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2,265,248

OVERHEAD CHAIN CONVEYER

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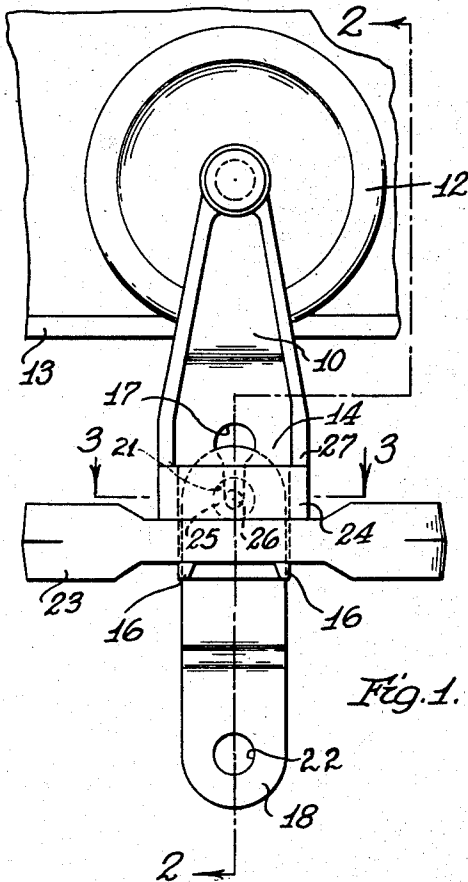


Fig. 1.

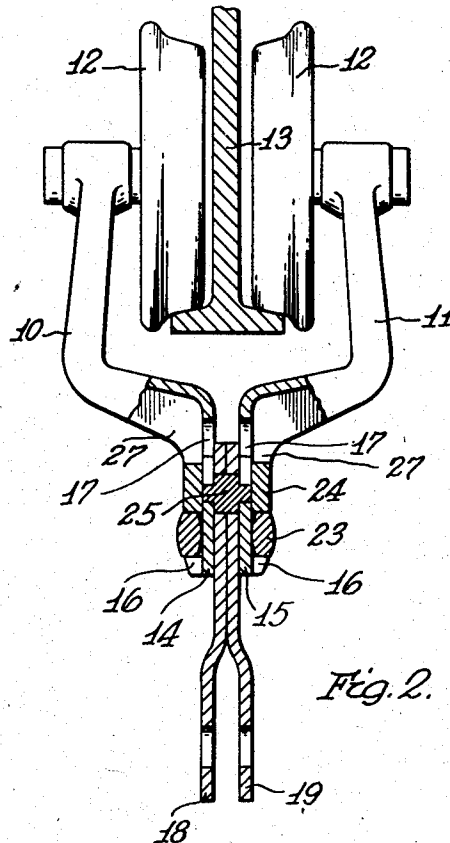


Fig. 2.

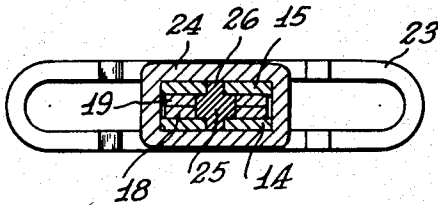


Fig. 3.

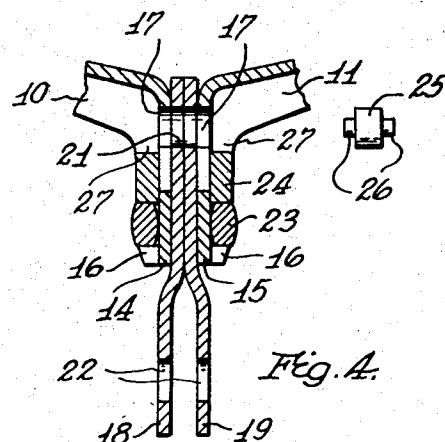


Fig. 4.

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OVERHEAD CHAIN CONVEYER

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11 Claims. (Cl. 198—177)

This invention relates to trolleys for overhead chain conveyers and has, as its general object, the provision of a new and novel method of assembling the trolley on the overhead rail, attaching it to the chain and to a load carrying member without the use of any nuts or bolts. A further object of the invention is the provision of a trolley of the type described which, by the interlocking arrangement of its parts, may easily and readily be assembled and disassembled without the use of tools or appliances. Another object of the invention is the provision of means in addition to a chain link for the purpose of holding the trolley brackets firmly together. The above and other objects of the invention will appear more readily from the following description and the attached drawing consisting of the following illustrations:

Fig. 1 is a side view of the trolley assembled to a center link of the conventional rivetless keystone chain and shows the general arrangement of the parts in operating condition;

Fig. 2 is an end view of the trolley, partly in section, and taken along the lines 2—2 of Fig. 1;

Fig. 3 is a sectional view of the trolley taken along the lines 3—3 of Fig. 1 showing the interlocking arrangement of parts;

Fig. 4 is a fragmentary vertical transverse sectional view showing the parts in partially assembled condition and also showing the retaining pin.

