

[54] **APPARATUS FOR MARKING MOVING BARS SUCH AS STEEL RAILS**

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[58] Field of Search..... 101/6, 37, 407 A

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[57] **ABSTRACT**

Apparatus for applying marks to a surface of a bar, such as a railroad rail, which is moving along a conveyor. The bar is guided to pass between a supporting disc positioned to engage a surface of the bar opposite to the surface to be marked and a stamping disc positioned so as to be engageable with the surface to be marked, and both discs are separately driven at a peripheral speed equal to the linear speed of the moving bar. At the proper time, the stamping disc is pressed into engagement with the surface of the bar. The positions of the supporting and stamping discs are adjustable vertically, laterally and angularly with respect to the path of movement of the bar so that a marking operation can be performed on bars of various sectional configurations.

5 Claims, 7 Drawing Figures

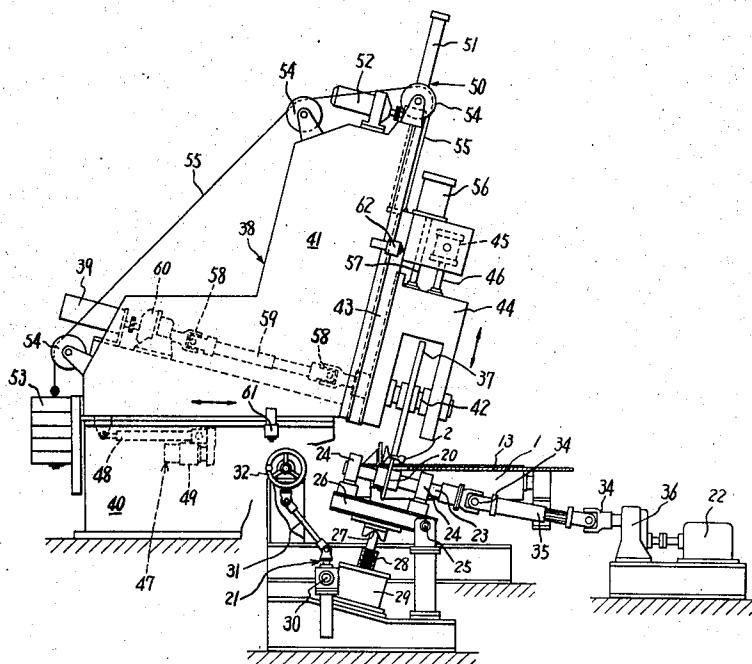


FIG. 1

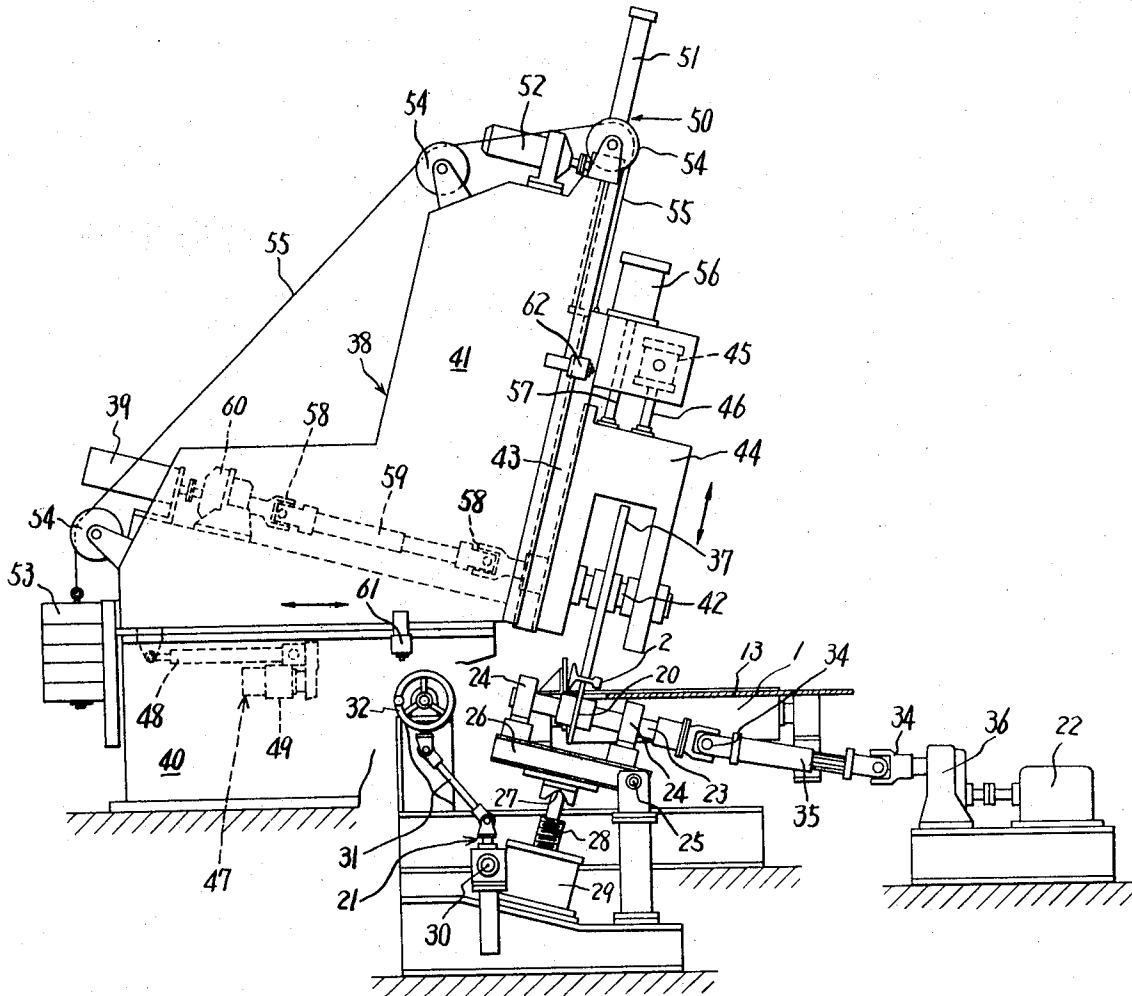


FIG. 2

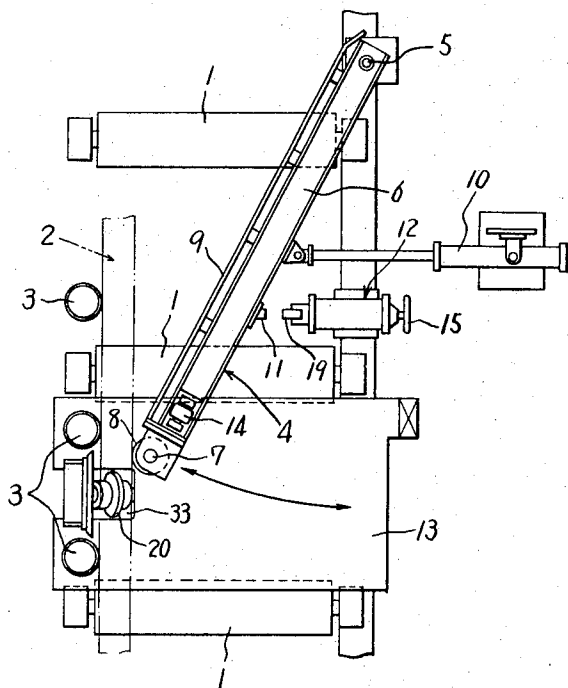


FIG. 3

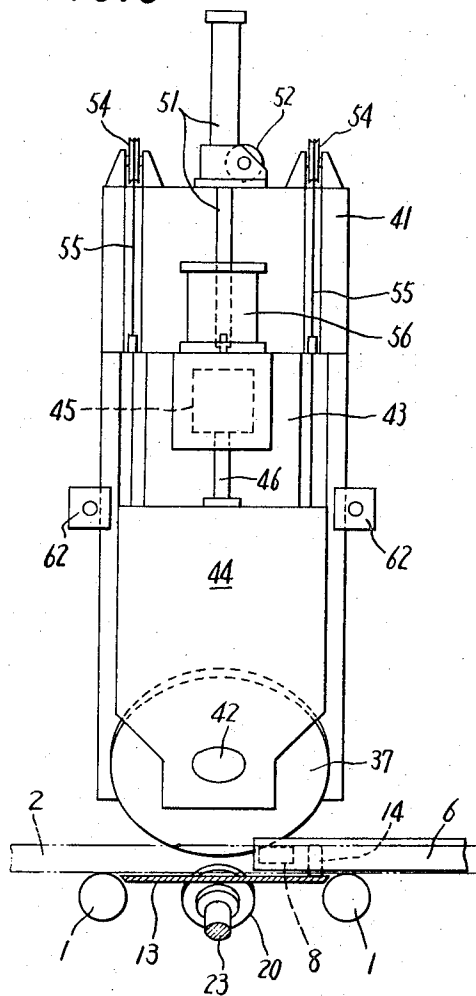


FIG. 4

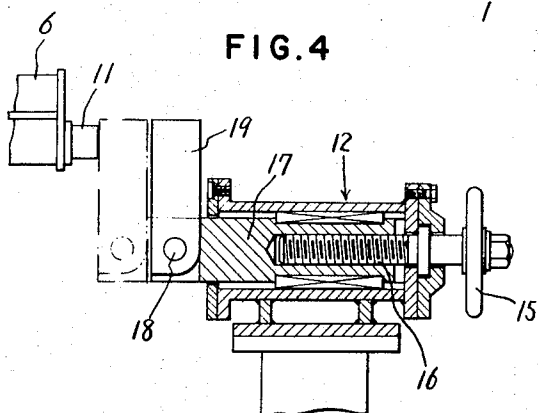


FIG. 5

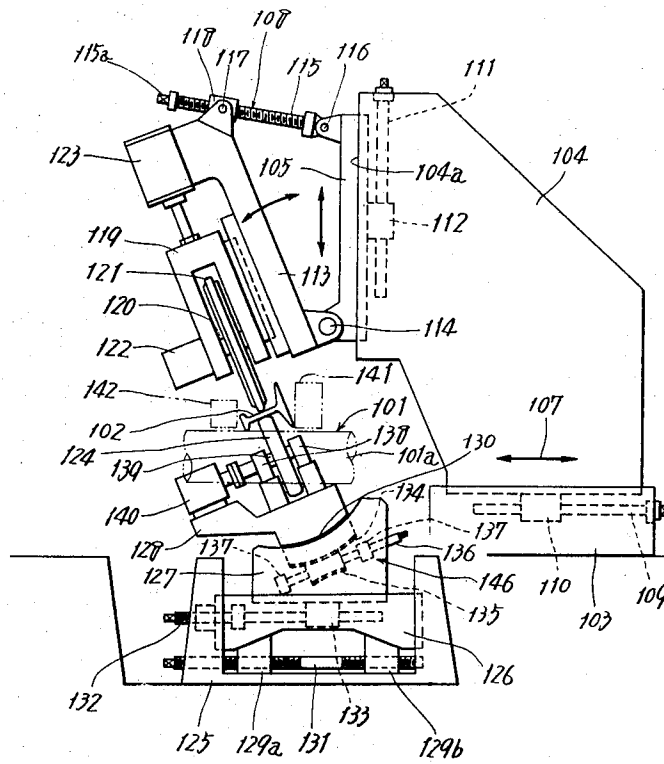


FIG. 6

