(No Model.)

W. J. SELLECK.

CONVEYER.

No. 405,608. Patented June 18, 1889.

Fig. 1.

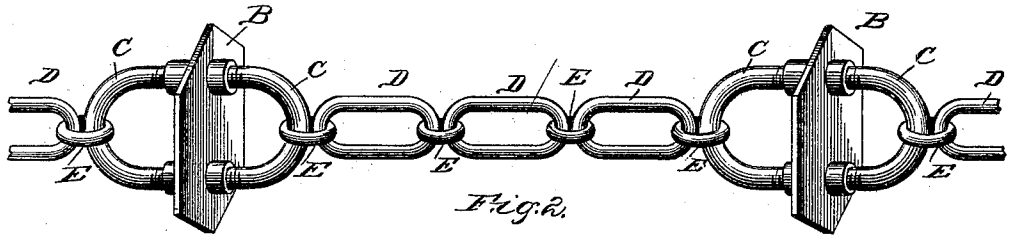


Fig. 2.



Fig. 3.

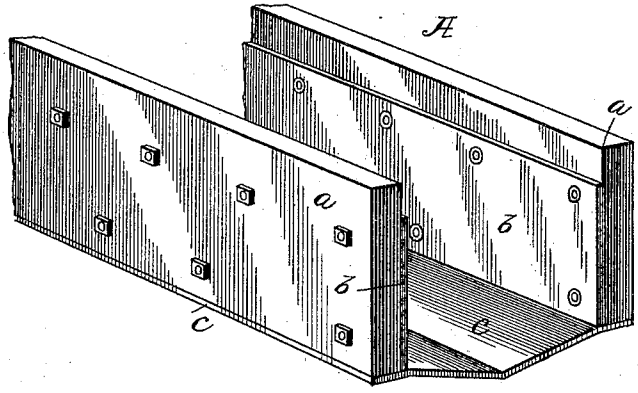
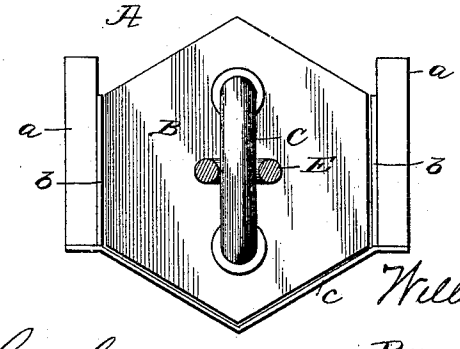


Fig. 4.



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UNITED STATES PATENT OFFICE.

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CONVEYER.

SPECIFICATION forming part of Letters Patent No. 405,608, dated June 18, 1889.

Application filed April 28, 1888. Serial No. 272,106. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM JACKSON SELLECK, a citizen of the United States, residing in the city of Riverside, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Conveyers, of which the following is a specification.

This invention relates to improvements in conveyers in which the conveyer-trough has a bottom converging toward its center of width and the push-plates of the endless chain or carrier are hexagonal shaped, so as to conform to the bottom of the trough, whereby the material to be conveyed will drift toward the center or lower point of the trough and be cleanly swept forward by the conveyer-plates.

Prior to my invention the endless chain to which the conveyer-plates were attached frequently become clogged by the material to be conveyed, and particularly lumps of coal, ore, and gravel, and by reason of said lumps, &c., crowding in between the ends of opposing links and the joint formed by the link connecting such opposing links, the flexibility of the chain was destroyed, and the chain frequently twisted to such an extent that not only were the links and plates injuriously strained and bent, but the operation of the chain stopped, and the conveyer clogged to such an extent as to require that substantially the entire contents of the trough be removed by hand, the lumps chiseled out of the links, and many of the links and plates removed and straightened before the conveyer could again be operated. Furthermore, when the links were not so clogged as to stop the machine, the operation of the chain and plates was rendered jerky to such an extent as to not only render the operation of the machine extremely slow, but to in a short time injure the entire machine and the power for operating it.

The objects of my invention are to avoid all these several objections by combining with the plates and the trough a chain of such a construction and in such a relative position to the trough and plates that it will offer no substantial resistance to the contents of the trough, be at all liable to be clogged, as above described, and at the same time to have such a chain of the simplest possible construction as to cheapness in production. These objects are attained by devices illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of a conveyer chain and plates embodying my invention; Fig. 2, a detail top plan view of the link chain connecting the conveyer-plates; Fig. 3, a detail perspective view of the conveyer-trough, and Fig. 4 an end elevation of the trough, showing the operative position of the plates therein.

Similar letters of reference indicate the same parts in the several figures of the drawings.

The conveyer-trough involved in my invention is composed of side sills *a*, faced internally of the trough by metal plates *b*, the bottom *c* of said trough being composed of sheet metal bent to a V-shaped form in cross-section and secured to the sides of the trough by any means suitable for that purpose. In other words, the bottom of the trough conforms to the V-shaped ends of the hexagonal-like plates B, a result of which construction is that the material to be conveyed drifts toward the center or lowest point of the trough, and is therefore swept cleanly along the trough by the conveyer-plates. These conveyer-plates are secured to supporting-links C, which links are preferably in two sections, detachably secured together by means of screw-threaded ends working in collars or shoulders, between which the plate is firmly clamped when said two parts are secured together. Between the supporting-links of each plate are main links D, which are oval in form and in any desired number, which links D, as also the links C, are arranged with their broad sides parallel with the sides of the plates, so as to offer as nearly as possible no resistance to the material in the trough while passing through it, and all of said links are also arranged with their ends opposing and not overlapping each other. The main links D are actuated together and to the supporting-links C, when arranged in the manner above described, by connecting-links E, the inner diameter of which connecting-links corresponds with the

outer diameter of the two opposing end bars of the main and supporting links, as the case may be, so that these opposing end bars shall be held substantially in contact with each other, without at the same time obstructing the free movement of the end bars on each other and diminishing the flexibility of the chain so formed, for the purposes of traversing the pulleys over which they run when in operation in a conveyer.

