To all whom it may concern:

Be it known that I, Otto Windecker, a subject of the Emperor of Germany, residing at 17² Ritzengasse, Strassburg-Ruprechtshausen, Germany, have invented a new and useful Apparatus for Rolling Out Metal Tubes, of which the following is a specification.

This invention relates to an apparatus for rolling out metal tubes by means of rollers, having concentric bosses thereon.

The invention relates to the features of construction and combination and arrangement of parts hereinafter described and particularly pointed out in the claim.

The invention is illustrated in the accompanying drawings in which:

Figure 1 is a sectional view showing diagrammatically the invention, and Fig. 2 is a like view showing the position of the rollers.

As shown, the hollow billet from which the tube is formed is placed on a mandrel and placed between the conical rollers A-B. These rollers are placed with their axles at an angle to each other and to the direction of movement of the block and the conical surface of each roller is provided with circular concentric bosses having rounded surfaces meeting each other in angles, and one roller has its last boss provided with a flat face extending beyond the last boss of the opposite roller. The rollers are so arranged that their bosses are staggered in relation to each other. The rollers rotate in opposite directions and their motion is imparted to the billet and the mandrel, by contact with the former causing the two to rotate simultaneously in a clockwise direction, and at the same time feeding them forward (as indicated by the arrow in Fig. 2), with a gradual longitudinal displacement. During the rolling the bosses form upon the surface of the billet concave depressions b, and between each two depressions, elevations c. These depressions cause the longitudinal stretching of the material. The elevations c produced by the bosses of one roller then encounter, after a half turn of the tube, the bosses of the other roller, so that other depressions are formed where the elevations c were and these bosses penetrate deeper into the material. The new depressions and elevations are after another half turn of the tube, encountered by the bosses of the first roller, and so forth. Each half turn of the tube, that is each new engagement of the periphery of the tube with the bosses of one of the rollers, repeats the same operation as the previous one, and effects the displacement of the tube in an axial direction. The flat boss a smooths the surface of the tube as it leaves the rollers and the tube is widened so as to fit loosely in the mandrel, whereby the mandrel may be removed without difficulty. The boss ½ of the roller must have a space X between itself and the billet so as to permit small lateral movement of the billet.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed I declare what I claim is:

A rolling mill comprising rollers, each provided with circular concentric bosses, having rounded surfaces meeting each other in such manner as to form angles at the points of their intersection.

In witness whereof I have hereunto set my hand in presence of two witnesses.

OTTO WINDECKER.

Witnesses:

Carl W. Schmitt,
Siegfried Hauser.