Referring to the drawing, Figs. 1 and 2 show a yoke-shaped trolley bracket consisting of like shaped opposite side members or brackets 10 and 11, each provided at the top with a conventional trolley wheel 12 which engages the lower flange of an overhead I-beam 13 on either side of the web of the I-beam. As shown in the drawing, particularly Figs. 2 and 4, the lower part of each bracket 10 and 11 consists of a downward extension in the form of plates 14 and 15 each provided with bosses 16 at their lower ends. The top central portion of each extension is pierced by a vertical slot 17 which, in the embodiment shown in the drawing, is shaped like a keyhole.

The second important part of the device is the separator member which may also perform the functions of a load carrying hanger. A bifurcated form of load hanger is illustrated in the drawing and it consists of two metal straps 18 and 19 placed face to face at the top and bent somewhat away from one another at the bottom. These straps 18 and 19, which can be together considered as one separator and one hanger member, are of approximately the same

width and thickness as the extensions 14 and 15 and are provided at the top with a hole 21 for a retaining pin, to be described, and at the bottom with holes 22 for attachment to the load. Of course, if, in practice, any particular trolley is not to carry a load, the load carrying function of the straps 18 and 19 may be eliminated and these members may be modified and simplified to perform only the function of separating the extensions 10 and 11.

The remaining portions of the structure comprise a center or keystone link 23 of the conventional rivetless keystone chain, a rectangular sleeve 24, the inside width of which is equal to the combined thickness of the extensions 14 and 15 and of the straps 18 and 19 and the inside length of which is equal to the width of the extensions 14 and 15. The last part is a retaining pin 25. Where slot 17 is shaped like a keyhole, the retaining pin 25 will, as shown in the drawing, have ends of reduced diameter as at 26, so as to fit in the lower portions of the keyhole slots 17.

The parts are assembled together on an I-beam, such as 13, by placing the side members 10 and 11 one on either side of the I-beam with the wheels 12 bearing on the lower flange of the I-beam. The extensions 14 and 15 at the bottom of each bracket 10 and 11 are brought together so that their inner surfaces touch. When the foregoing parts are in this position, the sleeve 24 can be slipped up over the bosses 16 at the ends of the extensions 14 and 15 and the center link 23 of the keystone chain can likewise be slipped up over the bosses 16. Thereafter the extensions 14 and 15 at the bottom of the brackets 10 and 11 are separated from one another to the extent permitted by the internal dimensions of the sleeve 24 and the center link 23. When so separated, there is a space between the extensions 14 and 15 just sufficient to permit the upward insertion of the two hanger straps 18 and 19. These straps are inserted in this space from the bottom until the holes 21 thereof are in registration with the top portion of the hole 17 in the extensions 14 and 15. The parts are now in the position shown in Fig. 4.

To lock the parts in position, the retaining pin 25 is inserted in the keyhole 17 and in the holes 21 in the top of the extensions 10 and 11. After the pin 25 is so inserted, the straps 18 and 19 are pulled downward until the ends 20 of the retaining pin 25 seat in the bottom of the keyholes 17. The parts are now in the position

shown in Figs. 1, 2 and 3 and the structure is completely assembled in operating condition.

It will be noted that the two brackets 10 and 11 are held together on either side of the hanger (18, 19) by the encircling rectangular sleeve 24 and the center link 23. At the same time, the center link 23 and the sleeve 24 are held in place by the bosses 16 at the bottom of the brackets and by web portions 27 of the brackets 10 and 11 which terminate immediately at the top of the sleeve 24. In this manner the web 27 and the bosses 16 each form shoulders within which the sleeve 24 and the center link 23 are securely retained against displacement. It may also be noted that the hanger (18, 19) which presses the brackets 10 and 11 in locked arrangement with the center link 23 and the sleeve 24 is limited in its downward movement by the retaining pin 25, the ends of which lock in the keyholes 17. By this locking arrangement, the hanger (18, 19) cannot be removed unless the retaining pin 25 is removed and this pin cannot be removed unless the hanger straps 18 and 19 are raised so as to bring the pin 25 clear of the sleeve 24 and in registration with the top of the keyhole 17.

To disassemble the structure, it is necessary merely to raise the hanger straps 18 and 19 as above mentioned to the position shown in Fig. 4, to knock the retaining pin out of place, and then to remove the hanger straps 18 and 19 by pulling them down and out of the assembly. Once the pin 25 is so removed, the other parts can readily be disassembled.

It will be noted that the assembly and disassembly of the trolley can be carried on readily and quickly without the use of any tools or equipment of any kind whatsoever.

If the parts are accurately made, the sleeve 24 may be omitted and the chain link 23 may be relied upon to keep the brackets 10 and 11 from spreading. In such case, the keyhole shape of the slot 17, cooperating with the reduced end sections of the retaining pin 25, will prevent the pin from being dislodged and thus maintain the parts in locked arrangement. Where the sleeve 24 is used, a simple form of slot 17 without enlarged top portion and a simple form of pin 25 without enlarged central portion may be adopted, as in such case the sleeve itself will operate to prevent the pin from dislodging while in the lower part of the slot 17.

