P. SCHEUER.

TRANSFER TABLE FOR ROLLING MILLS.

APPLICATION FILED NOV. 28, 1910.

1,020,313.

Patented Mar. 12, 1912.

3 SHEETS—SHEET 1.

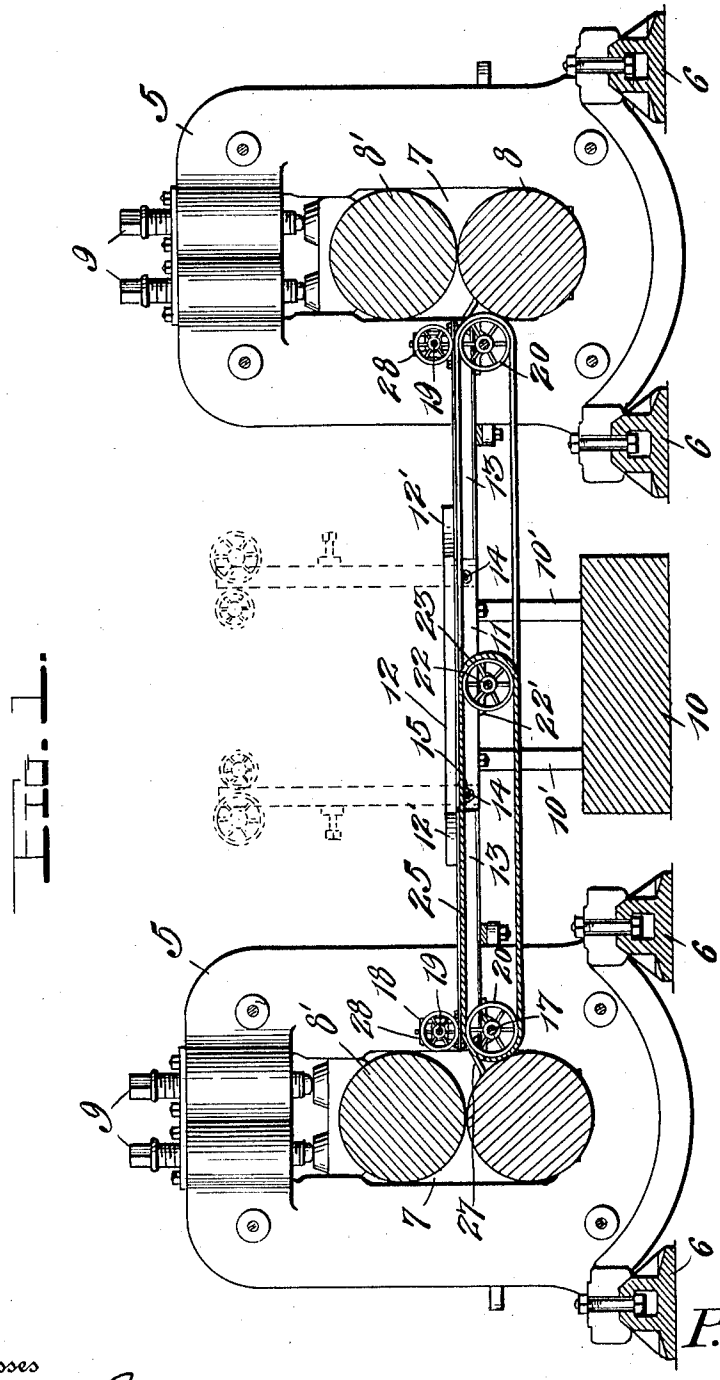

Fig. 1.

Witnesses

Chas. L. Griebauer.

