

No. 699,133.

Patented May 6, 1902.

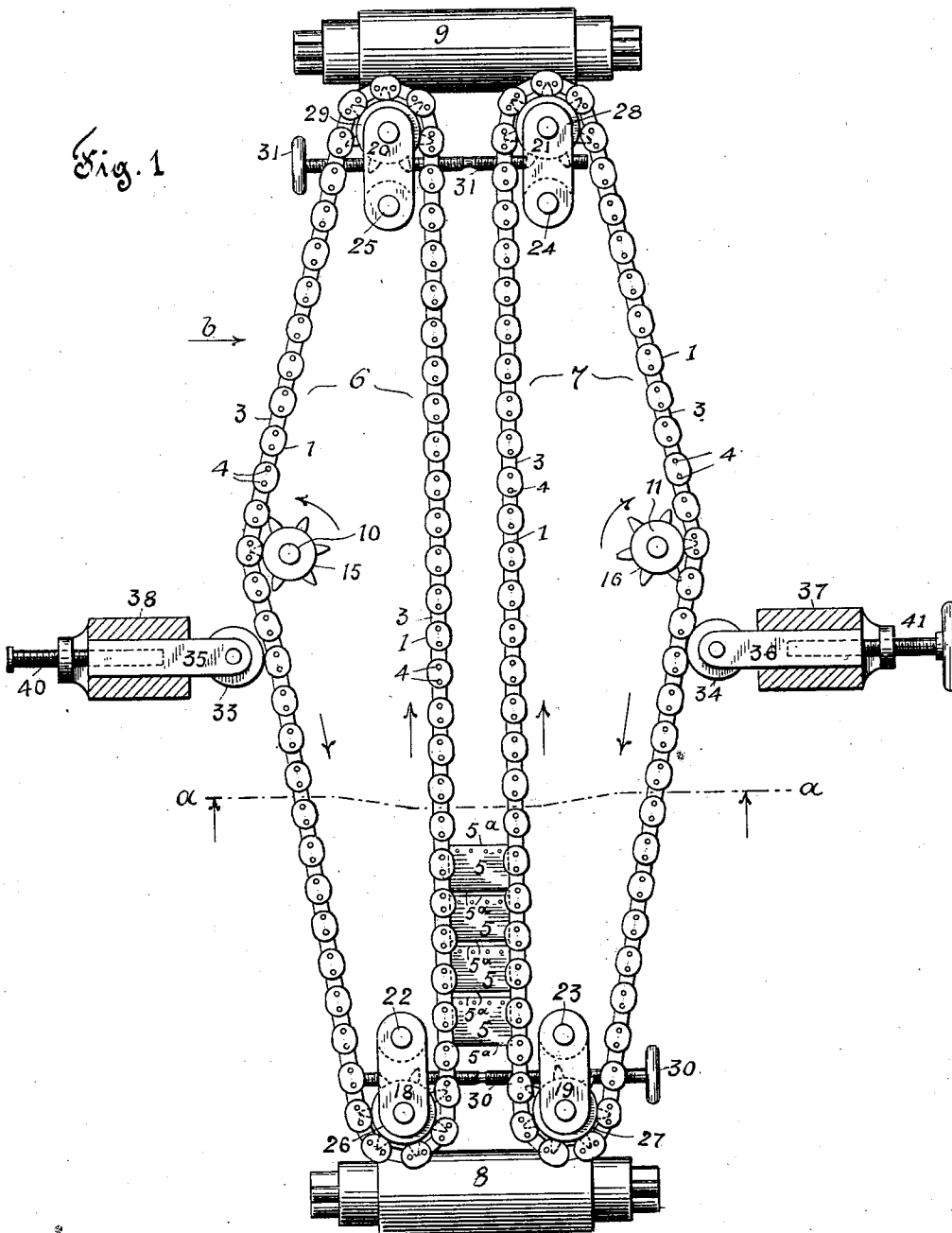
T. V. ALLIS.

CONVEYER AND GUIDE FOR ROLLING MILLS.

(Application filed Oct. 4, 1901.)

(No Model.)

4 Sheets—Sheet 1.



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Fig. 2.

