

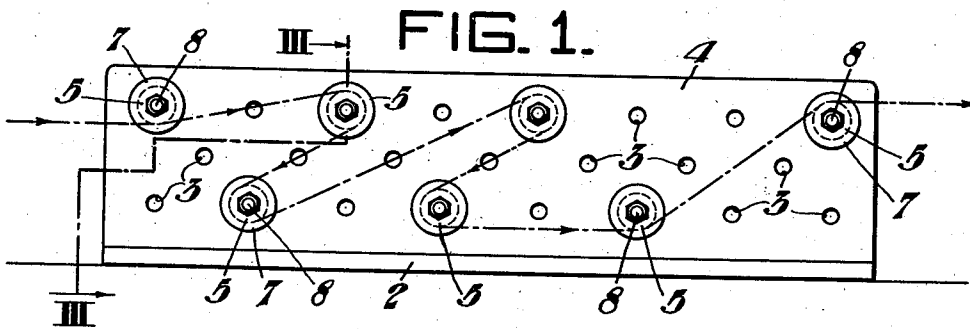
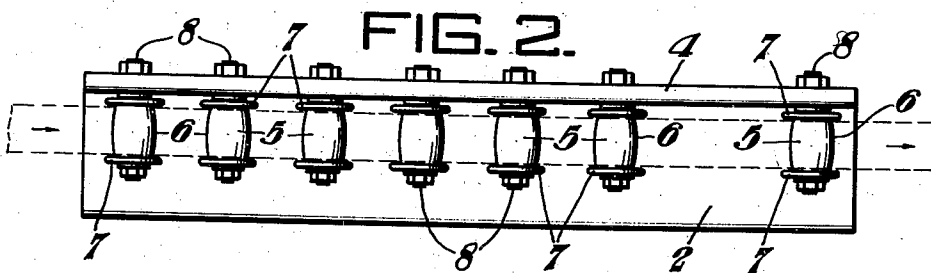
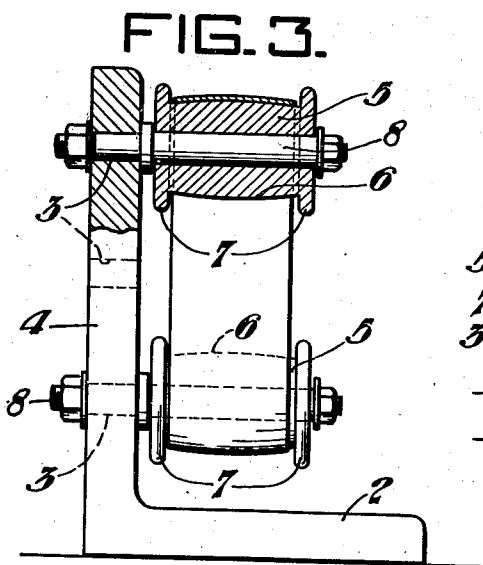
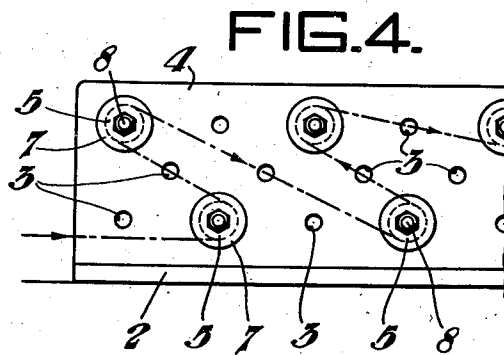
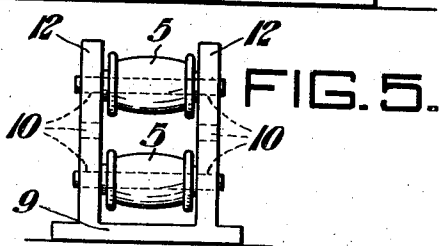
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DEVICE FOR STRETCHING METALLIC STRIP MATERIAL

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2,348,539

DEVICE FOR STRETCHING METALLIC STRIP MATERIAL

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4 Claims. (Cl. 153—54)

This invention relates to the stretching of metallic strip material, and, particularly, to an improved device or apparatus for stretching such material.