J. N. F. Reeder

Inventor

P. Scheuer;

By Watson E. Coleman,

Attorney

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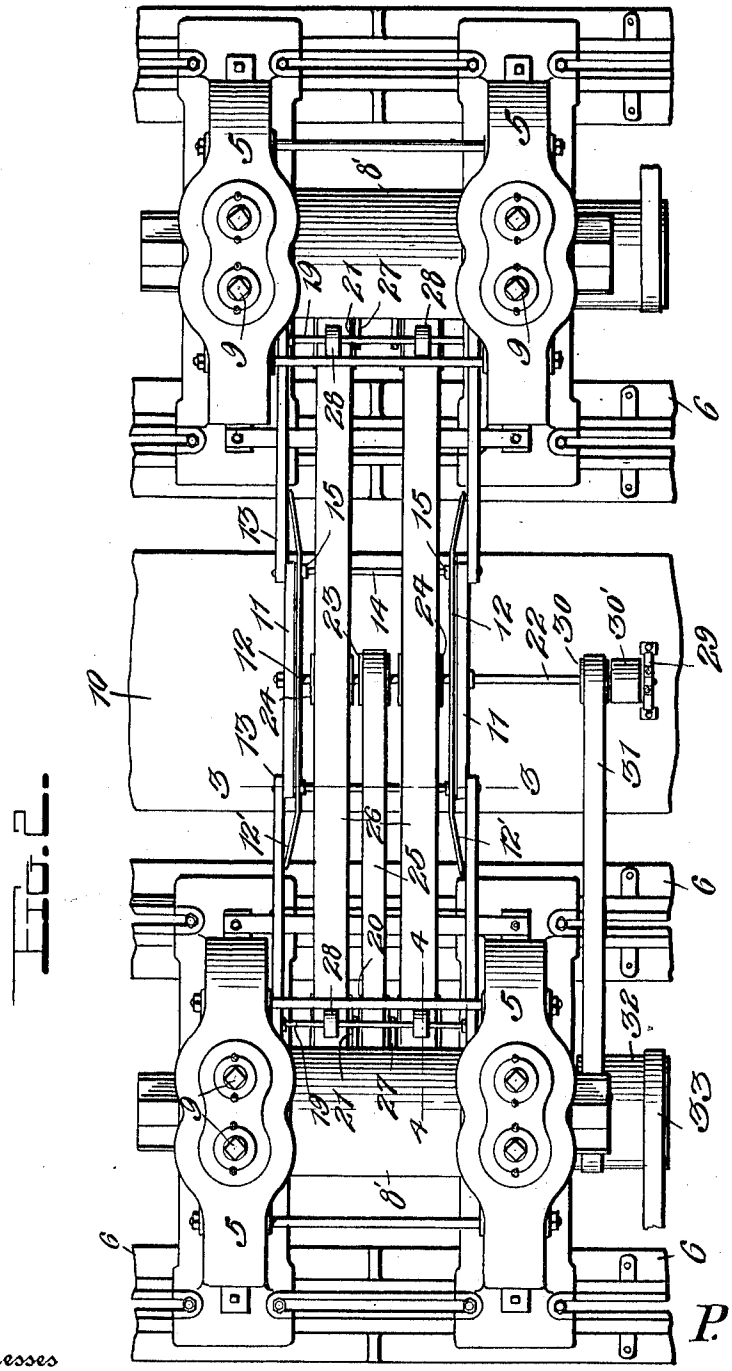

FIG. 2.

Witnesses

Chas. L. Griesbauer.

J. N. F. Reeder

Inventor

P. Scheuer,

By Watson E. Coleman

Attorney

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

P. SCHEUER.

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3 SHEETS—SHEET 3.

FIG. 3.

