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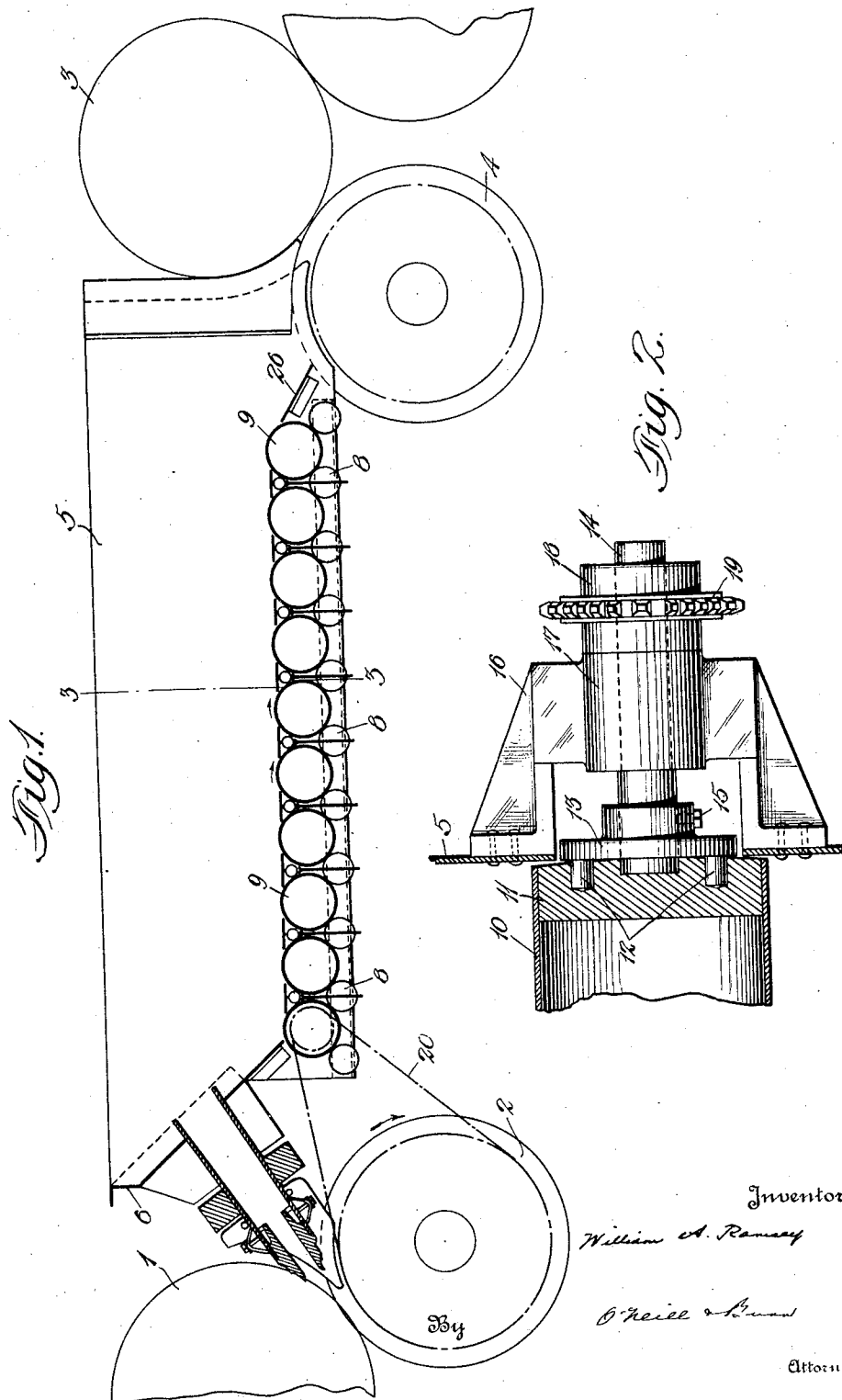
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CONVEYER FOR SUGAR CANE MILLS

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2 Sheets-Sheet 1



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2 Sheets-Sheet 2

Fig. 3.

