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ADJUSTABLE MECHANISM FOR FEEDING METAL HOOPS, BANDS, STRIPS, OR BARS TO ROLLS.

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956,525. Patented May 3, 1910.

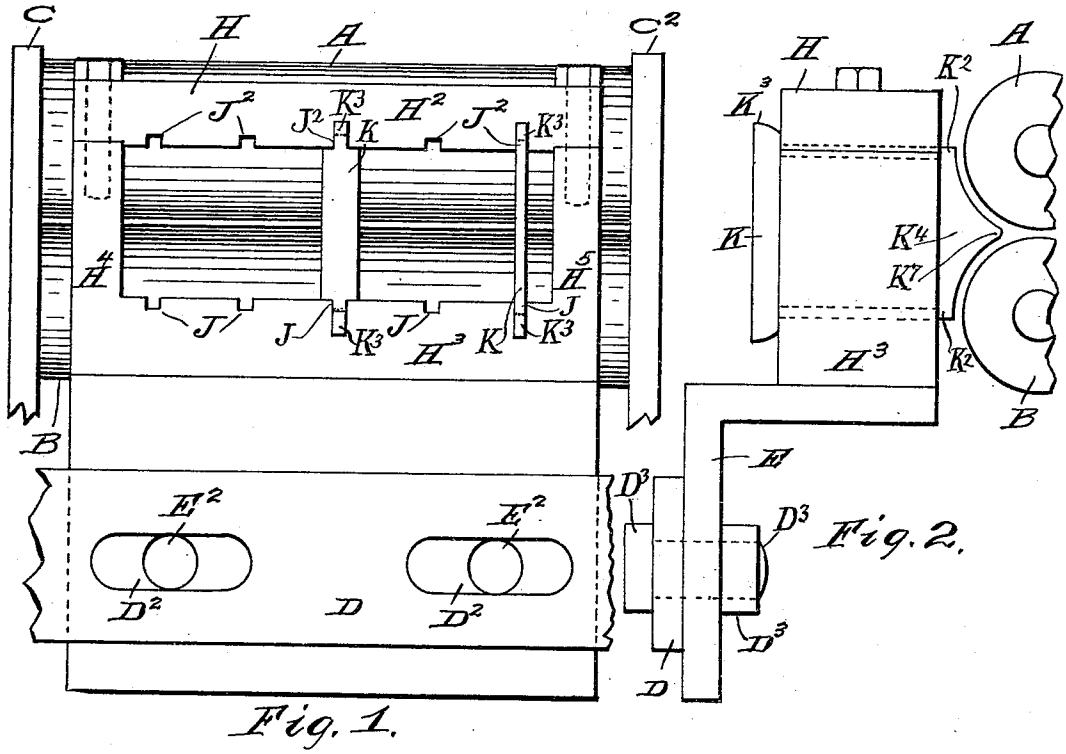

Fig. 1.

Fig. 2.

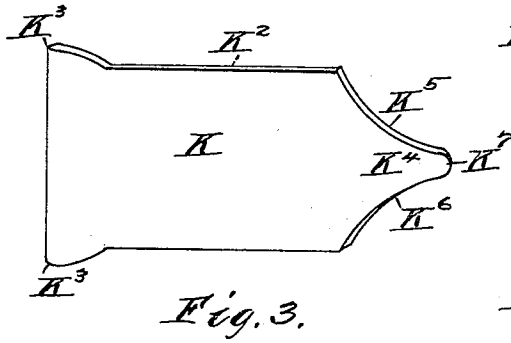

Fig. 3.

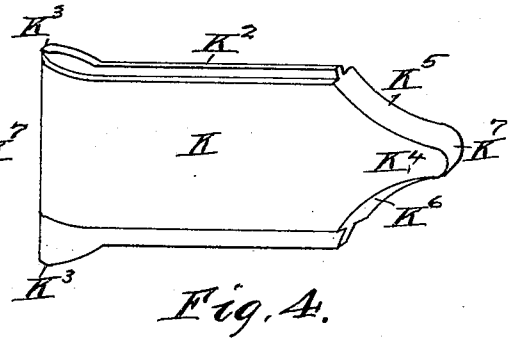

Fig. 4.

Witnesses

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ADJUSTABLE MECHANISM FOR FEEDING METAL HOOPS, BANDS, STRIPS, OR BARS TO ROLLS.

956,525. Specification of Letters Patent. **Patented May 3, 1910.**

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To all whom it may concern:

Be it known that I, FRANCIS F. GREGG, a citizen of the United States, and a resident of the borough of Monessen, in the county of Westmoreland and State of Pennsylvania, have invented certain new and useful Adjustable Mechanism for Feeding Metal Hoops, Bands, Strips, or Bars to Rolls, of which the following is a specification.

My invention relates to improved mechanism for feeding metal hoops, metal bands, metal strips, metal bars or the like to rolls.

