Oct. 17, 1944. E. R. MUDDIMAN 2,360,708

BRAKING MEANS FOR ROLLER CONVEYORS

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Fig. 1.

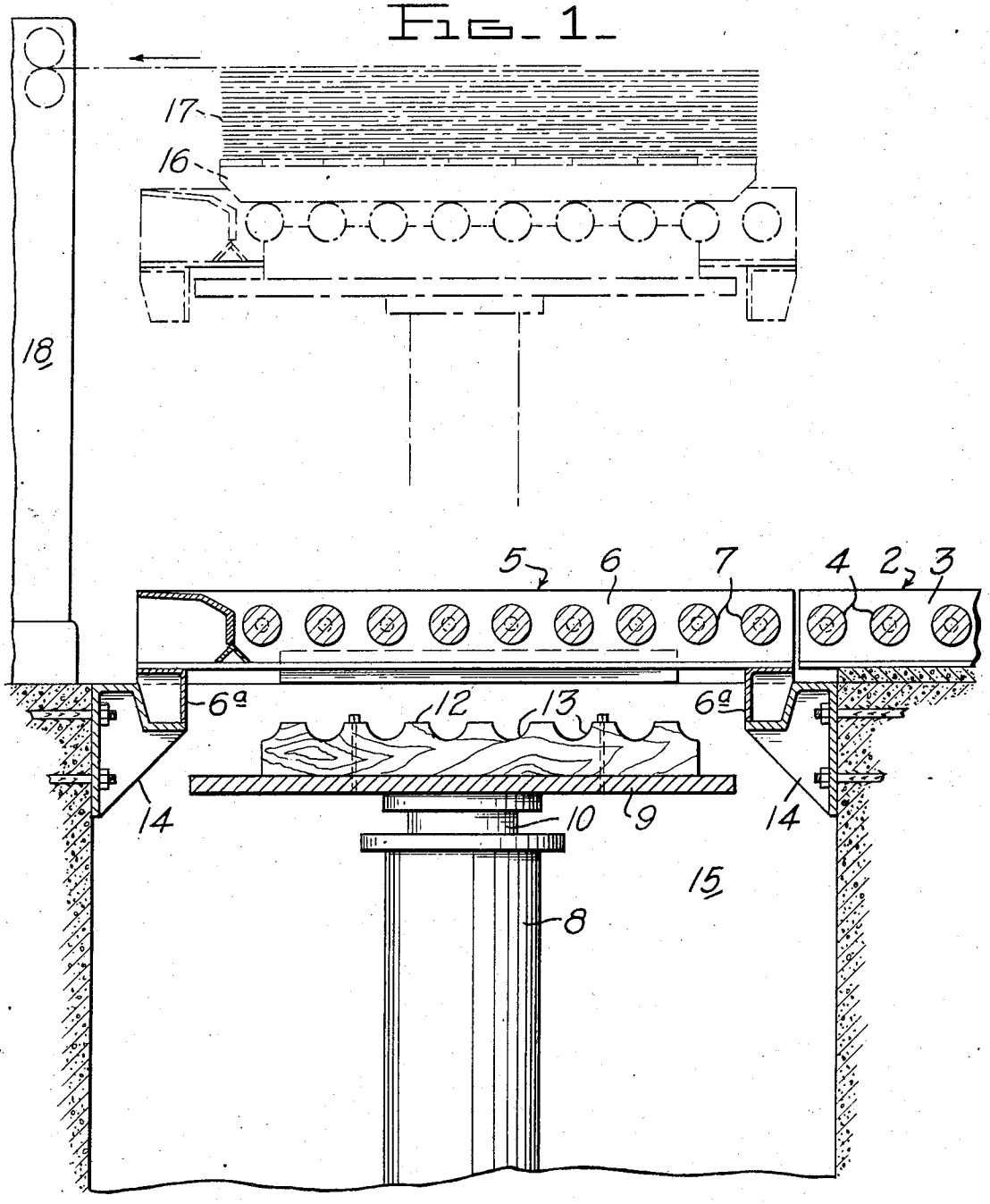

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Fig. 2.

