

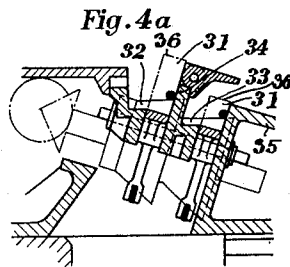
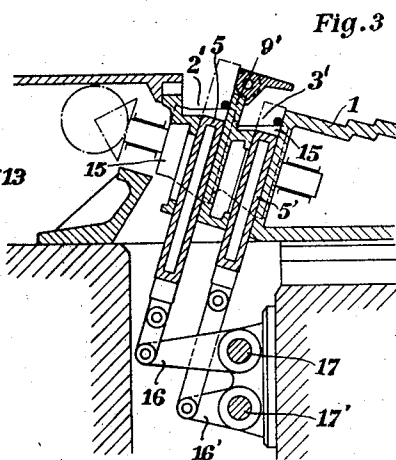
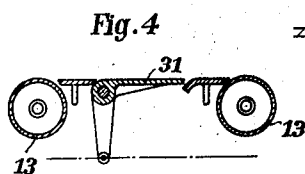
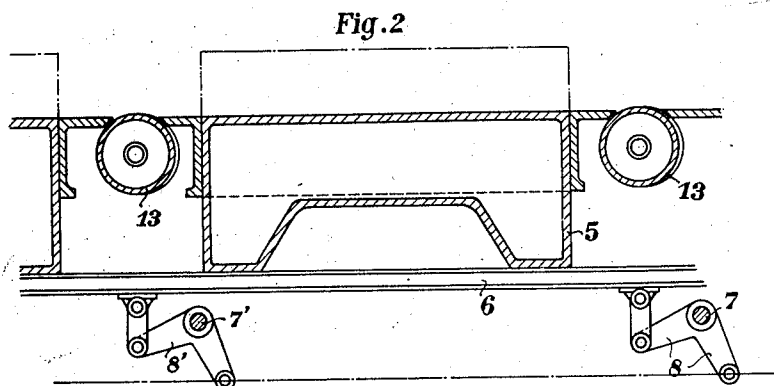
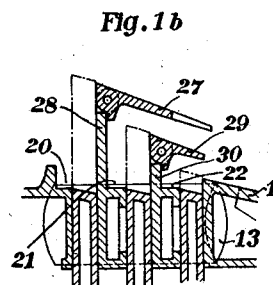
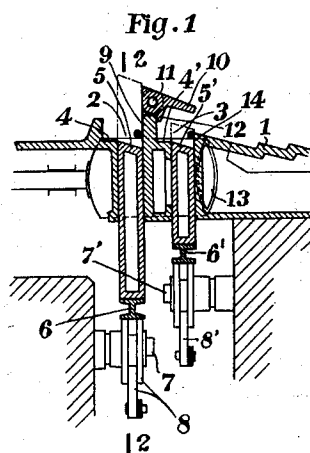
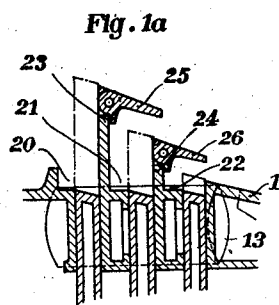
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E. KÄSTEL

HOT BED

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UNITED STATES PATENT OFFICE.

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HOTBED.

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My invention relates to improvements in mechanically operated hot beds for iron rolling mills upon which the hot metal bars, rails, etc. are deposited as they come from the rolling mill and from which the bars are laterally transferred to the cooling bed proper.

The object of my invention is to provide simple and efficient means for receiving two or more rolled metal bars at a time and by which these bars can be easily handled, i. e. guided and straightened while in transit from the mill and can be delivered under the control of the operator to the cooling bed.

Another object of my invention is to provide a durable apparatus for the purpose set forth which is of such construction as to readily withstand the wear due to the frictional contact with the hot bars and to the shocks to which apparatus of this character are generally subjected.

