Feb. 6, 1923. 1,444,743.

G. HAISS.

CONVEYER.

FILED JAN. 22, 1921. 2 SHEETS—SHEET 1.

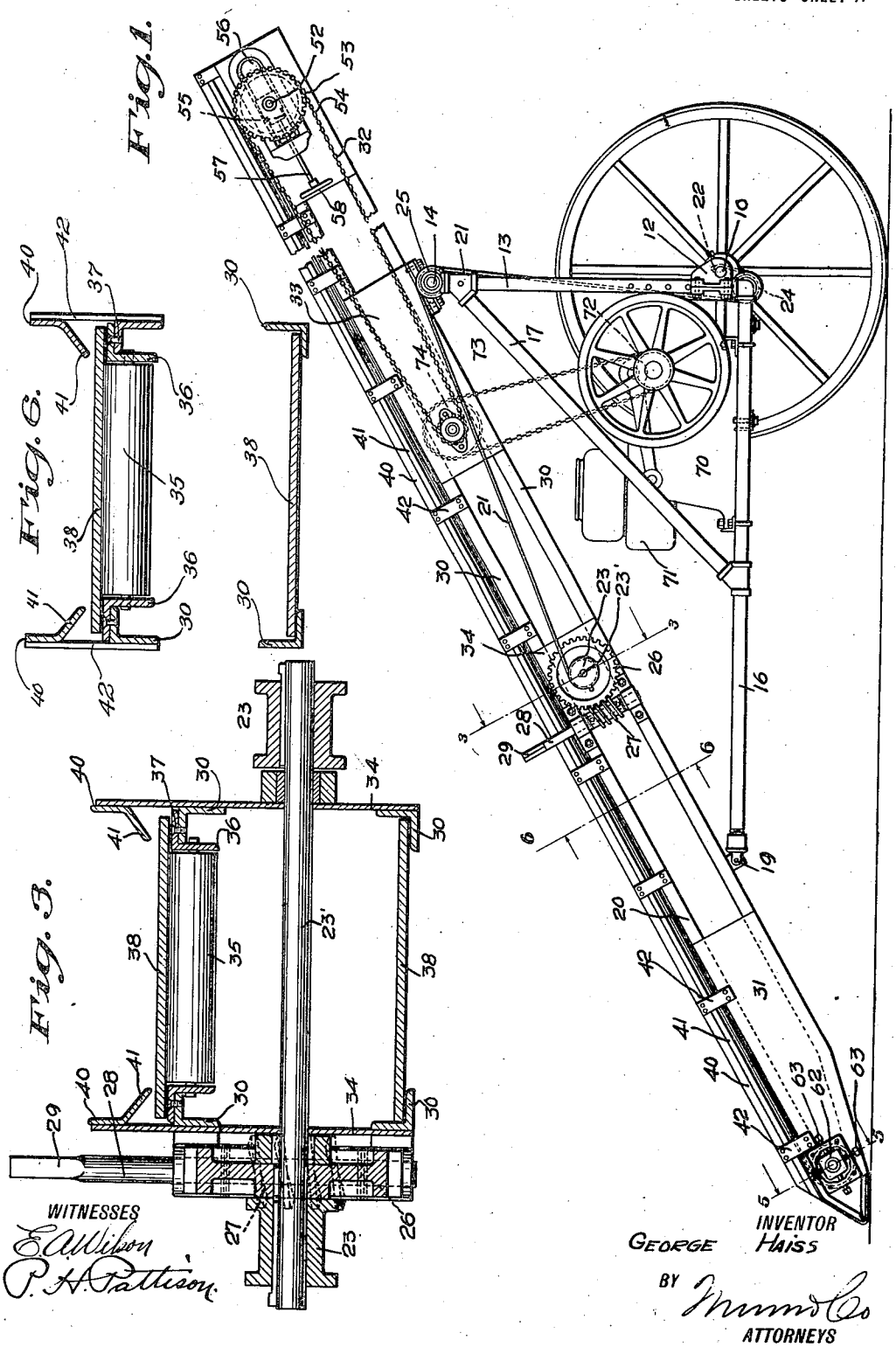


Fig. 1.

Fig. 6.

Fig. 3.

WITNESSES

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2 SHEETS—SHEET 2.