Among the objects of my invention may be mentioned—first,—to make less work for the man who feeds the said material to the rolls. Second,—to render the gages more uniform, as every stop the mill makes cools off the rolls, and the latter contract. Therefore the first hoop, after the readjustment of the gage as heretofore employed, would either be too heavy or would stick in the chills. Third,—to produce straighter hoops, bars, bands, or strips, as the case may be. To enable the readjustment of gage to be made in a very brief space of time. To economize the cost of keeping the rolls in repair, and to lengthen their life in a continuous good condition. These objects and others, hereinafter obvious, I am enabled to attain by means of my invention. And my invention has therefore the advantages resulting from the attainment of these objects.

The several features of my invention and the various advantages resulting from their employment conjointly or otherwise will be apparent from the following description and claims.

In the accompanying drawing making a part of this specification and in which similar characters of reference indicate corresponding parts,—Figure 1 is a front view of a machine embodying my invention, and of a pair of rolls in combination therewith. Fig. 2 is an end elevation of the parts shown in Fig. 1, with the exception that the rear portion of the rolls are broken away for economy of space. Fig. 3 is a perspective view of a thin partition. Fig. 4 is a perspective view of a thick partition.

I will now proceed to describe my invention in detail.

My invention is adapted to be employed in feeding metal of the kinds hereinbefore mentioned to various kinds of rolls. My invention is of especial advantage in feeding this metal to rolls whose surface is not grooved or channeled, but is everywhere smooth and of a uniform surface,—of the same diameter everywhere.

For the purposes of illustration, I shall describe the application of my improved feeding mechanism to what are known as planishing rolls and finishing rolls, and in the feeding of what is known as hoop metal, and by this description the application of my invention to other rolls, and in feeding other descriptions of bar, band or strip metal will be quite fully understood.

In the manufacture of hoop iron, the metal after it has been rolled flat and is of a hoop shape, requires to be passed between two adjacent rolls, named planishing rolls. The hoop iron prior to being passed between the planishing rolls is very rough. Its surface is irregular and uneven. There is scale upon it. As the hoop iron is passed between the planishing rolls, these rolls break up the scale upon it and smooth down the irregularities and the unevenness of the surface of the hoop. The hoop is next passed between the finishing rolls and the latter strip off the scale from the hoop and further smooth it and polish it.

The planishing rolls and the finishing rolls are alike in construction, and a description of my invention in connection with the planishing rolls will be sufficient for a description of the combination of my invention with the finishing rolls, or vice versa.

In the drawing, A indicates the upper planishing roll and B indicates the lower planishing roll. C indicates the left hand housing for these rolls, and C^2 indicates the right hand housing for them. The housing, it will be understood, supports the axles or journals of the rolls, and holds the rolls in place, at the same time permitting them to rotate. To a suitable bar or framework D I attach my improved mechanism. This bar has openings D^2 in it for the reception of screw bolts D^3, or the like. Through the framework or base piece E of my machine are openings E^2, and the bolts D^3 respectively extend through these openings and into the bar D, and thus securely hold the base E to the bar D.

In order to allow of a movement of my

device in the direction of the length or axis of the rolls A, B, namely: to the right or left hand in Fig. 1, I make the openings D^2 in the bar D, or the openings E^2 in the base E of a slotted form, namely: elongated from right to left. In this way, I am enabled to move my device to the right or left relatively to the rolls. The purpose of this adjustment will be hereinafter apparent.

H indicates a frame having a top H^2, a bottom H^3, a left hand end H^4 and a right hand end H^5. The width of the bottom H^3 and of the top H^2 is considerable, and is preferably at least eight inches across, that is in the direction to and from the rolls. This framework H is in front of the rolls. Inside of this frame grooves are present. The grooves J in the bottom H^3 extend the width of it, and the grooves J^2 in the top H^2 extend the width of the latter. Each groove J^2 in the top H^2 is directly over a corresponding groove J in the bottom H^3, but the grooves are substantially of a like width and depth.

I provide partitions such as K. The upper and lower edges K^2 of each partition are adapted to fit nicely the grooves of the top H^2 and the bottom H^3. These partitions K are sliding ones and can be quickly and easily drawn out and taken from the machine, and as readily replaced in the machine and in any pair J, J^2, of grooves, as desired. These partitions have at their front edge projections K^3 which prevent their being introduced too far into the frame H. The rear or opposite end of each partition has an end K^4, whose edge is concavely curved above at K^5, and concavely curved below at K^6. When a given partition is in place, this concavely curved portion fits between the convexity of the rolls A and B, the point K^7 projecting the farthest in between the adjacent convexities of the rolls.