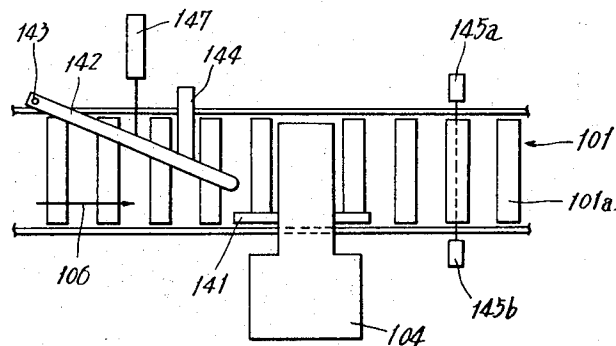
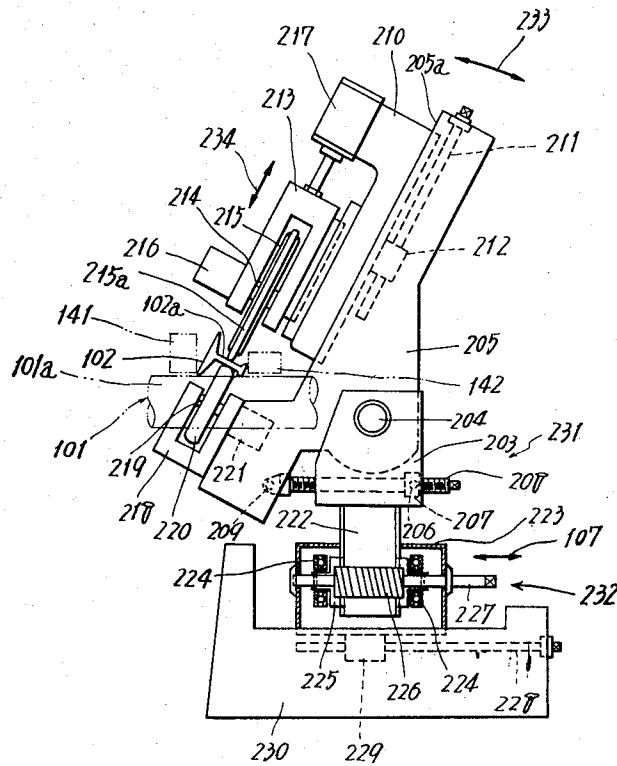


FIG. 7



APPARATUS FOR MARKING MOVING BARS SUCH AS STEEL RAILS

SUMMARY OF THE INVENTION

The present invention relates to an apparatus for mechanically applying marks, indicating information such as production history, to bars, such as steel rails and other members having a special sectional shape, at a predetermined area thereof as the bars are moving.

Heretofore, it has been difficult to apply marks to such bars while moving and having their final shape after passing through a rolling process, because of their special sections. At present, therefore, a manual operation has to be resorted to.