Fig. 4.

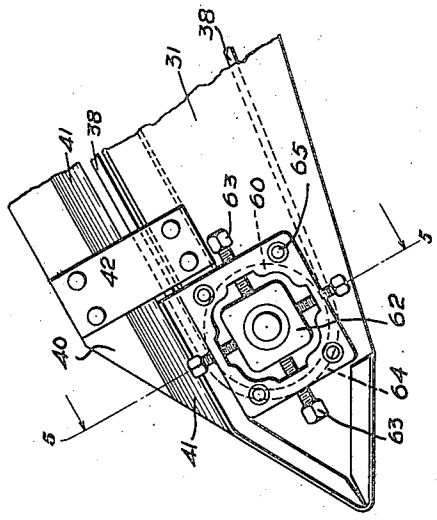


Fig. 5.

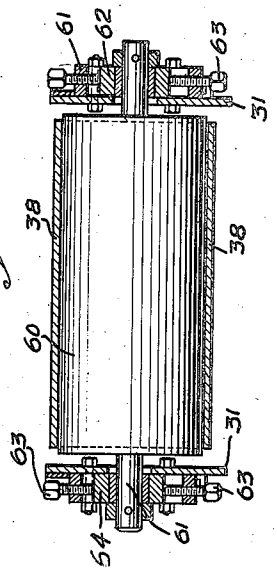
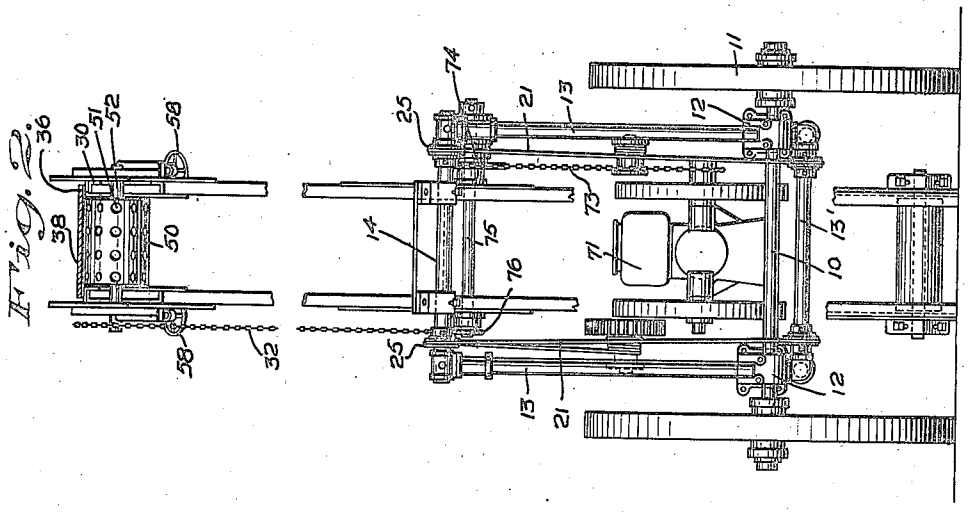


Fig. 2.



WITNESSES

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Patented Feb. 6, 1923. 1,444,743

UNITED STATES PATENT OFFICE.

GEORGE HAISS, OF NEW YORK, N. Y.

CONVEYER.

Application filed January 22, 1921. Serial No. 439,121.

To all whom it may concern:

Be it known that I, GEORGE HAISS, a citizen of the United States, and a resident of the city of New York, borough of the Bronx, in the county of Bronx and State of New York, have invented a new and Improved Conveyer, of which the following is a full, clear, and exact description.

The present invention relates to new and useful improvements in conveyers, and it pertains more particularly to conveyers of the endless-flight type.

In conveyers and more particularly in the type of conveyers using an endless belt, great difficulty is experienced owing to the material being carried spilling over the sides of the conveyer on to the inner surface of the lower flight by which it is conveyed to the belt-supporting pulleys, and in attempting to pass between the pulleys and the belt causes the latter to choke, thus rendering the device inoperative until the same is cleaned.

It is one of the objects of the invention to so construct a support or framework for endless conveyers that the side spillage of the conveyer belt is prevented from entering upon the inner surface of the lower flight to a position where it can be conveyed to the supporting rollers of the belt.

