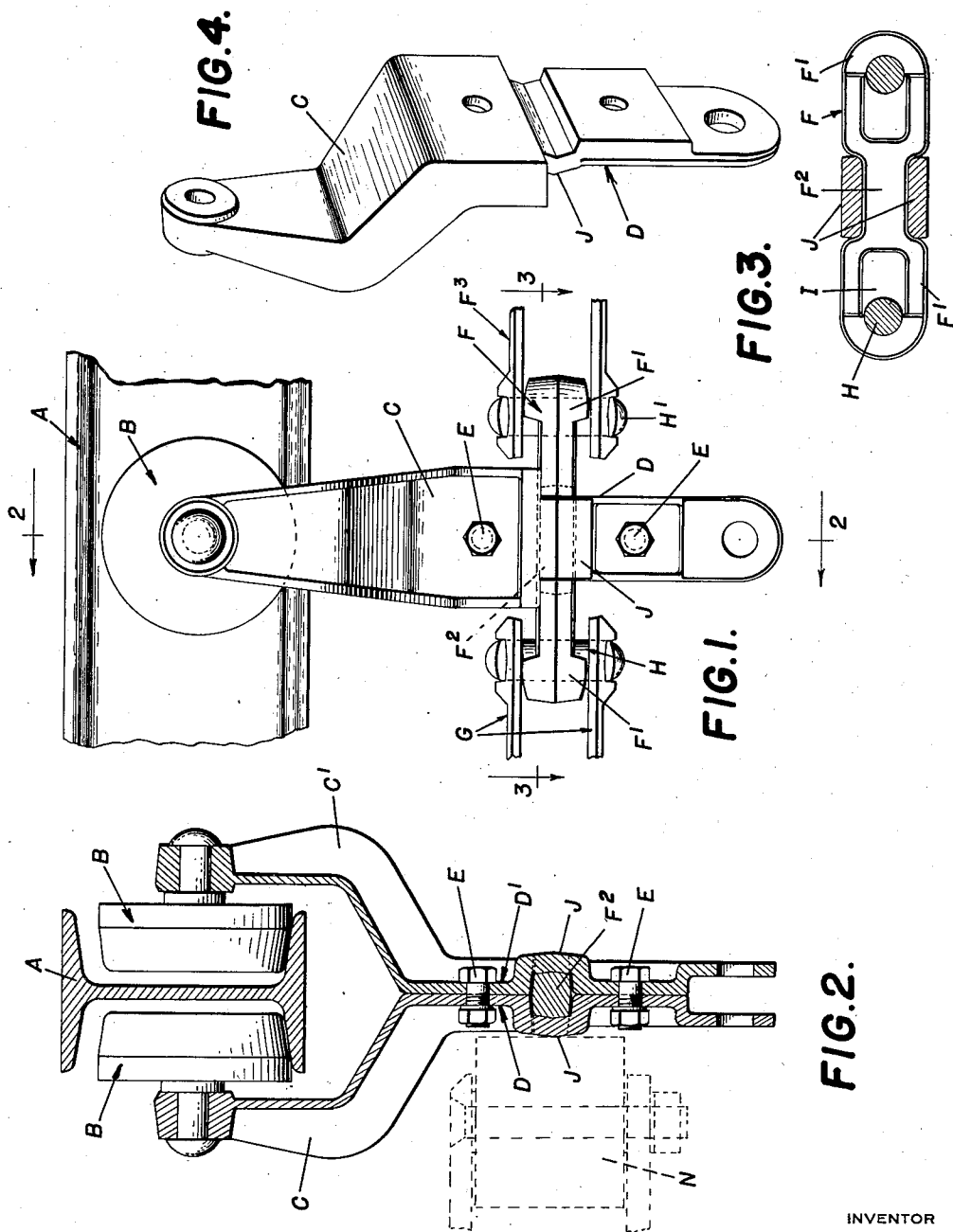


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L. J. BISHOP
TROLLEY CONVEYER
Filed Nov. 24, 1934

