

No. 841,085.

PATENTED JAN. 8, 1907.

J. H. GILMAN.
CONVEYING APPARATUS.
APPLICATION FILED MAR. 2, 1906.

2 SHEETS—SHEET 1.

Fig. 1.

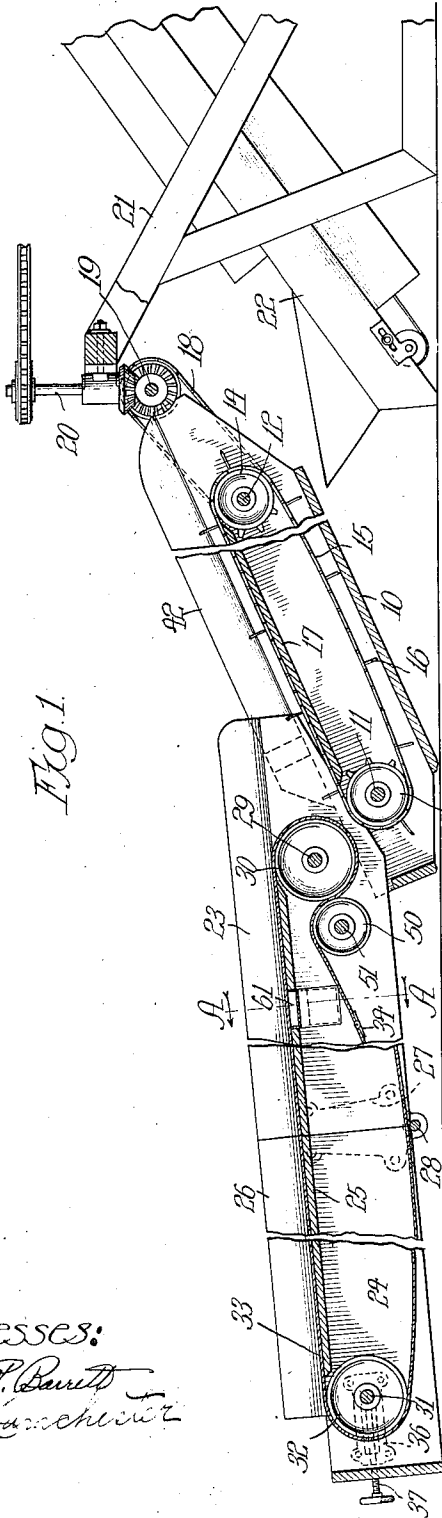


Fig. 5.

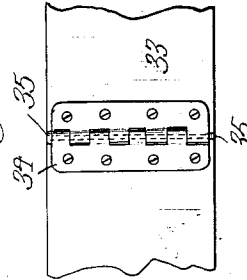
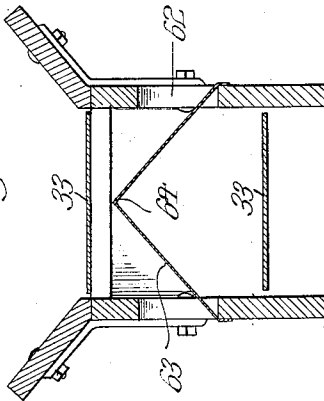


Fig. 7.



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2 SHEETS—SHEET 2.

