Oct. 14, 1930. A. R. McARTHUR 1,778,267

CONVEYER

Filed Feb. 8, 1928 2 Sheets-Sheet 1

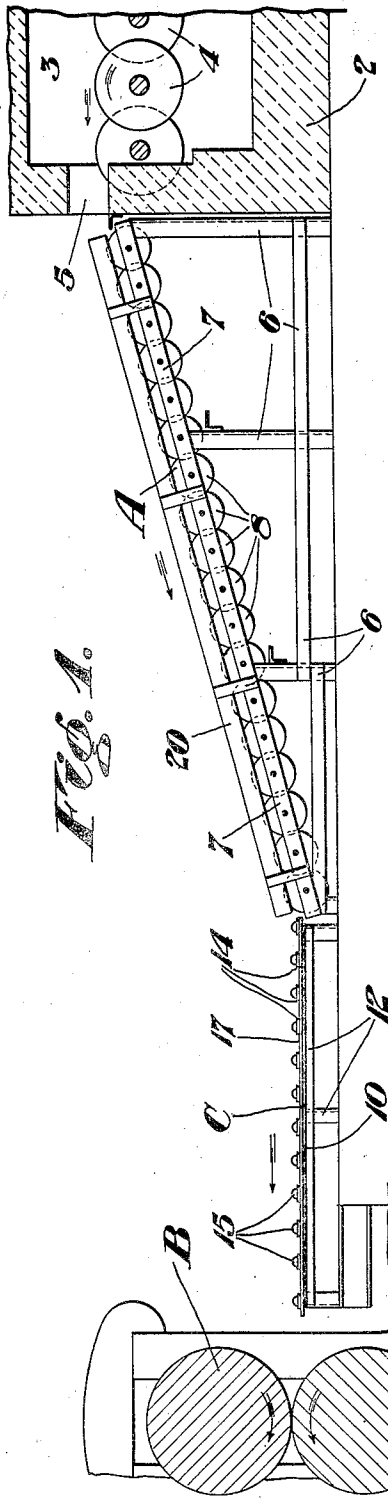


Fig. 1.

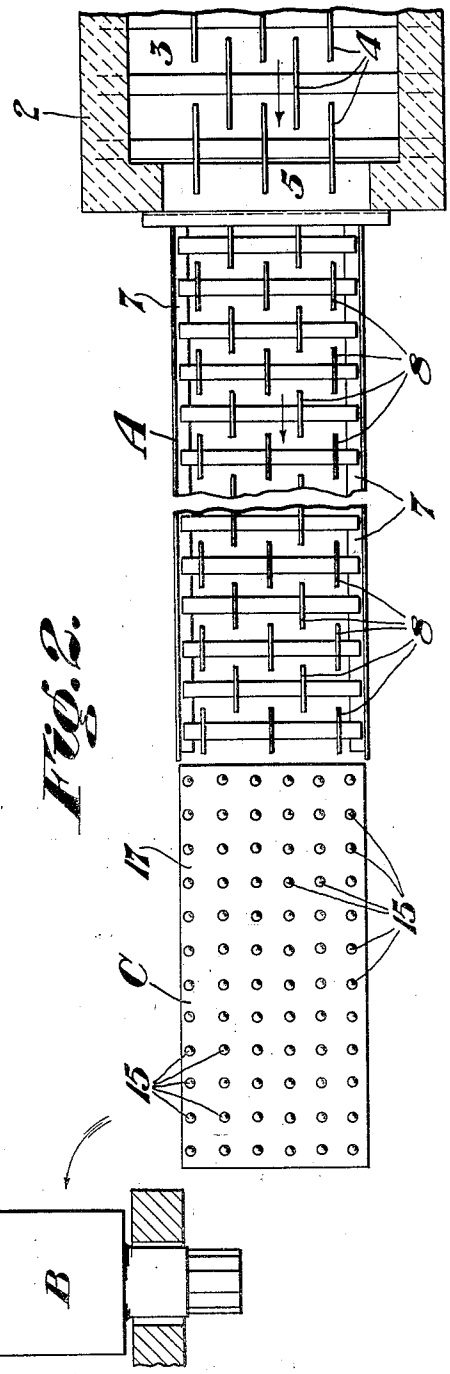


Fig. 2.

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CONVEYER

Filed Feb. 8, 1928 2 Sheets-Sheet 2

Fig. 3.

