

(No Model.)

J. C. MARTIN.
CONVEYING APPARATUS.

No. 539,526.

Patented May 21, 1895.

Fig. 1,

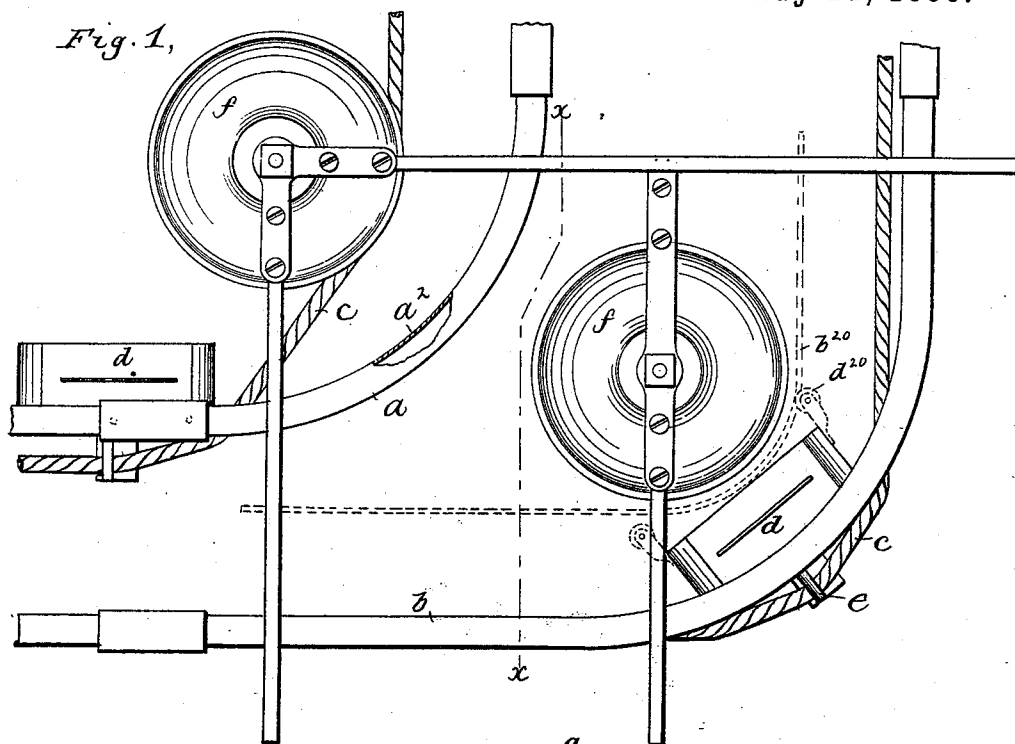
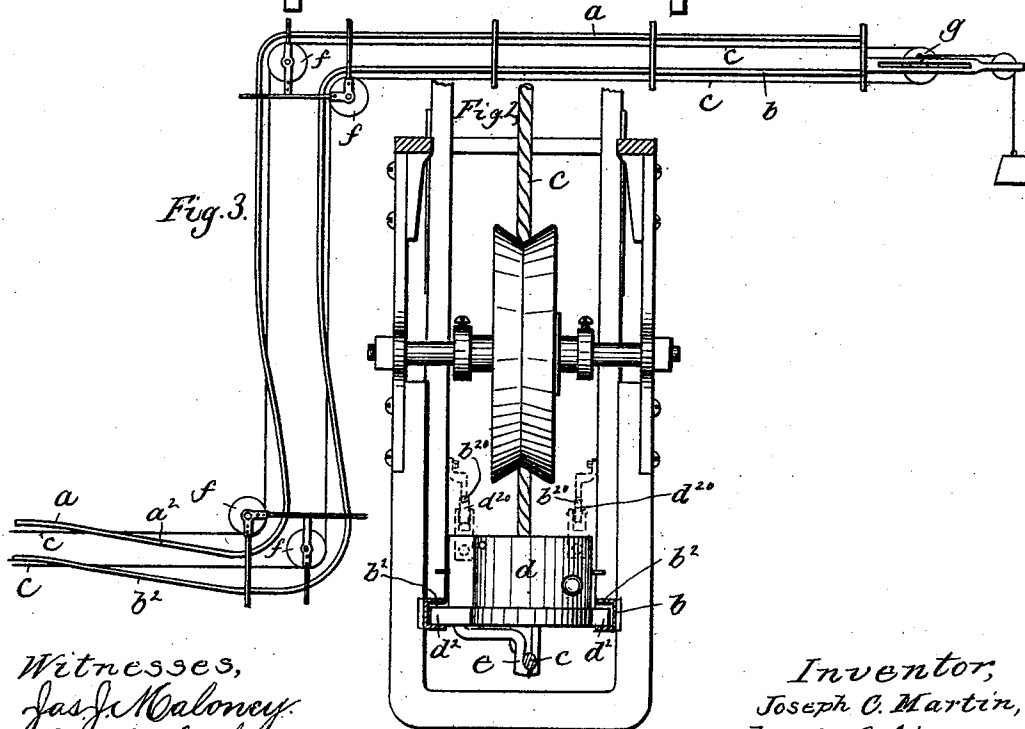


