May 21, 1946. H. W. HAPMAN 2,400,502

CONVEYER FLIGHT

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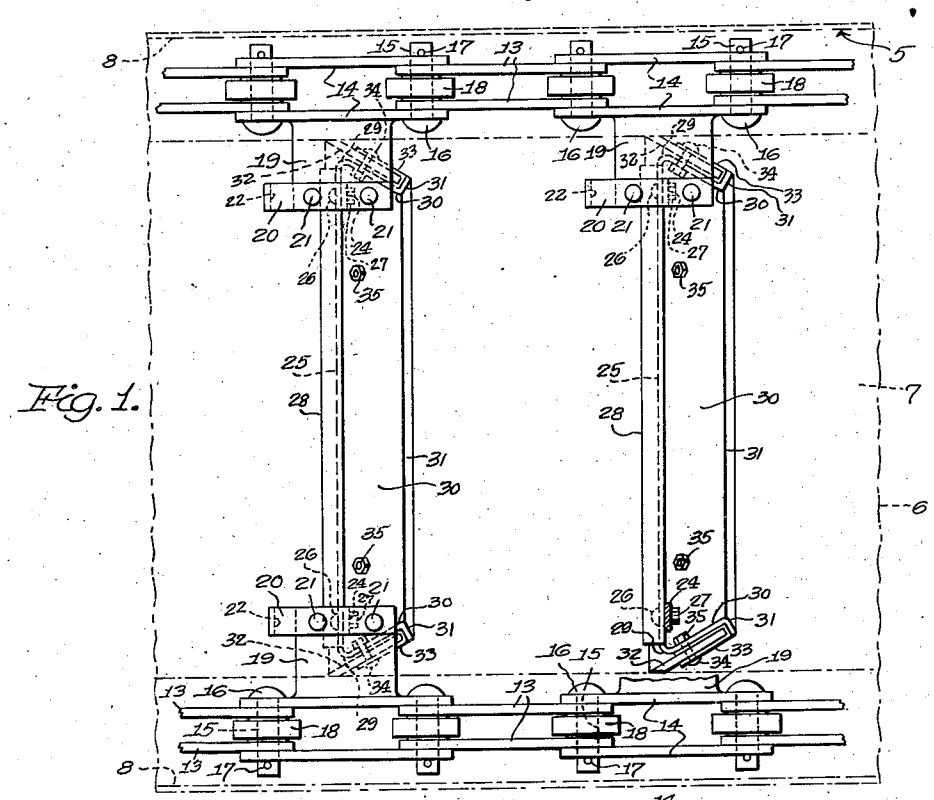


Fig. 1.

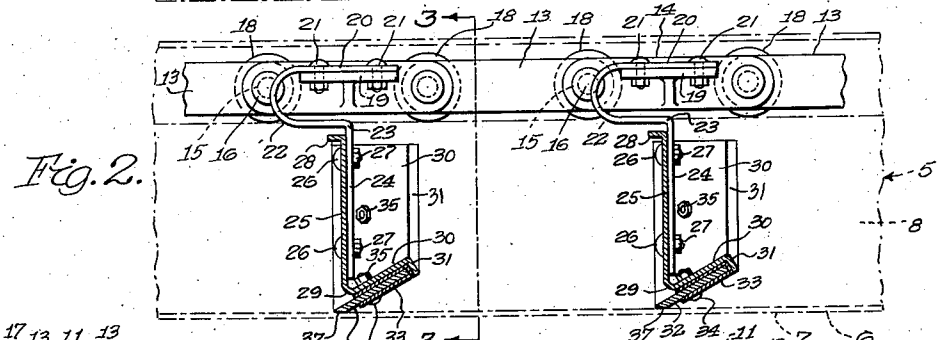


Fig. 2.

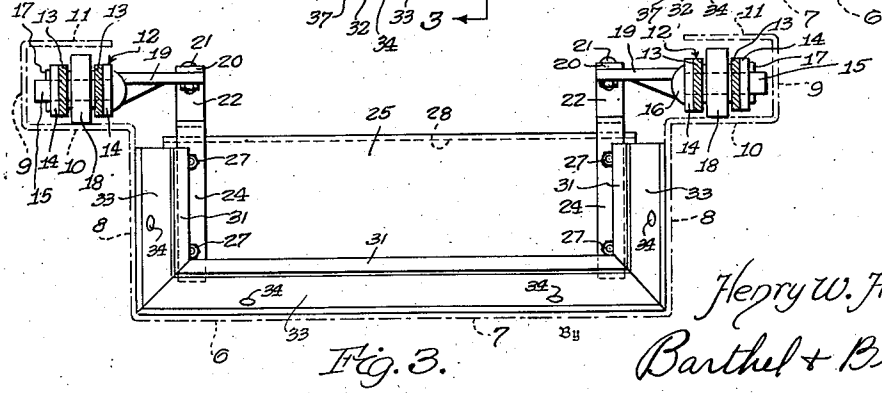


Fig. 3.

