May 3, 1927. 1,626,734

L. E. HUNT

ROLLING MILL TABLE

Filed May 15, 1926 4 Sheets-Sheet 1

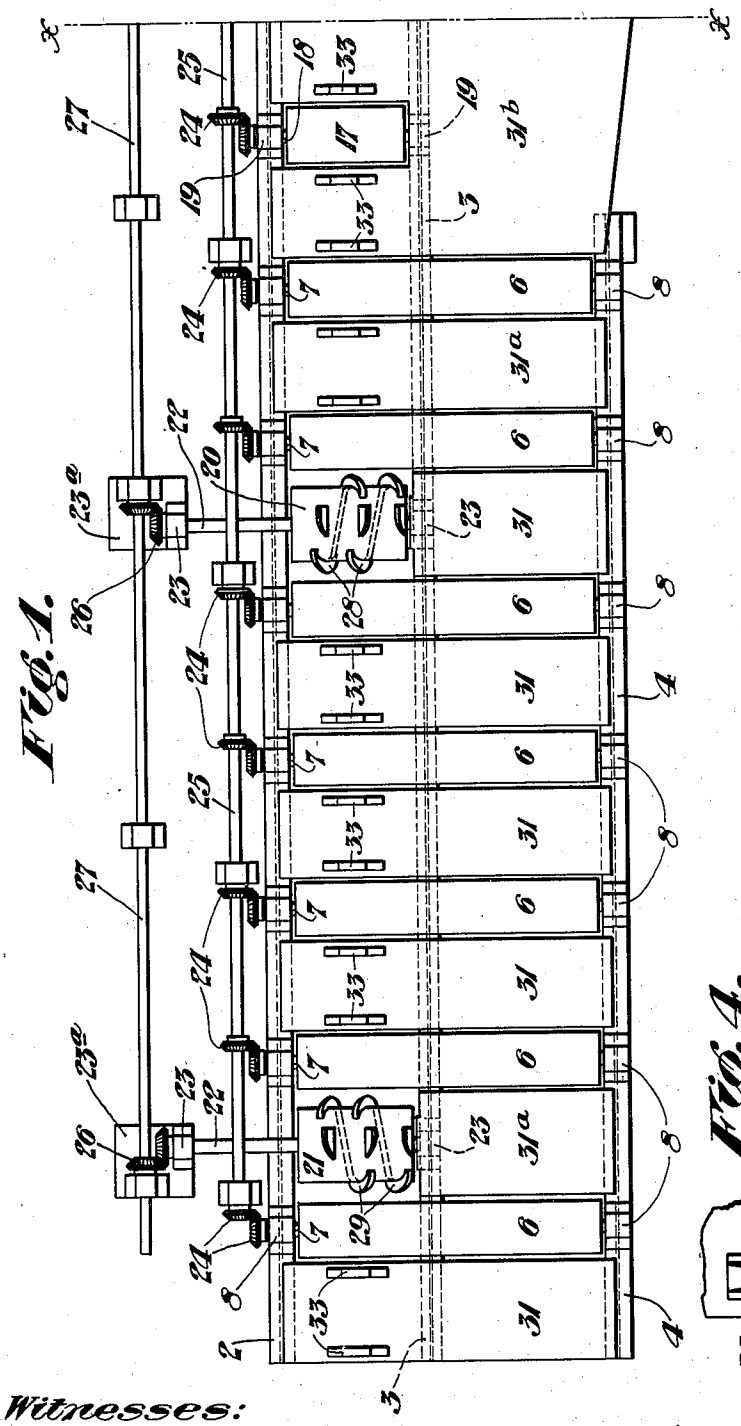

Fig. 1.

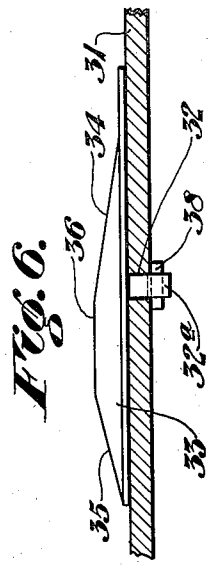

Fig. 6.