Fig. 2

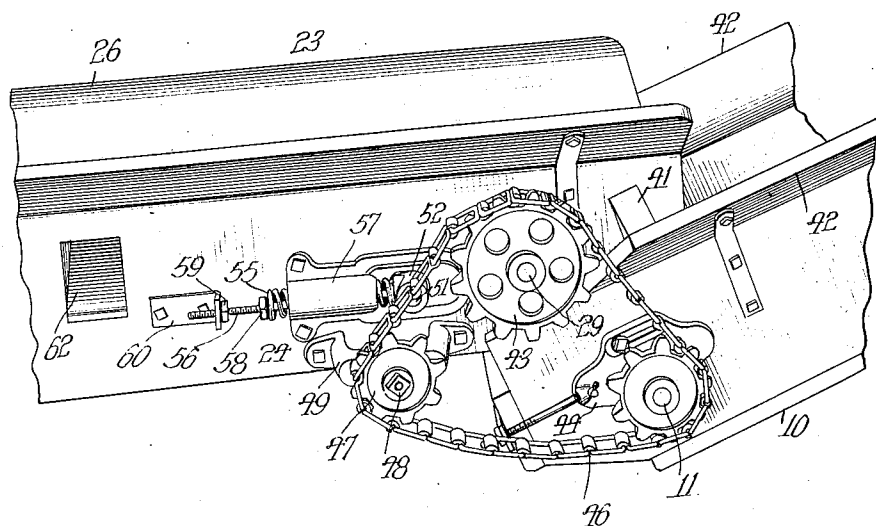
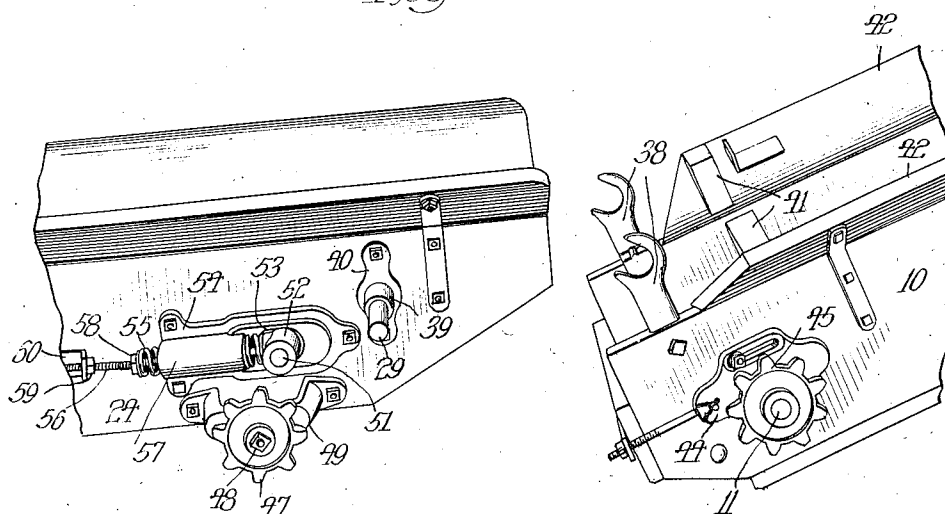


Fig. 3



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UNITED STATES PATENT OFFICE.

JOHN H. GILMAN, OF OTTAWA, ILLINOIS, ASSIGNOR TO KING & HAMILTON COMPANY, OF OTTAWA, ILLINOIS, A CORPORATION OF ILLINOIS.

CONVEYING APPARATUS.

No. 841,085.

Specification of Letters Patent.

Patented Jan. 8, 1907.

Application filed March 2, 1906. Serial No. 303,781.

To all whom it may concern:

Be it known that I, JOHN H. GILMAN, a citizen of the United States, and a resident of Ottawa, in the county of Lasalle and State of Illinois, have invented certain new and useful Improvements in Conveying Apparatus, of which the following is a specification.

My invention is concerned with certain improvements in that class of conveyers in which a belt is employed as a portion, at any rate, of the endless carrier, and I have shown my invention as applied to a conveyer of the general type shown in my Patent No. 599,500, dated February 22, 1898, where it is used to carry corn to a sheller.

My invention is concerned mainly with a novel construction by which the length of the belt and trough may be quickly changed to accommodate it to the particular work at hand, together with a novel construction by which the traction of the belt will be sufficiently even when driven from a small roller, and, finally, with a novel construction by which any dirt or loose grain is readily discharged from the conveying-trough, so as not to be delivered to the sheller or other operating mechanism which is being fed.

