

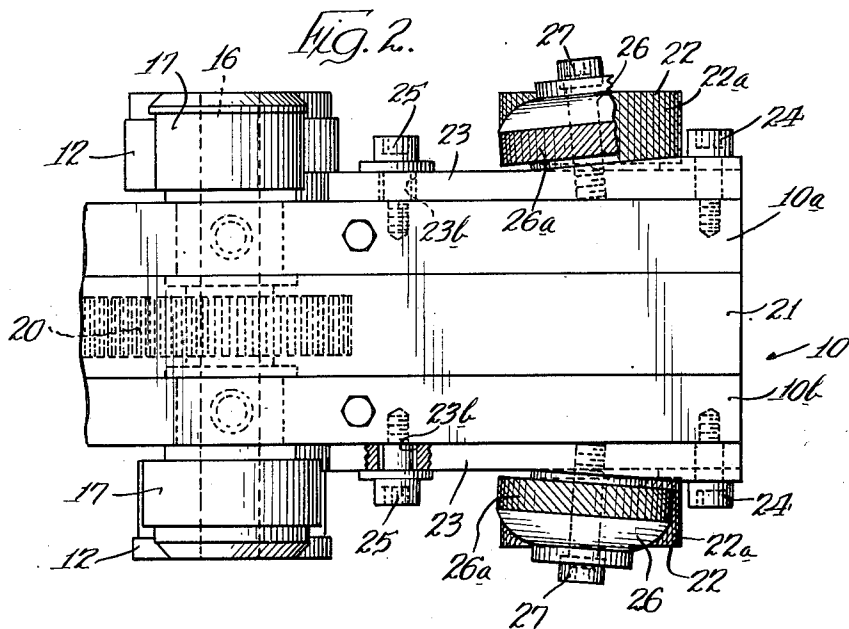
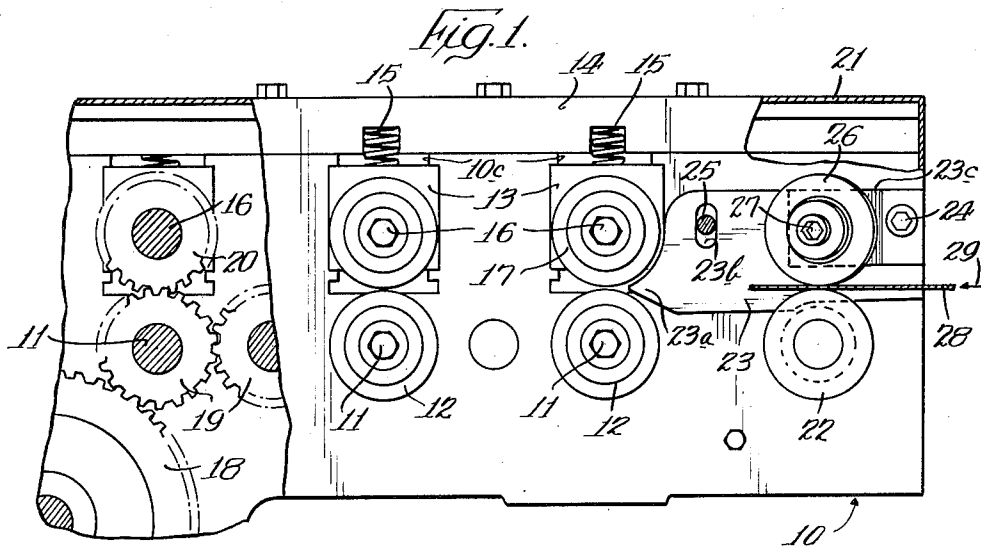
May 14, 1957

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2,792,045

FEEDING DEVICE FOR ROLLING MACHINES

Filed April 13, 1953



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2,792,045

FEEDING DEVICE FOR ROLLING MACHINES

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Application April 13, 1953, Serial No. 348,256

1 Claim. (Cl. 153—28)

This invention relates to a feeding device for directing sheet material into a rolling machine.

In the prior patent of Janmes J. Ingels, No. 2,588,120, issued March 4, 1952, and his copending application Serial No. 264,966, filed January 4, 1952, now Patent No. 2,680,466, issued June 8, 1954, there are disclosed multiple rolling machines particularly designed for rolling the edges of sheet material such as sheet metal. In use, the sheet metal is fed between the rolls so that the rolls act on one edge to bend this edge to a desired shape.

The invention described and claimed herein is concerned with a feeding device for directing sheet material into such a rolling machine. One of the features of this invention is the provision of such a feeding device including a feed roll substantially aligned with a shaping roll, a weighted member movably mounted on the machine adjacent to the feed roll, and a guide roll rotatably mounted on the weighted member and normally cooperating with the feed roll for directing the sheet material into the shaping rolls, the guide roll being inclined at a small angle toward the line of feed to aid in directing the sheet material into the shaping rolls and the weight of the weighted member aiding in maintaining the cooperation between the guide and feed rolls. Other features and advantages of the invention will be apparent from the following description of one embodiment as shown in the accompanying drawings. Of the drawings:

Fig. 1 is a side elevational view, partially broken away, of one embodiment of a feeding device of this invention attached to a rolling machine.

Fig. 2 is an enlarged fragmentary plan view, partially broken away, of the feeding device and the adjacent portion of the rolling machine.