2,095,022

3 Sheets--Sheet 1



INVENTOR

LEONARD J. BISHOP

BY

Whittemore Hulbert
Whittemore & Belknap

ATTORNEYS

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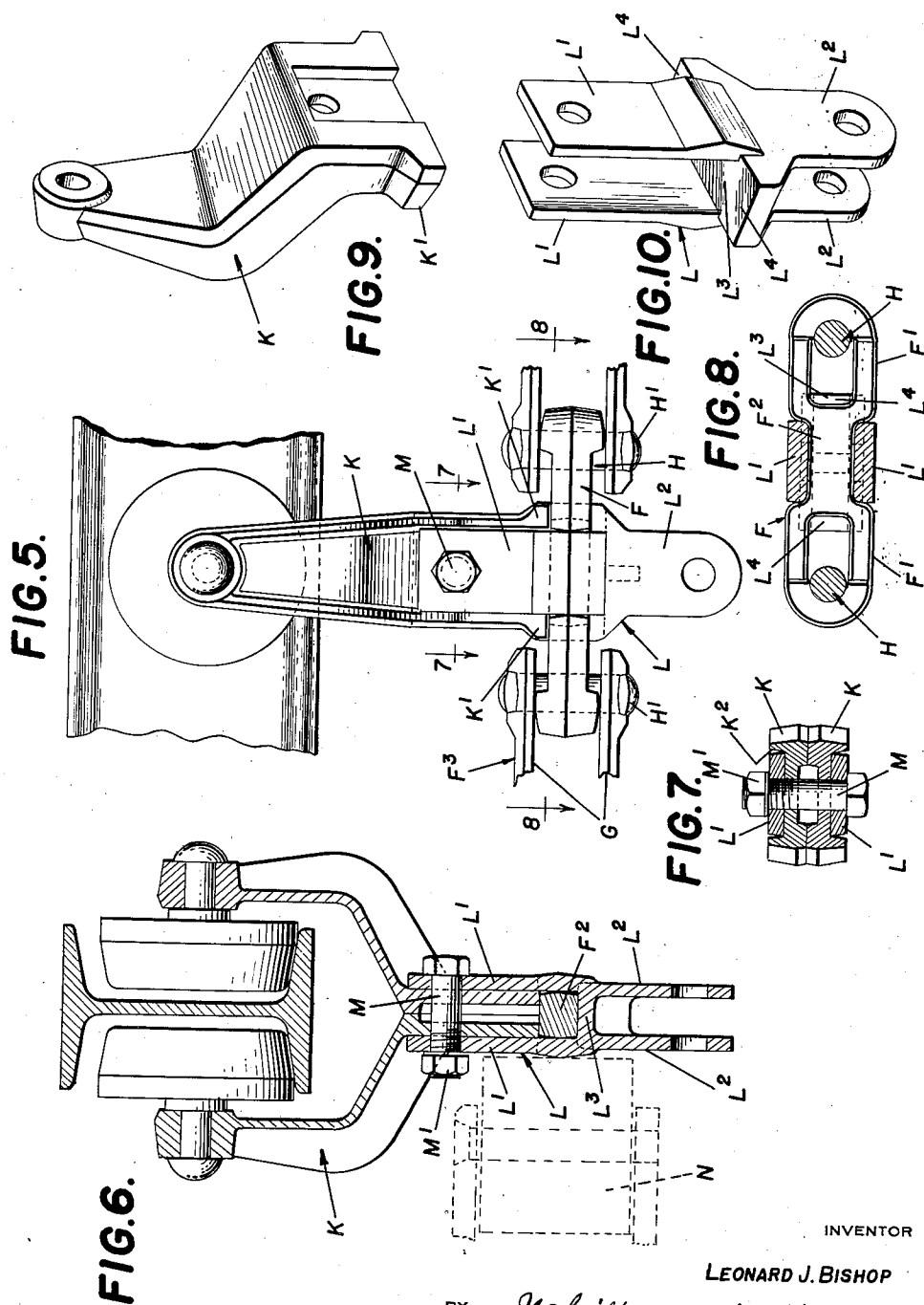
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3 Sheets-Sheet 2