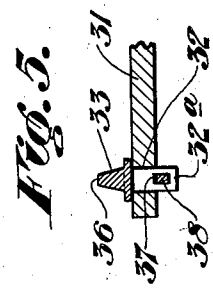

Fig. 5.

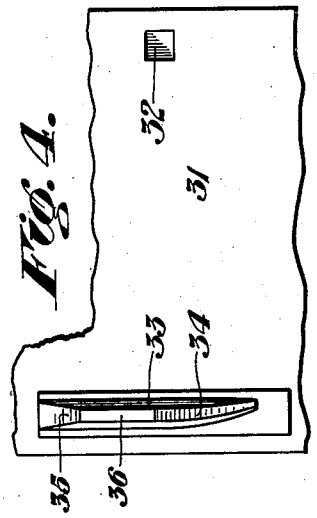

Fig. 4.

Witnesses:
Edwin Trueb

Inventor:
LEONARD E. HUNT,
by: D. Anthony Usina
his Attorney.

May 3, 1927. 1,626,734

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ROLLING MILL TABLE

Filed May 15, 1926 4 Sheets-Sheet 2

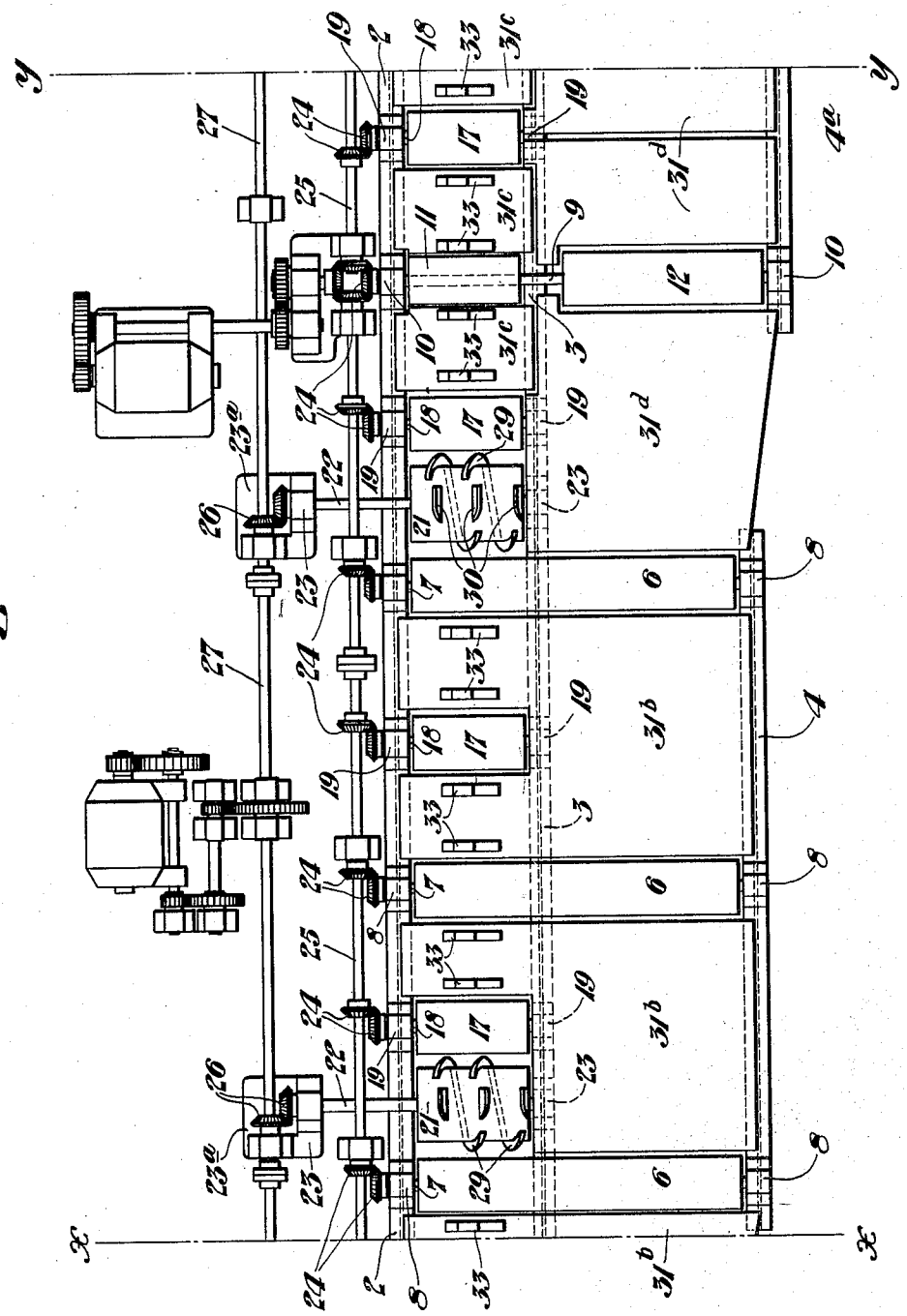

Fig. 1a.

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May 3, 1927. 1,626,734

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ROLLING MILL TABLE

Filed May 15, 1926 4 Sheets-Sheet 3

Fig. 1b.

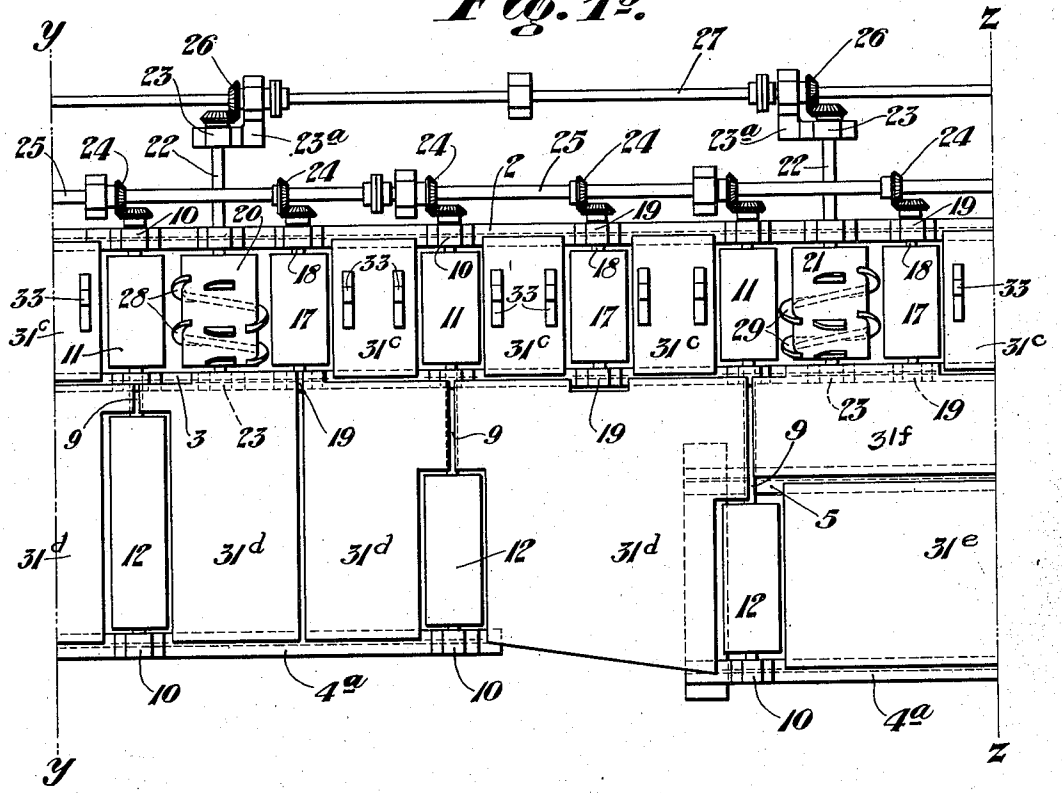
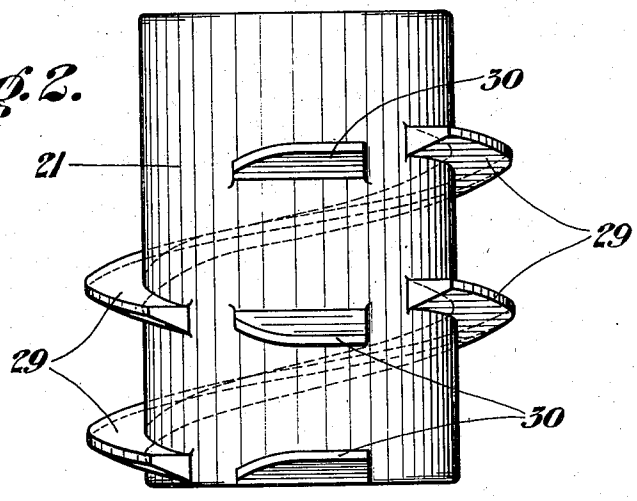


