No. 858,612. PATENTED JULY 2, 1907.

E. J. MASON.

ROLLERS FOR BELT CONVEYERS.

APPLICATION FILED JAN. 7, 1907.

2 SHEETS—SHEET 1.

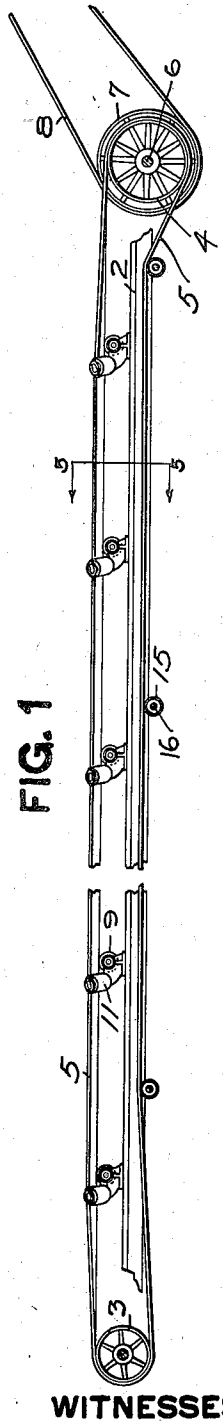


FIG. 1

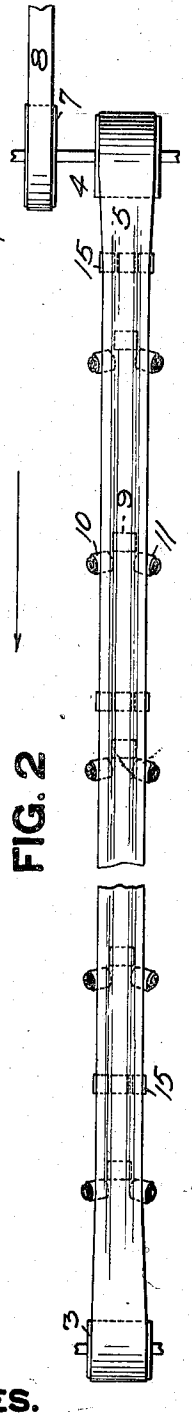


FIG. 2

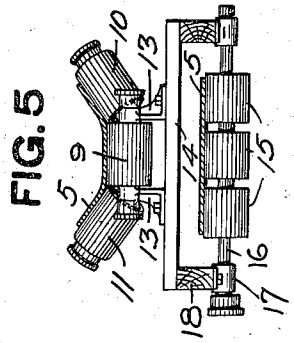


FIG. 5

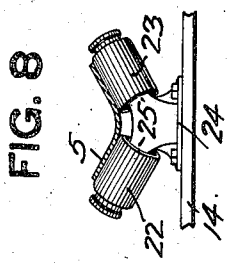


FIG. 8

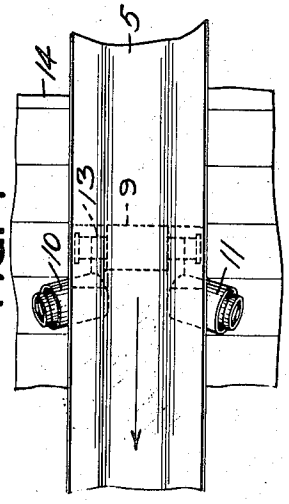


FIG. 4

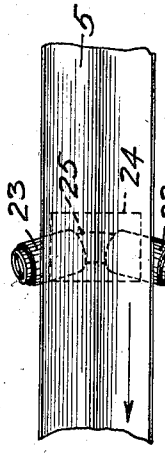


FIG. 7

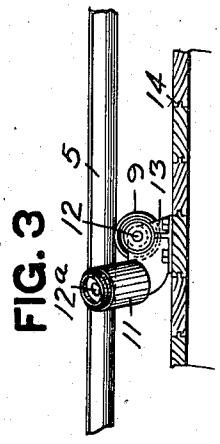


FIG. 3

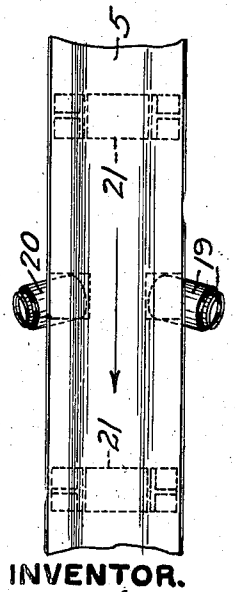


FIG. 6

WITNESSES.