The connecting-links E may be circular without diminishing their function of maintaining the main links in alignment with each other, but in practice are preferably slightly flattened on their sides, so as to closely embrace the outer sides of the end bars of the main links, as the inner edges thereof, and leave the least possible opening at any point between the connecting-links and the main links. Whether the connecting-links are perfectly round or slightly flattened on their sides, as above described, they offer no substantial resistance to the contents of the trough in passing through it, and being made of round iron they, on the other hand, serve to direct such material away from the main links, and thereby not only promote the free movement of the main links through said contents, but any clogging of the contents between the side bars of the main links. The main links and the connecting-links are preferably made round in cross-section; but whether or not so made, there is no space between the ends of the main links or between said links and the connecting-links for the lodgment of any portion of the contents of the trough or of the opposing of said contents sufficient to obstruct a free movement of the links either through the trough or on each other or to cause said links to in any manner become a factor promoting the choking of the trough by its contents; but, on the other hand, the movement of the links in the trough and on each other is so freely maintained at all times that, as has been practically demonstrated, they effectually prevent the contents of the trough from choking it under the most unfavorable circumstances of the supply of said contents to the trough. All this is not only due to maintaining the end bars of the main links in close opposition to each other, but to the fact that the form of the connecting-links is such that they offer no obstruction and maintain the main links from twisting to an extent retarding their passage through the contents, while at the same time enabling said links to have that degree of flexibility necessary for the sufficient pivotal movement, as it were, to swing out of the way of lumps which might otherwise retard their movement. Furthermore, upon the freeness of movement of the chain through the contents of the trough depends the successful operation of the plates or buckets, for otherwise the plates are twisted relative to the trough and with a tendency to pinch or wedge therein, and are also jerky, and any jerking or wedging of the plates is not only injurious to the plates and the chain, but to the machinery actuating them, and besides in time injuriously racks the trough.

The importance of my invention may be appreciated when it is understood that heretofore there has been considerable latitude of movement between the end bars of the main links, and in many instances both the main links and the connecting-links have been of the same dimensions, and as a result there is a clogging of the chain and trough, the twisting and jerking of the plates already described, and, so far as I am now aware, no effort has been made to prevent this except by the use of what is commonly known as "drive-chains" or "detachable link-chains;" but as such chains present projections and have pivot-bearings they are not practical in conveyers, for the same reasons as the form of chains before mentioned, and for the further reason that the dust of coal, ore, &c., accumulating in their joints destroys their pivotal action to such an extent that their freedom of action against pulleys or pockets is materially retarded.

The maintaining of the main links in alignment with each other and from being clogged is particularly important in connection with conveyers provided with hexagonal carrier-plates working in a trough having a V-shaped bottom, for, owing to the extent of bearing-surface of such plates and their points in the trough, a twisting of the plates so slight as not to be materially objectionable in other forms of plates would result in creating such a friction and pinching of these hexagonal plates in the trough as to materially promote a stoppage of the conveyer; but by maintaining such plates in a perfect operative position as is enabled by this invention the effectiveness of such plates is substantially promoted.

In the uses to which conveyers of this character are employed the discharge thereof is at a point between two of the sprocket-wheels carrying the conveyer-chain, which sprocket-wheels are arranged in the angular corners of the box, and as a result any lumps of coal, stone, or other material carried by the chain, passing the discharge, are forced therefrom and discharged into the corner of the trough, and in the chains heretofore employed the accumulation in said corners is so rapid as to require frequent removal in order to avoid injury to the chain and carrier-plates and prevent their choking; but, notwithstanding the exercise of great diligence in removing this accumulation, the chain and buckets not only frequently become injured and choked, but the resistance of a single lump, forcing the chain and buckets outwardly from the sprocket, is sufficient to cause such stoppage and require the cleaning out of the conveyer before it can again operate. By my invention, however, no such choking or stoppage can arise, for as no lumps can remain on the chain after passing the point of discharge the

cause of such stoppage and clogging is entirely removed.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a conveyer, the combination of a trough, the carrier-plates, the supporting-links thereof, a series of main links, and a series of connecting-links embracing the main links, the inner longitudinal diameter of said connecting-links corresponding substantially with the diameters of the two opposing end bars of the main links confined therein, substantially as described.

2. In a conveyer, the combination of a trough, the carrier-plates, the supporting-links thereof, the main links, and a series of connecting-links uniting said main links and supporting-links and having an inner diameter corresponding with the diameters of the end bars of the two opposing main links working therein, the sides of said main links and connecting-links being respectively arranged parallel and at a right angle to the sides of the carrier-plates, substantially as described.

3. In a conveyer, the combination of the carrier-plates, the supporting-links thereof, the main links, and a series of connecting-links, the inner longitudinal diameter of which corresponds with the diameters of the two opposing end bars of the main links and the transverse diameter of said connecting-links with the diameter of one of said end bars, substantially as described.

4. In a conveyer, the combination of a conveyer-trough the bottom of which is V-shaped in cross-section, a series of hexagonal-shaped carrier-plates, the supporting-links thereof, a series of main links and a series of connecting-links, the longitudinal and transverse diameters of which latter correspond, respectively, with the diameters of the two opposing end bars of the main links and the diameter of one of said bars, substantially as described.

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