

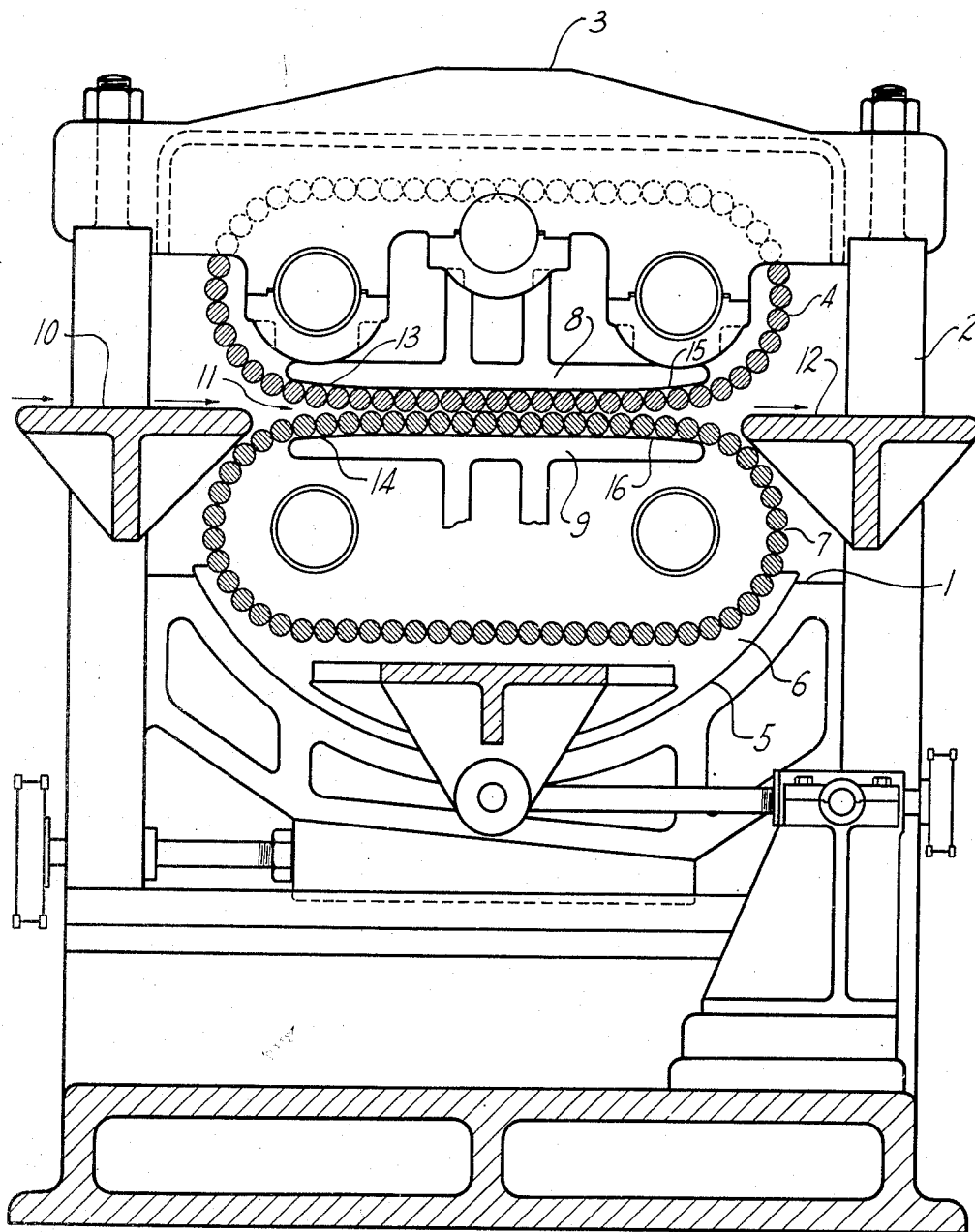
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ROLLER LEVELER

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ROLLER LEVELER

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1 Claim. (Cl. 153—102)

This invention relates to roller levellers, more particularly of the chain type, such as is shown and described in Patent No. 2,391,419, granted to me December 25, 1945, and it is among the objects of this invention to provide a roller leveller in which the levelling rolls are mounted on endless chains to travel with the sheet to be levelled between a pair of supporting platens and in which the shape of the pass between the pairs of chains is enlarged and adjustable to readily receive the entering sheets.