It is the general object of the present invention to provide an improved device for stretching the center portion of metallic strip material so as to provide a center stretch or buckle in the strip, or to remove a camber from the strip, i. e., side sweep or curves formed in the lateral plane of the strip, so as to provide a perfectly flat strip, or for producing strip material having a wavy edge, i. e., having an edge portion longer than the center portion of the strip.

It is another object of the invention to provide an improved device for stretching metallic strip material which is simple and inexpensive in its construction and use and, at the same time, a device which efficiently and effectively stretches the strip.

It is still another object of this invention to provide an improved device for stretching metallic strip material whereby the strip material is uniformly stretched throughout the length thereof thereby providing a finished product which is uniform throughout its length.

Various other objects and advantages of this invention will become more apparent during the course of the following specification and will be particularly pointed out in the appended claims. In the accompanying drawing there is shown, for the purpose of illustration, one embodiment which my invention may assume in practice.

In this drawing:

Figure 1 is a side elevation of the improved metallic strip stretching device or apparatus of my invention showing one position the strip may assume as it passes therethrough;

Figure 2 is a plan view thereof;

Figure 3 is a section taken on line III—III of Figure 1;

Figure 4 is a side elevation of part of my improved device similar to Figure 1 showing another arrangement the metallic strip may assume in passing through the device so as to stretch the same;

Figure 5 is a view similar to Figure 3 showing a modified form of construction of the improved stretching device of my invention; and

Figure 6 is a plan view showing a modified form of pulley or roller that may be used.

As shown in Figures 1 through 4 of the drawing, the improved device of my invention for stretching metallic strip material and the like comprises a frame or base consisting, preferably,

of a longitudinally extending angle-iron member 2 having a plurality of rows of spaced apart holes 3 arranged through one of the flanges 4 thereof throughout the length of the same with the holes in one row being staggered relative to those in the next row. On the inner side of the flange 4 and angle-iron member 2 there is mounted a plurality of adjustable rollers or pulleys 5 with each of the rollers having a convex surface 6 around the periphery thereof. At each end of each of the rollers 5 there is arranged preferably a flange 7 for the purpose of guiding the metallic strip over the rollers in a manner hereinafter to be described. The rollers shown are adapted for use in putting a camber or buckle in metallic strip material which is adapted to be used especially in the manufacture of Venetian blind strip. In such case the rollers preferably have a center or crown portion which is about 0.020 of an inch higher than the edge portions of the roller, i. e., that portion immediately inside of the flanges 7 thereof. The distance between the flanges of each of the rollers is preferably from about $\frac{1}{4}$ to $\frac{1}{2}$ of an inch greater than the width of the strip material to be stretched.

Each of the rollers or pulleys 5 is mounted on a stud shaft preferably in the form of a bolt 8 and adapted to be freely rotatable thereon. The bolts are adapted to extend through any one of the holes 3 in the flange 4 of the angle-iron member, so that any one of the rollers may be positioned thereon as desired. That is, the rollers 5 may be positioned in any number of different arrangements on the face of the flange by changing the position of the bolts 8 and placing them in the holes 3 in the position desired.

It will be understood that the strip of metallic material to be stretched is threaded over and around the rollers 5 as shown in Figures 1, 2, and 4 of the drawing in substantially a zig-zag manner, or it may be threaded in any other suitable manner to obtain the desired result. It will be seen that the strip lies between the flanges 7 of the rollers which act as a guide to keep the strip from slipping off the same. A back tension is then applied to the strip by any suitable means (not shown) and the same is pulled through the rollers thereby stretching the center portion thereof due to the convex shape or crown of the rollers whereby a finished strip is produced having a center stretch or buckle therein as shown in Figure 3 of the drawing.

It will be understood that the rollers or pulleys 5 are first adjusted by placing them in the proper holes in the frame or angle-iron member 2 and

that the strip is drawn over and around the same after they have been correctly placed with a sufficient amount of tension applied to the strip to effect the desired result. It will also be understood that the shape of the center stretch or buckle is controlled by the shape and position of the rollers and that the depth of the center stretch or buckle is dependent upon the shape of the rollers and the amount of back tension applied to the strip. It has also been found that it is possible, by altering the crown or curvature of the face of the rollers, to produce any degree of center stretch or buckle desired.