Accordingly, the object of the present invention is to provide an apparatus capable of mechanically applying predetermined marks to such bars, having a special sectional shape while they are moving.

Marking apparatus according to the present invention comprises a support disc for supporting a moving bar from below, a stamping disc disposed above the bar and opposed to the support disc, both of the discs being rotatable, means for pressing the stamping disc against the surface of the bar to be marked, means for changing the stamping position of the stamping disc with respect to the surface to be marked, and means for changing the supporting position of the support disc.

Other features and merits of the invention will appear from the following description of embodiments of the invention illustrated in the accompanying drawings.

DESCRIPTION OF THE DRAWINGS

FIG. 1 is an end elevation of a first embodiment of the marking apparatus of the invention, taken transversely of a roller conveyor supporting a bar being marked;

FIG. 2 is a plan view of means for positioning the bar;

FIG. 3 is a fragmentary side elevation of the apparatus of FIG. 1;

FIG. 4 is an enlarged sectional elevation of stop means shown in FIG. 2;

FIG. 5 is an end elevation similar to FIG. 1 but showing a second embodiment of the apparatus;

FIG. 6 is a schematic plan view of the embodiment of FIG. 5; and,

FIG. 7 is an end elevation of a third embodiment of the apparatus.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

The first embodiment is shown in FIGS. 1 through 4. In FIGS. 1 through 2, rollers 1 of a roller conveyor, for transferring a bar 2 such as the steel rail shown from a rolling process, are disposed in parallel at fixed intervals. Vertical rolls 3 are disposed along one side of the row of rollers 1 and bar positioning means 4 are attached to the conveyor for guiding the bar 2 along the row of vertical rolls 3.

The positioning means 4 comprise a swing frame 6 mounted for horizontal swinging movement on a vertical shaft 5 fixed to the conveyor frame on the side opposite the row of vertical rolls 3; a guide roller 8 supported on a vertical shaft 7 at the free end of the swing frame 6; a guide plate 9 attached to the lateral surface of the swing frame 6 to guide the bar 2 to the guide roller 8; fluid cylinder means 10 for swinging the frame 6; and, stop means 12 adapted to engage an abutment 11 provided on the rear surface of the swing frame 6 in its bar positioning position as shown in FIG. 2, the stop means serving to prevent the backward swing of the swing of the swing frame 6. Further, a support roller 14, in contact with a plate 13 laid at a level slightly below the top surfaces of the rollers 1 and disposed between adjacent rollers 1, is mounted adjacent the free end of the swing frame 6 on an axle extending at right angles to the direction of swinging movement.

The stop means 12, as shown in FIG. 4, comprises a threaded shaft 16 rotatable by a handle 15, a movable shaft 17 adapted to be advanced and retracted by the rotation of the threaded shaft 16, and a stop piece 19 supported on a horizontal pivot 18 at the front end of the movable shaft 17. By pivoting the stop piece 19 counterclockwise to a lower position, backward movement of the swing frame is possible, whereas by erecting the stop piece 19 to the position shown and rotating the threaded shaft 16 to advance the stop piece 19 until it bears against the abutment 11, the swing frame 6 is prevented from retracting when engaged by the bar 2. In FIGS. 2 and 4, the stop piece 19 is shown in a retracted position before it is advanced.

The positioning means 4, in the position shown in FIG. 2, controls the path of movement of the bar 2, being transferred lengthwise on the rollers 1, by means of the guide plate 9 and guide roller 8 so that said path extends along the vertical rolls 3. A support disc 20 is provided between the two vertical rolls 3 opposed to the guide roller 8 and is positioned under the bar 2 having its path of movement thus controlled. The support disc 20 is supported by means 21, and is driven by a motor 22, which enables the supporting position of the disc 20 to be changed. This position changing means 21 comprises a bearing block 26 vertically swingable about the axis of a pivot 25 and supporting the shaft 23 of the disc 20 by a pair of bearings 24; a jack 29 having a jack screw 28 fitted into a recessed seat 27 on the underside of the bearing block 26 to support the latter; and, an operating wheel 32 operatively connected to the drive shaft 30 of the jack 29 through an intermediate shaft 31. By rotating the operating wheel 32 to raise and lower the jack screw 28 of the jack 29, the bearing block 26 can be swung around the axis of the pivot 25, thereby changing the vertical position of the disc 20. The disc 20 projects upwardly into the path of movement of the bar 2 through a cutout 33 formed in the plate 13.

The drive connection between the motor 22 and the disc 20 includes a pair of universal joints 34 and a telescopic shaft 35 to accommodate the variations in the vertical position of the disc 20. A speed reducer is indicated by the reference 36.