Fig. 2.



Witnesses:
Edwin Trueb

Inventor:
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May 3, 1927. 1,626,734

L. E. HUNT

ROLLING MILL TABLE

Filed May 15, 1926 4 Sheets-Sheet 4

Fig. 1c.

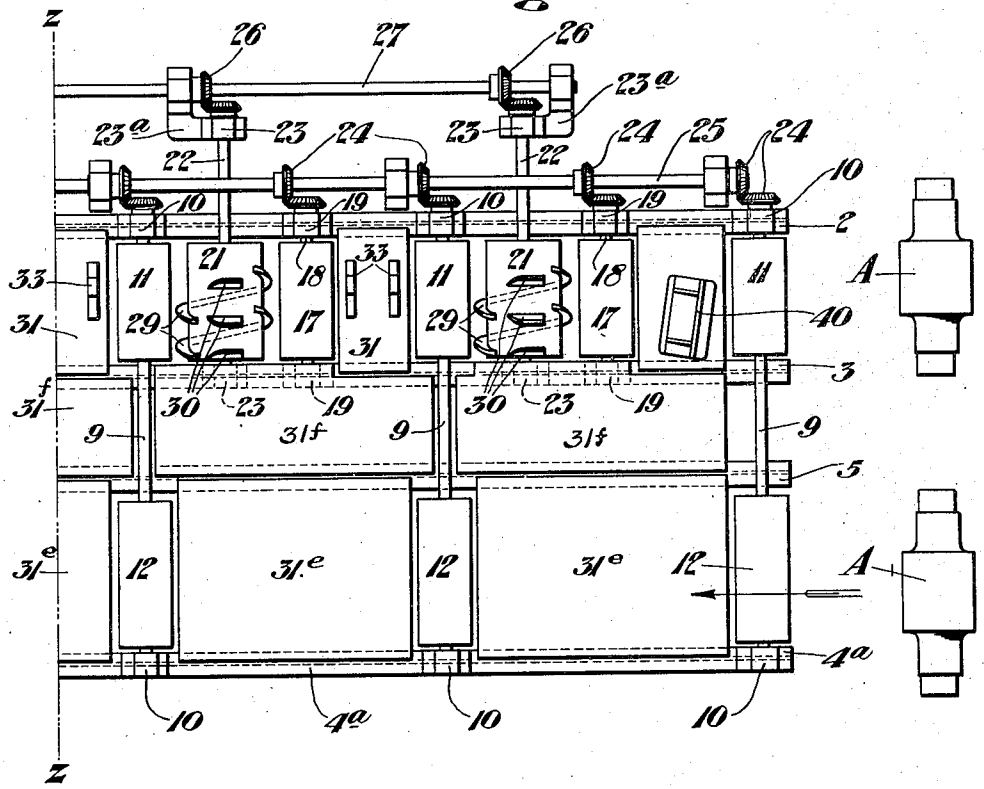
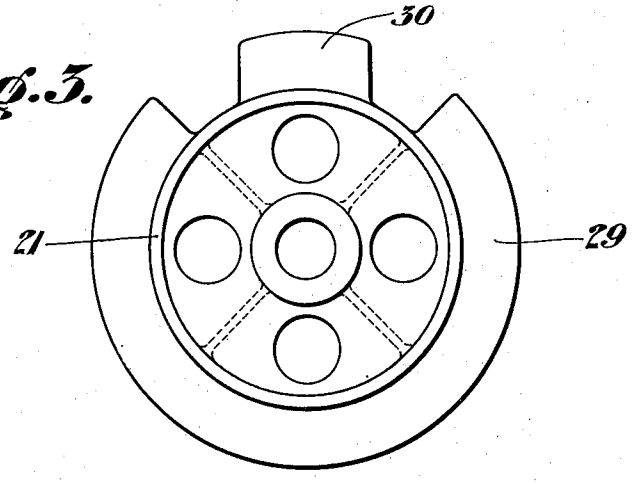