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Fig. 4.

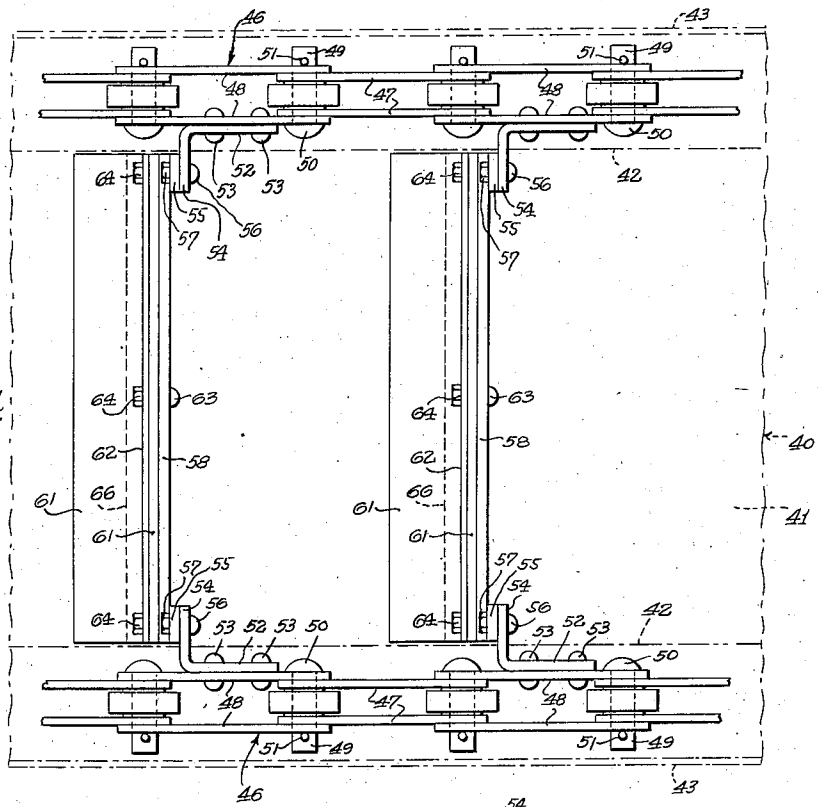
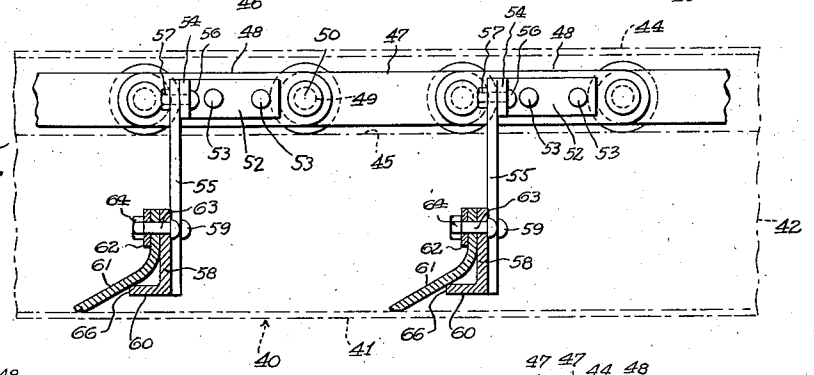


Fig. 5.



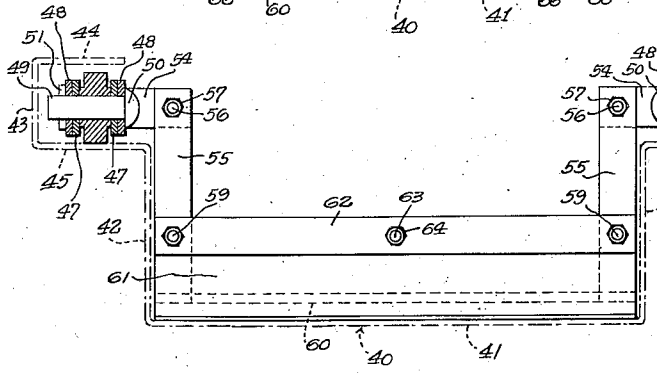


Fig. 6.