Other objects of my invention may appear hereinafter.

The nature and scope of my invention is briefly outlined in the appended claims and will be more fully understood from the following specification taken together with the accompanying drawing in which—

Fig. 1 is a cross section through a hot bed according to my invention.

Figs. 1^a and 1^b are cross sections of structural modifications of hot beds of the type shown in Fig. 1;

Fig. 2 is a longitudinal section taken along line 2—2 in Fig. 1,

Fig. 3 shows a structurally modified hot bed in cross section;

Fig. 4 is a longitudinal section of a structurally modified hot bed of the type shown in Fig. 3;

Figure 4^a is a cross section through the hot bed shown in Fig. 4.

Referring to Figs. 1 and 2 the hot bed here shown by way of an example comprises two receiving troughs 2 and 3, arranged alongside the cooling bed 1; said troughs are composed of stationary supporting members 4, 4' and movable supporting members 5, 5', the latter being shiftably mounted upon carriers 6, 6', which are cooperatively connected with a plurality of bell crank levers 8, 8' upon the shafts 7, 7'. Intermediate of the receiving troughs 2 and 3 a stationary wall 9 is arranged, which projects above said troughs, separating the latter from each

other and which carries at its top an inclined delivery plate 10, the latter being preferably pivotally connected by bolts 11 and supported in its working position by thumbs 12, so as to be capable of being lifted upwards by hand or suitable mechanical means—not shown.

By placing the tiltable delivery plate 10 into its upright position the receiving trough 3 becomes easy of access and inspection.

While the rolled bars hereinafter referred to as "material" proceed from the rolling mill into the hot bed and are deposited on the stationary supports 4, 4' of the receiving troughs 2 and 3, the movable members 5, 5' of the latter are in their upper position as indicated in the drawing in dot and dash lines.

The material in transit from the mill by reason of the action of the obliquely arranged conveying rollers 13—known per se in the art—will be pushed against the flat lateral faces of the movable members 5, 5' and will thus be guided and straightened throughout its full length.

In order to transfer the material onto the cooling bed 1 the movable members 5, 5' are then shifted into their lowermost position shown in full lines. Thereupon viz, by the action of the conveying rollers 13 the material will automatically move laterally until it comes to rest against the vertical face of the wall 9 and the vertical face 14 of the cooling bed respectively.

Hereafter the movable members 5, 5' are lifted so as to be flush with or slightly above the upper surface of the wall 9, i. e. the delivery plate 10, and of the cooling bed 14 respectively. Thereupon the material will automatically slide down upon the sloping top faces of the movable members 5, 5' and the delivery plate 10 respectively until it finally reaches the cooling bed 1. A structurally modified form of a hot bed, as described hereinbefore with reference to Figs. 1 and 2, is shown in cross section in Fig. 3.

The receiving troughs 2' and 3' are in this case arranged in stepped position with respect to each other and the cooling bed 1. The conveying rollers 15 are inclined and have a conical surface offset to suit the stepped arrangement of the discharging troughs.

The partition wall 9' and the movable

members 5, 5' are conformably mounted and shaped so as to present inclined top and side faces. As seen in Fig. 3 the movable members 5, 5' are operated similarly to those shown in Figs. 1 and 2 viz by means of rocking levers 16, 16' mounted upon shafts 17, 17'. The operation of the whole mechanism forming the hot bed is exactly identical to that explained with reference to Figs. 1 and 2.

Many other structural modifications may be made in the design of hot beds described above and in the cooperation of their component parts without substantially departing from the spirit and the leading ideas of my invention.

Thus e. g. in Fig. 1^a a hot bed is shown by way of an example, composed of three receiving troughs 20, 21, 22 which are separated from each other by partition walls 23, 24, each of the latter being provided at the top with a tiltable delivery plate 25, 26. The delivery plate 25 projects beyond the adjacent receiving trough 21 so as to deliver the material to the second delivery plate, both delivery plates 25, 26 being made and arranged in stepped relation.