Fig. 3.



Witnesses:
Edwin Ernst

Inventor:
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Patented May 3, 1927. 1,626,734

UNITED STATES PATENT OFFICE.

LEONARD E. HUNT, OF DUQUESNE, PENNSYLVANIA.

ROLLING-MILL TABLE.

Application filed May 15, 1926. Serial No. 109,311.

This invention relates to rolling mill tables, and has for one of its objects the provision of a novel construction of table for conveying and cooling sheet bar or other rolled sections, whereby three or more sections may be handled at the same time.

Another object is to provide a table of this class which is materially shorter than the tables heretofore constructed, and which provides for the necessary cooling of the sections before they go through the finishing rolls without affecting the capacity of the table for continuous operation.

A further object is to provide a table having the novel construction, design and combination of parts hereinafter described and illustrated in the accompanying drawings.

In the drawings:

Figures 1, 1ª, 1ᵇ and 1ᶜ combine to show a complete view of a table constructed in accordance with this invention.

Figure 2 is a plan view of one of the spiral conveying rollers.

Figure 3 is an end view thereof.

Figure 4 is a framentary view of one of the apron plates showing one of the rests in position.

Figure 5 is a fragmentary transverse sectional elevation through one of the apron plates and rests.

Figure 6 is a sectional view through one of the apron plates and showing a side elevation of a rest.

Referring more particularly to the drawings, the numerals 2 and 3 designate parallel supporting beams which extend the entire length of the table, and the numerals 4 and 4ª designate a series of other supporting beams which extend parallel with the beam 3 and are spaced successively greater distances therefrom. A beam 5 extends parallel with and is positioned between the beams 3 and endmost beam 4ª nearest the rolls A.

A plurality of plain rollers 6 are mounted on roller shafts 7 journaled in bearings 8 on the beams 2 and 4, and extend across the entire table.

A plurality of roller shafts 9 are journaled in bearings 10 on the beams 2 and 4ª, and have rollers 11 and 12 thereon, the rollers 11 being between the beams 2 and 3, and the rollers 12 being between the beams 3 and 4ª and beams 5 and 4ª, respectively.

A series of plain conveyer rollers 17 are mounted on shafts 18 journaled in bearings 19 on the beams 2 and 3, and a series of spiral rollers 20 and 21 are mounted on shafts 22 journaled in bearings 23 on the beams 3 and bearing supports 23ª.

The shafts 7, 9 and 18 are all connected by beveled gears 24 with a main drive shaft 25, while the shafts 22 of the spiral rollers 20 and 21 are connected by beveled gears 26 with a drive shaft 27 operable independent of the drive shaft 25.

The spiral rollers 20 have a pair of right-hand spiral flanges 28 on their periphery, while the spiral rollers 21 have a pair of left-hand spiral flanges 29 on their periphery, and the shafts 22, having the right-hand spiral rollers 20 thereon, are adapted to be rotated counter-clockwise, while the shafts 22, having the left-hand spiral rollers thereon, are adapted to be rotated clockwise for a purpose to be described.

The spiral flanges of the pairs of flanges 28 and 29 are adapted to overlap, and to extend around approximately three-quarters of the periphery of the rollers 20 and 21.