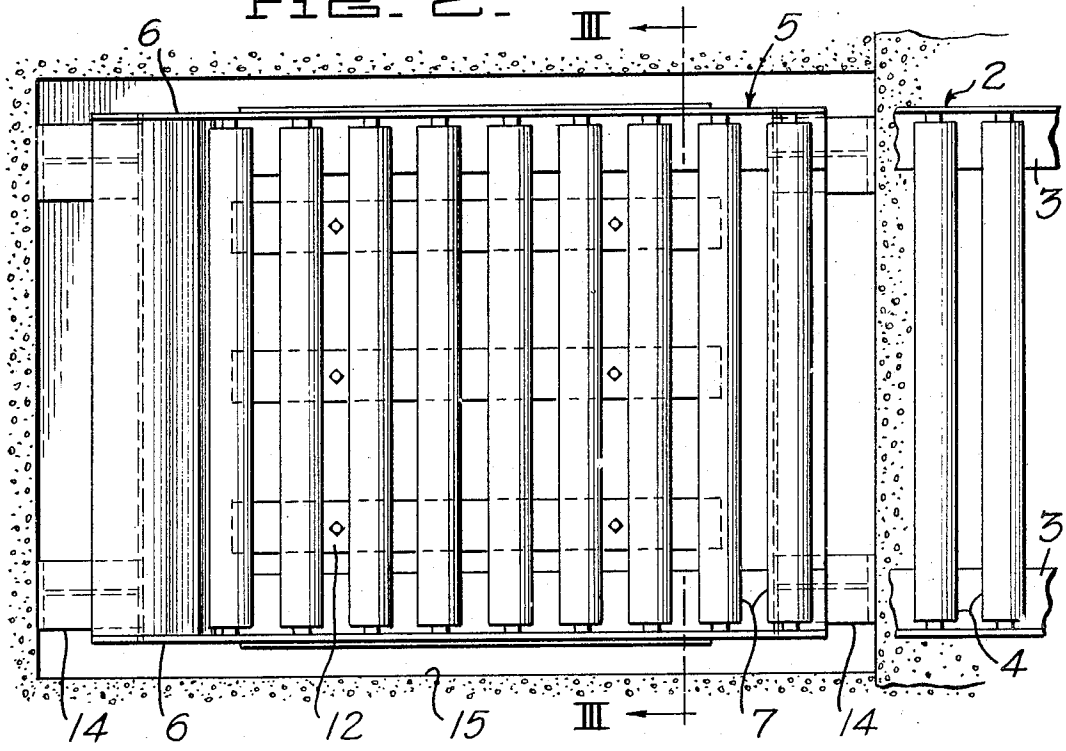
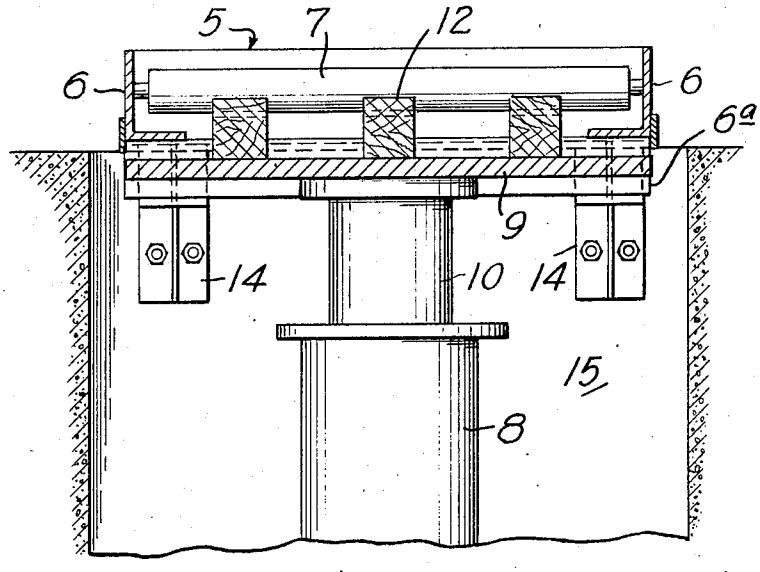


Fig. 3.



