Feb. 5, 1935. C. L. TAYLOR 1,990,105

FEED MECHANISM FOR GATHERING TABLES AND THE LIKE

Filed March 23, 1932 2 Sheets-Sheet 1

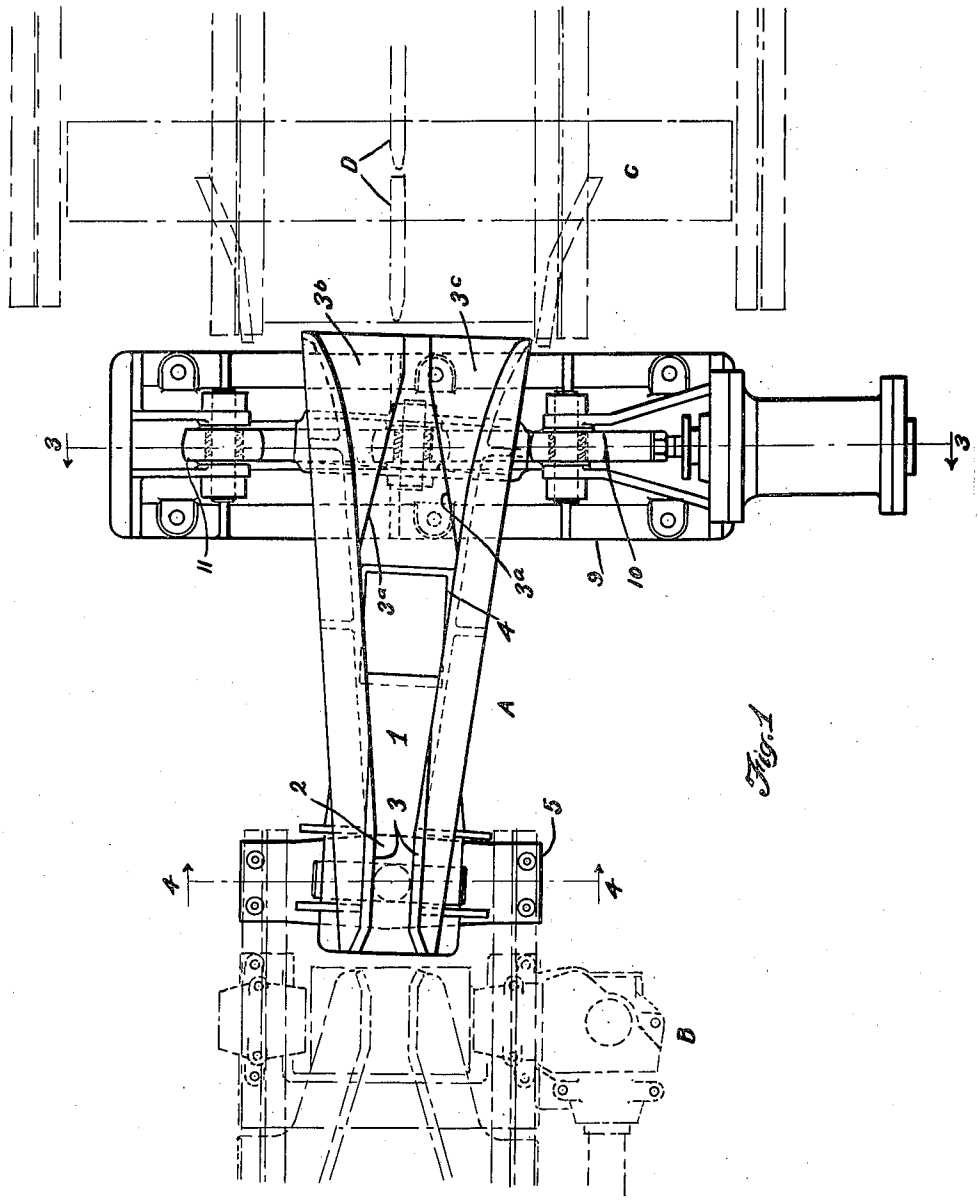


Fig. 1

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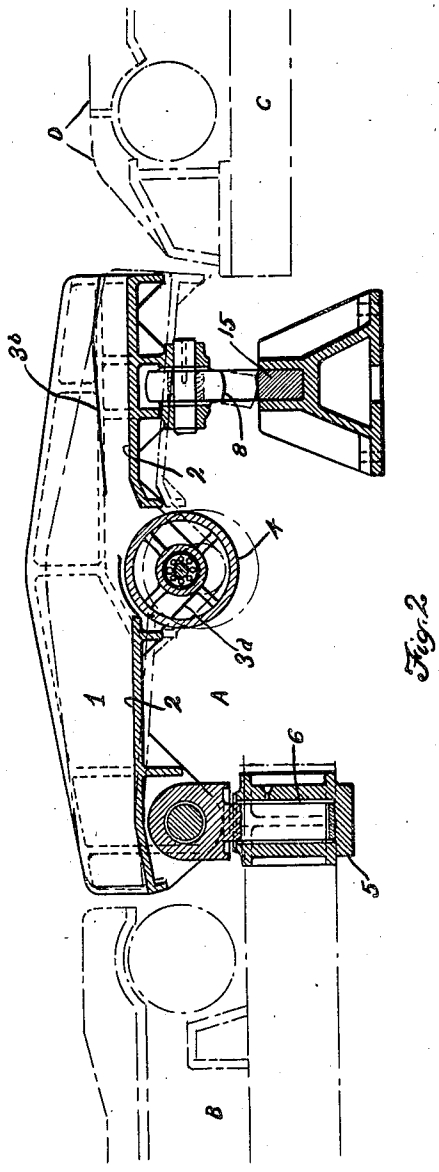


Fig. 2

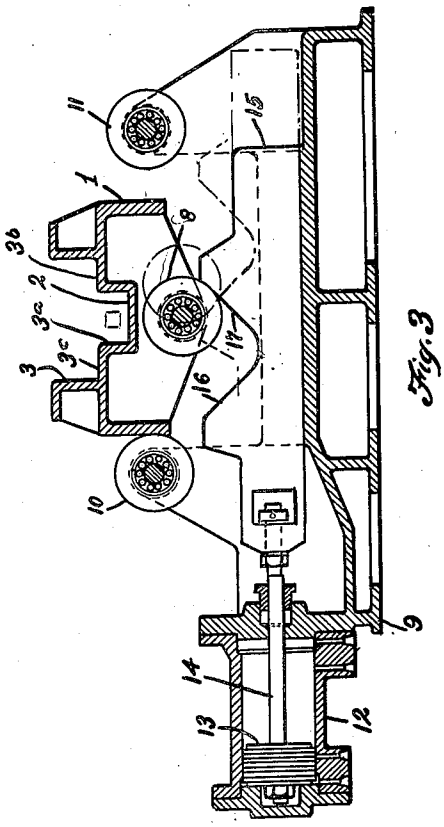


Fig. 3

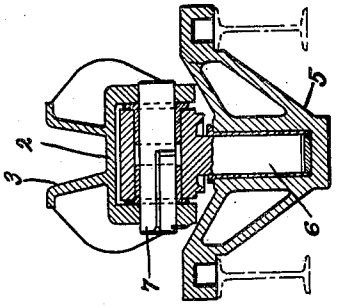


Fig. 4

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Patented Feb. 5, 1935 1,990,105

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FEED MECHANISM FOR GATHERING TABLES AND THE LIKE

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Application March 23, 1932, Serial No. 600,732

15 Claims. (Cl. 193—29)

This invention relates to feed mechanism for gathering tables and the like.

Mechanism of this type is commonly employed to feed bars which are being cut from a billet in rapid succession, as by means of flying shears, to a gathering table, on which the bars are permitted to accumulate and cool, and from which they are periodically removed.

A gathering table, such as is commonly employed for this purpose, is divided by a longitudinally extending partition into two sections, and after one of the table sections has become filled, the feed mechanism is usually moved into registry with the other table section to divert the bars thereto and permit the removal of the bars from the other table section.

A primary object of the present invention is to provide means for effecting a movement of the feed mechanism from its position of registry with one table section to the other table section and at the same time preventing a bar or bars which may be coming through the feed mechanism from striking the partition of the table during such movement of the feed mechanism.

To the accomplishment of the foregoing and related ends, said invention, then, consists of the means hereinafter fully described and particularly pointed out in the claims, the annexed drawing and the following description setting forth in detail certain mechanism embodying the invention, such disclosed means constituting, however, but one of various mechanical forms in which the principle of the invention may be used.

