is applied, the strength properties are not improved further; on the contrary, they deteriorate. When rods which become shorter during twisting, such as for example square section rods, or a plurality of intertwisted rods, are twisted with constant clamping distance, the magnitude of the tensile force thereby applied to the rods and therewith the stretching depend upon the degree of twisting. The magnitude of the tensile force exerted upon the rod cannot therefore be selected at will, stretching will occur in any case, and the magnitude thereof will depend upon the degree of twisting.

As compared to this, the essential advantage of the present invention consists in that the degree of twisting and the tensile force exerted upon the rod during twisting may be selected independently of one another and values may be adopted which are the most convenient for the material and size in question. Thus rods, which are shortened during twisting, may be twisted under a tensile force which is below the tensile yield point, in such a way that additional stretching of the material, i. e. a deterioration of the strength properties consequent thereon, may be avoided. As the case may be, the axial tensile force may be maintained constant or varied during the twisting process.

RUDOLF SCHMIDT.