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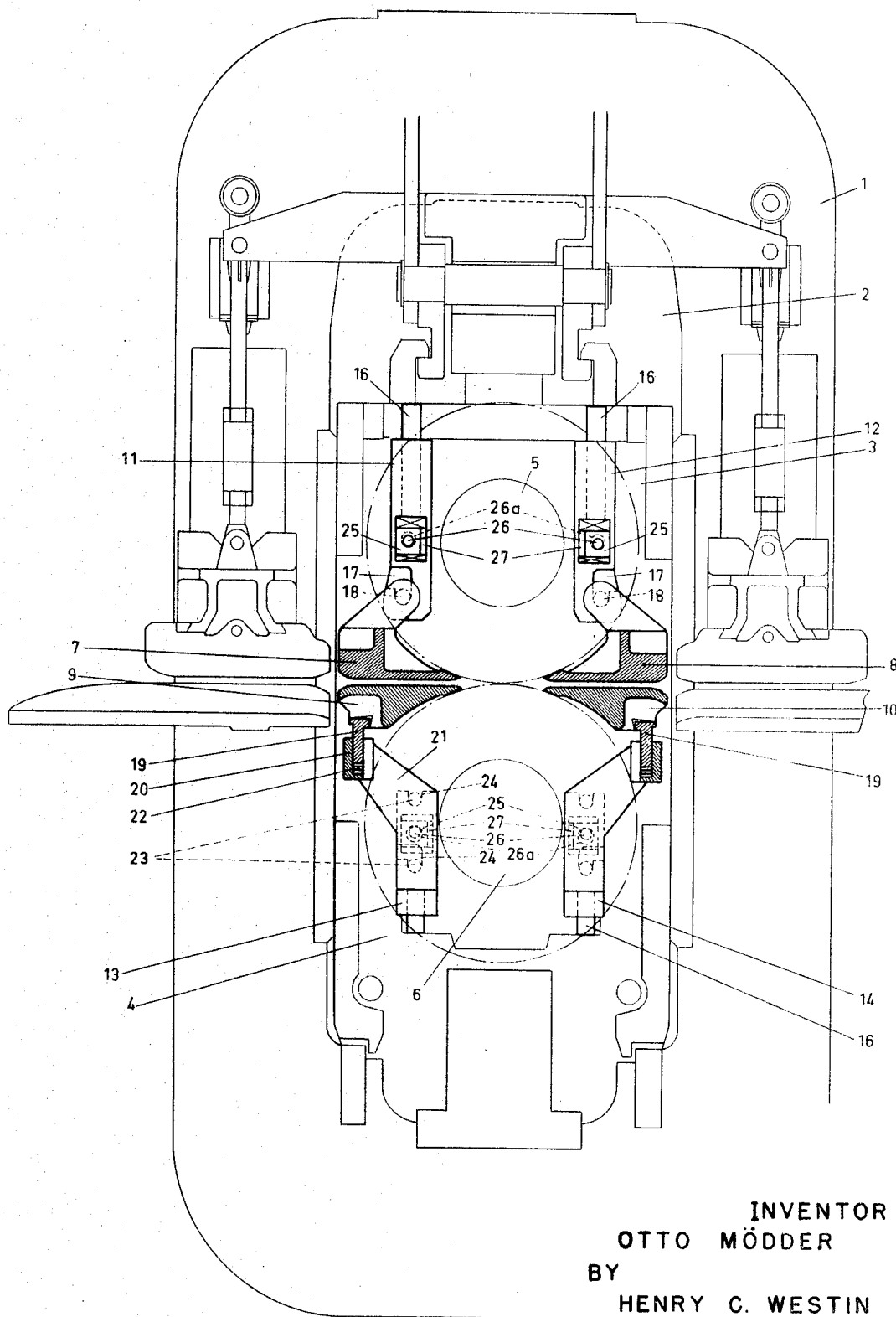
O. MODDER
ROLLED STOCK STRIPPER ON ROLL STANDS IN PARTICULAR, UNIVERSAL
GIRDER STANDS