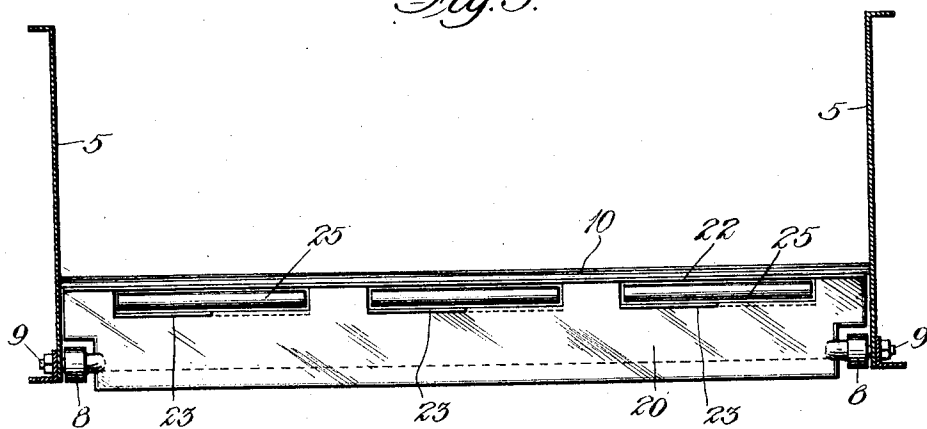
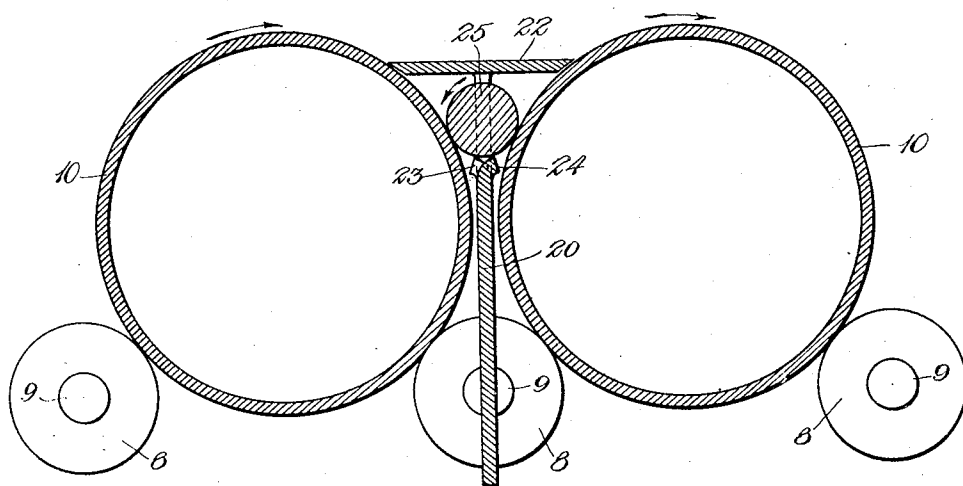


Fig. 4.



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CONVEYER FOR SUGAR-CANE MILLS.

Application filed December 2, 1927. Serial No. 237,299.

This invention relates to conveyers, and specifically to a mechanism utilizing a train of conveying rollers especially adapted for use in the sugar cane industry in the transportation of bagasse from one mill to the next in a series of cane crushing mills.

The structure comprises a series of large conveying rollers arranged in parallelism and extending between adjacent crushing mills, one of said rollers, here shown as the foremost, being here illustrated as driven by connections to a roll of the delivery mill, small friction rollers being positioned between and contacting two adjacent conveyer rollers, whereby to cause all of the conveyer rollers, throughout the train connecting said crusher mills, to rotate in the same direction, to transport bagasse from one mill to the other.

The object of the invention is the provision of a positively acting conveyer, driven by one of the crusher mills, or by other powered means, which will operate with a maximum of efficiency and at a minimum of expense in performing the desired work.