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UNITED STATES PATENT OFFICE

2,400,502

CONVEYER FLIGHT

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Application May 25, 1942, Serial No. 444,312

12 Claims. (Cl. 198—174)

The present invention relates to conveyers and more particularly, to an improved flight therefor.

The primary object of the invention is to provide a conveyer flight with a resilient wearing and sealing strip carried by the edge of the flight for contactual engagement with the conveyer conduit to prevent material from being lodged between the flight and conduit and causing damage to the flight and conveyer structure.

A further object of the invention is to provide a resilient sealing and wearing strip for conveyer flights extending along the marginal edge of the flight at an angle thereto, to prevent the sealing and wearing strip from being bent or doubled back upon itself when an obstruction is encountered in the conveyer conduit.

Another object of the invention is to provide a resilient sealing and wearing strip capable of being readily attached to the marginal edge of a conveyer flight in such a manner that the free edge of the strip will be presented to the conveyer conduit at an acute angle thereto, so that material lodged in the conveyer conduit will be scooped or scraped therefrom instead of causing the flights of the conveyer to be obstructed and damaged through bending or breaking.

Another object of the invention is to provide a sealing and wearing strip of the above mentioned character which is detachably and reversibly connected to the conveyer flight and is connected thereto in such a manner as to be prevented from bending itself back when an obstruction is encountered, and which is supported adjacent its free edge in addition to the connection with the flight to further insure against return bending in a direction opposite to the direction of flight travel.

Other objects and advantages of the invention will become apparent during the course of the following description of the accompanying drawings wherein:

Figure 1 is a top plan view of a preferred embodiment of the invention illustrating a wearing strip extending around the marginal edge of the conveyer flight;

Figure 2 is a longitudinal cross sectional view illustrating in detain the manner in which the resilient sealing and wearing strip is attached to the conveyer flight;

Figure 3 is a transverse cross sectional view taken on line 3—3 of Figure 2 looking in the direction of the arrows further illustrating the manner in which the sealing strip is positioned and presented to the conveyer passageway.

Figure 4 is a top plan view of a modified form of the invention showing a resilient wearing and sealing strip attached to one edge of the conveyer flight.

Figure 5 is a longitudinal central cross sectional view similar to Figure 4 illustrating in detail the manner in which the resilient sealing and wearing strips are attached to the conveyer flight; and

Figure 6 is a vertical transverse cross sectional view of Figure 5 further illustrating the details of construction of the modified form.

In the drawings wherein for the purpose of illustrating the invention like reference characters will be employed to designate like parts throughout, the reference character 5 in Figures 1 to 3 inclusive will generally be employed to designate a conveyer of the endless chain type, and said conveyer includes a channelway 6 having a bottom wall 7 and upstanding side walls 8. The extreme upper edges of the side walls 8 are provided with channel guides 9, providing opposed guide walls 10 and 11 between which is adapted to operate suitable conveyer chains generally indicated by the reference character 12. Each conveyer chain 12 includes a pair of inner and outer chain links 13 and 14 connected by pivot pins 15, one end of which is provided with a head 16 and the opposite end of which is provided with a cotter pin or key 17 to hold the pins 15 in position. Rotatably mounted on each of the pins 15 between the inner links 13 is a roller 18 to support the endless conveyer chain 12 in the channelway 9 as shown in Figure 3.

The outer links 14 are provided with inwardly directed lugs 19 and said lugs may be formed integral with the innermost outer link and spaced so that the lugs will be disposed in opposed relationship. The free edge of each lug is provided with a spring strap 20 secured in place by rivets or other fastening means as at 21, and the spring strap 20 is arcuately curved as at 22 so that it may be bent back directly under the lug 19. An angle portion 23 is formed in the resilient strap 20 so that the free end of the strap may project downwardly as at 24. Connecting the straps 20 is a conveyer flight 25, and said spring straps are secured to the flight by suitable bolts 26 having nuts 27 threaded on the opposite ends thereof. The upper edge of each flight 25 is flanged as at 28 to extend in the direction of conveyer travel and the marginal edge of each conveyer flight is bent rearwardly as at 29 to form a marginal flange 30 extending at an acute angle with respect to the conveyer passageway 2. The extreme rear edge of the marginal flange 30 is angled as at 31 to extend

in a direction toward the walls of the conveyer passageway.