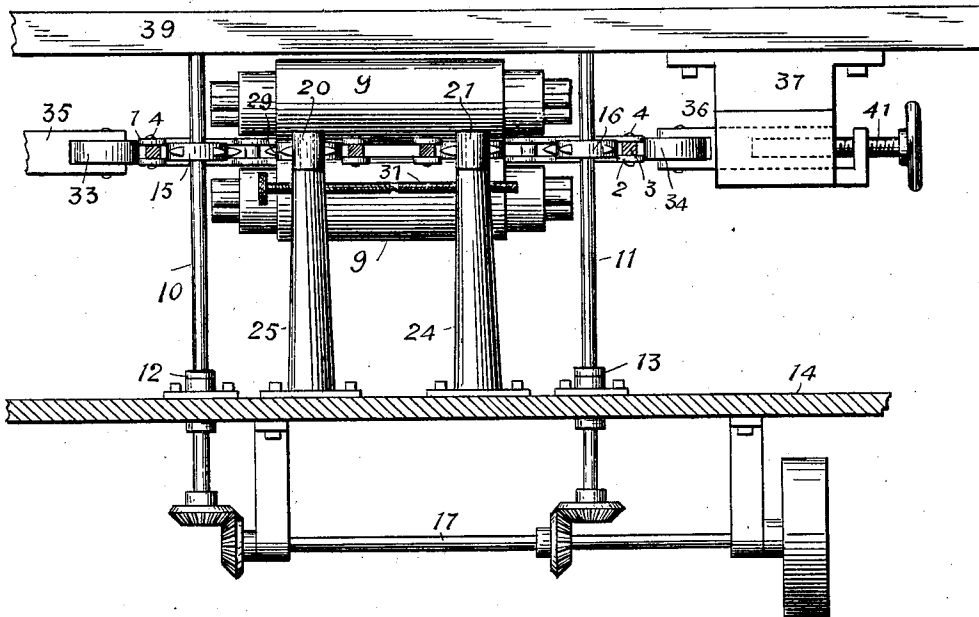


Fig. 3.

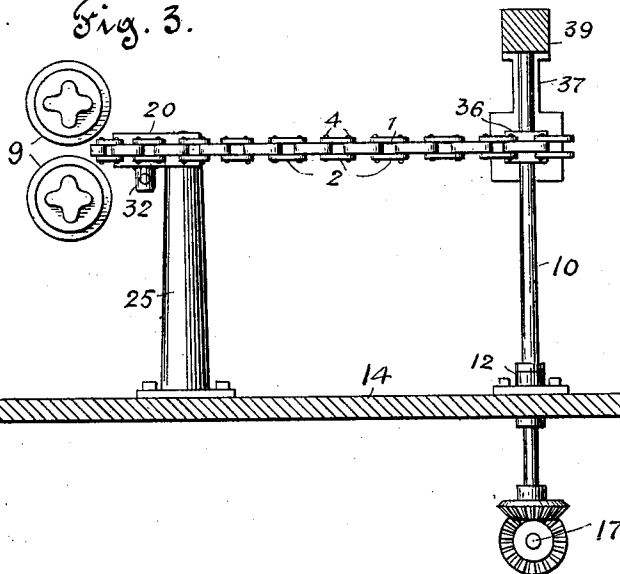
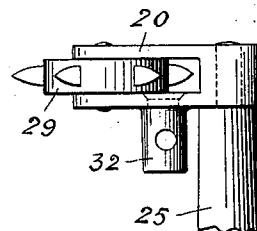


Fig. 4.



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Fig. 5.

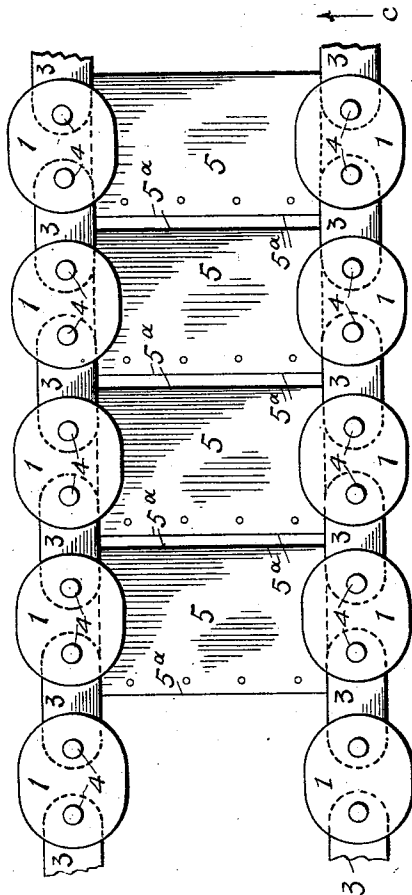
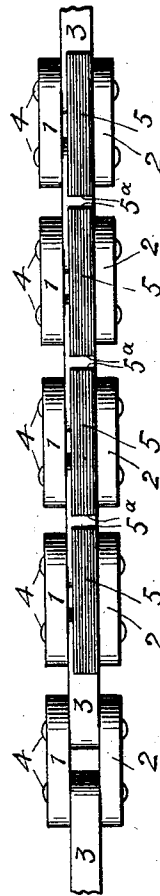


Fig. 6.