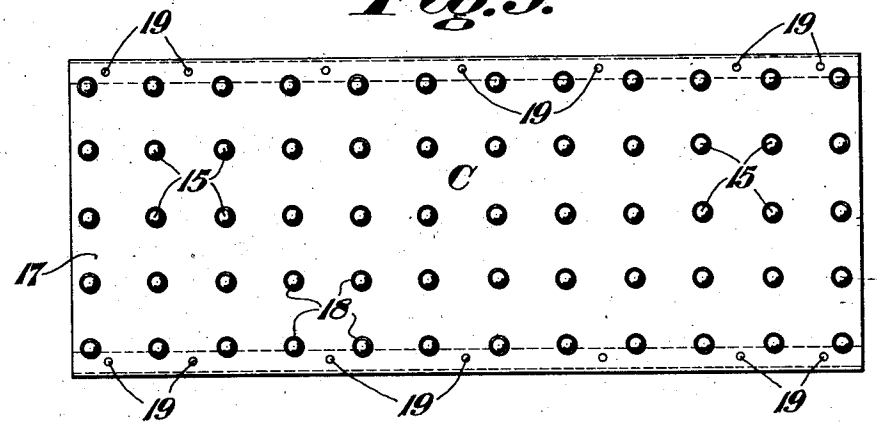


Fig. 4.

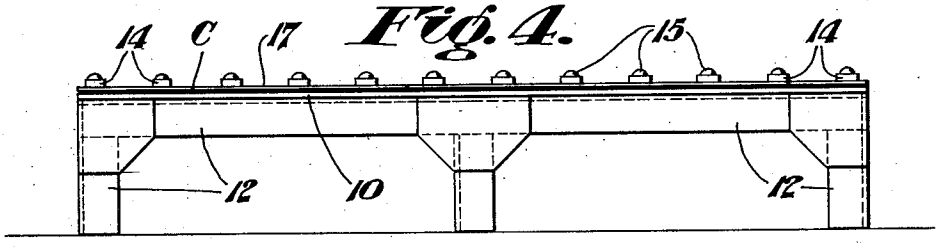


Fig. 5.

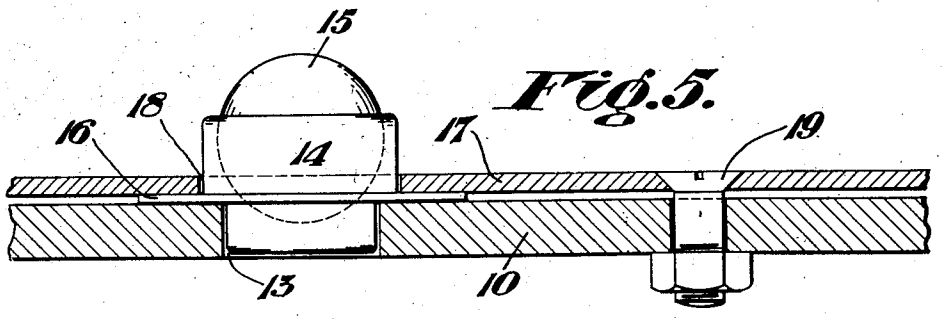


Fig. 6.

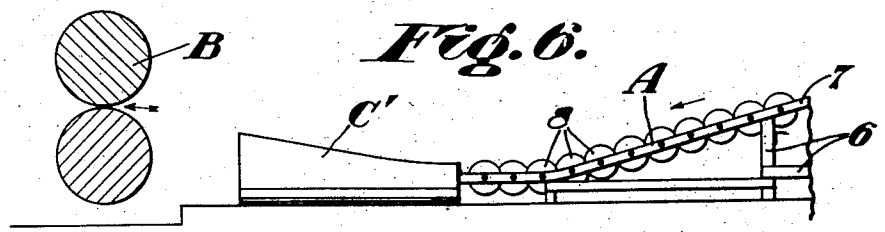
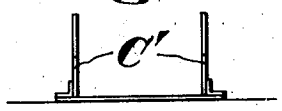


Fig. 7.



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Patented Oct. 14, 1930

1,778,267

UNITED STATES PATENT OFFICE

ARTHUR R. McARTHUR, OF GARY, INDIANA; MATTIE LEE McARTHUR, EXECUTRIX OF SAID ARTHUR R. McARTHUR, DECEASED, ASSIGNOR TO AMERICAN SHEET AND TIN PLATE COMPANY, OF PITTSBURGH, PENNSYLVANIA, A CORPORATION OF NEW JERSEY

CONVEYER

Application filed February 8, 1928. Serial No. 252,850.

This invention relates to apparatus for handling hot sheets or plates and, while not limited thereto, relates more particularly to apparatus for handling hot sheets or plates between a heating furnace and hot mill, and has for its object the provision of apparatus which will materially reduce the labor necessary in handling said sheets or plates and also will provide hotter plates than the hand methods heretofore generally used.

