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 APPARATUS FOR DELIVERING BARS FROM COOLING
 BEDS TO LIVE ROLL CONVEYERS
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Fig. 2

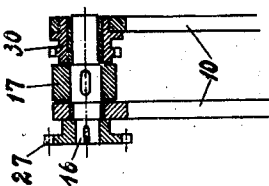
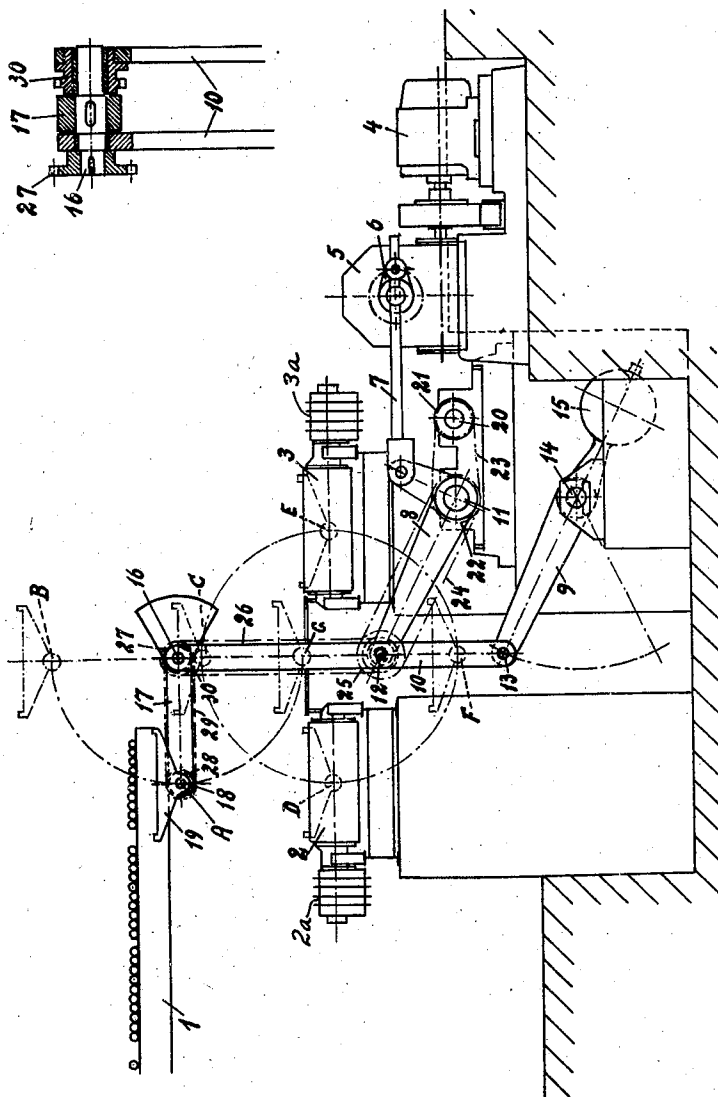


Fig. 1



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APPARATUS FOR DELIVERING BARS FROM
COOLING BEDS TO LIVE ROLL CON-
VEYERSHans Cramer, Dinslaken, Niederrhein, Germany;
vested in the Alien Property CustodianApplication December 6, 1940, Serial No. 368,952
In Germany January 4, 1940

1 Claim. (Cl. 198—27)

The present invention relates to a delivering device for removing rolling material such as rods from a cooling bed, and then selectively depositing the material onto one of a plurality of live roll conveyers.

It is an object of this invention to provide a delivering device of the class described adapted to be operated independently of the live roll conveyers, whereby the transfer of material from the cooling bed will not be affected by the operation of the selected conveyer upon which the material is deposited.

It is another object of this invention to provide a delivering device capable of removing orderly arranged groups of rods from the cooling bed and then maintaining these rods in the same orderly arrangement during transfer onto one of a plurality of conveyers.

An embodiment of the invention is shown by way of example in the accompanying drawing, in which,

Figure 1 is an elevational view through the delivering device according to the invention; and

Figure 2 is a sectional view, illustrating certain details of the device.

In Figure 1, the numeral 1 designates a cooling bed and 2 and 3 designate live roll conveyers onto which the material from the cooling bed is transferred. Conveyers 2 and 3 are independently driven by motors 2a and 3a respectively. A motor 4 is drivably connected to a crank 6 by means of a housed gearing 5, said crank being pivotally connected to one end of a rod 7, the other end of the rod being secured to the short leg of a bell crank 8. The bell crank is keyed upon rotatable shaft 11. The intermediate portion of a pair of vertically disposed bars 10 is pivotally connected as at 12 to the long leg of bell crank 8, the lower end of said bars being pivotally connected to lever 9 at point 13 disposed vertically below point 12, and the upper end of said bars pivotally supporting one end of an arm 17 as at shaft 16.

It will be noted that the intermediate portion of arm 9 is mounted for oscillation upon a shaft 14, which shaft is located vertically below previously mentioned shaft 11 for supporting bell crank 8. Since the long leg of bell crank 8 is parallel to arm 9, and since the distance between points 11 and 12 is equal to the distance between points 13 and 14, the bars 10 will always occupy a vertical position regardless of the angular position occupied by the supporting members 8 and 9 with respect to the pivot points 11 and 14 respectively.