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Fig. 7.

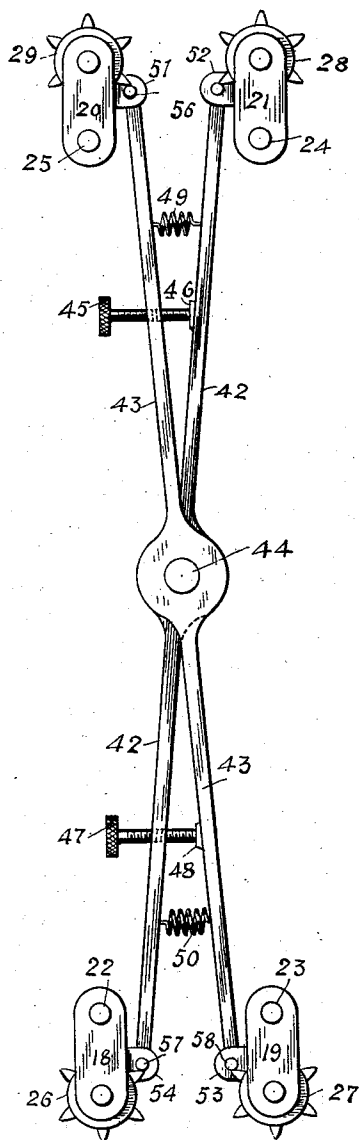
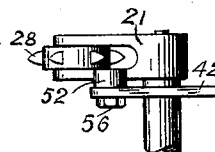


Fig. 8.



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UNITED STATES PATENT OFFICE.

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CONVEYER AND GUIDE FOR ROLLING-MILLS.

SPECIFICATION forming part of Letters Patent No. 699,133, dated May 6, 1902.

Application filed October 4, 1901. Serial No. 77,556. (No model.)

To all whom it may concern:

Be it known that I, THOMAS V. ALLIS, a citizen of the United States, residing at Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Conveyers and Guides for Rolling-Mills, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to rolling-mills, and is designed to guide and convey metal plates or packs from one set of reducing-rolls to another set of reducing-rolls.

It consists of two endless chains cooperating and traveling on a horizontal plane and at a uniform linear speed, the form of the links being adapted to engage and hold the metal plates or packs at their opposite ends and to present the advancing edge of the plates or packs squarely to the bite of the succeeding reducing-rolls.

To enable others to understand my invention reference is had to the accompanying drawings, in which—

Figure 1 represents a plan view including the lower rolls of two sets of reducing rolls with their housings removed, a chain conveyer with sprocket-wheels for imparting motion to the chains, and chain-tighteners and adjusting devices. Fig. 2 is an end view showing a pair of reducing rolls 1, a sectional view of the chain conveyer through line *a* of Fig. 1, a sectional view of the floor on which rest the standards for supporting the chains, vertical shafts for driving the chains, and mechanism below the floor for driving the shafts, with broken view of an overhead beam in which the upper ends of said shafts are journaled and to the under side of which one of the tightener-brackets is secured and opposite a broken view of one of the tighteners. Fig. 3 is a broken side elevation of one section of the chain conveyer looking in the direction of arrow *b*, Fig. 1, showing a broken sectional view of the floor and a sectional view of the overhead supporting-beam and one of the adjusting-screws, and an end elevation of the reducing-rolls. Fig. 4 is a side elevation of one of the end sprocket-wheels, its frame, and a broken view of its supporting-standard. Fig. 5 is an enlarged plan view of a section or part

of the chain conveyer carrying a series of packs of metal plates, and Fig. 6 is a broken side elevation of the same looking in the direction indicated by the arrow *c* in Fig. 5. Fig. 7 is a plan view of a device for automatically adjusting the distance between the conveyer-chains, the view including the sprocket-wheel frames and their supporting-standards. Fig. 8 is a side elevation of one of the sprocket-wheel frames, including a broken view of its standard and similar view of one of the arms of the parallel device for automatically operating the frames.

The chain conveyer shown in the enlarged views, Figs. 5 and 6, is composed of the broad links 1 and 2, and the narrow interposed links 3, pivotally connected to said broad links by the pins 4. The end edges of the metal packs 5 are embraced by the projecting sides of the broad links 1 and 2 and are supported on the links 2, while the vertical sides of the narrow links 3 form a supporting-wall for the ends of the packs sufficient to guide them squarely into the bite of the reducing-rolls.

Referring to Fig. 1, the two sections 6 and 7 of the endless-chain conveyer are shown located between the two sets of reducing-rolls 8 and 9. 10 and 11 (see also Figs. 2 and 3) are vertical shafts supported in the bearings 12 and 13 in the floor 14 and extend below the same and are driven by the shaft 17. 15 and 16 are sprocket-wheels mounted on said shafts to engage with and drive the chain conveyer.