The space between the ends of the spiral flanges 28 and 29 on the rollers 20 and 21 is provided with guide-lugs 30 and 30ª adapted to guide the sections being conveyed longitudinally of the table between the beams 2 and 3. The lugs 30 cooperate to form a bell mounted guide on each of the rollers 20 and 21 to guide the sections as they are moved into position over the rollers prior to being transferred onto the rests (to be described), while the lugs 30ª serve to guide the sections after they are removed from the rests and are being conveyed from the table.

A plurality of apron plates 31 extend from the beams 2 to 4 between the rollers 6 adjacent the rear end of the table, and the space between the beams 3 and 4 opposite the last two rollers 20 and 21 at the rear end of the table is filled by short apron plates 31ª. Other apron plates 31ᵇ extend from the beams 2 to 4 between the rollers 6 and are recessed to fit around the rollers 17. The intermediate portion of the table, which is provided with short feed rollers 11 and 17 and feed rollers 12 is provided with apron plates 31ᶜ between the rollers 11 and 17 and other apron plates 31ᵈ between the rollers 12. The forward end of the table is also provided with apron plates 31ᵉ between the rollers 11 and 17 and with apron plates

31e between the rollers 12, while an intermediate set of apron plates 31f are bridged between the beams 3 and 5.

The apron plates 31, 31b and 31c are provided with square holes 32 to receive the square mounting lugs 32a projecting from the bottom of rests 33. The rests 33 have inclined end portions 34 and 35 and a flat rest portion 36 adapted to be elevated above the periphery of all of the conveying rollers, so that when a rolled section is positioned thereon, the rollers may rotate freely without causing longitudinal movement of the section.

The lugs 32a of the rests 33 are provided with transverse openings 37 adapted to receive a wedge 38 to hold said rests in position.

A stop member 40 is positioned adjacent the roll end of the table to automatically position the sections on the portion of the table between the beams 2 and 3 and prevent longitudinal movement thereof until the sections have been moved off of the rests 33.

In operation, the rolled sections are conveyed by the rollers 6 and 12 along the table in a direction away from the rolls A and are directed onto the section of the table between the beams 2 and 3.

The rollers 6 and 11 are then operated to reverse the direction of rolled sections and move them along the table toward the rolls A'. The spiral rollers 20 and 21 remain stationary during the operation of the rollers 6 and 11, and the guide-lugs 30 on the spiral rollers 20 and 21 serve to guide the rolled sections.

After the rollers 6 and 11 have moved the rolled sections forward against the stop 40, their rotation is stopped and the spiral rollers 20 and 21 are operated. As the spiral rollers 20 and 21 make one complete revolution, the spiral flanges 28 and 29 engage the rolled section and move it transversely onto the rests 33 to permit it to cool. The rollers 6 and 11 are then operated to bring another rolled section into position on the section of table between the beams 2 and 3.

After the second section is in position, the spiral rollers 20 and 21 are again operated to make one complete revolution, so as to cause one each of the pairs of spiral flanges 28 and 29 to engage the cooled rolled section on the rests, and the other of the pairs of spiral flanges to engage the section last positioned on the table, whereby the last positioned section will be moved transversely onto the rests 33, while the other or cooled section is moved transversely from the rests 33 onto the table in line with the finishing pass of the rolls A.

The rollers 6 and 11 will then be operated to move a third rolled section onto the table between the beams 2 and 3, and at the same time to move the cooled section forwardly into the bite of the rolls A. The operation will then be continuous, one rolled section being moved onto the section of table between the beams 2 and 3, while the other is leaving the table, and one section always being positioned on the rests 33 to cool.

The rollers 20 and 21 are rotated in opposite directions so as to counteract each other and prevent longitudinal movement of the rolled sections thereby.

The operating and control means for the several rollers may be of any standard design and the rollers may be manually or automatically controlled as desired.

The main feature of the invention is the provision of the spiral rollers 20 and 21 and rests 33, whereby the rolled sections are permitted to remain on the table for cooling and whereby a relatively short table may be used.

While I have shown and described one specific embodiment of my invention, it will be understood that I do not wish to be limited thereto, since various modifications may be made without departing from the scope of my invention as defined in the appended claims.