Other objects of the invention will be made apparent in the following specifications, when read in connection with the drawings forming a part thereof.

In said drawings:

Fig. 1 is a longitudinal section taken through the conveyer, showing the rolls of the adjacent crushing mills.

Fig. 2 is a detail, partly in section, showing an end of a conveyer roller, and the bracket supporting the trunnion thereof.

Fig. 3 is a transverse section taken on the line 3—3 of Fig. 1, and,

Fig. 4 is a section taken transversely through two of the conveying rollers.

Now referring specifically to the drawings, in which like reference numerals indicate like parts throughout the several views, 1 and 2 are rolls of a crushing mill from which bagasse is to be delivered to the rolls 3 and 4 of the adjacent crushing mill. Suitably supported to extend between said mills is a conveyer trough formed by upright metallic side walls 5, and a front end wall 6, as illustrated in Fig. 1.

The front wall 6 of the trough is equipped with a feed inlet provided with known devices facilitating the delivery of the bagasse from the front mill to the trough, covered by the Ramsay Patent No. 1,191,826, issued July 18, 1916, and forms no part of the present invention.

Secured to each side of and at the bottom of each of the walls 5, are a plurality of roller bearings 8, mounted on trunnions 9 extending through said wall, as clearly shown in Fig. 3, said bearings 8 being so positioned as to properly support tubular conveying rollers 10, so that each end of each of said rollers rests upon two of the bearings, as clearly illustrated in Figs. 1 and 4 of the drawings.

The rollers 10 are in the form of cylinders, the ends being closed by a plug 11, into which extend coupling members 12, secured to a hub portion 13, surrounding the roller shaft 14, and secured to said shaft by a pin 15. A supporting bracket 16 is riveted or bolted to the metallic side 5, and said bracket is provided with a bearing portion 17 adapted to receive the shaft 14. The structure just described may be applied only to the first roller at the left, as illustrated in Fig. 1, or to any other roller in the train, if found more desirable, the other rollers 10 being journaled in simple anti-friction bearings in the side walls 5, 5. Or the bracket 16 may be extended longitudinally along each side of the walls 5 to provide bearings for each of the end shafts of each roller 10.

On the outer end of the shaft 14 secured to the roller 10 adjacent the crusher rolls 1 and 2, is non-rotatively secured a hub 18 of a sprocket wheel 19, adapted to be engaged by a sprocket chain 20 operatively connected to the crusher roller 2. Instead of the sprocket and chain connections described, the hub 18 may be replaced by a pulley, and a drive belt operatively extended from the crusher roll 2 to said pulley. In some cases it may be desirable to drive the first roller 10 by means of an independently mounted electric motor operatively connected to the shaft 14 thereof.

It is to be noted that the conveyer rollers 10

are not in contact each to each, but that both ends of each roller rest upon two of the bearings 8. A partition member 20 is secured at each end by passing through slots cut in the end of the trunnion pins 9 each partition extending upwardly between adjacent rollers 10, and provided with a cut away portion at each end to clear the bearings 8 as illustrated in Fig. 3. The partitions each terminate in a T-shaped platform 22, the lower surface of the edge of each branch of the platform being formed on an arc of a circle and shaped to the configuration of the outer surface of the closely adjacent rollers 10. Below the platform 22 the partitions are each slotted as shown, the lower flanges 23 and 24, of the walls defining the slots, being turned in diametrically opposite directions, and providing a bed or trough to receive one or more circular bars of cold rolled steel 25, hereinafter called friction rollers. The construction and position of the several instrumentalities described is such that, with the friction rollers 25 in position, as shown in Fig. 4, each friction roller will contact both of the adjacent conveyer rollers 10, and, at the same time, rest lightly upon the flanges 23 and 24, a platform 22 covering each of bars 25.