It is a further object of the invention to provide a new and improved form of driving roller for the belt.

It is a further object of the invention to provide a new and improved conveyer frame-lifting mechanism by means of which the angle of elevation of the conveyer, and, consequently the height to which it operates, may be varied within certain predetermined limits depending only upon the construction of the machine.

It is a still further object of the invention to provide a new and improved form of bearing, said bearing being so constructed as to permit of universal adjustment of the bearing for the purpose of properly positioning one of the belt pulleys with respect to the frame in order that the conveyer belt may occupy the most advantageous position to carry out the successful operation of the conveyer.

Reference is had to the accompanying drawings, in which—

Figure 1 is a side elevation partly broken away of a conveyer constructed in accordance with the present invention;

Fig. 2 is a rear elevational view thereof, partly broken away;

Fig. 3 is a sectional view taken on the line 3—3 of Fig. 1;

Fig. 4 is a detail side elevation of the lower portion of the conveyer frame;

Fig. 5 is a sectional view taken on the line 5—5 of Figs. 1 and 4;

Fig. 6 is a sectional view taken on the line 6—6 of Fig. 1.

Referring more particularly to the drawings, the conveyer is of the portable type, the portability being provided for by means of wheels 11 carried upon an axle 10. This axle 10 is provided, near each of the wheels 11, with a guide member in the form of a hollow member 12. Slidably mounted in each of the hollow brackets 12, is a vertically-disposed bar or the like 13, and secured to the lower end of each of the bars 13 below its respective bracket 12, is a transversely-extending bar 13′. The lower ends of the bars 13 are connected by means of the transversely-extending bar 13′ and the upper ends of the bars 13 are connected by means of a transversely-extending bar 14.

Extending rearwardly of the conveyer or to the left as shown in Fig. 1, and secured to the lower end of each of the vertical bars 13, is a bar 16, and extending angularly upward from each of the bars 16 and connected to the upper ends of their respective bars 13, is a bar 17.

By this construction it will be seen that the several bars 13, 16 and 17 form two substantially triangular frames, one upon each side of the machine, and that owing to the fact that the vertical bars 13 of these triangular frames are slidably mounted in the brackets 12, said triangular frames are vertically adjustable with relation to the axle 10 of the machine.

The reference character 20 designates the conveyer frame and said conveyer frame is pivotally mounted upon the upper transverse bar 14 connecting the upper ends of the vertical bars 13, the rear end of the lower bar 16 of each of the triangular frames being pivotally connected to the conveyer frame 20 at a point designated by the reference character 19. To provide for raising and lowering the upper or delivery end of the conveyer frame 20, the triangular frames are so positioned as to be raised and lowered in the guides 12, and to permit of this operation, said triangular frames are sup-

ported by means of cables 21, there being one of these cables on each side of the machine, as more clearly shown in Fig. 2. Each of these cables 21 has one of its ends connected as at 22, to the axle 10, the other end of said cables 21 being received upon a drum 23 carried by the conveyer frame 20, the specific construction of which will be hereinafter more clearly described. The drum 23 is mounted upon the end of a shaft 23′ which shaft extends transversely of the conveyer frame 20, as more clearly shown in Fig. 3.

The triangular frames are provided at their lower portions with pulleys 24, and at their upper portions with pulleys 25, the cables 21 passing from the point 22, at which they are secured to the axle beneath the pulleys 24, and over the pulleys 25, as more clearly shown in Fig. 1, thus forming the means by which the triangular frames are supported at the desired height depending upon the length of cable between the drum 23 and its point of attachment 22 on the axle 10.

The drum 23 heretofore mentioned is provided upon one end with a gear 26, and meshing with said gear 26, is a worm 27, which latter is carried by a shaft 28, one end of which is squared as at 29, for the reception of a suitably operated handle. By this means it is apparent that as the shaft 28 is rotated by its operating handle, the cable 21 may be either wound upon or played off the drum 23, to effect a raising or lowering of the triangular frames and a consequent raising or lowering of the upper or delivery end of the conveyer frame 20.