I claim:

1. In a rolling mill table, a plurality of plain conveying rollers adapted to convey the rolled material longitudinally of said table, a plurality of other rollers at spaced intervals along said table, spiral flanges on said last named rollers adapted to engage and move the rolled material transversely of said table when said rollers are revolved, some of said second named rollers being adapted to revolve in one direction while other of said rollers are adapted to revolve in the reverse direction so as to prevent said rollers moving the rolled material longitudinally of the table, and separate means for revolving said first and second named rollers.

2. In a rolling mill table, a plurality of plain conveying rollers adapted to convey the rolled material longitudinally of said table, a plurality of other rollers at spaced intervals along said table, a plurality of elevated rests at spaced intervals along said table, a pair of spiral flanges on each of said last named rollers and extending partly around said rollers, said spiral flanges being overlapped, and one of said flanges being adapted to engage and move the rolled material transversely onto said rests and the other of said flanges being adapted to engage and move the rolled material from said rests, and means for rotating said rollers.

3. In a rolling mill table, a plurality of plain conveying rollers adapted to convey the rolled material longitudinally of said table, a plurality of other rollers at spaced intervals along said table, a plurality of ele-

vated rests at spaced intervals along said table, a pair of spiral flanges on each of said last named rollers and extending partly around said rollers, said spiral flanges being overlapped, and one of said flanges being adapted to engage and move the rolled material transversely onto said rests and the other of said flanges being adapted to engage and move the rolled material from said rests, and separate means for revolving said first and second named rollers.

4. In a rolling mill table, a plurality of plain conveying rollers adapted to convey the rolled material longitudinally of said table, a plurality of other rollers at spaced intervals along said table, a plurality of elevated rests at spaced intervals along said table, a pair of spiral flanges on each of said last named rollers and extending partly around said rollers, said spiral flanges being overlapped, and one of said flanges being adapted to engage and move the rolled material transversely onto said rests and the other of said flanges being adapted to engage and move the rolled material from said rests, some of said second named rollers being adapted to be revolved in one direction while other of said rollers are adapted to revolve in the reverse direction so as to prevent said rollers moving the rolled material longitudinally of the table, and means for revolving said rollers.

5. In a rolling mill table, a plurality of plain conveying rollers adapted to convey the rolled material longitudinally of said table, a plurality of other rollers at spaced intervals along said table, a plurality of elevated rests at spaced intervals along said table, a pair of spiral flanges on each of said last named rollers and extending partly around said rollers, said spiral flanges being overlapped, and one of said flanges being adapted to engage and move the rolled material transversely onto said rests and the other of said flanges being adapted to engage and move the rolled material from said rests, some of said second named rollers having right hand spirals and the other of said rollers having left hand spirals, and said rollers having right hand spirals being adapted to be revolved in one direction while said rollers having left hand spirals are adapted to be revolved in the opposite direction, and separate means for revolving said first and second named rollers.

6. In a rolling mill table, a plurality of plain conveying rollers adapted to convey the rolled material longitudinally of said table, a plurality of other rollers at spaced intervals along said table, spiral flanges on said last named rollers adapted to engage and move the rolled material transversely of said table when said rollers are revolved, guide lugs on said last named rollers adapted to guide the rolled material during its longitudinal movement on said table, and means for revolving said rollers.

7. In a rolling mill table, a plurality of plain conveying rollers adapted to convey the rolled material longitudinally of said table, a plurality of other rollers at spaced intervals along said table, spiral flanges on said last named rollers adapted to engage and move the rolled material transversely of said table when said rollers are revolved, guide lugs on said last named rollers adapted to guide the rolled material during its longitudinal movement on said table, and separate means for revolving said first and second named rollers.

8. In combination with a rolling mill table including a plurality of rollers adapted to convey the rolled material longitudinally of said table, a plurality of rotating members adapted to engage and move the rolled material transversely of said table, said members being arranged to exert forces in opposite directions longitudinally of the rolled material so that substantially no endwise movement is imparted to said rolled material.

In testimony whereof, I have hereunto signed my name.

LEONARD E. HUNT.