In Figure 5 of the drawing there is shown a slight modification of my invention. In this construction there is provided a frame member consisting of a longitudinally extending U-shaped structural member 9 having a plurality of sets of spaced holes 10 arranged through the leg portions or flanges 12 thereof. The rollers or pulleys 5 are arranged between the flanges 12 on the stud shafts or bolts 8 arranged in and extending between the holes. It will be seen in this construction that the rollers or pulleys 5 are more rigidly supported and have a bearing point to either side thereof.

In Figure 6 of the drawing there is shown a pulley or roller 5 of a modified form. In this construction, the surface of the roller is substantially flat and tapers inwardly and upwardly toward the center of the pulley or roller so as to provide a peak or crowned portion 13 in substantially the center thereof.

While there is shown the stretching of metallic strip material so as to provide a center stretch or buckle therein, it will be understood that my improved device may be used for straightening cambered material so as to flatten strip material which is wavy or buckled.

While I have shown and described one specific embodiment of my invention, it will be understood that this embodiment is merely for the purpose of illustration and description and that various other forms may be devised within the scope of my invention, as defined in the appended claims.

I claim:

1. A device for stretching metallic strip material comprising a frame having a plurality of rows of holes arranged therein throughout the length thereof with the holes in one row being staggered relative to those in an adjacent row, and a plurality of flanged rollers rotatably arranged on one side of said frame which may be removably assembled in any one of said holes so as to provide any desired arrangement of said rollers over which the strip material is adapted to pass for stretching the same, with the material adapted to pass over and around the rollers from one end of said frame member to the opposite end thereof, a portion of each of said rollers being greater in diameter than the remaining portion thereof whereby the greater diameter portions of the rollers stretch and elongate that portion of the strip longitudinally thereof which passes over said greater diameter portions when back tension is applied to the strip as it is pulled over and around the rollers.

2. A device for stretching metallic strip material comprising a plate-like member having a plurality of rows of holes arranged therethrough throughout the length thereof with the holes in one row being staggered relative to those in an adjacent row, and a plurality of flanged rollers arranged on one side of said plate-like member with each roller being rotatably mounted on a stud-shaft which may be removably assembled in any one of said holes so as to provide any desired arrangement of said rollers over which the strip of material is adapted to pass for stretching the same with the material adapted to pass over and around the rollers from one end of said plate-like member to the opposite end thereof, a portion of each of said rollers being greater in diameter than the remaining portion thereof whereby the greater diameter portions of the rollers stretch and elongate that portion of the strip longitudinally thereof which passes over said greater diameter portions when back tension is applied to the strip as it is pulled over and around the rollers.

3. A device for stretching metallic strip material comprising a plate-like member having a plurality of rows of holes arranged therethrough throughout the length thereof with the holes in one row being staggered relative to those in an adjacent row, and a plurality of flanged rollers arranged on one side of said plate-like member with each roller being rotatably mounted on a stud shaft which may be removably assembled in any one of said holes so as to provide any desired arrangement of said rollers, each of said rollers having a convex surface over which the strip of material is adapted to pass for stretching the same with the material adapted to pass over and around the rollers from one end of said plate-like member to the opposite end thereof, the convex surface of each of said rollers adapted to stretch and elongate the center portion of the strip longitudinally thereof when back tension is applied thereto as the strip is pulled over and around the rollers.

4. A device for stretching metallic strip material comprising an angle-iron member having a plurality of rows of holes arranged through one of the flanges thereof throughout the length of the said angle-iron member with the holes in one row being staggered relative to those in an adjacent row, and a plurality of flanged rollers arranged to one side of said flange with each of said rollers being rotatably mounted on a stud shaft which may be removably assembled in any one of said holes so as to provide any desired arrangement of said rollers, each of said rollers having a convex surface over which the strip of material is adapted to pass for stretching the same with the said material adapted to pass over and around the rollers from one end of said angle-iron member to the opposite end thereof, the convex surface of each of said rollers adapted to stretch and elongate the center portion of the strip longitudinally thereof when back tension is applied thereto as the strip is pulled over and around the rollers.

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