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2 SHEETS—SHEET 2.

FIG. 9

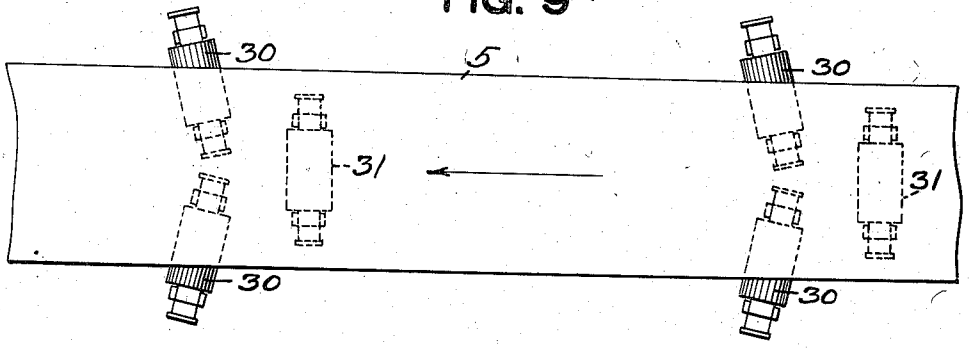


FIG. 10

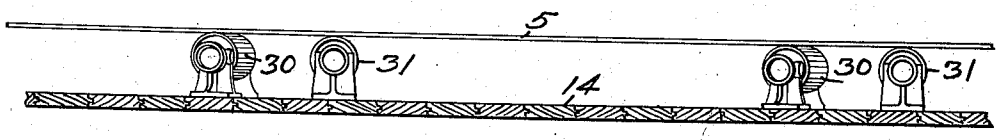
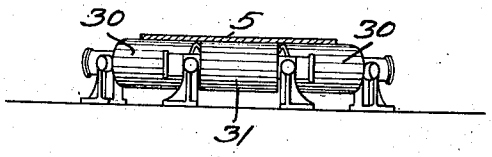


FIG. 11



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UNITED STATES PATENT OFFICE.

ELLIOTT J. MASON, OF ALLEGHENY, PENNSYLVANIA, ASSIGNOR TO HEYL & PATTERSON INCORPORATED, OF PITTSBURG, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

ROLLERS FOR BELT CONVEYERS.

No. 858,612. Specification of Letters Patent. Patented July 2, 1907.

Application filed January 7, 1907. Serial No. 351,247.

To all whom it may concern:

Be it known that I, ELLIOTT J. MASON, a resident of Allegheny, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Rollers for Belt Conveyers; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to an arrangement of rolls to be used in connection with conveyer belts.

The object of my invention is to provide rolls so arranged as to keep the belt moving in a straight line and prevent its swerving from one side to the other which has been liable to occur in connection with the forms of apparatus heretofore employed, and which subjected the belt to severe wear along its edges where it came in contact with guide-rolls located at intervals to hold the belt in its proper course.

To these ends my invention comprises, generally stated, in conjunction with a conveyer belt and mechanism for driving the same, guide rolls arranged to engage the belt, said rolls having their outer ends in advance of the inner ends or inclined toward the direction of travel of the belt.

In the drawing Figure 1 is a side elevation of a belt conveyer showing my invention applied thereto; Fig. 2 is a plan view thereof; Fig. 3 is an enlarged side elevation of a portion of the conveyer showing troughing rolls; Fig. 4 is a plan view thereof; Fig. 5 is an enlarged section on the line 5—5, Fig. 1; and Figs. 6, 7, 8, 9, 10 and 11 are modified forms of my invention.