To illustrate my invention, I annex hereto two sheets of drawings, in which the same reference characters are used to designate identical parts in all the figures, of which—

Figure 1 is a side elevation of the apparatus in longitudinal section with portions thereof broken out. Fig. 2 is a perspective view illustrating the connections between the elevator and the adjacent section of the extension. Fig. 3 is a similar view, but with the parts separated. Fig. 4 is a vertical section, on an enlarged scale, on the line A A of Fig. 1; and Fig. 5 is a top plan view of the connecting-hinge in position upon the belt-sections which it is adapted to connect.

In carrying out my invention, the elevating-section 10 may be of any desired construction and is shown as consisting of the customary trough having the shafts 11 and 12 therein carrying the sprocket-wheels 13 and 14, by which the sprocket-chain 15, with the slats or ribs 16, is operated over the effective bottom 17 of the trough. The shafts 12 and 13 are shown as driven by means of the sprocket-chain 18, coöperating with the customary sprocket-wheels and secured to the shafts 12 and 19, respectively,

the shaft 19 being illustrated as driven by bevel-gear and pinion connections from the vertical shaft 20, which is journaled in suitable bearings carried by the framework 21, attached to and supporting the elevator proper, 22, of the corn-sheller or other article which it is adapted to feed. The mechanism thus far described is old and of any desired construction.

The extension-trough 23 is made up of the side pieces 24, the effective trough-bottom 25, and the flaring side pieces 26 and is preferably constructed of sections, as shown, which can be temporarily hinged together by the hinges (indicated in dotted lines at 27) secured by the hinge-rod 28, so that the extension may be made of any desired length. Of course there must be two end sections, the forward one containing the shaft 29, suitably journaled therein and provided with the belt-wheel 30, and the rear one must contain the shaft 31, carrying the belt-wheel 32 or some equivalent, and as many intermediate sections may be employed as are necessary, they, however, not requiring any shafts or wheels. The belt 33 in its forward movement travels over the bottom 25 and carries the grain up the very gradual incline necessary to discharge it into the elevator-section 10.

In order that the belt may be quickly shortened to accommodate itself to the different lengths necessary, it is made up of sections, each one carrying one member of the hinge 34, which is made up of two thin leaves preferably made of malleable iron and pivoted together by the pin 35, which can be readily withdrawn, but which is normally held in place by friction, as well as by the confining action of the sides of the casing. The position of the shaft 31 may be adjusted as is necessary to take up the slack by means of the sliding bearing mounted in the sliding ways 36, secured to the sides of the trough and adjusted by means of the set-screw 37.

The section 10 is provided with the upwardly-projecting bearing-yokes 38, (seen in Fig. 3,) which receive the sleeves 39 of the bearings 40 for the shaft 29, so that the two parts will be held in proper relationship to each other, this also being facilitated by means of the blocks 41, secured to the inclined sides 42 of the elevator-section 10, and between which the sides 24 of the extension-

section fit. The shaft 29 has secured thereon the sprocket-wheel 43, and the shaft 11, which is journaled in the adjustable bearing 44, has secured on the adjacent end the sprocket-wheel 45, and the two sprocket-wheels are connected by the sprocket-chain 46, which is given the desired tension by means of the sprocket-pinion 47, journaled upon a stub-shaft 48, which may be adjustably secured in the bracket 49, secured to the side piece 24 by an elongated slot (not shown) in the bracket.

In order to secure the proper pull upon the belt 33 by means of the belt-wheel 30, especially if the latter is of a comparatively small diameter, as is advisable, it is necessary to employ the auxiliary pulley or wheel 50, which is secured to or journaled upon a shaft 51, which is mounted in the bearings 52, which are adapted to slide in the elongated slot 53, formed in the bearing-casting 54, secured to the sides 24 of the trough, as clearly shown. The auxiliary pulley 51 is caused to hold the belt 33 tightly around the pulley 30 for about three-quarters of its circumference by reason of the helically-coiled expanding-spring 55, which surrounds the rod 56, extending rearwardly from a position near the bearing 52 through the U-shaped portion 57 of the casting 54. The tension of the spring is adjusted by means of the nut 58, screwed on the threaded end of the rod 56, and the outer end of the rod is held in position and adjusted by means of the nut 59, screwed thereon and resting against the outwardly-projecting flange of the L-shaped bearing-piece 60, through which it passes and which is secured to the side 24 of the trough. This mechanism enables me to secure a powerful pull on the belt by the pulley 30, not only because they have more surface in contact than they would have if the pulley 50 were not employed, but because the gripping or pinching of the belt between the two pulleys prevents its slipping. This action is especially essential in my construction, because very little of the weight of the belt comes upon the pulleys and that cannot be depended upon to secure the necessary friction between the belt and the pulleys.