Heretofore, the sheets or plates have been generally removed from the heating furnace by hand and the operator would throw or slide the sheets or plates across the mill floor to the hot mill roller. The sheets would then lay on the cold mill floor until the roller was ready for them and contact, even for a short time, with the cold mill floor would materially cool the sheets or plates.

The mill operator or attendant would then be compelled to struggle with the sheets and grip them with his tongs, then lift them up and feed them into the hot mill rolls.

The present apparatus provides a conveyer for feeding the hot sheets from the furnace to the mill and then provides an elevated support which holds the sheets in elevated position in readiness for the roller to swing them into the bite of the hot mill rolls. Furthermore, the support is provided with spaced supporting means which have a materially less cooling effect than a solid plate or floor would have.

In the drawings—

Figure 1 is a side elevation partly in section showing my improved apparatus applied to a hot mill.

Figure 2 is a plan thereof.

Figure 3 is an enlarged plan of the caster table for receiving the heated sheets from the conveyer.

Figure 4 is a side elevation thereof.

Figure 5 is an enlarged sectional detail showing the manner in which the ball casters are mounted.

Figure 6 is a side elevation of a slightly modified form of apparatus in which the caster table is dispensed with.

Figure 7 is a sectional elevation through the sheet receiving skids of the modified apparatus of Figure 6.

Referring more particularly to the drawings, the numeral 2 designates the heating furnace as a whole which has its heating chamber 3 provided with a disk roller-type conveyer 4 adapted to continuously feed the sheets being heated through the furnace and discharge the heated sheets through an opening or doorway 5.

The particular type of furnace shown in the present drawings forms the subject matter of a separate application and, therefore, will not be described in detail. It will also be understood that any suitable continuous sheet heating furnace may be used in carrying out the present invention.

A gravity conveyer A is arranged to receive the heated sheets as they are discharged from the furnace 2. The conveyer A comprises a supporting framework 6 having upper side-rails 7 which are inclined downwardly from the furnace toward the hot mill B. A plurality of disk conveying rollers 8 are journaled in the side-rails 7, the disks of one roller 8 being staggered with relation to the disks of the next roller. The lower or mill end of the conveyer A terminates in a supporting table C which is located slightly to the one side of the mill.

The table C may be of any suitable construction which will support the hot sheets above the mill floor in readiness to be grasped by the tongs in the hands of the mill attendant or operator, and which will support the hot sheets at spaced intervals so as not to unnecessarily cool them.

In the present embodiment of my invention, I have shown the table C as composed of a ball bearing caster table, which consists of a base-plate 10 supported by suitable framework 12, and having spaced apertures 13 therein which form sockets to receive bearing cups 14, each of which contains and forms a bearing for a ball caster 15. The cups 14 have retaining flanges 16 which overlie the base-plate 10, and a cover-plate 17 having apertures 18 therein is fitted over the cups 14 and overlies the flanges 16.

The cover-plate 17 is secured at spaced in-

tervals, as at 19, to the base-plate, and serves to prevent displacement of the bearing cups.

Suitable side guide-plates 20 are arranged along each side of the conveyer A to prevent displacement of the sheets as they are traveling from the furnace to the mill.

In operation, the sheets will move from the furnace down along the conveyer A by gravity and since the rollers 8 are of the disk-type, there will be the minimum of contact between the sheets and rollers and consequently little cooling will take place. The conveyer A will deliver the sheets to the table C where the sheets will be supported on approximately a line with the bite of the rolls of the hot mill by the casters 15. The casters 15, being spaced, will form spaced points of contact and, therefore, again the sheets will be subjected to a minimum cooling effect.

The table C, being positioned as shown, materially reduces the labor of the mill attendant or operator since it is not necessary for him to lift the sheets from the floor up into the bite of the rolls as heretofore.

In Figures 6 and 7, I have shown a slightly modified form of sheet handling apparatus in which a pair of spaced upwardly inclined skids C^1 are provided to receive the heated sheets instead of the table C.

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 thereof, as defined in the appended claim.

I claim—

A sheet conveyer mechanism for conveying hot sheets to a stand of hot rolls in a sheet rolling mill, comprising an inclined gravity conveyer having disk-like conveyer rollers on which the sheets ride, and a horizontal caster table at the lower end of said conveyer, said table being positioned vertically so that the tops of the casters are approximately on a line with the bite of the rolls of the mill to which the sheets are being conveyed, and said casters being adapted to form spaced points of support for the heated sheets from which the mill attendant may readily feed the sheets into the mill.

In testimony whereof, I have hereunto set my hand.

ARTHUR R. McARTHUR.