INVENTOR

LEONARD J. BISHOP

BY

Whittemore, Hulbert
Whittemore & Belknap

ATTORNEYS

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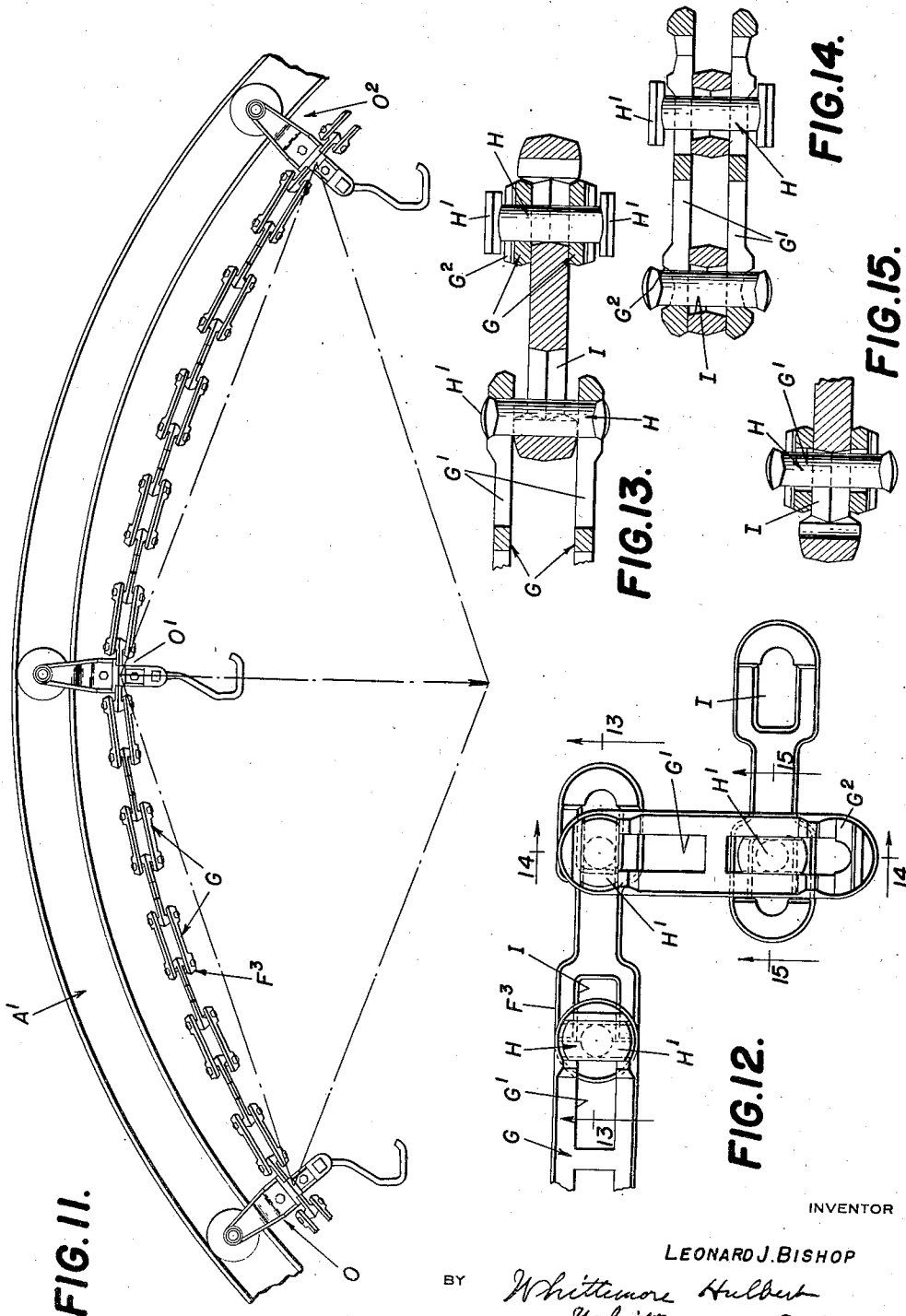
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3 Sheets--Sheet 3



INVENTOR

LEONARD J. BISHOP

BY *Whittemore Hulbert*
Whittemore Belknap
ATTORNEYS

UNITED STATES PATENT OFFICE

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TROLLEY CONVEYER

Leonard J. Bishop, Detroit, Mich., assignor to
Mechanical Handling Systems, Inc., Detroit,
Mich., a corporation of Michigan

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3 Claims. (Cl. 198—177)

The invention relates to conveyers of that type in which trolley wheels having a traveling engagement with an overhead track are connected to depending hangers which support the load and which are also engaged with a chain forming the propelling means therefor. Heretofore various constructions of this type have been devised with the objects of improved operation, simplified construction and adaptability to the various purposes for which such conveyers are used. Thus in certain constructions the hangers are connected to the propulsion chain by means of a shank which passes centrally through one of the chain links and has connected at its lower end the load supporting means. It is the object of the present invention to improve upon this construction and to this end the invention consists in the construction as hereinafter set forth.