The belt or conveyer per se is supported upon a skeleton frame and said skeleton frame comprises angle irons 30 secured together at their lower ends by means of plates 31, at their upper ends by means of plates 32, and intermediate their ends by plates 33 and 34, the last-mentioned plates 34 forming the means by which the drums 23 heretofore mentioned together with their operating mechanism, are supported upon the conveyer frame 20.

It is to be understood that there are four angle irons 30 heretofore mentioned, and that said angle irons are arranged in rectangular relation one to the other, as more clearly shown in Figs. 1 and 6.

The reference character 35 designates rollers upon which the top or upper portion of the flight is adapted to rest, and said rollers are supported by means of angle irons 36, which angle irons are secured to the upper two angle irons 30 by means of bolts or the like 37. The reference character 38 designates the conveyer belt, and as more clearly shown in Fig. 3, the width of the belt is greater than the length of the rollers 35, which construction permits of the side edges of the belt 38 overlying the angle irons 36. By the peculiar manner in which the angle irons 36 are positioned with respect to the angle irons 30, it will be apparent that should material being carried upon the conveyer belt 38, fall over the side edges thereof, the material thus spilled would be prevented from entering between the upper and lower flights of said belt, since the spilled material would be thrown clear of the angle irons 30.

The reference character 40 designates guards, and said guards are positioned above the upper flight of the belt 38 and project slightly inwardly thereof, as indicated by the reference character 41. These guards 40 are mounted on the upper angle irons 30, by means of short straps or the like 42, as more clearly shown in Fig. 1.

Mounted at the upper end of the skeleton frame is a roller 50, over which the conveyer belt 38 travels. This roller 50 is the driving roller of the conveyer belt 38, and in order that said roller may obtain a better grip upon the belt, said roller is perforated as indicated by the reference character 51. The roller 50 is carried upon a shaft 52, and mounted upon one end of the shaft 52, is a sprocket wheel 53, over which a chain 54 passes. The shaft 52 is mounted in suitable blocks 55, and said blocks 55 are mounted for sliding movement in guideways 56. Secured to each of the blocks 55 is a screw-threaded member 57, upon the rear end of which is a hand wheel 58, and by this means the blocks are moved longitudinally of the cut-out portions or guideways 56 to provide for taking up the tension of the conveyer belt 38.

Mounted in the opposite end of the skeleton frame of the conveyer is a roller 60, which forms the idle pulley about which the conveyer belt 38 passes, and said idle pulley is carried by means of a shaft 61. The shaft 61 is mounted in blocks 62, there being one block at each side of the skeleton frame. As more clearly shown in Fig. 4, the blocks 62 are supported or mounted in position by means of four threaded bolts 63, and said threaded bolts pass through the sides of a substantially square member 64 secured to the skeleton frame by means of rivets or other suitable devices 65. By this construction it is apparent that by employment of the threaded bolts 63, the roller 60 is of the floating type, and through the medium of the several bolts 63, said roller may be adjusted as desired.

Carried by the horizontal members 16 of the triangular frames heretofore mentioned is an engine base 70, and carried by the engine base is a motor 71. Mounted upon the crank shaft of the motor is a sprocket 72, and passing around the sprocket 72 is a chain 73, which chain passes over a sprocket

74 carried by the conveyer frame 20. The sprocket 74 is mounted upon one end of a transversely extending shaft 75, the other end of which carries a sprocket 76, around which the chain 54 heretofore mentioned passes. This mechanism forms the means by which the driving pulley 50 of the conveyer belt receives its power from the motor 71.

While in the present instance the roller supporting angle irons are shown and described as secured to the angle irons 30, it is obvious that these roller supporting angle irons 36 may be constructed in the form of a separate frame adapted to be completed and set within the conveyer frame and secured thereto in any desired manner preferably by countersunk rivets.

From the foregoing it will be apparent that the present invention provides a new and improved conveyer by means of which the material carried thereby is prevented from passing to a position on the belt where it will be carried between the rollers should the material fall or spill from the side of the belt. Furthermore, the present construction provides for a supporting of the conveyer belt throughout the entire length of the conveyer frame.

In addition to the above, the invention provides a new and improved elevating means by which an adjustment of the delivery or upper end of the flight may be had.

I claim:

1. In a conveyer, a suitable carriage, a frame, a conveyer carried thereby, a plurality of flexible cables each secured at one end to the axle of the carriage and at the other end to the conveyer frame, and a plurality of pulleys carried by the frame, said cables passing around the pulleys in such manner as to adjustably support the frame from the carriage.