To prevent any loose grain or dirt passing between the belt and the pulley 30 and interfering with their contact, I remove a section of the bottom 25 of the trough, as indicated at 61, and beneath this section I form apertures 62 in the sides 24 of the trough, and to insure the dirt, &c., being deflected out through these apertures, I provide the angular sheet-metal piece 63, extending to the outer and bottom edges of the recesses 62 and having the angle 64 preferably extending nearly to the recess 61.

The operation of the apparatus will be readily apparent, as the grain of whatever character that is thrown in the trough 23

will be carried to and delivered into the elevator-section 10. By removing the rods 28 and the pins 35 the section may be broken up and readjusted to any desired length, and by the improved tension apparatus supplied to the belt I am enabled to operate it successfully for any desired length of section.

While I have shown and described my invention as embodied in the form which I at present consider best adapted to carry out its purposes, it will be understood that it is capable of modifications and that I do not desire to be limited in the interpretation of the following claims except as may be necessitated by the state of the prior art.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a device of the class described, the combination with the trough, of the belt-wheels at the ends thereof, means for driving one of said wheels, and a spring-held auxiliary pulley engaging the belt beneath the trough-bottom to hold it positively in engagement with the periphery of the driving-belt wheel.

2. In a device of the class described, the combination with the trough, of the belt-wheels at the ends thereof, means for driving one of said wheels, and a spring-held adjustable auxiliary pulley engaging the belt beneath the trough-bottom to hold it positively in engagement with the periphery of the driving-belt wheel.

3. In a device of the class described, the combination with the trough, of the belt-wheels at the ends thereof, means for driving one of said wheels, a tension-roller engaging the belt beneath the trough-bottom to hold it in engagement with the periphery of the driving-belt wheel, bearings for the shaft of said tension-roller, the bearing-bracket castings having elongated apertures in which the bearings slide, and helically-coiled expanding-springs confined by said castings and coöperating with the bearings, for the purpose described.

4. In a device of the class described, the combination with the trough, of the belt-wheels at the ends thereof, means for driving one of said wheels, a tension-roller engaging the belt beneath the trough-bottom to hold it in engagement with the periphery of the driving-belt wheel, bearings for the shaft of said tension-roller, the bearing-bracket castings having elongated apertures in which the bearings slide and U-shaped recesses therein, a helically-coiled expanding-spring in said recesses coöperating with the bearings, and means for positioning the other end of said spring.

5. In a device of the class described, the combination with the trough, of the belt-wheels at the ends thereof, means for driving one of said wheels, a tension-roller engaging the belt beneath the trough-bottom to hold

it in engagement with the periphery of the driving-belt wheel, bearings for the shaft of said tension-roller, the bearing-bracket castings having elongated apertures in which the bearings slide, and U-shaped recesses therein, a helically-coiled expanding-spring in said recesses coöperating with the bearings, and means for positioning the other end of said spring, consisting of the rods having the nuts screwed thereon to form the adjustable abutment for the spring.

6. In a device of the class described, the combination with the trough made up of de-

tachable and removable sections to vary its length, of the belt-wheels mounted in the end sections, and a belt coöperating therewith and made up of detachable sections provided with the hinges and removable pins. 15

In witness whereof I have hereunto set my hand and affixed my seal this 20th day of February, 1906. 20

JOHN H. GILMAN. [L. s.]

In presence of—

GEO. P. HILLS,
BEN BENSON.