Disposed above the support disc 20 is a stamping or marking disc 37, which is supported by position changing means 38 and is driven by a motor 39. The means 38 comprises a base 40, a frame 41 supported on the base and movable in a horizontal direction orthogonal to the direction of movement of the bar 2, a slide 43 movable up and down along the front surface of the movable frame 41 at right angles to the rotatable shaft 42 of the stamping disc 37, and a bearing frame 44 adapted to be moved up and down along the front surface of the slide 43 parallel with the direction of movement of the slide 43, the bearing frame 44 in turn sup-

porting the rotatable shaft 42 of the stamping disc 37. A fluid cylinder 45 attached to the slide 43, and having a piston stem 46 connected at the lower end thereof to the bearing frame 44, presses the stamping disc 37 against the surface of the bar to be marked. Means generally designated 47 for moving the frame 41 with respect to the base 40 comprise a telescopic threaded shaft 48 interposed between the base 40 and the frame 41, and a motor 49 for rotatably driving the telescopic threaded shaft 48. Means 50 for raising and lowering the slide 43 with respect to the frame 41, comprise a telescopic threaded shaft 51 interposed between the upper ends of the frame 41 and the slide 43, and a motor 52 for rotatably driving the telescopic threaded shaft 51. In order to reduce the load on the motor 52 when raising the lifting block 43, a balance weight 53 is mounted on the rear end of the frame 41 and is connected to the upper end of the slide 43 by two wires 55 guided by a plurality of pulleys 54.

A balancer cylinder means 56 is provided for upwardly energizing or biasing the bearing frame 44 in order to reduce the load on the fluid cylinder 45 when raising the bearing frame 44, said means 56 being attached to the slide 43 and being connected at the lower end of the piston rod 57 to the upper end of the bearing frame 44.

The driving connection between the stamping disc 37 and the motor 39 is established by a pair of universal joints 58, a telescopic shaft 59 and a speed reducer 60. In view of the fact that the motor 39 is attached to the movable frame 41, this driving connection assures the transmission of power without being influenced by the raising and lowering of the stamping disc 37.

When a marking operation is not being carried out, the telescopic threaded shaft 51 is contracted by the motor 52 to raise the slide 43, and the telescopic threaded shaft 48 is extended by the motor 49 to retract the movable frame 41 with respect to the base 40, thereby moving the stamping disc laterally and upwardly from the row of rollers 1. Also, the wheel 32 is rotated to lower the jack screw 28 of the jack 29 to permit the bearing block 26 to swing around the axis of the pivot 25 thereby moving the support disc 20 downwardly of the plate 13. Further, the stop piece 19 of the stop means 12 is retracted and placed in its downwardly extending position, allowing the swing frame 6 to be shifted from above the row of rollers 1. As a result of the above operations, the apparatus does not obstruct the row of rollers 1 so that the bar 2 can be freely transferred thereon.

When it is desired to carry out a marking operation, the swing frame 6 of the bar positioning means 4 is first swung to its bar-positioning position and the handle 15 is rotated to extend the stop piece 19 of the stop means 12 so that it abuts against the abutment 11 of the swing frame 6. The wheel 32 is then operated to project the support disc 20 upwardly through the cut-out 33 of the plate 13, the upward extent of such projection being controlled so that the bar 2 moving along rollers 1 between the guide roller 8 of the bar positioning means 4 and the row of vertical rolls 3, can be supported at its surface to be marked. Thereafter, the motors 49 and 52 are driven to advance the frame 41 and to lower the slide 43 whereby the stamping disc 37, held in a raised position with respect to the slide 43, is moved above the support disc 20. The level of the disc 37 at this time is such that it does not contact the moving bar 2.

In this condition, or relationship, the two discs 20 and 37 are driven by the motors 22 and 39 in such a manner that they have an equal peripheral speed. When the bar 2 is transferred along the row of rollers 1, the bar is controlled so as to assume a position in which it is held between the row of vertical rolls 3 and the guide roller 8 by the action of the positioning means 4 while the bar is moving on the support disc 20.

When the portion of the surface of the bar to be marked reaches the support disc 20, fluid pressure is supplied to the cylinder 45 to cause the piston rod 46 to lower the bearing block 44 and the marking disc 37 is thereby pressed against the bar 2 with the required force; and, while held between the two discs 20 and 37, the bar is stamped with predetermined marks lengthwise thereof by stamping dies preset around the periphery of the rotating stamping disc 37. After completion of the stamping operation, the stamping disc 37 may be raised by the cylinder 45.

The driving of the stamping disc 37 may be started at the time it is lowered by the cylinder 45. Further, the movable frame 41 and the slide 43 may be fixed in position by the telescopic threaded shafts 48 and 51, but it is desirable to concurrently use fluid pressure locking means 61 to fix the movable frame 41 at any desired position with respect to the base 40 and fluid pressure locking means 62 to fix the slide 43 at any desired position with respect to the movable frame 41.