3,513,680

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3 Sheets-Sheet 1

Fig. 1



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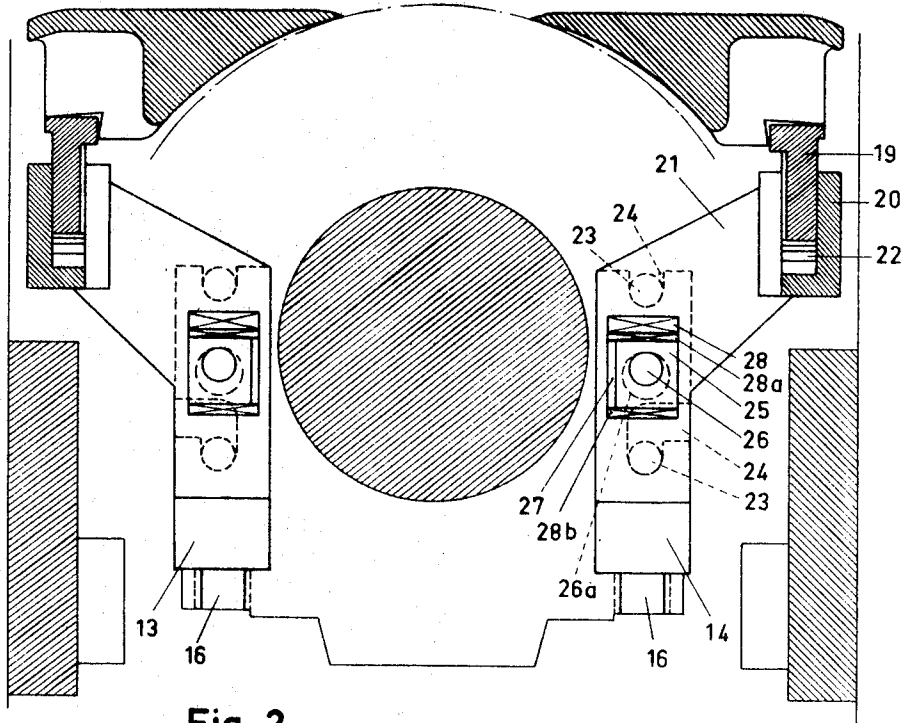