Fig. 3.



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CONVEYING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 529,526, dated May 21, 1895.

Application filed December 23, 1889. Serial No. 334,724. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH C. MARTIN, of Florence, (Northampton,) county of Hampshire, State of Massachusetts, have invented an Improvement in Conveying Apparatus, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

My invention is embodied in a conveying apparatus of the kind shown and described in Letters Patent No. 399,150, granted to me March 5, 1889, to which reference may be had, the said apparatus comprising a track or tracks along which carriers or receptacles for the material to be conveyed are propelled by a cord or belt, the said carriers being provided with clutches or cord gripping devices to connect them with the moving cord.

The present invention relates mainly to the construction of the appliances at an angle in the track, such as is required for example, where the track is to deviate from its usual or normal horizontal direction to a substantially vertical direction. At angles in the track the propelling cord passes around and is supported by pulleys and in all similar propelling apparatus known to me prior to this invention, it has been necessary for the cord to remain on or close to the pulley while the carrier is passing around the pulley, such requirement necessitating various expedients in the construction of the track such as for example, an axial twist in the track where it approaches and leaves the angle, or a device for unclutching and disconnecting the carrier from the cord as it approaches the angle, and again connecting it with the cord after it has passed around the angle by its momentum. Such expedients are rendered unnecessary by the present invention which consists in a construction and arrangement of the track, carrier, cord, and pulley such that the carrier may pass around the pulley between it and the cord, the said carrier and track itself forming a support for the cord during the passage of the carrier around the pulley, taking the cord off from the pulley as the carrier approaches the same and leaving it on the pulley again as the carrier leaves the same after it has passed the angle in the

track. This is accomplished in accordance with the present invention by providing at the angles guides curved around the pulleys and preferably substantially concentric thereto, although not necessarily so, said guides engaging the carrier so as to afford a resistance to the tension of the propelling cord and being at such distance from the periphery of the pulley as to permit the carrier to pass around the pulley between it and the cord which is connected with the carrier at the opposite side or face thereof, to that which is presented to the pulley.

For convenience of description the face of the receptacle or carrier which is adjacent to the propelling cord and supports the clutch by which the cord is gripped will be called the bottom of the carrier or box, for although in the operation of the apparatus the box may be in any position, the position with the said bottom horizontal and underneath is the most common and may be regarded as the normal position of the box.

Figure 1 is a side elevation of a portion of a conveying apparatus embodying this invention; Fig. 2, a sectional view thereof on line *xx*, Fig. 1; and Fig. 3, a side elevation, on a smaller scale, of a considerable length of the track, including its terminus.

The tracks *a*, *b*, propelling cord *c*, and carriers or boxes *d* provided with clutches *e* to engage said cord, are shown as of substantially the same construction as represented in Patent No. 399,150, before referred to, although the present invention is not limited to the specific construction shown of the box, clutch, and track, but may be employed with corresponding devices differing in specific construction from those represented.

The propelling cord *c* normally runs below the level of the track as shown in Fig. 3, and the track is for the most part substantially horizontal, the body of the carrier or box being mainly above it as shown, and the clutch *e* projects downward from the bottom of the box to grip the cord.