The marginal flange 30 is formed at an angle of approximately 50° to 60° with respect to the conveyer flight 25 so that the angle between the marginal flange 30 and the walls of the conveyer passageway 6 will be approximately between 40° and 30°.

Secured to the underside of the marginal flange 30 is a wearing and sealing strip 32 mounted in a channel member 33 which terminates a distance from the free end of the sealing strip 32. Bolts 34 are arranged in spaced relation and extend through the channel strip 33 and sealing strip 32 so that the free ends of the bolts may extend through the marginal flange 30 and be held in place by nuts 35 threaded thereon. The extreme edges of the sealing strips 37 are beveled to provide a relatively sharp edge for contactual engagement with the conveyor passageway walls 7 and 8. It is to be noted that the strip 32 and channel strip 33 may be reversed when worn by simply removing the bolts 34 and positioning the channel strips 33 with respect to the marginal flange 30 in a reverse manner.

Attention is now directed to Figures 4 to 6, wherein is shown a modified form of the invention and wherein the reference character 40 will generally be employed to designate a conveyer passageway similar to that shown in Figures 1 to 3 inclusive. The conveyer passageway in Figures 4 to 6 inclusive comprises a bottom wall 41 having upstanding walls 42 terminating in longitudinal channelways 43 providing upper and lower opposed guide walls 44 and 45. The opposed guide walls 44 and 45 are adapted to slidably receive and guide a conveyer chain generally indicated by the reference character 46, and each conveyer chain comprises inner and outer chain links 47 and 48 similar to the chain links 13 and 14 shown in Figures 1 to 3 inclusive. The ends of the links are provided with aligned apertures for receiving bolts 49 having heads 50 formed on one end and being adapted to be held in place by cotter keys or pins 51 extending through apertures in the free ends of the bolts.

Secured to the outer links 48 are angle brackets 52 held in place by rivets or the like as at 53, and the angle brackets are arranged in opposed relation as shown clearly in Figure 4. The inner ends of the angle brackets as at 54 are provided with downwardly depending arms 55 secured in place by bolts 56 having nuts 57 threaded on the free ends thereof. Extending between the lower ends of the downwardly depending arms 55 is an angle bar 58 held in place by bolts 59 so that the free ends of the downwardly depending arms 55 will be rigidly connected by the angle bar 58. The lower forwardly extending edge 60 of the angle bar 58 terminates a short distance from the bottom wall 41 of the conveyer passageway and is adapted to project forwardly in the direction of conveyer travel as shown clearly in Figure 5.

Secured to the uppermost edge of the angle bar 58 is a flexible resilient wear strip 61 sandwiched between the angle bar 58 and an anchoring strip 62 which is adapted to be clamped tightly in position by means of a bolt 63 extending through an aperture in the upper portion of the angle bar so that the threaded end may receive a nut as at 64. The extreme forward edge 66 of the angle bar 58 is adapted to contact the sealing and wearing strip 61 at a point intermediate the ends thereof to further support the sealing and wearing strip in addition to the spaced bolt connections 63. It may be stated that the contactual engagement of the edge 66 of the angle bar 58 with the sealing and wearing strip 61 causes a flexing action of the sealing strip and likewise, prevents the sealing strip from being doubled back upon itself when an obstruction in the conveyer passageway or conduit is encountered. Also, such contactual engagement maintains the sealing and wearing strip at the proper angle with respect to the walls of the conveyer conduit or passageway.

It is to be understood that the forms of the invention herewith shown and described are to be taken as preferred embodiments of the invention and that various changes in the shape, size and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the subjoined claims.

What I claim is:

1. A conveyer comprising a conduit having opposed channelways along each side thereof, an endless conveyer chain having inner and outer links mounted in each channelway, conveyer flights connected to and extending between said conveyer chains, roller members mounted between the inner and outer links adapted to travel in said channelways, said rollers being positioned in front of and in back of the points of conveyer flight connection and a flexible wear strip secured to the marginal edge of said conveyer flight and extending obliquely toward the conduit and arranged to project beyond the edge of the conveyer flight in the direction of conveyer travel.

2. A conveyer comprising a conduit having opposed channelways along each side thereof, a conveyer chain having inner and outer links mounted in each channelway, rollers mounted between said links for spacing said chains from the channelways, conveyer flights arranged in spaced relation between said conveyer chains and connected to the outer links between said rollers and a flexible wear strip secured to the marginal edge of each conveyer flight and extending toward the walls of the conduit at an acute angle with the free edge of the conveyer wear strip projecting beyond the edge of said conveyer flight in the direction of conveyer travel.