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BRAKING MEANS FOR ROLLER CONVEYERS

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Application February 1, 1943, Serial No. 474,358

8 Claims. (Cl. 193—35)

This invention relates to roller conveyers and, particularly, to an improved braking or locking means for preventing rotation of the rollers of a vertically movable section thereof.

It is oftentimes desirable to transfer the materials passing along a gravity roller conveyer from the conveyer to a point thereabove. Such is the case in the steel industry for moving a stack of metallic sheets from a roller conveyer to position thereabove so that the sheets may be fed into a processing or similar machine. For moving the stack of sheets to such an elevated position above to the conveyer and opposite the processing machine, there is provided a movable section in the roller conveyer which is adapted to be moved vertically by means of an elevating device, usually a hydraulic lift. When the stack of sheets is disposed on the rollers of the movable section and the section moved out of the plane of the conveyer to an elevated position, there is danger that the stack of sheets will accidentally roll over the rollers and drop from the movable section during the elevating thereof or after the stack of sheets has reached its elevated position. It is to a braking or locking means for preventing rotation of the rollers of the movable section during the vertical movement thereof that the present invention relates.

Accordingly, it is the general object of the present invention to provide an improved braking or locking means for preventing rotation of the rollers of a vertically movable section of a roller conveyer while the same is being elevated so as to prevent the load thereon from being unintentionally displaced therefrom.

It is another object of the invention to provide an improved means for preventing rotation of the rollers of a vertically movable section of a roller conveyer while the same is being elevated which is simple and inexpensive in its construction and consists of a minimum number of parts.

It is a further object of this invention to provide an improved braking or locking means for the rollers of a vertically movable section of a roller conveyer which is efficient in its use and effectively prevents the rollers of the movable section from rotating during the elevation thereof wherein the elevating means simultaneously locks the rollers against rotation and moves the section vertically thereby automatically preventing rotation of the rollers at the instant the section is elevated.

Various other objects and advantages of this invention will be more apparent in the course of the following specification and will be particularly pointed out in the appended claims.

In the accompanying drawings there is shown, for the purpose of illustration, an embodiment which my invention may assume in practice.

In the drawings:

Figure 1 is a side elevational view of the movable section of a roller conveyer showing the improved braking or locking means of my invention incorporated therewith;

Figure 2 is a plan view thereof; and

Figure 3 is a sectional view taken on line III—III of Figure 2.

Referring more particularly to the drawings, there is shown a conventional type gravity roller conveyer 2 having a frame consisting of angle iron members 3 in which a plurality of conveyer rollers 4 are journaled. At one end of the conveyer 2, there is positioned a movable horizontally disposed conveyer section 5 having a frame consisting of an angle iron members 6 arranged to either side thereof in which there is journaled a plurality of similar conveyer rollers 7 and angle iron members 6^a positioned at each end thereof.

Directly below the movable conveyer section 5, there is positioned a conventional type hydraulic lift 8 for the purpose of elevating the movable conveyer section 5 from the plane of the conveyer to a point thereabove for transferring articles from the conveyer 2 to mechanism positioned thereabove.

According to the present invention, on top of the table 9 which is mounted on top of the plunger 10 of the hydraulic lift 8, there is positioned a plurality of block-like members 12, three in the present instance, which are preferably made of wood. There is arranged in the top of each of the block-like members 12 a plurality of transversely extending grooves 13 which are spaced apart substantially the same distance as the rollers 7 are spaced apart and, preferably, have a V or U-shaped cross section, as shown in Figure 1 of the drawings.