The rolling machine shown in the accompanying drawings comprises a frame 10 having parallel side plates 10a and 10b. Extending outwardly from the sides of the frame are the ends of a series of transverse shafts 11. Mounted upon each shaft 11 on opposite ends thereof for rotation with the shaft are shaping rolls 12.

Located immediately above each shaping roll 12 there is provided a bearing block 13 movably mounted within a downwardly directed slot 10c. Extending between the top of each block 13 and a top removable cap bar 14 is a compression spring 15. Similar springs are positioned on the bottom of the blocks 13 as is shown and described in the above Patent No. 2,588,120 and copending application.

Each pair of blocks 13 on opposite sides of the machine rotatably support a transverse shaft 16. Shaping rolls 17 are carried on the ends of the shaft 16 for rotation therewith with each roll 17 being adapted to cooperate with a roll 12 for shaping the sheet material in the manner specified in the above patent. The shaping rolls 12 and 17 are driven in the ordinary manner by means of a gear train constituting a main driven gear 18, intermediate gears 19 and upper gears 20, all in the

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manner explained more fully in the above patent and application. These gears are completely enclosed between the frame sides 10a and 10b and the upper ends of these sides are normally closed by means of a removable cover plate 21.

Mounted on the side plates 10a and 10b on opposite sides of the machine are a pair of feed rolls 22. Each feed roll is substantially aligned with a shaping roll 12. Located above each feed roll 22 is positioned a weighted plate 23. Each weighted plate 23 is oscillatably mounted about a pivot pin 24 located adjacent to the front end of the machine. The rear end 23a of each plate 23 is extended and curved so that it is located adjacent to the adjacent edges of the first set of shaping rolls 12 and 17.

Each weighted plate 23 is guided in its vertical oscillation by a pin 25 positioned within an arcuate slot 23b in the plate. The portion 23c of each plate adjacent to a pivot pin 24 is raised and provided with a sloped outer surface. This plate portion 23c serves as a mounting for a guide roll 26 on each plate rotatably mounted on a pin 27. The sloped surface of the plate portion 23 is provided so that each guide roll will be inclined at a small angle toward the line of feed of a piece of feed material 28 with this line of feed being indicated by the arrow 29.

The surface 26a of each guide roll 26 is relatively narrow when compared to the surface 22a of a feed roll 22. Furthermore, each surface 22a and 26a of the guide and feed rolls is knurled essentially in one direction toward the line of feed. The knurl of the rolls, the arranging of each guide roll 26 at a small angle and the provision of the relatively narrow surface 26a on each guide roll aids in drawing the edge of the sheet material 28 in toward the sides of the machine so that the sheet material will be guided between the shaping rolls 12 and 17.

Each feed roll 22 may be driven thru the gear train including the gears 19, if desired. However, this is not necessary as the sheet material 28 may be pushed between a set of rolls 22 and 26 and then moved to the left as shown in Fig. 1 until the leading edge of the sheet is grasped by the first pair of cooperating rolls 12 and 17. As soon as this occurs, the sheet is immediately drawn thru the machine by the rotating rolls.

With the construction as described herein, the weight of each plate 23 serves to hold the guide roll 26 against a feed roll 22. In order to remove the rolls from contact with each other it is only necessary to lift the plate 23 upwardly around its pivot pin 24. Thus, with this arrangement the rolls 22 and 26 are automatically spaced to grasp a sheet 28 of material such as metal, so as to guide this sheet properly into the shaping rolls. The outer surface of each plate 23 is smooth and straight so that the edge of the plate 28 may move against this side surface. Furthermore, each side surface of a plate 23 is aligned with the shaping rolls so that the sheet material will be fed correctly into these rolls.

The rolling machine shown and described herein is particularly adapted for shaping the edges of thin sheets of metal so that the metal may be arranged in a cylinder and the edges joined to each other. Thus, the machine is particularly useful in shaping the edges for making stove pipes. In this machine, each longitudinal edge of the sheet metal will be directed between the series of shaping rolls simultaneously with the body portion of the sheet metal arched over the machine. With the feeding device of this invention such sheets can be run thru the machine quite rapidly as each edge is fitted into the shaping rolls and automatically aligned therewith without requiring great care and caution from the operator of the machine.

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Having described my invention as related to the embodiment shown in the accompanying drawings, it is my intention that the invention be not limited by any of the details of description, unless otherwise specified, but rather be construed broadly within its spirit and scope as set out in the accompanying claim.

I claim:

A feeding device for directing sheet material into a rolling machine including a frame, cooperating shaping rolls rotatably mounted on the frame and guide means 10 for guiding said material into the shaping rolls, comprising: a feed roll rotatably mounted on the frame substantially aligned with and substantially coplanar with a shaping roll; a weighted plate member adjacent to 15 and above the feed roll pivoted to the frame at one end of the plate member and provided with an elongated slot; a headed pin extending through said slot for guiding the pivotal movement of said plate member; and a guide

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roll rotatably mounted on the member and normally cooperating with the feed roll for directing the sheet material against the guide means and into the shaping rolls, the guide roll being inclined at a small angle toward the line of feed to aid in directing the sheet material into the shaping rolls, and the weight of the weighted member normally maintaining said cooperation between the guide and feed rolls.

References Cited in the file of this patent

UNITED STATES PATENTS

2,011,231	Olson	Aug. 13, 1935
2,012,130	Kellogg	Aug. 20, 1935
2,093,937	Spiess	Sept. 21, 1937
2,275,629	Ingels	Mar. 10, 1942
2,539,401	Carl et al.	Jan. 30, 1951