It will be obvious to those skilled in the art that more than three receiving troughs may be arranged, if called for, in order to simultaneously deposit a plurality of metal bars or the like coming from the rolling mill.

In Fig. 1^b another modification of a hot bed made according to this invention is shown, in which the material is dropped from each delivery plate directly onto the cooling bed 1. For this purpose the delivery plate 27 of the partition wall 28 is made wide enough to project beyond both adjacent receiving troughs 21, 22 while the delivery plate 29 of the partition wall 30 projects beyond the receiving trough 22.

Thus the material from each receiving trough is delivered directly to the cooling bed 1.

In Figs. 4 and 4^a a structurally modified mechanism is shown in longitudinal and cross sections respectively for lifting the material from the receiving troughs onto the delivery plates. In this modification the movable supporting members referred to above with reference to Figs. 1-3 are replaced by a number of tiltable lifting plates 31, which are preferably pivotally attached to the receiving trough.

As seen in Fig. 4^a the tiltable lifting plates 31 extend approximately over half the width of the stationary receiving troughs 32, 33 being located adjacent to and alongside of the partition wall 34 and the cooling bed 35 respectively.

Said tiltable plates 31 are formed and arranged so as to present in their lifted position an inclined upper edge 36 sloping towards the cooling bed on which the lifted material will slide down to the latter.

Suitable means e. g. a hydraulically or electrically driven actuating mechanism known per se in this art and being under the control of the operator may be provided for operating the levers 8, 16 and the tiltable plates 10, 25, 26, 29, 31 referred to hereinbefore.

What I claim is:

1. A hot bed for the purpose set forth, comprising in combination a plurality of receiving troughs the latter being composed of stationary supporting members and movable lifting members, stationary partition walls arranged so as to separate the receiving troughs from each other, said partition walls being provided at their tops with inclined delivery surfaces, a cooling bed arranged alongside the receiving troughs, a plurality of obliquely disposed conveying rollers arranged so as to transfer the material longitudinally from the rolling mill into the receiving troughs and to push the material laterally in the direction of the cooling bed.

2. A hot bed of the character and with the features set forth in claim 1, characterized therein that the movable lifting members are made and arranged so as to present inclined upper surfaces sloping towards the cooling bed.

3. A hot bed of the character and with the features set forth in claim 1, characterized therein that the partition walls are provided at their tops with tiltable delivery plates, pivotally attached to the partition walls so as to present an inclined working surface sloping towards the cooling bed.

4. A hot bed of the character and with the features set forth in claim 1, characterized therein that the partition walls are provided at their tops with tiltable delivery plates which are made and arranged in a stepped position relative to each other.

5. A hot bed of the character and with the features set forth in claim 1, characterized therein that the partition walls are provided at their tops with tiltable delivery plates which are made wide enough and arranged so as to deliver the material directly to the cooling bed.

6. A hot bed of the character and with the features set forth in claim 1, characterized therein that the receiving troughs are provided with tiltable plates adapted to lift the material to the top surfaces of the partition walls.

7. A hot bed of the character and with the features set forth in claim 1, characterized therein that the receiving troughs are provided with tiltable plates, formed and arranged so as to present in their lifted position an inclined upper edge sloping towards the cooling bed.

8. A hot bed of the character and with the features set forth in claim 1 characterized therein that the movable lifting mem-

bers of the receiving troughs in their lifted position at the same time subdivide the troughs.

5 9. A hot bed having the features set forth in claim 1 characterized by the fact that of each two receiving troughs lying side by side the one closer to the cooling bed lies lower than the other.

10 10. A hot bed having the features set forth in claim 1 characterized therein, that of each two receiving troughs lying side by side the

one closer to the cooling bed lies lower than the other, that the partition walls and the conveying rollers are inclined toward the cooling bed, and that the conveying rollers 15 have interrupted conical surfaces corresponding to the arrangement of the receiving troughs at different heights.

The foregoing specification signed at Berlin, Germany this 1st day of December, 1926.

EMIL KÄSTEL.