The present invention relates to the appliances employed where it is necessary to change the direction of the track from the normal direction represented at the left hand of Fig. 1, in a vertical plane as for example where the

carriers are to be conveyed from a lower to a higher level as from one story to another in a building.

At all points where the direction of the track is to be changed the propelling cord c is carried around guide pulleys f and in conveying apparatus of this kind prior to this invention the appliances at such angle or change of direction in the track have generally been such as to enable the carrier to pass around the pulley without disengaging the cord from the pulley, being so constructed that the clutch that engages the cord itself comes next to the periphery of the pulley in passing around the same, or is wholly disengaged from the cord before reaching the pulley and is again engaged therewith after passing the pulley, being carried around the pulley by the momentum acquired before being disengaged from the cord.

In many cases especially where the track changes from a horizontal to a vertical direction as shown in Fig. 1, a complicated construction is required in order to bring the clutch, which naturally approaches the pulley on the opposite side of the box from the pulley, into such position that said clutch itself can pass around in contact with or next to the pulley, and it is the object of the present invention to avoid such complicated construction, which is accomplished as follows:

The tracks a, b , have guide portions a^2, b^2 , which engage portions of the carrier, shown in this instance as lateral flanges d^2 on the upper side and thus act to resist any tension or pull of the cord toward the bottom of the box which would otherwise lift the box off from the portion of the track upon which it naturally rests by gravity. At angles, the track, including said portions a^2, b^2 , is curved substantially concentric with the cord supporting pulleys f and is at such distance from said pulleys as to support the carrier or box d against the tension of the cord c at a sufficient distance from the axis of the pulley to permit the box or carrier to pass around the pulley as clearly shown in Fig. 1.

The cord c is an endless cord passing around a terminal pulley g at the end of the track, see Fig. 3, which terminal pulley is provided with any usual take up devices to maintain the proper tension of the cord and take up any slack thereof, and also yield in case the cord is taken up at an intermediate point in its length.

The passage of a box around a pulley as shown in Fig. 1 takes up a certain portion of the cord, that is, it requires a greater length of cord to pass around the box, as shown than it would to pass directly around the pulley, and such additional length of cord at the pulley is provided for by the yielding of the take up device at the end of the line.

By having the guides b^2 that support the box against the tension of the cord curved as shown, concentrically with the pulley, the said guides and the box itself to which the cord is

clutched, constitute the support for the cord at the angle while the box is passing around the corner, the said box lifting the cord off from the pulley f as it approaches the corner, and finally depositing the cord upon the pulley again as it leaves the corner, the box being all the time propelled by the cord, and also constituting the support and guide for the cord while the latter is lifted off the pulley by the passage of the box between it and the pulley.

The track is preferably depressed below its normal level as it approaches the pulley as shown at a^2, b^2 , Fig. 3, so that the cord which normally runs below the level of the track as shown in said figure, comes above the level of the track a short distance before it reaches the pulley and as the carrier passes onto and off from such depressed portions of the track, it gradually takes up and lets out again the cord, as is required for the passage of the box around the pulley and the subsequent replacement of the cord upon the pulley.

The hold down flanges or guides a^2, b^2 , that support the carrier against the tension of the cord are not necessarily a part of the main track, as herein shown, although they may be so when the track as in this case is properly constructed to have the said guides continuous with corresponding guiding parts of the track, which operate at points where there is no pressure or tension of the cord against the box to be resisted; but in tracks of other construction not having such guides or flanges in the straight portion of the track special hold down guides for the box, may be provided at the corners as indicated, for example, in dotted lines at b^{20} , Figs. 1 and 2, cooperating with corresponding portions of the carrier shown in dotted lines as rollers d^{20} , suitably connected with the box to engage with such guides.

I claim—

In a conveying apparatus comprising a track, a carrier provided with guide portions engaged with said track, and a propelling cord adapted to move said carrier along the said track; a pulley normally supporting the propelling cord at an angle or point where the direction of the track is changed, and a portion of the track substantially concentric with the periphery of said pulley, the guide portions of the track and carrier being arranged with relation to said pulley so that the body of the carrier in passing around the pulley is between the pulley and the propelling cord and itself supports and guides the propelling cord during said passage around the periphery of the pulley, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOSEPH C. MARTIN.

Witnesses:

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