2. In a conveyer, a carriage, a frame slidably mounted with respect to said carriage, a conveyer carried by said frame, and a plurality of cables each connected at one end to the conveyor frame and at the other end to the axle of the carriage, said cables being adapted to adjustably support the frame relative to the carriage.

3. In a conveyer, a conveyer frame, said frame comprising a plurality of angle irons arranged in spaced rectangular relation one to the other, a plurality of rollers, a conveyer belt supported by said rollers, and angle irons supporting said rollers, said roller-supporting angle irons being arranged in opposed relation to the angle irons forming the frame whereby material carried by the conveyer belt is prevented from passing from the conveyer to a point beneath the same, substantially as described.

4. In a conveyer, a conveyer frame, said frame comprising a plurality of angle irons arranged in spaced rectangular relation one to the other, a plurality of rollers, a conveyer belt supported by said rollers, angle irons supporting said rollers, said roller-supporting angle irons being arranged in opposed relation to the angle irons forming the frame whereby material carried by the conveyer belt is prevented from passing from the conveyer to a point beneath the same, and guards overlying the conveyer and arranged in spaced relation thereto, substantially as described.

5. A conveyer comprising a frame member consisting of a plurality of angle irons arranged with their horizontal walls projecting inwardly of the frame, means for securing said angle irons in spaced relation to form a skeleton frame, a plurality of angle irons carried by the first-mentioned angle irons, the second-mentioned angle irons being arranged with their horizontal faces extending outwardly of the frame, means for securing the second-mentioned angle irons in position, a plurality of belt-supporting rollers carried by the second-mentioned angle irons, and a conveying belt movable over said rollers, said conveying belt being of a width greater than the length of the rollers, whereby the side edges of the belt overlie the angle irons which form the belt-roller-supporting means.

6. A conveyer comprising a frame member consisting of a plurality of angle irons arranged with their horizontal walls projecting inwardly of the frame, means for securing said angle irons in spaced relation to form a skeleton frame, a plurality of angle irons carried by the first-mentioned angle irons, the second-mentioned angle irons being arranged with their horizontal faces extending outwardly of the frame, means for securing the second-mentioned angle irons in position, a plurality of belt-supporting rollers carried by the second-mentioned angle irons, a conveying belt movable over said rollers, said conveying belt being of a width greater than the length of the rollers, whereby the side edges of the belt overlie the angle irons which form the belt-roller-supporting means, and guard members carried by the skeleton frame and overlying the belt.

7. A conveyer comprising a frame member consisting of a plurality of angle irons arranged with their horizontal walls projecting inwardly of the frame, means for securing said angle irons in spaced relation to form a skeleton frame, a plurality of angle irons carried by the first-mentioned angle irons, the second-mentioned angle irons being arranged with their horizontal faces extending outwardly of the frame, means for securing the second-mentioned angle irons in position, a plurality of belt-

supporting rollers carried by the second-mentioned angle irons, a conveying belt movable over said rollers, said conveying belt being of a width greater than the length of the rollers, whereby the side edges of the belt overlie the angle irons which form the belt-roller supporting means, and guard members overlying the belt and carried by said frame, the inner edge of said guard members being projected inwardly and downwardly into juxtaposition with the conveying belt.

8. In a conveyer, a conveyer frame, said frame comprising a plurality of angle irons arranged in spaced rectangular relation to one another, a plurality of conveyer supporting rollers, and angle irons for supporting said conveyer supporting rollers, said last-mentioned angle irons being carried by certain of the angle irons forming the frame and arranged in opposed relation to the angle irons by which they are carried.

9. In a conveyer, a conveyer frame, said conveyer frame comprising a plurality of angle irons arranged in spaced rectangular relation to one another, a plurality of rollers, a conveyer supported on said rollers and means for supporting said rollers, said roller-supporting means comprising angle irons carried by certain of the angle irons forming the frame, said last-mentioned angle irons being each oppositely disposed with respect to its respective angle iron of the conveyer frame, whereby the material carried by the conveyer is prevented from passing from the conveyer to a point beneath the same.

GEORGE HAISS.