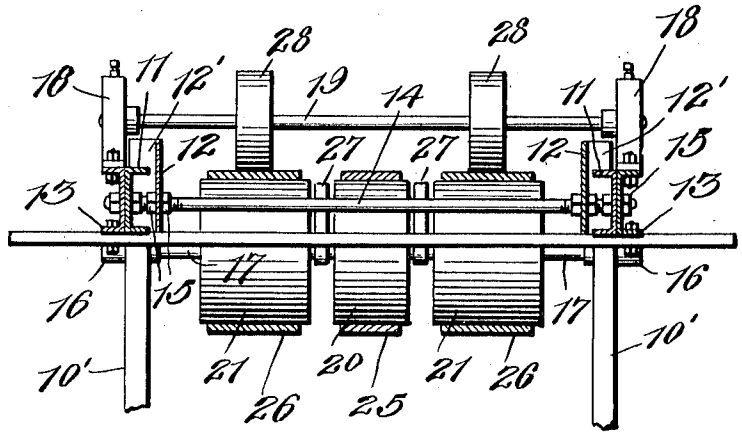
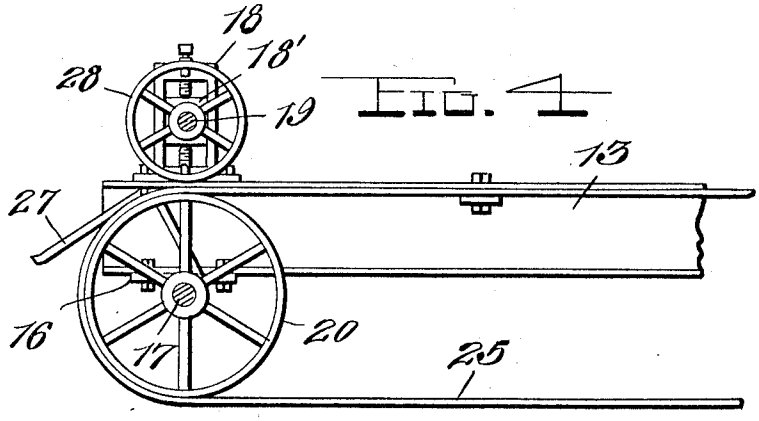


FIG. 4.



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Attorney

UNITED STATES PATENT OFFICE.

PAUL SCHEUER, OF McKEESPORT, PENNSYLVANIA.

TRANSFER-TABLE FOR ROLLING-MILLS.

1,020,313. Specification of Letters Patent. Patented Mar. 12, 1912.

Application filed November 28, 1910. Serial No. 594,529.

To all whom it may concern:

Be it known that I, PAUL SCHEUER, a citizen of the United States, residing at McKeesport, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Transfer-Tables for Rolling-Mills, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to an improved transfer mechanism for rolling mills and has for its object to provide a simple and novel arrangement of conveyer belts and guides for transferring sheet steel to be rolled from one roll stand to another.

Another object of the invention resides in the provision of a movable transfer table consisting of a plurality of flexible conveyers and guides for guiding the sheets upon the conveyers as they leave the rolls, and additional guides for retaining the sheets upon the conveyers in their movement from one roll stand to the other.

Still another object of my invention is to provide an adjustable transfer table for rolling mills which may be elevated to an inoperative position out of association with the rolls and supported in such position when the rolls are being polished.

With the above and other objects in view, the invention consists of the novel features of construction, combination and arrangement of parts hereinafter fully described and claimed, and illustrated in the accompanying drawings, in which—

Figure 1 is a longitudinal section illustrating a pair of roll stands and my improved transfer table arranged between the same in operative position, said table being shown in dotted lines in its inoperative position; Fig. 2 is a top plan view; Fig. 3 is a section taken on the line 3—3 of Fig. 2; and Fig. 4 is an enlarged detail section taken on the line 4—4 of Fig. 2.

In the accompanying drawings wherein I have illustrated the preferred embodiment of my invention, there is shown a pair of roll stands which are of a generally approved construction commonly known in the art. Each of these stands consists of the parallel vertical roll supports 5 which are mounted upon and secured to the sills 6 in the manner shown in Fig. 1. These supports are provided with the elongated openings 7 which receive the ends of the rolls. The driven roller 8 is mounted in the lower portion of the openings in the vertical supports and is adapted to be driven in a manner which will hereinafter appear. The upper pressure rollers 8′ are adapted to be adjusted by means of the adjusting screws 9 so as to regulate the pressure of the same upon the driving rollers 8. As the specific construction of these roll stands forms no part of the present invention, and as my improved transfer table is applicable to other constructions of the stands, it will be understood that in putting the invention into practice I do not desire to be limited to the manner of mounting the rollers as above set forth.

