

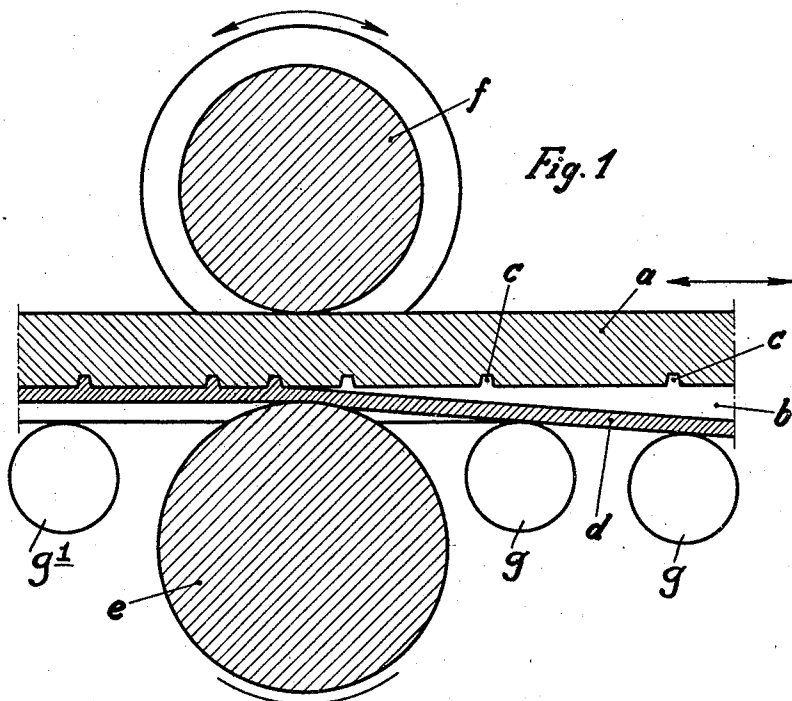
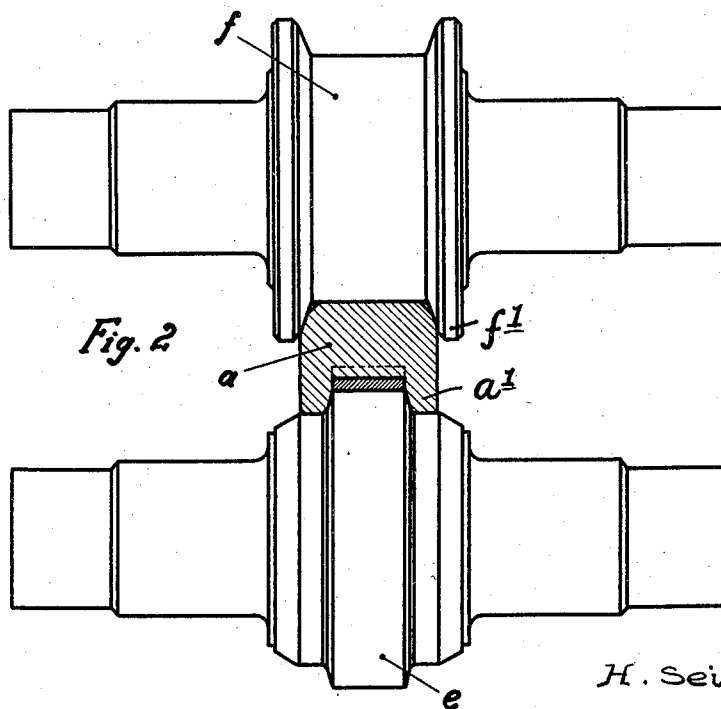
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METHOD AND APPARATUS FOR PRODUCING METAL BARS WITH TRANSVERSE RIBS

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METHOD AND APPARATUS FOR PRODUCING
METAL BARS WITH TRANSVERSE RIBS

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6 Claims. (Cl. 80-19)

The invention relates to a method and apparatus for producing metal bars with transverse ribs.

According to the invention such metal bars are produced in a single rolling operation, the transverse ribs being formed at the same time. According to the invention moreover the blank is for this purpose passed between a working roll and a rolling table—which rolling table is adapted to travel in the direction of rotation of the roll, and is provided on the underside with grooves corresponding to the desired transverse ribs.

According to the invention bars of considerable height in relation to the thickness and having transverse ribs can be produced by rolling in a single operation. The provision on the underside of the rolling table of the grooves corresponding to the ribs has the advantage that no damage can be caused by the scale which is formed more particularly in the case of steel blanks. In the apparatus according to the invention the greater part of the scale is automatically removed, and only simple means have to be employed for removing any traces of scale that may be left on the upper side of the blank. The removal of the scale can also be facilitated by feeding the blank obliquely into the pass. Should these precautions be insufficient, they may be supplemented by the use of compressed air or steam. In the case of the apparatus according to the invention however the use of these auxiliary means is required only to a small extent.