In the drawings:

Fig. 1 is a side elevation of a trolley hanger of my improved construction showing the same in connection with the supporting track and the propulsion chain;

Fig. 2 is a vertical cross section on line 2—2, Fig. 1;

Fig. 3 is a horizontal section on line 3—3, Fig. 1;

Fig. 4 is a perspective view of one section of the trolley hanger;

Fig. 5 is a view similar to Fig. 1 showing a modified construction;

Fig. 6 is a vertical cross section thereof;

Figs. 7 and 8 are horizontal sections respectively on lines 7—7 and 8—8 of Fig. 5;

Figs. 9 and 10 are perspective views of two complementary portions of the hanger detached;

Fig. 11 is an elevation illustrating diagrammatically the reaction load on the hanger due to change in direction of the rail and the propulsion chain;

Fig. 12 is a plan view illustrating the manner of detaching links from the chain;

Figs. 13, 14, and 15 are sections respectively on lines 13—13, 14—14, and 15—15 of Fig. 12.

As illustrated in Figs. 1 to 4, A is a track shown as formed of an I-beam; B are trolley wheels for engaging the opposite channels of the I-beam and for traveling on the lower flange thereof. C and C' are complementary hanger members having their upper ends pivotally supported on the trolley wheels B and with lower portions D, D' abutting against each other and secured by clamping bolts E. Instead of passing the portions D, D' centrally through a link in the propulsion chain, these portions are fashioned to embrace a link so as to be effectively secured thereto when clamped by the bolts E. As shown in Fig. 3, the chain link F which is attached to the hanger is formed with end portions F' having a vertical rocking engagement with the side

bars of the adjacent links G and is connected thereto by pins H passing through slots I. Intermediate the end portions F' is an integral connecting portion F² which is of lesser width. This portion is embraced by the portions D and D' of the hanger which to that end are provided with return bent portions J fitting about the portion F² and located in the recesses between the end portions F'. The outer faces of the portions D and D' are preferably substantially flush with the outer faces of the end portions F' to thereby avoid impact with the guiding rolls and sprockets during the advancement of the chains. The clamping bolts E are on opposite sides of or above and below these return bent portions J and thus when the two hanger members are clamped to each other there will be formed an effective connection between the hanger and the link F. This connection may be rigid or loose depending upon conditions, but as shown in the present instance the connection is rigid. The portions D and D' have at their lower ends the integral load supporting portions D² which are spaced apart and are in the nature of furcations adapted to engage the hook or other support for carrying the load.

The construction as above described can be easily connected to a conveyer already installed, as the hanger sections C, C' with their trolley wheels B may be engaged with the track A and the portions J can at the same time be engaged with the portion F² of the link F. It is then only necessary to engage the clamping bolts E which will hold the complementary sections together and in predetermined fixed or loose relation to the chain link.

For different uses, it may be necessary to vary the distance between the trolley wheels and the chain. I have therefore formed a modified construction in which the portions of the hanger which embrace the chain link are separately formed from the portions which engage the trolley wheels. As shown in Figs. 9 and 10, a bracket portion K which engages the trolley wheel is separate from a member L which embraces the link F and this member L is of a substantially H-shaped construction having the upwardly and downwardly extending spaced arms L' L', L² L² and a connecting bridge portion L³, the arms L² L² forming the load supporting portions. The bridge portion L³ is of greater length than the portion F² of the chain link so that opposite ends L⁴ extend a short distance beneath the end portion of the link F which are of greater width. The bracket portion K is also provided with extensions K' at its lower end corresponding to the portions L⁴ but arranged above the link F. Also, the brackets K have their outer sides channeled as indicated at K² to receive the arms L' L' of the member L. The members K

and L are then secured to each other by a bolt M which passes through registering apertures therein and is clamped by a nut M'. With this last described construction, it is obvious that the members K and L may be varied in relative position by cutting off the ends of the extensions L' and suitably locating the apertures for the bolt M. In that way, the distance between the trolley wheels and the chain may be altered, as desired.

Where the direction of the track is changed, it is necessary to correspondingly change the direction of the propulsion chain. This may be accomplished by the placing of guide rolls N in suitable positions as indicated in dotted lines in Figs. 2 and 6. For engaging these rolls the portions J of the hanger which embrace the portion F² of the link project outward slightly beyond the plane of the adjacent upper and lower portions of the hanger as indicated at J'. These portions will therefore contact with the rolls N, holding the other portions of the hanger out of engagement therewith.

