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J. & W. TITUS.

BELT CONVEYER FOR TRANSPORTING SAND, GRAVEL, &c.

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NO MODEL.

Fig. 1.

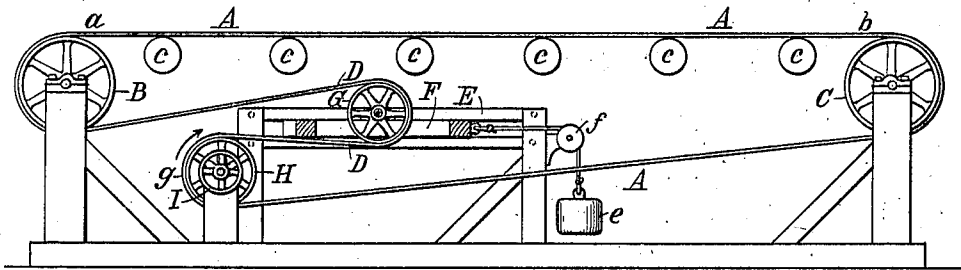
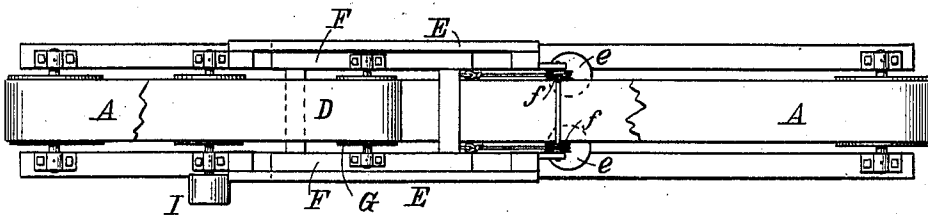


Fig. 2.



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BELT CONVEYER FOR TRANSPORTING SAND, GRAVEL, &c.

SPECIFICATION forming part of Letters Patent No. 723,504, dated March 24, 1903.

Application filed July 31, 1902. Serial No. 117,762. (No model.)

To all whom it may concern:

Be it known that we, JOHN TITUS, a resident of Oyster Bay, and WILLIAM TITUS, a resident of Old Westbury, in the township of North Hempstead, in the county of Nassau, in the State of New York, citizens of the United States, have jointly invented a new and useful Improvement in Belt Conveyers for Transporting Sand, Gravel, &c.; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a side view and partial sectional view of an apparatus made according to our invention. Fig. 2 is a plan view of the same.

This invention relates to that class of conveying mechanisms commonly known as "belt conveyers," in which an endless belt or apron is supported on drums or rollers and by its revolutions carries material deposited thereon from one part of the apparatus to another, ordinarily to an end of the apparatus, from which it is automatically dropped as the belt passes over an end roller of the machine. It is necessary to the more advantageous use of such apparatus that the upper or carrying part of the belt shall as nearly as practicable be kept taut, and to secure this that the belt shall be drawn by the roller at the delivery end of the apparatus instead of, so to speak, being "pushed" by the roller at the opposite or receiving end of the apparatus. In practice, however—as, for example, in loading material from the apparatus into or upon a ship or other craft—it is necessary that the delivery end of the apparatus be thrust outward over space, or, in other words, suspended at considerable distance from where, under the circumstances, the driving power is necessarily applied. In such instances it has heretofore been found unpracticable to secure the requisite draft or longitudinal tension upon the upper or working portion of the belt.

The object of our invention is to meet this difficulty; and to this end our said invention consists in a novel combination of mechanical devices whereby said object is effectually secured.

In practice the working parts hereinafter described are supported upon a suitable

frame; but as the making and structure of frames for similar purposes is well understood in the mechanic arts it is not thought necessary to describe the same in detail or to illustrate said frame in the drawings.

A is the endless carrier apron or belt, which is supported upon the suitable end rollers B and C, and the upper or burden-bearing portion of which, as from *a* to *b*, is supported along its length in the ordinary manner by transversely-arranged rolls *c*. For the purposes of this description the roller B may be regarded as at the receiving end of the apparatus and the roller C as at the delivery end thereof. The belt A is of such length and proportions as to afford a loop D and a fold *g*, the purpose of which is herein presently explained.

Provided between the upper or burden-bearing part *a b* of the belt A, as shown in Fig. 1, is a guide E, which is more or less horizontal—in other words, longitudinal with the direction of the belt. In this guide works a sliding carriage F. Suitably journaled in this slide is a roller G, the position of which is transverse to the length of the belt, the movement of the slide in the guide being substantially parallel with the belt. Parallel with the roller G is a driving-roll H, supported in suitable fixed journal-boxes and which may have fast upon a projecting end of its shaft a pulley I, to which motion may be given from any suitable source of power. The loop D of the belt is passed over the roller G of the slide F, the latter being retracted against the traction of the loop by weights *e*, extended back over guide-pulleys *f*, as shown at the right-hand portion of the two figures of the drawings. The return fold *g* from the loop D of the belt is passed over the drive-roll H, as shown in Fig. 1. It will be observed that the traction exerted by the weights *e* tends to draw the belt snugly in contact with the drive-roll H to secure adhesion thereto, also that the belt from the roll C at the delivery end of the apparatus runs direct to the under side of the drive-roll H, that the latter rotates in the direction of the arrow in Fig. 1, and that as the belt leaves the upper side of the drive-roll the tension upon that part of the belt is due to the resisting pull of

the adjacent part of the belt as it passes over the roller B at the receiving end of the machine. As the power is applied to the upper or burden-bearing part *a* of the belt primarily at I, (its delivery end,) it follows that said part of the belt is drawn as taut as possible and with the same result as if the power were applied directly to the roller C to operate the latter as a driving-roller of the belt. Inasmuch as the actual driving-pulley is in our invention the roll II in the fold *g* of the belt and as said roll is remote from the delivery end of the apparatus, it follows that said delivery end may be thrust over the deck of a vessel or over any other desired place of deposit without in any way interfering with the advantageous draft upon the belt.

What we claim as our invention is—

An organized machine for transporting sand, gravel, and the like comprising in combination the elements following, to wit: an endless carrier-belt proportioned to provide

a loop and a reverse fold in its lower part, rolls at the receiving and delivery ends of the machine for supporting the said belt, a fixed guide below the upper or burden-bearing portion of the belt, and parallel with the belt, a sliding carriage in said guide, an idler-roll parallel with the belt-supporting rolls and carried by the sliding carriage, a driving-roll remote from the delivery end of the machine and parallel with the idler-roll with the lower part of the belt looped around the idler-roll with a reverse fold passed around the driving-roll and means for retracting the idler-roll against the loop to take up the slack of the belt as it leaves the driving-roll, all substantially as described with the effect set forth.

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