In said annexed drawings:

Fig. 1 is a plan view of the feed mechanism showing, in dotted lines, portions of the flying shear table and gathering table; Fig. 2 is a longitudinal cross section through the feed mechanism; Fig. 3 is a transverse cross section through the feed mechanism, taken on the line 3—3 of Fig. 1; and Fig. 4 is a cross section through the feed mechanism, taken on the line 4—4 of Fig. 1.

The feed mechanism, which is generally designated A, is positioned between the discharging throat of a flying shear table B and a skew gathering table C, which is divided longitudinally as by means of a sectional partition D. The mechanism includes a guide or trough 1, having a bottom 2 and side walls 3, which at one end of the guide, form a constricted mouth, adapted to register with the discharging throat of the flying shear table. At the other end of the guide, a constricted throat is formed by offset portions 3*a* of the side wall, which provide ledges 3*b* and 3*c*. At a point intermediate the ends of the guide, the side walls are extended downwardly to form bearings 3*d* for the support of a freely rotatable roller 4, a portion of which extends through an opening in the bottom of the guide.

A hanger 5 underlies one end of the guide and forms a thrust bearing for the support of a post 6, in the upper end of which is journalled a pin 7. The guide 1 has depending portions through which the ends of the pin 7 extend. This mounting permits pivotal movement of the guide in vertical and horizontal planes. A freely rotatable roller 8 is suitably supported underneath the opposite end of the guide 1.

Underlying the other end of the guide and extending transversely thereto is a frame 9, which supports spaced rollers 10 and 11, and an air cylinder 12, in which a piston 13 and its connecting rod 14 is positioned for reciprocal movement. To one end of the piston rod 14 is secured a switch member 15, having in its upper edge a V-shaped recess defined by walls 16 and 17.

As clearly shown in Figs. 1 and 3, the piston 13 is at one extreme of its stroke, and in this position the throat of the guide is maintained in registry with one side of the gathering table by the wall 17 of the recess in the switch 15 and the roller 10. When it is desired to position the guide so that its throat is in registry with the other side of the gathering table, air is admitted into one of the ports in the cylinder 12, thereby moving the switch 15 to its other extreme position, as shown in dotted lines in Fig. 3. This movement of the switch permits the roller 8 to move down into the recess in the switch, and the forward end of the guide, due to its own weight, moves downwardly to the position shown in dotted lines in Fig. 2. When the wall 16 of the recess in the switch strikes the roller 8, the guide is again moved upwardly and into contact with the roller 11.

The operation of the guide is as follows: With the guide in the position shown in Fig. 1, the bars, which may be of considerable length, pass through the mouth of the guide and over the roller 4. The forward end of the bar strikes the side wall 3*a* adjacent the ledge 3*b*, is thereby diverted to the throat of the guide, and continues to pass onto the table section with which the throat of the guide is in registry.

Assuming that this table section has become filled with bars and that it is desired to feed the bars to the other table section, if the guide were simply moved transversely to bring the throat thereof into registry with the other table, and if the forward end of a bar happened to emerge

from the throat of the guide during such transverse movement, it will be readily seen that the bar might strike the partition D of the gathering table. Even if the transverse movement of the guide occurred after the bar had started onto the table section, the bar would be caught between the side wall 3a adjacent the ledge 3c and the partition D. In order to avoid the possibility of either occurrence, the guide is moved after a bar has started onto the table section, and by causing the forward end of the guide to be lowered in the manner described, it will be seen that the bar is lifted out of the throat of the guide and continues to pass over the ledge 3c. By the time the bar has passed through the guide, the transverse movement of the guide has been completed, and the next bar will strike the side wall 3a adjacent the ledge 3c and be thereby diverted to the throat of the guide, passing therethrough onto the other table section.

Other modes of applying the principle of my invention may be employed instead of the one explained, change being made as regards the mechanism herein disclosed, provided the means stated by any of the following claims or the equivalent of such stated means be employed.

I therefore particularly point out and distinctly claim as my invention:—

1. Feed mechanism for gathering tables and the like comprising a guide, means for pivotally supporting one end of the guide, two stops limiting horizontal movement of said guide, a roller supported by the other end of the guide, and a switching bar supported for transverse movement under said roller and having inclined faces adapted to bear against the roller to move the guide vertically and horizontally between said stops.