A suitable base 10 is arranged between the roll supporting stands and upon this base the uprights 10′ are secured. To the upper ends of these uprights, the channel bars 11 are secured. A guide plate 12 is longitudinally disposed adjacent to the channel bars 11 and inwardly of the same, and the ends of said guide plates are outwardly inclined as shown at 12′. Channel bars 13 have their ends disposed upon the ends of the channel bars 11, the body portions of said channel bars 11 and 13 being disposed upon each other, while their flanges extend in opposite directions. The channel bars 11 and 13 and the guide plates 12 are rigidly secured together by means of the tie bolts 14, the ends of which are threaded to receive a plurality of nuts 15 which engage with the faces of the channel bars and guide plates. The channel bars 13 extend from the ends of the bars 11 in opposite directions toward the roll stands, and bearings 16 are secured to the lower longitudinal flanges of said bars in which the transverse shafts 17 are rotatably mounted. Bearings 18 are also mounted upon the upper longitudinal flanges and in these bearings the boxes 18′ on the ends of the transverse shaft 19, are adjustably mounted. The shafts 17 and 19 it will be noted are arranged in vertical alinement. A belt wheel 20 is centrally fixed upon the shaft 17, and other belt wheels 21 are also fixed upon said shaft in spaced relation to the wheel 20.

A drive shaft 22 is centrally mounted upon the channel bars 11 to which the bearings 22′ are fixed. A wheel 23 is centrally fixed upon this shaft and suitable friction wheels 24 are also arranged upon said shaft on opposite sides of the band wheel 23. An

endless belt 25 traverses the wheels 20 and 23 which are fixed upon the shafts 17 and 22 respectively. The channel bars 13 extending in the opposite direction have only the wheels 21 mounted thereon. Endless belts 26 extend around the wheels 21 carried by each of the shafts 17 and engage the wheels 24 which space the stretches of the belts and serve to support the central portion of the same in the movement of the sheet steel from one roll stand to the other. Suitable guide members 27 are loosely mounted upon the end shafts 17 carried by the channel bars 13 and in the operative position of the table the ends of said guides engage upon the periphery of the driven roller 8 as clearly shown in Fig. 1. These guide fingers receive the sheet material as it leaves the rolls and direct the same upon the moving conveyer belts 25 and 26. Wheels 28 are fixed upon the transverse shaft 19 mounted upon the ends of the bars 13 and are disposed centrally over the wheels 21. As the shafts 19 are adjustable in the bearings 18, the periphery of the wheels 28 may be spaced from the conveyer belts in accordance with the thickness of the sheet material which passes between said belts and the wheels. These wheels 28 effectually prevent any sidewise or transverse movement of the sheet material and retain the same in frictional contact with the surface of the conveyer belts. The outwardly inclined end portions 12′ of the guide plates 12 further act to prevent any transverse shifting of the sheet and guide the same in its movement from one of the roll stands to the other.

The drive shaft 22 is extended beyond one side of the table and mounted in a bearing 29 which is fixed upon the base 10. A band wheel 30 is fixed upon the shaft 22 and adjacent to this wheel a second wheel 30′ is loosely mounted. A power transmission belt 31 connects these band wheels with a band wheel 32 which is fixed upon one of the reduced ends of the driven roller 8. A power belt 33 passes around the wheel 32 and extends to any suitable source of power. Each pair of the rollers is of course driven in a similar manner.

From the above it is thought that the construction of my improved transfer table will be apparent, whereby sheet steel to be rolled may be conveniently and quickly transferred from one roll stand to the other without requiring any manual labor whatever. The sheets after leaving one pair of the rolls move upon the conveyer belts 25 and 26 which comprise the table, entering thereon between the wheels 20 and 28. The conveyer belts carry the sheet between the guides 12 and direct the same between the rollers 8 and 8′ of the other of the stands. After passing through these rollers which are adjusted to secure a higher pressure than that obtained by the first rollers, the sheet may pass between the rollers of still another stand if desired or it may be withdrawn and disposed of as desired.

The stands and transfer tables may be multiplied indefinitely, the drawings illustrating simply one of the tables and a pair of the stands which is sufficient to disclose the construction and operation of the invention.

From the foregoing description it will be observed that the sheet material is accurately guided in its movement between the stands.