3. A conveyer comprising a conduit, a conveyer chain mounted on each side of the conduit, conveyer flights secured to the chain and mounted in spaced relation thereon and a flexible wear strip secured to the marginal edge of the conveyer flight having its free edge projecting therefrom in the direction of conveyer travel in contactual engagement with the walls of the conduit whereby slight movement of said strip may be facilitated to compensate for irregularities in the conduit.

4. A conveyer comprising a conveyer conduit having opposed channel guides along each side, a conveyer chain mounted in each channel guide of the conduit, said conveyer chain having inner and outer links, conveyer flights secured to and extending between opposed outer links of the chain and mounted in spaced relation throughout the length of said chain, and a flexible wear strip detachably carried by the marginal edge of the conveyer flight having its free edge projecting from the marginal edge of the flight a slight distance and extending at an acute angle with respect to the walls of the conveyer conduit in the direction of conveyer travel and in contactual engagement with said walls.

5. A conveyer comprising a conveyer conduit having opposed channels along the sides there-

of, a pair of conveyer chains mounted in the channels traveling along the opposite sides of the conduit, each of said conveyer chains having inner and outer links with rollers therebetween adapted to ride in said channels, conveyer flights connecting said chains and extending transversely thereof, said flights being secured to said outer links by downwardly depending straps, and a flexible and resilient wear strip detachably connected to the marginal edge of the flight with its free edge projecting a slight distance beyond said flight and in the direction of conveyer travel so as to extend at an acute angle with respect to the walls of the conveyer conduit and in contactual engagement therewith.

6. A conveyer comprising a conduit, a pair of endless conveyer chains mounted in parallel relation adapted to travel in channel guides on opposite sides of said conduit, strap arms depending from said chains into said conduit, conveyer flights connecting the strap arms, and a flexible resilient wear strip detachably secured to the conveyer flight with its free edge projecting a slight distance beyond said flight in the direction of conveyer travel and extending at an acute angle with respect to the walls of the conduit and in contactual engagement therewith.

7. A conveyer comprising a conveyer conduit, a pair of endless conveyer chains mounted in parallel relation to travel in guide channels on opposite side of said conduit, conveyer flights connecting the conveyer chains and a flexible wear strip detachably secured to each conveyer flight with its free edge projecting a slight distance beyond said flight in the direction of conveyer travel and extending obliquely with respect to said flight so that the free edge of the wear strip will be in contactual engagement with the conveyer conduit.

8. A conveyer comprising a conveyer conduit, a conveyer chain mounted on each side of said conduit, a conveyer flight carried by said conveyer chain, an angular flange formed on the marginal edge of the conveyer flight and a resilient wear strip secured to the marginal flange having its free edge projecting on the opposite side of the conveyer flight in contactual engagement with the conveyer conduit.

9. A conveyer comprising a conveyer conduit, a conveyer chain mounted on each side of said conduit, a conveyer flight carried by said conveyer chain in spaced relation from the conveyer conduit, a flange formed on the marginal edge of the conveyer flight extending at an acute angle with respect to the conveyer conduit and a resilient wear strip detachably secured to the flange having its free edge projecting forwardly of the conveyer flight and in contactual engagement with the conveyer conduit.

10. A conveyer comprising a conveyer conduit, a pair of conveyer chains mounted in parallel relation on opposite sides of the conduit, angle brackets secured to the conveyer chains arranged in opposed relation, downwardly depending arms secured to the brackets terminating a short distance from the conveyer bottom wall of the conduit, an angle bar connecting the lower ends of said arms and a wear strip detachably secured to the angle bar.

11. A conveyer comprising a conveyer conduit, a pair of conveyer chains mounted in parallel relation on opposite sides of the conduit, angle brackets secured to the conveyer chains having inwardly extending arm portions, downwardly depending straps secured to the arm portions of the angle brackets, an angle bar connecting the lower ends of said straps, the flange of said angle bar extending in the direction of conveyer travel and a flexible wear strip detachably secured to the angle bar having its flange in contactual engagement with the flexible wear strip to cause said wear strip to extend at an acute angle with respect to the conveyer conduit walls.

12. A conveyer flight comprising a pair of spaced supporting arms, a pusher bar connecting the arms, a flange formed on said pusher bar and a detachable resilient wear strip supported by said flange and projecting in the direction of conveyer travel at an oblique angle with respect to the pusher bar.

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