In the drawings the numeral 2 designates a portion of a suitable frame-work by which the apparatus is supported, and at the ends of said frame-work are the drums 3 and 4, around which the belt 5 travels. The shaft 6 on which the drum 4 is mounted is provided with the pulley 7 which is connected up by a driving belt 8 to a suitable source of power. The belt is adapted to be driven in the direction of the arrow Figs. 1 and 2. The belt 5 may be formed of rubber or other flexible material which is capable of being troughed if desired so as to properly convey the material without its dropping from the sides thereof. Accordingly, this belt 5 is supported by the horizontal and troughing rolls or idlers 9, 10 and 11.

The middle rolls 9 are arranged horizontally and are carried by shafts 12 which are supported by the brackets 13 secured to the platform 14. The shafts 12^a are carrled by the brackets 13 and are inclined with reference to the axis of the middle or horizontal rolls 9, and furthermore, said shafts are slightly inclined forwardly in the direction of the travel of the belt, so that when the rolls 10 and 11 are mounted thereon the outer ends of said rolls will be slightly in advance of the inner ends of said rolls, as clearly indicated in Fig. 4. The belt 5 is supported on its return by the idlers 15 mounted on the shafts 16, journaled in the brackets 17 depending from the beams 18 of the platform 14.

By having the rollers 10 and 11 arranged in this manner, inclined with their outer ends in advance of their inner ends, it will be apparent that as the belt 5 travels in the direction indicated the said rolls 10 and 11 will act to prevent the swerving of the belt 5 out of a straight line, and any tendency to move out of a straight line will be counter-acted by the rolls on that side, which the rolls on the opposite side will tend to counteract any swerving in that direction, so that as a consequence the belt is maintained in proper relation so as to form a straight trough without liability of the material being discharged from the belt in its travel by the undue swerving of the same out of its prescribed course. so as to slip from the pulleys. As long as the belt is running true these tendencies to swerve balance each other. If, from any cause, the belt is shifted so that there is more of it in contact with one troughing roll than the other, it is immediately and automatically shifted back to an approximately central position, since the balance has been temporarily destroyed.

In Fig. 6 I have illustrated another form of my invention in which troughing rolls 19 and 20 are arranged one at each side of the belt and intermediate the horizontal rolls 21. The rolls 19 and 20 are in this instance arranged in the same manner as above with their outer ends in advance of the inner ends so as to have the same effect of preventing the swerving of the belt from one side to the other.

In Figs. 7 and 8 I have illustrated another modified form of my invention in which the troughing rolls 22 and 23 are arranged so as to form the trough in the belt, the horizontal roll being omitted. These rollers 22 and 23 are mounted on a suitable standard 24 with projecting bearings 25 upon which the rolls 22 and 23 are mounted. These projecting bearings 25 project forwardly in the direction of the travel of the belt so as to give the troughing rolls the proper inclination with their outer ends in advance of their inner ends.

In Figs. 9, 10 and 11 I have illustrated another form of my invention in which the belt moves in a horizontal plane without troughing. In this case the guide rollers 30 lie in a horizontal plane and are inclined or projected in the direction of travel of the belt. In addition, the

rollers 31 are employed to support the belt. These rollers 30 will act in the same manner as the above troughing rolls to keep the belt in a straight course.

What I claim as my invention is:

1. In conveying apparatus, the combination of a belt, means for driving said belt, and rolls inclined or projecting in the direction of the travel of said belt.

2. In conveying apparatus, the combination of a belt, means for driving said belt, rolls inclined or projecting in the direction of travel of said belt, and a horizontal roll to support the middle of the belt.

3. In conveying apparatus, the combination of a suitable belt, means for driving the same, a support, inclined shafts carried by said support and inclined or projecting in the direction of the travel of said belt, and troughing rolls engaging said shafts.

In testimony whereof, I the said ELLIOTT J. MASON have hereunto set my hand.

ELLIOTT J. MASON.

Witnesses:
ROBERT C. TOTTEN,
JOHN F. WILL.