In this embodiment, the bar 2, of I-shaped cross section such as used for railway rails, is moved on its side as shown. Even though the bar 2 may vary in size, the angle of inclination of the web portion which presents the surface to be marked is substantially constant, with the result that the rotatable shaft 42 of the stamping disc 37 is at right angles to the direction of movement of the bar 2 and is inclined at the same angle as the angle of inclination of the web portion. Also, if the level of the support disc 20 is changed, the angle at which it abuts against the web will change, but practically this does not matter if the periphery of the disc 20 is rounded so that it makes substantially line contact with the web.

A second embodiment will now be described with reference to FIGS. 5 and 6.

A roller table 101 receives from a rolling process a bar 102 such as the steel shape shown thereon. Disposed beside the roller table 101 is a base 103 on which a frame 104 is provided, and a slide 105 is mounted on the front end of the frame 104, being slidable up and down on the front surface 104a thereof as in a dove-tail groove connection. The frame 104 is movable on the base in the directions of the arrow 107 which are at right angles to the direction of movement of the bar. A threaded shaft 109 for frame adjustment is rotatably mounted in the base 103 and engages an internally threaded bracket 110 provided on the underside of the frame 104. By suitably rotating the threaded shaft 109, it is possible to adjust the position of the frame 104 in either direction of the double headed arrow 107. Similarly, by rotating a threaded shaft 111 mounted on the frame 104 and engaging an internally threaded bracket 112 provided on the slide 105, the slide 105 can be vertically adjusted.

A bracket 113 for changing the stamping angle is disposed above the roller table 101, the lower portion of the bracket being secured to the slide 105 by a pivot pin 114 parallel with the direction 106 of bar move-

ment. The upper portion of the bracket 113 is secured to the slide 105 by a threaded shaft 115 for stamping angle adjustment, the threaded shaft 115 being secured to the slide 105 by a pivot pin 116 parallel to the pivot pin 114 and being secured to the bracket 113 by engagement with an internally threaded nut 118 pivotally mounted on the bracket by a pin 117 parallel with the pivot pin 114. The members 113-118 described above constitute means for changing the stamping angle with respect to the surface of the bar to be stamped, and by suitably rotating the threaded shaft 115 the bracket 113 can be tilted to any desired angle about the axis of the pivot pin 114. Rotation of the shaft 115 may be effected, for example, by fitting a handle (not shown) on one end 115a thereof.

A disc holder 119, mounted for up and down movement on the bracket 113, includes a rotatable shaft 120 extending at right angles to the direction 106 of bar movement as viewed from above, the rotatable shaft 120 having a stamping disc 121 fixed thereto with suitable stamping dies removably attached to the outer periphery of the stamping disc. A motor 122 is provided for rotating the stamping disc 121, and pressing means such as cylinder 123 is mounted above the disc holder 119 and is actuatable to position the holder and to press the stamping disc against the surface of the bar 102 to be stamped.

A support disc 124 is disposed between rollers 101a of the roller table 101 in opposed relation to the stamping disc 121 and serves to support the bar 102 from below. The support disc 124 is supported by three blocks, a lifting block 126 shown in an upper position and mounted on a base 125 therebelow, a horizontally movable block 127 shown in an intermediate position, and an inclination angle adjusting block 128 shown in an angular position. The lifting block 126 is supported by a pair of wedges 129a and 129b which are movable toward and away from each other to change the level of the lifting block 126; the horizontally movable block 127 is mounted on the lifting block 126 and is movable in a direction at right angles to the direction 106 of bar movement; and, the inclination angle changing block 128 is supported on the horizontally movable block 127 so as to be tiltable to any desired angle along an arcuate contact surface 130 having a suitable radius with the center on an axis extending parallel to the direction 106 of bar movement. A threaded shaft 131 for moving the two wedges 129a and 129b toward and away from each other is rotatable with respect to the base 125 and engages the wedges 129a and 129b with mutually oppositely handed screws. A threaded shaft 132 for adjusting the horizontally movable block 127 is screwed into an internally threaded bracket 133 on the block 127. An arcuate worm gear 137, coaxial with the arcuate contact surface 130 of the inclination angle changing block 128, meshes with a worm 135 on a worm shaft 136 mounted in bearings 137. These members 128, 130 and 134 constitute means 146 for changing the angle at which a shaft 139 for the support disc is positioned. Drive means 140, comprising a motor and a speed reducing mechanism, are provided for rotating the support disc 124.

A fixed guide 141 is disposed at a fixed position on the roller table 101, and a movable guide 142 is horizontally pivotally supported at one end by a shaft 143. Means for fixing the position of the movable guide are designated by the reference 144, and the reference 147

designates a hydraulic cylinder for moving the movable guide 142.