2. Feed mechanism for gathering tables and the like comprising a guide, means for pivotally supporting one end of the guide, a roller supported by the other end of the guide, stop means disposed on opposite sides of the guide to limit the transverse movement thereof to two extreme positions, and means adapted to bear against said roller to move the guide between said extreme positions.

3. Feed mechanism for gathering tables and the like comprising a guide, means for pivotally supporting the guide at one end thereof, a roller supported by the other end of the guide, stop means disposed at opposite sides of the guide to limit the transverse movement thereof to two extreme positions, and a bar having a notched upper edge for receiving said roller, and adapted to be reciprocated to move said guide between said extreme positions.

4. Feed mechanism for gathering tables and the like comprising a guide pivotally supported at one end thereof, two stops limiting horizontal movement, and a bar with inclining faces adapted to contact said guide disposed beneath the opposite end thereof and adapted to move said end of the guide in an arcuate vertical path as the guide is moved horizontally between two said stops.

5. Feed mechanism for gathering tables and the like comprising a guide having a bottom, side walls diverging from one end of the guide to the other, and auxiliary side walls diverging from one end of the guide to an intermediate point in said first-named walls.

6. Feed mechanism for gathering tables and the like comprising a guide having a bottom, side walls diverging from one end of the guide to the other, and auxiliary side walls extending from points in said diverging walls and converging in the direction in which said first-named walls diverge.

7. Feed mechanism for gathering tables and the like comprising a guide having a bottom, side walls diverging from one end of the guide to the other, auxiliary side walls extending from points in said diverging walls and converging in the direction in which said first-named walls diverge, and horizontal ledges extending from said first-named walls to said second-named walls.

8. Feed mechanism for gathering tables and the like comprising a guide, means for pivotally supporting one end of the guide, stop means disposed on opposite sides of the guide, and means adapted to move the guide between said stop means and means adapted to oscillate said guide vertically during said movement between stops.

9. Feed mechanism for gathering tables and the like comprising a guide having a bottom, side walls diverging from one end of the guide to the other, auxiliary side walls extending from points intermediate the ends of said first-named walls and converging toward said other end of the guide and ledges extending from said auxiliary walls to said first-named walls.

10. In combination in a feed mechanism for gathering tables and the like, a guide with a universal mounting whereby its discharge end may be rotated in a horizontal plane and in a vertical plane, a discharge throat in said end and below said throat and in communication therewith a narrow discharge throat, means adapted to move said discharge end of said guide horizontally, and means adapted to oscillate said discharge end vertically during said movement.

11. In combination in a feed mechanism for gathering tables and the like, a guide with a universal mounting whereby its discharge end may be shifted in horizontal and vertical planes, said guide having a bottom and sides defining a superior discharge throat and a bottom and sides defining a narrower inferior discharge throat in communication with said superior throat, means adapted to move said discharge end of said guide horizontally through a fixed space, and means adapted to oscillate said discharge end vertically during said movement.

12. Feed mechanism for gathering tables, and the like, comprising a guide supported for pivoted horizontal and vertical movements, stops restricting the horizontal movement of said guide, a roller supported by the guide, and a transverse reciprocable bar having inclined faces adapted to bear against said roller and move the guide horizontally between said stops as said bar is shifted, and adapted on further movement of said bar to lift said guide vertically.

13. A switching device for pivotally moving a bar-feeding guide between two fixed horizontal stops, comprising a member having in the upper edge thereof a notch defined by downwardly converging walls and adapted to encompass an element of the guide, whereby on horizontal reciprocation of said member the guide is moved horizontally until it encounters a fixed stop and is then lifted vertically by movement of the element up the inclination of one of the converging walls of said notch, and means for imparting reciprocating motion to said member.

14. Feed mechanism for gathering tables for bars and the like comprising a guide supported for pivotal movement in a vertical and in a horizontal plane, two fixed stops limiting movement

in the horizontal plane, a bar engaging an element of said guide and adapted for reciprocal movement beneath said guide, a notch in the upper edge of said bar having converging sides adapted to lift said element and said guide when reciprocation of said bars is continued after horizontal movement is restricted by one of said stops, and means to reciprocate said bar.

15. Feed mechanism for gathering tables for bars and the like comprising a guide supported for universal movement about the support, two fixed stops limiting movement of the guide in the horizontal plane, and means adapted to move one end of said guide horizontally between said stops and to lift said end of said guide vertically when against one of said stops.

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