In the above-mentioned patent the mouth of the roll pass, in which the sheet to be straightened enters the straightening rolls, is constituted solely by the radius of the pairs of cooperating rolls from the chains of rolls passing between a pair of platens. In accordance with the present invention the mouth of the pass is shaped by shaping the roller supports in a manner to provide decreasing space between opposite cooperating rolls as they enter between their supporting platens. Also one or both of the roller chains may be adjustable relative to the other to vary the size of the pass.

The invention will become more apparent from a consideration of the accompanying drawing, constituting a part hereof, in which the single figure is a front elevational view, partially in section, of a portion of a roller leveller embodying the principles of this invention.

In the drawing the portion of the base 1 is shown with frame members 2, the top of which support a yoke 3 that carries a roller leveller chain, generally designated by the numeral 4. The base 1 is cradle shaped as shown at 5 for receiving a cradle 6 that supports another roller leveller chain designated by the numeral 7. Mounted in the yoke 3 and cradle 6 are platens 8 and 9, respectively, which constitute the bearing surfaces for the rollers of the chains 4 and 7 in the same manner as described in the aforementioned patent. The rollers are supported along their full length of contact with the sheet to be leveled and there can be no bending or flexing of the rolls which maintain a true cylindrical form. As explained in the aforementioned patent, the rollers of the chains are independently journaled to be freely rotatable so as to maintain a peripheral speed the same as the sheet material to be straightened which passes from a table 10 into the pass designated by the numeral 11 between pairs of oppositely disposed rolls and back onto a supporting table 12, the direction of travel being as shown by the arrows.

In accordance with the present invention, platens 8 and 9 are provided with ramps 13 and 14 at the entering end of the rolls and also with ramps 15 and 16 at the opposite ends of the roll pass. These ramps or inclines

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are two planes intersecting at a point between the ends of the platens 8 and 9, such as ten per cent of the distance from the entering end of the pass. As is apparent from the drawing, the ramps provide an entering pass for the sheet to be straightened which assures that it is properly centered with the leveller rolls. Also by adjusting the cradle 6 the entering pass can be further modified in either an opening or closing direction. Also the chain supports may be adjusted vertically relative to each other to accommodate various thicknesses of sheets, which is not part of the present invention.

The shape of the platen causes a lifting of the center line of the roll carrying chain thereby causing the rolls to hug to the platen and as the chain is constantly being urged forward by its engaging sprockets, the rolls will engage the surface of the platen and be urged to rotate. Due to the predetermined shape of the mouth of the wedge shaped entry of the platen, the rolls will be rotating before they engage the work. When rotatably turning rolls engage the work, the work will be urged forward more and more forcibly as decreasing space of wedge causes rolls to deflect, or bite into, the sheet.

It is evident from the foregoing description of the invention that by controlling the roll pass by the use of ramps on the supporting roll platens, the work enters between the two chains of rollers more readily and is progressively gripped more and more securely as it progresses into the wedge shaped opening of the ramp. At the inner end of the wedge the platens are set in the usual manner from a small to a large opening, thereby causing the sheet to be reversibly stressed from a maximum to a minimum.

Although one embodiment of the invention has been herein illustrated and described, it will be evident to those skilled in the art that various modifications may be made in the details of construction without departing from the principles set forth herein.

I claim:

In a sheet roller leveller, a pair of endless roller chains each mounted on spaced sprocket wheels, said chains carrying sets of levelling rolls, a pair of horizontally arranged backing plates one for each set of said sets of rolls located between the sprockets for supporting said rolls in working relation to the sheet to be levelled, the roller chain sprocket wheels being spaced vertically with respect to said plates to displace the center line of said roller chains to cause the rolls to hug the plates, said plates having substantially plane horizontal central surfaces, and converging end surfaces to form converging and diverging roll passes at the respective ends of said plates.

References Cited in the file of this patent

UNITED STATES PATENTS

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1,697,090	Russell	Jan. 1, 1929
2,059,993	Hanson	Nov. 3, 1936
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