Fig. 2

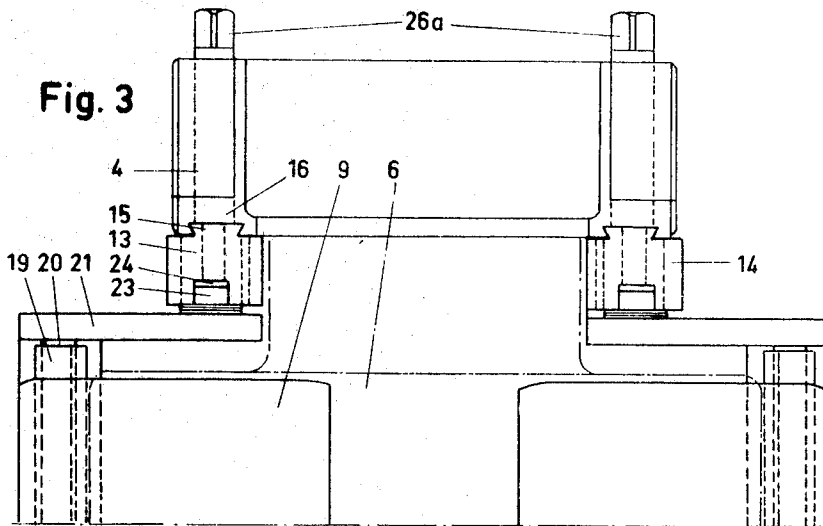


Fig. 3

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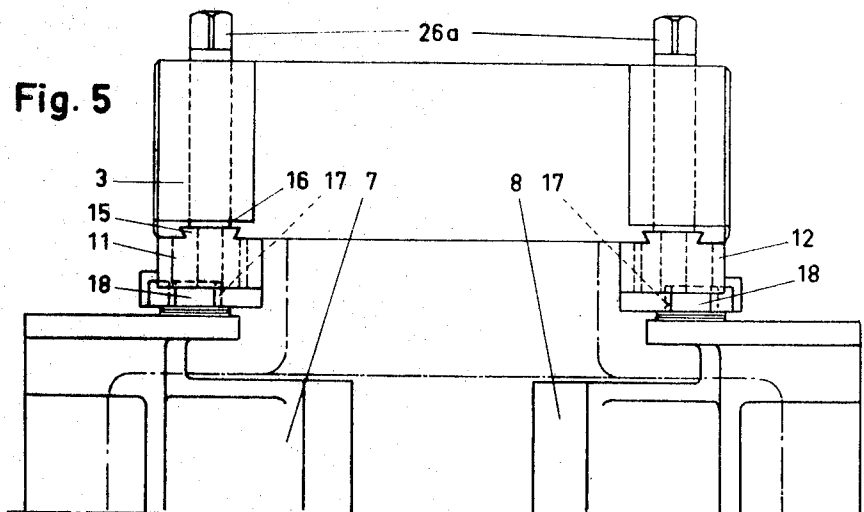
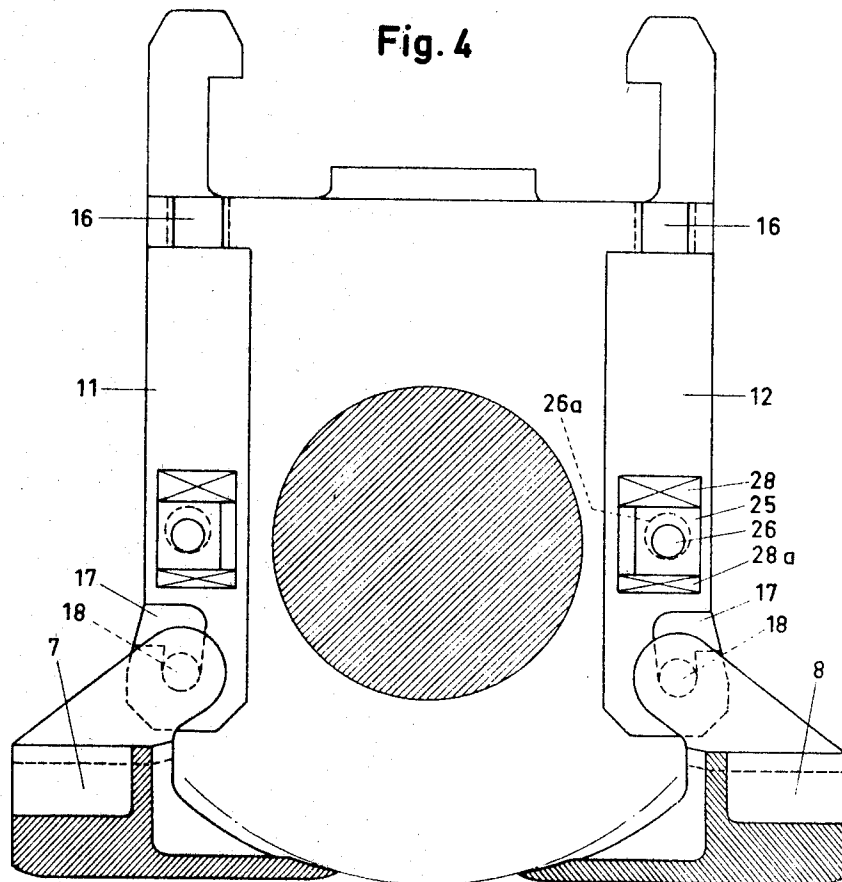
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ROLLED STOCK STRIPPER ON ROLL STANDS IN PARTICULAR, UNIVERSAL GIRDER STANDS
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Int. Cl. B21b 39/16

U.S. Cl. 72-250

6 Claims

ABSTRACT OF THE DISCLOSURE

The present disclosure relates to material guiding strippers for a rolling mill and, in particular, a universal beam mill where the strippers are attached and suspended from the roll assemblies and which can be moved into and out of the mill with the assemblies. Strippers of this type have been known in the art. They are attached to the roll assemblies before the rolls are inserted into the mill and are adjusted relative to the rolls when in the mill. In the operation of the rolling mill, as is well known, the position of the rolls changes somewhat under the influence of the roll pressure and it has turned out that, although the strippers also change their position somewhat under the influence of the roll pressure, they do not follow the change of position of the rolls to the extent necessary and the function of the strippers is unfavorably influenced.

SUMMARY OF INVENTION

The purpose of the invention is to eliminate these disadvantages. The basic object of the invention, therefore, is to provide a stripper adjustable to correspond to a change in the position of the rolls. According to the invention, the strippers rest on guide girders which are arranged so that they can be moved in the direction of the height of the member employed to secure the strippers to the roll assemblies, the guide girders being supported by adjusting devices associated with the members, consisting individually of preadjustment members and readjustment members. The readjustment member is operated from the outside of the roll stand. Thus, it is possible to preadjust the position of the strippers on the roll assembly to the position of the rolls under no load and then to make them follow in a simple manner the position of the rolls changing under the pressure of the rolls during operation of the mill.

The preferred design of a stripper, according to the invention, is characterized by the fact that the preadjustment member is formed by a number of insert plates which can be inserted in the direction of the height in hollowed-out parts of the guide girders and support a sliding block. The preadjustment member takes the form of eccentric bolts engageable with the sliding blocks and supported in the roll assembly so that they can be rotated and are carried past the assembly to the outside of the roll stand with their operational elements. The insert plates used as preadjustment members permit a quick and uncomplicated preadjustment of the strippers while the eccentric bolts engaging the sliding blocks and used as readjustment members permit a follow up of the strippers relative to the rolls under the rolling pressure. In this arrangement the expenditure for the adjustment devices according to the invention is particularly low.