In the respective figures, 18, 19, 20, and 21 are short forked frames pivotally supported on the standards 22, 23, 24, and 25. These frames carry the rotating sprocket-wheels 26, 27, 28, and 29, around which the conveyer-chains pass. By adjusting said sprocket-wheels the conveyer-chains are adjusted to the width of the plates or packs conveyed. For this purpose the adjusting-screws 30 and 31 are used. These screws carry right and left hand threads and are mounted in swiveled lugs depending from the under side of each of the forked frames. One of these lugs, 32, is shown at Figs. 3 and 4. By means of these adjusting-screws the conveyer-chains are set the proper distance apart to accommodate the width of the plates or packs being rolled.

33 and 34, Figs. 1 and 2, are tightener-rolls

pivottally supported in the sliding frames 35 and 36, which frames are operatively mounted in the hangers 37 and 38. These hangers are supported on the under side of the beam 5 39, which beam also supports the upper end of the shafts 10 and 11. 40 and 41 are the adjusting-screws for said tightener-rolls.

At Figs. 7 and 8 are shown devices for automatically adjusting the distance between 10 the conveyer-chains, which effects a parallel movement of the respective ends of the conveyer by means of the arms 42 and 43, pivoted at their center by the pin 44. 45 is an adjusting-screw on the arm 43, adapted to engage the stop 46 on the arm 42 at one side of 15 the center, while the opposite side the arm 42 carries the adjusting-screw 47 to engage the stop 48 on the arm 43. 49 and 50 are retractile springs adapted to preserve the engagement of these adjusting-screws with their 20 stops. 51, 52, 53, and 54 are ears projecting from the forked frames 18, 19, 20, and 21, carrying the studs 55, 56, 57, and 58, to which studs the ends of the parallel arms are pivoted. 25 This arrangement is essential where there is any variation in the width of the packs, which may occur from irregular shearing. With this arrangement when a wide pack passes the rolls it will force apart the conveyer-chains against the tension of the springs 49 and 50, which springs, as before mentioned, 30 will always bring said chains back to their normal position after the wide pack has passed through. Being a parallel movement, both ends of the conveyer operate in unison. 35

While I show certain mechanical means for supporting, driving, adjusting, and tightening my improved chain conveyer, I do not wish to be confined to any particular means 40 for accomplishing these purposes, as they may be varied to suit the requirements of each particular case. The gist of my invention consists in constructing certain links of the chain conveyer wider than others and to 45 operate the chain on a horizontal plane, whereby the broad links form a groove in which the ends of the plates or packs are confined in transit, while the narrower links form a guide for their ends to abut against, and, further, to arrange the chain feed into two endless-chain systems whose inner feeding-lines 50 move in the same direction and in unison with each other and at the same linear speed, by which I accomplish the very important and indispensable requirement of conducting 55 plates or packs from sets to sets of tandemly-arranged reducing-rolls in a straight line and square with the axial line of said reducing-rolls.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A conveyer for metal plates or packs consisting of two endless chains coöperating on a horizontal plane and composed of wide 65 and narrow links, the wide links adapted to support the ends of the plates or packs, and the narrow links adapted to act as side guides, for the purpose set forth.

2. A metal-conveyer, consisting of two endless chains operating in unison on a horizontal plane and at the same linear speed and composed of wide and narrow links adapted to both support and guide the metal in transit, for the purpose set forth. 75

3. A conveyer for metal plates or packs, consisting of two series or systems of endless chains arranged parallel with each other and operated on a horizontal plane and at the same linear speed so as to squarely guide the 80 metal in transit, for the purpose set forth.

4. A conveyer for metal plates or packs, consisting of two series or systems of endless chains arranged parallel with each other on a horizontal plane and to coöperate at the 85 same linear speed, the chains adapted to both support and squarely guide the metal in transit, combined with means whereby the path of feedway of the metal may be adjusted for different widths of plates or packs, for the 90 purpose set forth.

5. A conveyer for metal plates or packs, consisting of a double series of endless chains arranged parallel with each other and adapted to coöperate at the same linear speed, the 95 chains adapted to both support and squarely guide the metal in transit, combined with means for adjusting the width of the feedway and means for propelling and tightening said chains, substantially as described, 100 for the purpose set forth.

6. A conveyer for metal plates or packs, consisting of a double series of endless chains arranged parallel with each other and adapted to coöperate at the same linear speed, the 105 chains adapted to both support and squarely guide the metal in transit, combined with means for regulating the width of said conveyer, and means for automatically adjusting and maintaining a parallel movement 110 with varying widths of plates or packs, for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

THOMAS V. ALLIS.

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