The invention is diagrammatically illustrated by way of example in the accompanying drawing. Figure 1 is a cross section through the rolling table, the working roll and the supporting roll.

Figure 2 is a side elevation, the rolling table being shown in cross-section.

In the example illustrated a flat iron bar is to be provided with ribs.

The apparatus according to the invention consists of the working roll *e*, the supporting roll *f* and the rolling table *a*, which rolling table is inserted between the rolls *e* and *f* and is provided on its underside, with grooves *c* corresponding to the ribs which are to be formed on the flat iron bar *d*. The rolling table *a* is provided at its sides with downwardly extending flanges *a'* the insides of which determine the outward spread of the bar in rolling it, while similarly as shown in Figure 2 the periphery of the roll *e* has a width corresponding to that of the width apart of the flanges *a'*.

The bar blank *d* may be fed to the rolls inclined from the right and is for the purpose sup-

ported upon guide rollers *g*. The rolling table *a* is adapted to reciprocate in the direction of rotation of the rolls. Under the action of the working roll *e*, the material while in the pass is forced into the grooves *c* in the rolling table *a* so as to form the desired ribs upon it. The roll *f* serves to take up the reaction pressure and is advantageously provided with lateral flanges *f'* by which an annular peripheral groove is formed on the roll of a cross-section corresponding to the upper part of the rolling table *a*.

The rolling table *a* may be reciprocated by rack and gear or movement may be imparted by gearing to one or both of the rolls *e* and *f* respectively. It will be understood that the rolling table *a* in the illustrated construction is guided within the annular peripheral groove in the roll *f* and that the rolling table *a* may be supported on rollers such as *g'*.

It will furthermore be understood that pressure is applied between the rolling table and the working roll *e* owing to the axis of the roll *f* being held stationary and thus on the reciprocation of the rolling table *a* pressure is applied upon the metal bar *d* by which part of the metal of the bar is caused to fill the transverse groove *c*, the metal of the bar being in the operation confined by the periphery of the working roll *e* and the lateral flanges *a'* of the rolling table, and as the result of the compression of the bar in this operation the transverse grooves *c* are filled with part of the metal of the bar and ribs of corresponding form and position to the transverse grooves *c* are formed upon the metal bar.

What I claim and desire to secure by Letters Patent in the United States of America is:

1. An apparatus for rolling metal bars with transverse ribs of considerable height, consisting of a die table-like support, the under side of which is provided with a longitudinal groove and transverse grooves corresponding to the ribs to be produced, a working roll lying underneath the said table and partially contacting the same, means for supporting the die table on the upper and under side and means for guiding the blank to be rolled at the under side of the die table.

2. An apparatus for rolling metal bars with transverse ribs of considerable height, consisting of a die table-like support, the under side of which is provided with transverse grooves corresponding to the ribs to be produced and with longitudinal flanges, a working roll lying underneath the said table and contacting the said flanges of the table, means for supporting the die table on the upper

and under side, and means for guiding the blank to be rolled at the under side of the die table.

3. An apparatus for rolling metal bars with transverse ribs of considerable height, consisting of a reciprocating table-like support the under side of which is provided with transverse grooves corresponding to the ribs to be produced and with longitudinal flanges, a working roll lying underneath the said table and contacting the said flanges of the table, a supporting roll at the upper side of the table, a supporting roller at the under side of the said table, means for guiding the blank to be rolled at the under side of the table.
4. An apparatus for rolling metal bars with transverse ribs of considerable height, consisting of a die table-like support, the under side of which is provided with a longitudinal groove and transverse grooves corresponding to the ribs to be produced, a working roll lying underneath the said table and partially contacting the same, means for supporting the die table on the upper and under side, and means for feeding the blank obliquely to the under side of the die table.
5. An apparatus for rolling metal bars with transverse ribs of considerable height, consisting

of a reciprocating die table-like support, the under side of which is provided with transverse grooves corresponding to the ribs to be produced and with longitudinal flanges, a working roll lying underneath the said table and contacting the said flanges of the table, a supporting roll at the upper side of the table, a supporting roller at the under side of the said table and means for guiding the blank obliquely to the under side of the die table.

6. An apparatus for rolling metal bars with transverse ribs of considerable height consisting of a reciprocating die table, the under side of which is provided with transverse grooves corresponding to the shape and number of the ribs to be produced and with longitudinal flanges, a working roll lying underneath the table and provided with a peripheral rib, a supporting roll lying on the upper side of the table in the same vertical plane at the working roll, a supporting roller on the under side of the said table and rollers for the blank supporting and feeding the same in an oblique direction with relation to the table at its under side.

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