The improved braking or locking means of my invention functions in the following manner: The movable conveyer section 5 is normally positioned in the plane of the conveyer 2, as shown in the full lines of Figure 1 of the drawings, with the angle iron members 6^a at the ends of the frame thereof resting upon shoulders or ledges which are preferably formed by structural members 14 mounted at either end of the pit 15 in which the hydraulic lift 8 is disposed. In the present instance, there is shown disposed on the conveyer a skid 16 having a

stack or pack of metalic sheets 17 disposed thereon which are adapted to be transferred from the conveyer to the entering side of a processing machine 18 positioned thereabove. The stack of sheets 17 on the skid 16 are moved to the end of the conveyer 2 until the skid is positioned entirely on the rollers 7 of the movable conveyer section 5. The hydraulic lift 8 is then moved upwardly by a fluid pressure from a suitable source of supply (not shown) so that the rollers 7 are positioned in the grooves 13 of the block-like members 12. At this instant, it will be seen that the block-like members 12 will lock the rollers 7 of the movable conveyer section 5 against movement so as to prevent rotation thereof thereby preventing the skid 16 together with the sheets 17 piled thereon from rolling over and along the rollers 7. Upon further upward movement of the hydraulic lift 8, it will be seen that the movable conveyer section 5 together with the skid and stack of sheets 17 disposed thereon is moved until it reaches a position above the conveyer, as shown in broken lines of Figure 1 of the drawings, so that the sheets are positioned opposite the processing machine 18. After the sheets have been removed from the skid and it is desired to return the same to position on the conveyer 2, the fluid pressure in the hydraulic lift 8 is released therefrom and the movable section 5 together with the plunger 10 will move downwardly until the movable conveyer section 5 is again disposed in the plane of the conveyer 2 with the angle iron members 6a resting upon shoulders of the structural members 14 so as to rigidly support the same. The plunger 10 of the hydraulic lift together with the block-like members 12 continue to move downwardly until the block-like members are spaced from and clear of the rollers 7 of the movable section 5 so as to permit them again to rotate freely. The skid 16 can then be rolled along the conveyer 2 and another skid loaded with sheets disposed thereon for transferring the sheets to the processing machine in a like manner.

As a result of my invention, it will be seen that the rollers 7 of the section 5 are automatically locked against rotation and that the articles, namely, the skid 16 together with the sheets 17 disposed thereon, in the present instance, are securely positioned on the movable conveyer section 5 of the conveyer from the moment the movable section is moved out of the plane of the conveyer 2. As a result it will be seen that the articles or the stack of sheets disposed on the movable section cannot be accidentally displaced therefrom due to the rotation of the roller 7 for the reason that these rollers are prevented from rotation during the entire time that the movable section 5 is disposed in its elevated position thereby eliminating any hazards to the machine operator or workmen in the vicinity thereof. It will be understood that such a movable conveyer section may be used in certain cases for receiving articles or sheets while the same is disposed in its elevated position. In such case, the improved roller locking means of the present invention will be just as effective in preventing rotation of the rollers of the movable section so as to prevent the articles or sheets from rolling therefrom.

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. In combination with a roller conveyer, a movable horizontally disposed conveyer section arranged with said conveyer which is positioned normally in alignment with the conveyer, said section having a plurality of freely rotatable rollers carried thereby, means for elevating said conveyer section to a point thereabove so as to transfer articles therefrom or thereonto, and means carried by said elevating means which contacts each of the rollers of said movable section for preventing rotation thereof while said section is being elevated or lowered, said elevating means adapted to support and elevate said section solely through said roller contacting means.

2. In combination with a roller conveyer, a movable horizontally disposed conveyer section arranged with said conveyer which is positioned normally in alignment with the conveyer, said section having a plurality of freely rotatable rollers carried thereby, means for elevating said conveyer section to a point thereabove so as to transfer articles therefrom or thereonto, and at least one member carried by said elevating means having a plurality of spaced apart grooves arranged therein in which one of each of the rollers of the movable section is adapted to be positioned upon the elevating of said movable section by said elevating means, said elevating means adapted to support and elevate said section solely through contacting the rollers thereof whereby the rollers of said section are prevented from rotating during the elevating or lowering of said section.