As clearly shown in Fig. 1 when it is desired to polish the rolls, the nuts upon the tie rods 14 may be loosened so that the bars 13 which carry the wheels 20 and 21 may be swung upwardly into a vertical position as shown in dotted lines in Fig. 1. The nuts 15 are then adjusted into clamping engagement with the outer faces of the bars 13 to rigidly secure said adjustable end portions of the conveyer in their elevated positions. Thus the conveyer belts and said bars are disposed entirely out of the way so that the rolls may be easily and quickly polished. This adjustment of the table to its inoperative position may be very quickly effected.

Owing to the extreme simplicity of the device, the same is rendered highly efficient in practical use. It is also very durable and may be constructed at a nominal expense.

While I have shown and described the preferred construction and arrangement of the various elements, it will be understood that the device is susceptible of considerable modification within the scope of the appended claims without departing from the essential feature or sacrificing any of the advantages thereof.

Having thus described the invention what is claimed is:—

1. A transfer table for rolling mills comprising a plurality of endless conveyers to transfer sheet material from one set of rolls to the other, means for driving the conveyers, means for mounting the conveyers to permit of the movement of the end portions of the conveyers relative to the intermediate portions thereof to dispose the same in an inoperative position, and additional means for directing the sheet material in the operative positions of the conveyers.

2. A transfer table for rolling mills comprising a plurality of endless conveyer belts and supporting means therefor, guides to direct and retain the sheet material upon said belts in its movement, means for driving the conveyer belts, means for permitting angular movement of portions of the conveyer belts to dispose the same in an inoperative position, and directing means arranged

at opposite ends of the conveyer belts to direct the sheet material.

3. A transfer table for rolling mills comprising parallel supporting bars, bars adjustable upon said supporting bars and adapted to be disposed at an angle with relation thereto, shafts mounted upon said bars, a drive shaft mounted on the supporting bars, an endless conveyer belt connecting said drive shaft to one of the shafts of said adjustable bars, other conveyer belts connecting the shafts carried by the latter bars, means arranged between said adjustable bars and the supporting bars to retain the material to be conveyed upon said belts, and means for securing the parallel adjustable bars in an elevated position to retain the end portions of the conveyer belts at an angle with relation to the intermediate portions thereof.

4. A transfer table for rolling mills comprising parallel longitudinal bars, a drive shaft rotatably mounted upon said bars, adjustable bars having their ends disposed upon the ends of said supporting bars, guide members arranged adjacent to the supporting bars having inclined end portions, tie rods to rigidly secure the supporting bars, adjustable bars and guide members together, shafts rotatably mounted in the ends of the adjustable bars, a plurality of band wheels mounted on the driving shaft and on the shafts carried by said bars, endless conveyer belts traversing said band wheels, directing fingers on the shafts mounted in the adjustable bars to direct the material upon the conveyer belts, said adjustable bars being adapted to be moved to a position at right angles to the supporting bars to dispose the conveyer belts in an inoperative position, substantially as and for the purpose specified.

5. A transfer table for rolling mills comprising supporting bars, parallel bars adjustably mounted upon the ends of the supporting bars, tie rods connecting the supporting bars and adjustable bars and having nuts thereon to secure the latter bars in their adjusted positions, a drive shaft mounted in the supporting bars, spaced shafts mounted in the outer ends of the adjustable bars, a plurality of conveyer belts traversing the drive shaft and one of the shafts mounted in each of the adjustable pairs of bars, guide fingers loosely mounted upon the latter shafts to direct sheet material upon the conveyer belts, pressure wheels fixed upon the other shaft mounted on said adjustable bars, disposed above the conveyer belts for engagement upon the material to be conveyed thereby, and guides to retain the sheet material upon the conveyer belts and prevent its transverse movement, said adjustable bars being adapted to be elevated and secured in position at an angle to the supporting bars to dispose the conveyer belts in an inoperative position, substantially as and for the purpose specified.

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

PAUL SCHEUER.

Witnesses:
PETER LANGSDORF,
JAMES J. LUNDIE.