Lever 9 has a counterweight 15 connected thereto for balancing the delivery construction about pivot points 11 and 14. The dead center position of crank 6 and rod 7 in Fig. 1 corresponds to the upper limit of oscillation of members 8 and 9, whereas the position occupied by these members after crank 6 has rotated 180 degrees from the position shown, corresponds to the lower limit.

An arm 17 and a sprocket wheel 27 are keyed on the shaft 16, said shaft being rotatably mounted in the upper end of one of the bars 10 and also in a sprocket wheel 30, which wheel is fixedly secured to the upper end of the other bar 10. The free end of arm 17 has a pin 18 mounted therein, and a sprocket wheel 28 is rotatably mounted upon this pin, said sprocket wheel being rigidly connected to a supporting body 19 which is adapted to pick up rods from the cooling bed during a transfer operation.

In order to maintain the flat top of the supporting body 19 in a horizontal position at all times, regardless of the angular position occupied by arm 17 with respect to point 16, a sprocket chain 29 is mounted upon the fixed sprocket wheel 30 and upon the rotatable sprocket wheel 28. For example, when arm 17 rotates in a clockwise direction about shaft 16 through a given angle, the body 19 will be caused to rotate in a counterclockwise direction about shaft 18 through the same angle, thus maintaining the top of body 19 horizontal. Movement of the body 19 relative to arm 17 takes place when the body is moved from position A to various dotted line positions such as indicated by B, C, D, E, and F.

The angular position of arm 17 about shaft 16 is controlled independently of the vertical movement produced by drive 4, 5, 6, 7, 8, 9 and 10. In order to effect the angular control, a sprocket wheel 21 is keyed on a shaft 20, which shaft is rotated by a source of power not shown. Mounted on wheel 21 is a sprocket chain 23, and this chain is also mounted upon a double sprocket 22 rotatably supported upon shaft 11. A second sprocket chain 24 is mounted upon sprocket wheel 22 and also upon a double sprocket wheel 25 rotatably supported as at 12. Finally, a third chain 26 is mounted upon sprockets 25 and 27 to thereby complete the driving connection between shaft 20 and arm 17.

The operation of the delivering device according to Figures 1 and 2 is as follows:

By rotation of shaft 20, which may take place in both directions, the chain 23, wheel 22, chain

24, wheel 25, chain 26, and wheel 27 are also actuated, thereby rotating shaft 16 and the attached arm 17. By rotating arm 17 about shaft 16, through the driving connection just described simultaneously with the vertical bodily movement of the arm 17 through the driving members 4, 5, 6, 7, 8, 9 and 10, the body 19 may be caused to assume any number of positions such as indicated by A, B, C, D, E, F, and G. Regardless of the position occupied, the top of body 19 will always remain substantially horizontal.

During operation the arm 17 is rotated in a clockwise direction from the bold line initial position until the body 19 moves from position A to position B, and during this movement material is picked up from the cooling bed 1. Then the vertical bars 10 and the aligned arm 17 are lowered to lowermost position by the drive 4, 5, 6, 7, 8 and 9 to cause the body 19 to assume the dotted line position C. With the bars 10 in lowermost position, the arm 17 is then rotated in a counter-clockwise direction until the body 19 assumes the position D, or in a clockwise direction until the body assumes the position E. Thus the material supported by body 19 may be deposited upon either the conveyer 2 or 3. The supporting table is brought from the position D or E by further oscillation into the position F. The delivering device is then lifted by turning the crank 6, and the supporting table or body 19 is brought into the position G, after which the arm 17 is rotated in a clockwise manner until the body occupies the initial position A so that a new operation can begin.

It is thus seen that the present device is capable of transferring materials such as orderly arranged rods and the like from one position to

another without disturbing said orderly arrangement. Also, the present device may be employed to transfer materials from a cooling bed to a selected conveyer of a group without disturbing the operation of the unselected conveyers.

I claim:

Apparatus for the selective distribution of orderly arranged groups of rods, from a cooling bed to one of two discharging roll conveyers, comprising a drive for said conveyers, a vertically movable supporting member, a lever rotatably secured to said member for rotation in a vertical plane at a point above said conveyer and below said bed, a supporting table rotatably mounted on a horizontal pivot at the free end of said lever and operatively associated with said cooling bed and each of said conveyers during the combined vertical movement of said support and the rotary movement of said lever, means for vertically moving said supporting member and attached lever and table relative to said bed and conveyer, selective means operable with said first named means for oscillating said lever and attached table in either direction about the axis of rotation of said lever to cause said table to gather the material from said bed and deposit the same upon one of said conveyers, said first and second means being independent of the drive for said conveyers, and interconnecting means between said supporting member and said table and controlled by the rotation of said lever for maintaining said table in successive parallel positions during the rotation of the lever whereby the orderly arrangement of said groups will not be disturbed during transfer.

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