When the trolleys are propelled by the chain around a vertical curve portion of the track, an additional reaction load is placed upon the hangers. This is illustrated in Fig. 11 in which A' is the vertically curved rail or track; O, O', O² are three trolley hangers at different points therearound. As the chain F³ tends to pull in a straight line, it is evident that a reaction load is placed on the hanger at the location O', the magnitude of which relative to the pull on the chain is indicated by the dotted lines. With my improved form of hanger this load is transmitted from the chain link to the hanger through the return bent portions J and without any shearing stress on the bolts E.

The chain F³ is preferably of the type in which the links F are coupled to the alternate spaced bar links G by pins H having integral T-heads H' at their opposite ends. These members may be assembled by passing the heads H' through the slots I in the link F and slots G' in the links G and then turning the heads H' out of registration with the slots. However, to hold the pins in position the heads H' are engaged with transversely extending recesses G² in the members G and to permit of such engagement the link F at the inner end of the slot I must be cut away or reduced in thickness. This permits of turning the heads H' into registration with said slots G² after which the pin is moved to the outer end of the slot I where the end portions F' of the link force the members G outward into locked engagement with the recesses G². One difficulty encountered in the forming of the structure as just described is that the central portion F² of the link F is reduced in width to receive the return bent portions J of the hanger and this precludes extending the slots I inward into such portion. This in turn necessitates the cutting away of the thickness of the link I a sufficient distance outward beyond the inner end of said slots, so that when the links G' are turned at right angles to the link I, they may be collapsed or moved inward to disengage the heads H' from the recesses G² and permit of turning said heads. I have therefore reduced the length of the end portions F' so that they only extend inward from the end of the link to a point in the transverse plane of the axis of the pin H when at the outer end

of the slot I. The heads F' thus formed will still perform the function of holding the side bars of the links G spaced with the heads H' locked in the recesses G² and will further permit the relative rocking of the links F and G in a vertical plane as necessitated by curvature of the chain in such plane and as illustrated in Fig. 11. Thus as illustrated in Figs. 12 to 15, the links of the chain can easily be detached or new links inserted and at the same time the construction is such that the central portion F² of the link F is of sufficient length to receive the portions J of the hanger.

What I claim as my invention is:

1. In a trolley conveyer, the combination with a track, trolley wheels for engaging said track and a propulsion chain, of hangers for said trolley wheels formed in separable telescopically engageable sections extending respectively above and below said chain, one of said sections being adapted to embrace one of the links of said chain and to then overlap and telescopically engage the other of said telescopic sections, and means for securing said sections together with a predetermined distance between said trolley wheels and chain.

2. In a trolley conveyer chain of the type comprising solid, longitudinally slotted links alternating with links formed of spaced side bars also longitudinally slotted, together with headed pins for insertion through the slots of said links in one position and having interlocking engagement with said spaced side bars when in another position; a solid link provided with a central portion reduced in width for the external engagement of a trolley hanger and forming end thrust shoulders at opposite ends of said reduced portion, the slots in said link being limited in length to be only in the end portions which are of greater width, the thickness of the outer end portions of said link being sufficient to hold said spaced side bars in interlocking engagement with the heads of said pins and a portion of said link intermediate said outer end portions being reduced in thickness to permit of collapsing said side bars for engagement and disengagement of said pins, said portion reduced in thickness extending outward substantially to the transverse plane of the axis of the pin, whereby collapsing is permitted without increase in length of said solid link.

3. In a trolley conveyer chain of the type comprising solid, longitudinally slotted links alternating with links formed of spaced side bars also longitudinally slotted, together with headed pins for insertion through the slots in said links in one position and having interlocking engagement with said spaced side bars when in another position; a solid link provided with a central portion for engagement with a trolley hanger, slotted portions on opposite sides of said central portion limited in width for engagement with said side bars and headed pins, and portions at the ends of said link of greater width for holding said headed pins in interlocking engagement with said side bars, the latter portions terminating substantially in the transverse plane of the axis of the pin to leave sufficient space between the same and said hanger for the engagement and disengagement of said pins and side bars, without increasing the total length of said solid link.

LEONARD J. BISHOP.