An operation of marking a moving bar with the above arrangement will now be described. For this marking operation, the stamping disc 121 and the support disc 124 are first adjusted with respect to the surfaces to be marked and supported, respectively, of the bar 102 on the roller table 101. The adjustment of the stamping disc 121 may be effected by suitably combining the positional adjustment of the frame 104 in one of the directions of the arrow 107, the upward or downward positional adjustment of the slide 105, and the adjustment of the angle of inclination of the bracket 113 around the axis of the pin 114. It is possible to thereby set the stamping disc 121 at right angles with the surface of the bar 102 to be marked.

Adjustment of the support disc 124 may be effected by suitably combining the adjustment of the level of the lifting block 126 by the wedges 129a and 129b, the positional adjustment of the horizontally movable block 127 in one of the directions of the arrow 107, and the adjustment of the angle of inclination of the block 128 on the arcuate contact surface 130. It is possible for the support disc 124 to thereby assume a position in which it is disposed below and opposed to the stamping disc 121, ready to withstand the stamping force. In making these adjustments, each of the three threaded shafts 131, 132 and 136 may be rotated by a handle (not shown) fitted on one end thereof. In addition to the adjustments described above, the movable guide 142 is fixed in position by the means 144 so as to define a path of movement of the bar 102 between the fixed and movable guides 141 and 142 and guide the front end of the moving bar 102. When the moving bar 102 passes, the front end thereof actuates detectors 145a and 145b, such as photoelectric devices disposed on the roller table 101, thereby activating the drive means 122 for the stamping disc 121 to rotate the stamping disc at the same peripheral speed as the linear speed of the bar 102. At the same time, the fluid cylinder 123 is actuated to press the stamping disc 121 against the surface of the bar 102 to be marked. Predetermined marking is thereby applied to the surface as said surface is supported by the support disc 124 which is rotating at the same peripheral speed as that of the stamping disc. After marking, the fluid cylinder 123 is retracted, thereby raising the stamping disc 121. At this time, the stamping disc 121 is stopped after having gone through one complete revolution ready for the next marking operation. When it is desired to apply marking to the rear end of the bar 102, the detectors 145a and 145b may be positioned some distance ahead.

With the apparatus of this second embodiment, the stamping angle and position can of course be changed as desired, and as compared with the apparatus of the first embodiment, it is possible to maintain constant the relative position and posture relation between the stamping disc and the support disc, assuring that a positive marking operation is easily effected regardless of the cross sectional shape of the bar.

A third embodiment will now be described with reference to FIG. 7. Parts having the same reference numerals as those shown in FIG. 5 are the same so that a description thereof will be omitted.

A pedestal 203 disposed beside a roller table 101 supports a frame 205 which is movable about the axis of a shaft 104 disposed parallel to the direction of

movement of a bar 102. A threaded shaft 208 engages a nut 207 pivotally mounted on the pedestal 203 by a pin 206, and the shaft is pivotally connected at the front end thereof to the frame 205 through a pin 209, parallel to the pin 206, without interfering with the rotation of the shaft 208 with respect to the nut 207. Rotation of the shaft 208 causes a back and forth movement thereof in the directions of the double headed arrow 107 with respect to the nut 207, thereby causing the frame 205 to swing (in the directions of the double headed arrow 233) around the axis of the shaft 204 in a plane perpendicular to the direction of movement of the bar 102. The shaft 208, nut 207 and pins 206, 209 constitute a tilting means 231.

A slide 210 is mounted on the upper portion of the inclined front surface 205a of the frame 205 through connecting means such as a dovetail groove. Upward and downward positional adjustment of the slide 210 can be effected by rotating a threaded shaft 211 engaging a nut 212 fixed to the slide 210. A stamping disc holder is mounted on the slide 210 for up and down sliding movement in the direction of the double headed arrow 234, and a stamping disc 215 is supported by the stamping disc holder on a rotatable shaft 214. A stamping or marking band 215a is removably attached to the outer periphery of the stamping disc 215. The stamping disc 215 is rotated by a drive motor 216 and is pressed against the surface 102a to be marked on the bar 102 by pressing means 217 such as a hydraulic cylinder fixed to the upper portion of the slide 210 and acting on the holder 213.

A support disc holder 218 is fixed to the lower portion of the front inclined surface 205a of the frame 205 and supports a bar supporting disc 220 on a rotatable shaft 219. The support disc 220 is rotated by a drive motor 221 and abuts against the surface of the moving bar 102 opposite to the surface to be marked, thereby performing the function of supporting the bar at the time of marking by the stamping disc 215.

A threaded shaft 222 is fixed to the bottom of the pedestal 203 and extends downwardly therefrom. A worm wheel 225 engages the shaft 222 and is rotatably supported in fixed bearings 224. The shaft 227 of a worm 226 meshing with the worm wheel 225 extends out through a base 223. Rotation of the shaft 227 causes the worm wheel 225 to be rotated around the axis of the threaded shaft 222, thereby vertically moving the threaded shaft 222 to set the vertical position of the frame 205 and of the stamping and support discs 215 and 220 mounted thereon. These members 222, 225-227 constitute a vertical adjustment means 232.