3. In combination with a roller conveyer, a movable horizontally disposed conveyer section arranged with said conveyer which is positioned normally in alignment with the conveyer, said section having a plurality of freely rotatable rollers carried thereby, means for elevating said conveyer section out of the plane of the conveyer to a point thereabove so as to transfer articles therefrom or thereonto, and a plurality of spaced apart block-like members carried by said elevating means, each of said block-like members having a plurality of spaced apart grooves arranged therein with each positioned directly opposite one of the rollers of the movable section and in which the respective rollers of the movable section are adapted to be positioned upon elevating or lowering the same by said elevating means, said elevating means adapted to support and elevate said section solely through contacting the rollers thereof whereby the rollers of said section are prevented from rotating, during the elevating or lowering of said section.

4. In combination with a roller conveyer, a movable conveyer section arranged with said conveyer which is positioned normally in the plane of the conveyer, a vertical hydraulic lift arranged directly below said movable conveyer section for elevating the same to a point thereabove out of the plane of the conveyer so as to transfer articles to or from said conveyer section, a table-like portion carried by said hydraulic lift, and a plurality of spaced apart block-like members arranged on said table-like member, each of said block-like members having a plurality of spaced apart grooves arranged therein with each po-

sitioned directly opposite one of the rollers of said movable section and in which the rollers of the section are adapted to be positioned upon elevating the section by means of said lift whereby the rollers of said section are prevented from rotating.

5. In combination with a roller conveyer, a movable horizontally disposed conveyer section arranged with said conveyer which is positioned normally in alignment with the conveyer, said section having a plurality of freely rotatable rollers carried thereby, means for elevating said conveyer section out of the plane of the conveyer to a point thereabove so as to transfer articles therefrom or thereonto, means for supporting said movable section in alignment with the conveyer, and means carried by said elevating means which contacts each of the rollers of said movable section upon vertical movement of the elevating means, said elevating means adapted to support and elevate said section solely through contacting the rollers carried thereby whereby the section simultaneously is moved vertically and the rollers are prevented from rotating.

6. In combination with a roller conveyer, a movable horizontally disposed conveyer section arranged with said conveyer which is positioned normally in alignment with the conveyer, said section having a plurality of freely rotatable rollers carried thereby, means for elevating said conveyer section out of the plane of the conveyer to a point thereabove so as to transfer articles therefrom or thereonto, means for supporting said movable section in alignment with the conveyer, and means carried by said elevating means which contacts each of the rollers of said section upon vertical movement of the elevating means, said last mentioned means having a plurality of spaced apart grooves arranged therein with each positioned opposite one of the rollers of said movable section and in which the respective rollers are adapted to be positioned upon elevating said movable section by said movement of said means, said elevating means adapted to support and elevate said section solely through contacting the rollers thereof whereby the section simultaneously is moved vertically and rollers thereof are prevented from rotating.

7. In combination with a roller conveyer, a movable horizontally disposed conveyer section arranged with said conveyer which is positioned normally in alignment with the conveyer, said section having a plurality of freely rotatable rollers carried thereby, means for vertically moving said section out of the plane of said conveyer so as to transfer articles therefrom or thereonto, and means carried by said moving means which contacts each of the rollers of said movable section for preventing rotation thereof while said section is being elevated or lowered, said moving means adapted to support and move said section solely through said roller contacting means.

8. In combination with a roller conveyer, a movable horizontally disposed conveyer section arranged with said conveyer which is positioned normally in alignment with the conveyer, said section having a plurality of freely rotatable rollers carried thereby, means for vertically moving said conveyer section out of the plane of said conveyer so as to transfer articles therefrom or thereonto, and at least one member carried by said moving means having a plurality of spaced apart grooves arranged therein in which one of each of the rollers is adapted to be positioned upon the moving of said movable section by said moving means, said moving means adapted to support and move said section solely through contacting the rollers thereof whereby the rollers of said section are prevented from rotating during the elevating or lowering of said section.

EARLL R. MUDDIMAN.

Disclaimer

2,360,708.—*Earl R. Muddiman*, Wilkinsburg, Pa. BRAKING MEANS FOR ROLLER CONVEYERS. Patent dated Oct. 17, 1944. Disclaimer filed June 29, 1950, by the inventor.

Hereby enters this disclaimer to claims 1 to 8, inclusive, of said patent.

[*Official Gazette July 25, 1950*]