The rear end of the trough formed by the walls 5, 5, is located closely adjacent the receiving crusher rolls 3 and 4, the lower portion of the said walls being shaped to co-operate with an inclined platform 26, located below and adjacent the last of the rollers 10, to deliver the bagasse to said rolls 3 and 4.

The operation of the conveyer will now be apparent. With the crusher roll 2 rotating in the direction of the arrow, Fig. 1, a similar rotation will of course be imparted to the front roller 10 carried by the shaft 14. Since said roller is contacting and rotating the friction roller 25 however, the rotation of the latter will be in an opposite direction, as illustrated by the arrow, Fig. 4. The friction roller 25 also contacts the second roller 10, and manifestly causes said second roller 10 to rotate in the same direction as the first, all the rollers of the train operating to carry the bagasse to the receiving rolls 3 and 4.

As the bagasse passes over one roller 10 it lightly strikes the platform 22 and thence passes to the next roller, the platform not only limiting upward movement of its associated bar 25, but also preventing bagasse from entering between and becoming entangled with said rollers. The friction roller 25 cannot become jammed so as to lock the rollers 10 against rotation, since, if any projection on the first roller should tend to push said friction roller downwardly, such movement would be limited by the flanges 23 and 24, and the bar 25 would immediately be raised by the ascending surface of the second roller.

The entire structure of the rollers is suffi-

ciently light to be supported by the metal side walls 5, and yet strong enough to easily carry any loads of bagasse to which it may be subjected.

While I have described my conveyer as especially adapted to transport bagasse, it is obvious that it would operate with equal efficiency in the transportation of other commodities.

In the sugar mill industry it is often necessary to reverse the crushing rolls, and it will be noted that, in the structure herein described, a reversal of the rolls 1 and 2 will not reversely actuate the rollers 10. This is true because, while the front roller 10 would be rotated reversely, such action would lift the friction roller 25 out of contact with the second roller 10, and the train of rollers would not operate.

Modifications of the structure herein described may be suggested to those skilled in the art, but my invention includes all embodiments falling fairly within the scope of the appended claims.

I claim:

1. A conveyer comprising a plurality of conveyer rollers arranged in parallelism in a train, a friction roller located between and in contact with each of adjacent pairs of conveyer rollers, a platform covering each of said friction rollers, and means for driving any conveyer roller of the train.

2. A conveyer comprising a plurality of conveyer rollers arranged in parallelism in a train, a friction roller resting upon and contacting the surfaces of each adjacent pair of conveyer rollers, and means for limiting the vertical movement of said friction rollers.

3. A conveyer comprising a plurality of conveyer rollers arranged in parallelism in a train, a friction roller located between and in contact with each of all adjacent pairs of conveyer rollers, said friction rollers being adapted for movement in any direction, and means for driving any conveyer roller of the train.

4. A conveyer comprising a plurality of conveyer rollers arranged in parallelism in a train, a partition extending upwardly between and separating each pair of adjacent rollers, and a friction roller supported on the upper edge of each partition and positioned for contact with the surface of each conveyer roller adjacent said partition, and means for driving any conveyer roller of the train, substantially as described.

5. A conveyer comprising a plurality of conveyer rollers arranged in parallelism in a train, a partition extending upwardly between and separating each pair of adjacent rollers, a friction roller supported on the upper edge of each partition and positioned for contact with the surface of each conveyer roller adjacent said partition, means for driving any conveyer roller of the train, and a

platform secured to said partition above said roller.

6. A conveyer comprising a plurality of conveyer rollers, mounted on anti-friction bearings and arranged in parallelism in a train, a partition extending upwardly between each adjacent pair of conveyer rollers, a platform carried by the upper partition and located in a plane immediately below the plane of the top of said conveyer rollers, each

of said partitions being provided with a slot immediately below said platform, a friction roller loosely mounted in said slot, and having operative contact with each of the conveyer rollers adjacent said partition, and means for driving any conveyer roller of the train, substantially as described. 15

In testimony whereof I affix my signature.

WILLIAM A. RAMSAY.