A threaded shaft 228 engages a nut 229 provided under the base 223, rotation of the threaded shaft causing the base 223 to be moved back and forth in the directions of the arrow 107 with respect to a fixed base 230.

Operation of this apparatus will now be described. The angle of the stamping disc 215 with respect to the surface to be marked is adjusted by the tilting means 231 in such a manner that the stamping disc abuts perpendicularly against the surface 102a to be stamped of the moving bar 102 on the roller table 101. Next, the vertical position of the support disc is set by adjusting the vertical adjustment means 232 in such a manner that the support disc 220 positively supports the moving bar 102 from below. The position of the bracket 210 on the frame 105 is set by the shaft 211 and nut

212 in such a manner that the stamping disc 215 is positively depressed against the surface 102a to be marked at the lower limit of the downward stroke of the pressing means 217 so as to assure satisfactory marking. Further, by operating the shaft 228 to move the base 223 back and forth, it is possible to make a finer adjustment of the marking position on the surface 102a to be stamped. Each of the shafts 208, 211 and 228 may be operated, e.g., by fitting handles on one of their respective ends and rotating the handles.

At the same time as the drive motor 216 is operated to rotate the stamping disc 215 at the same peripheral speed as the linear speed of the bar 102, the pressing means 217 is actuated to press the stamping disc against the surface 102a to be marked so that this disc marks predetermined letters on the surface 102a stably and positively in cooperation with the support disc 220 which is also rotating at the same peripheral speed. After the marking operation, the pressing means 217 is returned to retract the stamping disc 215. At this time, the stamping disc is stopped after having gone through one complete revolution, ready for the next marking operation.

The tilting means 231 and the vertical adjustment means 232 may, of course, be constituted by other mechanisms than those shown in the embodiment, for example hydraulic means.

In the stamping apparatus of the third embodiment, the stamping disc and support disc are unitarily mounted in opposed relation to each other in the same frame, and thereby a change of marking angle and position can be simply and positively effected by the swinging and up and down movement of the single frame.

Although stamping on an inclined surface has been described in the embodiments, it will be readily understood that the present apparatus is capable of easily stamping a horizontal surface.

We claim:

1. Apparatus for marking a bar moving linearly on a conveyor comprising:
 - a row of vertical rolls disposed on one side of said conveyor;
 - bar positioning means displaceable between a first position in which the moving bar is engaged thereby and pressed against said row of vertical rolls and a second position in which the bar positioning means is retracted laterally of said conveyor;
 - a movable frame disposed laterally and upwardly of said conveyor and displaceable in a horizontal direction orthogonal to the direction of movement of said bar, a slide mounted for vertical movement on said frame, a bearing frame mounted on said slide so as to be capable of being raised and lowered in a direction substantially perpendicular to a surface to be marked on said moving bar, a stamping disc rotatably supported on said bearing frame by a shaft whose axis extends substantially parallel to said surface to be marked and transverse to the direction of movement of said bar, and pressing means interposed between said slide and bearing frame for moving said stamping disc into and out of engagement with the surface to be marked;
 - a supporting disc mounted on a shaft extending substantially parallel to the stamping disc shaft for supporting said moving bar below the stamping disc when the latter is pressed against the surface of the moving bar to be marked, supporting means for

changing the position of the supporting disc between a first position in which the moving bar is supported thereby and a second position in which the supporting disc is retracted below the transfer surface of the conveyor; and,
means for driving the supporting and stamping discs at a peripheral speed equal to the linear speed of the moving bar.

2. Apparatus according to claim 1 wherein said pressing means includes a cylinder means for raising and lowering the bearing frame relative to the slide, and balancer cylinder means for biasing the bearing frame upwardly to reduce the load on the cylinder means when raising the bearing frame.

3. Apparatus according to claim 1 wherein the supporting means for changing the position of the supporting disc includes a bearing block supporting the supporting disc shaft, a pivot on which the bearing block is vertically swingable on an axis perpendicular to the axes of the supporting disc shaft, a jack having a jack screw supporting the bearing block in spaced relation

to said pivot, and driving means for driving said jack screw to raise and lower the bearing block.

4. Apparatus according to claim 3 wherein said supporting disc is provided with a rounded peripheral edge adapted to make line contact with the moving bar.

5. Apparatus according to claim 1 wherein the bar positioning means includes a swing frame provided with a guide plate for guiding the front end of the moving bar, means pivotally mounting one end of the swing frame on one side of the conveyor, the free end of the swing frame extending from the pivotal mounting in the downstream direction of movement of the bar, a guide roller mounted at the free end of the swing frame, fluid cylinder means for swinging the swing frame toward and away from said row of vertical rolls, and stop means for preventing movement of said swing frame away from said row of vertical rolls, said stop means being selectively positionable for engagement by said swing frame.

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