Since the strippers are designed to conform to the shape of the periphery of the rolls, they are changed when the rolls are changed. A further characteristic of the invention consists in the fact that the strippers are attached to the guide girders in a detachable manner via bayonet connections. Thus, they may be changed in a quick and uncomplicated way.

With respect to the construction it has proved of par-

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ticular advantage to have the lower strippers, according to the invention, rest on cross traverses which are supported by arms via intermediate layers, the arms being attached to the guide girders via bayonet connections. Herein the intermediate layers used between the cross traverses and the arms also permit a preadjustment. In order that the effect of the preadjustment of the eccentric bolts used as readjustment members on the strippers can be effective only in the direction of the height, but not in the horizontal direction, a characteristic of the invention consists also of the fact that the sliding blocks are arranged so that they can slide transversely to the direction of adjustment of the guide girders between the insert plates.

Finally, it is also of an advantage, according to the invention, if the guide girders are movable by sliding in dovetail slots or T-slots as guides in the connecting members of the roll assemblies.

The accompanying drawings illustrate an example of strippers used in a universal beam mill in which there is shown in

FIG. 1 a side view of a roll stand with the strippers coordinated to the upper roll and the lower roll and suspended from the roll assemblies;

FIG. 2 is an enlarged scale of the upper roll assembly with the adjustment devices belonging to it;

FIG. 3 is a top view of the arrangement shown in FIG. 2;

FIG. 4 is an enlarged scale of the strippers coordinated with the upper roll with its adjustment devices; and

FIG. 5 is a partial top view of FIG. 4.

In FIG. 1 of the drawing there is shown a universal beam mill in which the roll housings 1 accommodate bearing chock assemblies 3 and 4 in windows 2, the chocks being provided for the upper roll 5 and the lower roll 6. Therein the windows 2 form in each case the guide for the roll chocks 3 and 4 in the vertical direction.

The upper roll 5 of the mill 1 has two strippers 7 and 8 coordinated at the roll gap and the lower roll 6 has two similar strippers 9 and 10. The strippers 7 and 8 are suspended from the roll chocks 3 for the upper roll 5 and the strippers 9 and 10 from the chocks 4 for the lower roll 6 in such a way that they lay against the periphery of the rolls 5 and 6 with their inner ends turned against each other under their own weight.

The strippers 7 and 8, 9 and 10, respectively, are attached to the chocks 3 and 4 before the upper roll 5 and the lower roll 6 are placed into the windows 2 of the roll housing 1. The strippers 7 and 8 and 9 and 10, respectively, lie in each case between the two chocks 3 or 4, respectively. The stripper 7 is held by two guide girders 11 to the two chocks 3 for the upper roll 5 while two corresponding guide girders 12 serve for supporting the stripper 8. On each of the two chocks 4 for the lower roll 6 there is a guide girder 13 for the support of the stripper 9 as well as a corresponding guide girder 14 for supporting the stripper 10. All these guide girders 11 to 14 are arranged at the roll chocks 3 or 4, respectively, so that they can be moved vertically, i.e., for instance, with the aid of dovetail ledges 15, which as FIGS. 3 and 5 illustrate, engage in corresponding dovetail guide slots 16 in the roll chocks 3 and 4. For the support of the strippers 7 and 8, the guide girders 11 and 12 are provided with bayonet slots 17 as can be seen particularly clearly from FIG. 4, into which the strippers 7 and 8 can be hung in each case with the aid of bearing journals 18. Thereby it is possible to remove the strippers 7 and 8 in a simple and uncomplicated way without the necessity to loosen the guide girders 11 and 12 for this purpose from the chock 3.

The strippers 9 and 10 rest in each case on a traverse 19 which is held in pockets 20 of two arms 21 and can

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be changed in its height position in these pockets 20 by inserting intermediate layers 22. The arms 21 have journals 23 with the aid of which they can be hung into bayonet slots 24 of the guide girders 13 or 14, respectively, in a very easily detachable manner as is shown in a particularly clear way in FIG. 2. The arms 21 can also be exchanged easily for different roll diameters so that a simple adjustment of the strippers 9 and 10 to the individual lower roll 6 is possible.

Each of the guide girders 11, 12 and 13, 14 for the strippers 7, 8 and 9, 10 is supported by the roll chocks 3 or 4, respectively, via a sliding block 25 which is supported at the roll chock by an eccentric bolt 26. Each block is received in a recess 27 of the guide girders 11, 12 and 13, 14, respectively.