I provide a number of partitions of as many different thicknesses as needed. Thus I am enabled to provide a space between adjacent partitions of a needful width to guide the hoop, and when the latter moves through this space, its respective edges are so close to the adjacent partitions that it, the hoop cannot wabble or move laterally. Inasmuch as the space is a comparatively long one, the hoop is guided forward between the rolls, and is kept steady while passing between them. The part K^7, K, also holds the hoop iron steady even to almost the very place where the rolls meet together. Thus the guiding is at all points and everywhere effectively accomplished. By way of illustration, a substitution on one side of a given space of a thin partition will make the space wider, and a substitution of a thin partition for a thick one, on the other side of said given space will make the space still wider. Thus with only two sets of partitions of only two different thicknesses I can provide a guide space of three different widths, and therefore a guideway for hoops of three different widths. The addition of other partitions of different thicknesses will provide other additional spaces of other widths. But this is not all of the advantages of such partitions.

It is well known that with the former guides used in connection with smooth surfaced rolls, the rolls being worked only in certain annular places on their periphery, grooved places were soon formed on the periphery and the rolls were soon so worn as to be of no efficient service, until removed and turned down in a lathe. This latter operation is an expensive one. My machine enables me to prevent such wear on the rolls. For instance, partitions K of various thicknesses can be located in the machine and the spaces therein for guiding the hoop be materially moved to the right or to the left. By altering the position of the spaces thus laterally, the hoop will be guided onto a different portion of the periphery of the rolls. Thus no portion of the rolls will receive any more wear than another portion. Therefore the rolls can operate for a very long period without requiring repair or replacement. Such adjustable provision for the guiding of hoops of different widths enabling the same guide frame to be of great utility relative to the various widths of hoop, bar, band metal, and metal strips, is obviously a great advantage over the fixed and closely bolted guide for one width of strip or hoop iron heretofore employed; also such provision for altering the location of the hoop against the rolls is an advantage of great utility. The ease and facility of quick manipulation of the guide partitions to effect the change of width of guide space and to change the location of the guide space relative to its place opposite a given portion of the roll, also result in a great saving of time and of trouble. The lateral adjustment of the frame at the openings D^2 or E^2 when slotted, is valuable, but is usually not necessary, and is a slow and cumbersome mode of adjustment in comparison with those means provided by the varied partitions and grooves of the frame. Another remarkable advantage secured by my invention is the following: Hoop metal frequently has knots in it. These are often formed unexpectedly, and often reach the rolls. If a hoop knots and happens to run between guides, it will stick. In those forms of guides previously used, the hoop knot when thus stuck, could not be extracted without loosening the bolts and opening the vent of the guide. This operation of taking apart the fixed portions of the guide took much time and trouble. By reason of

my said improvements, when a hoop knot gets stuck in the guide, I draw on the piece of hoop and on just thus drawing it (the hoop) backward, the knotted piece of hoop and the guide come with it out of the machine. Then the knotted piece of hoop can be removed, the guide replaced and the operation continued in a very short space of time.

In the claims, where the word hoop or hoop metal is used, it will be understood to include metal band, metal bar or metal strip and the like.

What I claim as new, and of my invention and desire to secure by Letters Patent, is:—

1. In a mechanism for guiding metal hoop to the rolls, the rolls, a frame provided with grooves at right angles to the axes of the rolls, and partitions of different thicknesses adapted to enter said grooves, and to be slid out therefrom, substantially as and for the purposes specified.

2. In a mechanism for guiding metal hoop to the rolls, the rolls, a frame provided with grooves at right angles to the axes of the rolls, and partitions combined therewith, the partitions being of different thicknesses, and provided with edges and located in certain of said grooves, the partitions being capable of being drawn out from the grooves and replaced therein, substantially as and for the purposes specified.

3. In a mechanism for guiding hoop to the rolls, the rolls, a frame provided with grooves at right angles to the axes of the rolls, and partitions adapted to enter said grooves and removable therefrom, the rolls being located immediately at the rear of the said frame, the partitions having rear ends concaved above and concaved below, and conforming to the convexity of each roll, and their said rear ends being close to said rolls, the partitions provided with projections at their front ends for limiting their proximity in reference to the said rolls, substantially as and for the purposes specified.

4. In a mechanism for guiding hoop to the rolls, the rolls, a frame provided with grooves at right angles to the axes of the rolls, and partitions of various thicknesses adapted to enter said grooves and removable therefrom, the rolls being located immediately at the rear of said frame, the partitions having their rear ends concaved above and concaved below, and conforming to the convexity of each roll, and their said rear ends being close to said rolls, substantially as and for the purposes specified.

5. In a mechanism for guiding hoop to the rolls, the rolls, a frame provided with grooves at right angles to the axes of the rolls, and partitions of various thicknesses adapted to enter said grooves and removable therefrom, the rolls being located immediately at the rear of said frame, the partitions having rear ends concaved above and concaved below, and conforming to the convexity of each roll, and their said rear ends being close to said rolls, the partitions provided at their front portion with projections for limiting their proximity in reference to said rolls, substantially as and for the purposes specified.

FRANCIS F. GREGG.

Attest:
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