The recesses 27 in the guide girders 11, 12 and 13, 14, respectively, possess both in the vertical as well as in the lateral direction a greater dimension than the sliding blocks 25 so that several insert plates 28, 28a, 28b, etc. can be set in the vertical direction. In doing this, the guide girders 11, 12 and 13, 14, respectively, are supported at the sliding blocks 25 via insert plates 28, 28a, 28b. The insert plates 28, 28a, 28b, etc. have different thicknesses, suitable for the object in view and can be inserted into this recess 27 in such a way that they lie either above, or partly above and partly below the sliding blocks 25 so that thereby the relative position of the guide girders 11, 12 and 13, 14, respectively, against the sliding blocks 25 can be altered stepwise. Thus, it is possible with the aid of the insert plates 28, 28a, 28b, etc. to preadjust the height position of the strippers 7, 8 and 9, 10, to the individual roll diameter when preparing a set of rolls on the chocks by inserting these set-in plates into the recess 27.

After the set of rolls has been inserted into the roll stand 1, and during the rolling operation, a readjustment of the strippers 7, 8 and 9, 10 conforming to a position change of the rolls resulting from the occurring roll pressure is possible by turning the eccentric bolts 26 supported in the chocks 3 or 4, respectively, and carrying the sliding blocks 25. The rotation of the eccentric bolts 26 is performed via shafts 26a which are guided throughout the chocks 3 and 4 to the outside of the roll stand. There the shafts are provided with a square head on which a wrench or the like can be applied for adjusting the eccentric bolts 26. The adjustment of the eccentric bolts 26 move the guide girders 11, 12 and 13, 14 and with that on the strippers 7, 8 and 9, 10 only in the vertical direction, because in this direction the sliding blocks 25 are fixed between the insert plates 28, 28a, 28b in the recesses 27, while in the direction of the rolling plane, the sliding blocks 25 are free to slide in the recesses 27. With the aid of the eccentric bolts 26 a stepless follow up of the stripper 8, 7 or 9, 10 can be made corresponding to the change in position of the rolls 5 and 6 under the rolling pressure. The adjustment of the eccentric bolts 26 can therein be performed in a simple way if these eccentric bolts are provided at their free end with a many-sided attachment on which a crank or a wrench can be applied. Naturally, it is feasible to adjust these eccentric bolts via a self-locking drive, e.g., a worm drive, if there is any significance attached to the fact that these eccentric bolts must not be adjusted unintentionally by any means.

In accordance with the provisions of the patent statutes, I have explained the principle and operation of my invention and have illustrated and described what I consider

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to represent the best embodiment thereof. However, I desire to have it understood that within the scope of the appended claims, the invention may be practiced otherwise than as specifically illustrated and described.

I claim:

1. In combination with a rolling mill having a housing for receiving a pair of rolls, bearing chock assemblies for mounting said rolls in said housing,

a stripper carried by at least one of said bearing chock assemblies for guiding workpieces to or from the rolls of the mill, the improvement comprising:

a holder for carrying said stripper supported by one of the chock assemblies of said one roll in a manner to allow adjustment of the holder relative to the chock assembly and carried by the chock assembly in a manner that the holder can move out of the housing with the chock assembly during roll changing,

a first adjustable means engageable with said holder and carried by said chock assembly for adjusting the stripper into a first position relative to said one chock assembly when the chock assembly is removed from the mill,

a second adjustable means engageable with said holder and carried by said chock assembly for adjusting the stripper into a second position when the chock assembly is in said housing, and means accessible from the outside of the mill for adjusting said second adjustable means.

2. In combination with a rolling mill according to claim 1 wherein said first adjustable device comprises:

a number of insert plates received in a recess formed in said holder,

a slidable block received in said recess and supported by said plates, and

said second adjustable means comprises eccentric bolts engageable with said sliding block.

3. In a rolling mill according to claim 2 wherein a clearance is provided between said sliding block and at least one wall or recess in a manner to allow a sliding block to move freely in a direction perpendicular to the direction of adjustment of the holder.

4. In a rolling mill according to claim 1 wherein said stripper is attached to said holder by means of bayonet connections.

5. In a rolling mill according to claim 1 wherein a stripper is provided for the upper and lower rolls and further wherein the lower stripper rests on a cross member, an arm for supporting the cross member, replaceable plates arranged between said arm and member, and

wherein said arm is attached to the holder of the bearing chock assemblies of said lower roll by means of bayonet connections.

6. In a rolling mill according to claim 1 wherein the holder moves in guiding ways formed in said bearing chock assembly.

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