Among other things, the sleeve 24, by its snug encirclement of the extensions 14 and 15 and of the hanger straps 18 and 19, provides a particularly effective means for holding the two brackets 10 and 11 in fixed relation to one another.

It is apparent that a person skilled in the art may make various changes in detail, construction and arrangement of the parts without departing from the scope of the invention as outlined in the appended claims.

What is claimed is:

1. A trolley for overhead conveyers including two oppositely disposed trolley brackets, a separator member therebetween, the lower ends of said trolley brackets and the upper end of said separator member each having holes therein registerable with one another, a link of a conveyer chain engaging the lower ends of said brackets and encasing said brackets and said member, and a self-locking removable retaining pin engaging said holes in said brackets and said member and limiting relative movement therebetween.

2. A trolley for overhead conveyers comprising

two oppositely disposed trolley brackets having wheels at the top and vertical extensions at the bottom, said extensions being insertable downwardly through a link of a conveyer chain, a removable separator member insertable upwardly between said extensions, said member in such position operating to force said extensions into engagement with the sides of said link, and a self-locking retaining pin insertable through keyhole slots in said extensions and a hole in said separator member, said pin having an enlarged center portion insertable only through the top portion of said keyhole and having ends of reduced diameter adapted to engage the lower narrow end portion of said keyhole slots on downward movement of said separator member and said pin.

3. In a trolley of the type described, the combination of a sleeve surrounding the lower portions of two trolley brackets, a separator member insertable between said lower portions, and a pin insertable through holes in said lower portions and said separator member, said sleeve retaining said pin against endwise movement when the foregoing parts are assembled.

4. In a trolley of the type described, the combination of two trolley brackets having downward extensions, a separator member insertable between said extensions, a retaining pin insertable through holes in said extension and said separator member, means for retaining said extensions and said separator member against transverse displacement including a chain link the inner sides of which bear against said extensions, and means for retaining said pin against axial displacement including a sleeve surrounding said extensions and covering the ends of said pin.

5. In a trolley of the type described, the combination of two trolley brackets having vertical extensions, a separator member insertable between said extensions, a retaining pin engaging holes in said extensions and separator member, and a sleeve surrounding said extensions and covering and preventing axial displacement of said pin.

6. In a trolley of the type described, the combination of the two trolley brackets having vertical extensions, a separator member insertable between said extensions, a retaining pin engaging keyholes in said extensions and holes in said separator member, means for maintaining the foregoing parts against transverse displacement, and means for preventing axial displacement of said pin including shoulders on the central portion of said pin cooperating with the narrower end portions of said keyholes.

7. In a trolley of the type described, the combination of the two trolley brackets having vertical extensions, a separator member insertable between said extensions, a retaining pin engaging holes in said extensions and engaging holes in said separator member, some of which holes are non-circular, means for maintaining the foregoing parts against transverse displacement, and means for preventing axial displacement of said pin including shoulders on the central portion of said pin cooperating with the non-circular portions of said holes.

8. An overhead trolley assembly comprising a link of a conveyer chain, a sleeve, two oppositely disposed trolley brackets having wheels at the top and vertical extensions at the bottom, said extensions being insertable downwardly through said link and sleeve and having slots which upon

said insertion through said link and sleeve are partly but not wholly covered thereby, a removable separator member insertable upwardly between said extensions and when so inserted operating to force said extensions into engagement with the sides of said link and said sleeve, said separator member having a hole in the top portion thereof which may be brought in registration with the uncovered portion of said slots, and a retaining pin insertable through said hole and the uncovered portion of said keyholes, the ends of said retaining pin lodging in the covered portion of said slots upon downward movement of said pin and said separator member.

9. A trolley for overhead conveyers including two oppositely disposed brackets, the lower end of each of said brackets having a vertical slot, a hanger member positioned between the lower ends of said brackets and having a hole registerable with said slots, a link of a conveyer chain engaging the lower ends of said brackets and encasing said brackets and said hanger member, and a self-locking removable retaining pin, insertable in said slots and said hole, the shape and position of said slots and said hole and the shape of said pin being such that limited movement of said hanger member in the direction of normal load on said trolley operates to lock said pin into engagement with said brackets and said member.

10. A trolley for overhead rail conveyers comprising two oppositely disposed trolley brackets each bearing trolley wheels at the top and provided with vertical extensions at the bottom, each of said extensions having a vertical slot in the central portion thereof and outwardly projecting bosses at the lower end thereof, a separator member having a hole in the top portion thereof, a rectangular sleeve of inside width equal to the

combined thickness of said extensions and said hanger member, and a retaining pin adapted to fit in said hole and said slots, the other dimensions of the foregoing parts being such as to permit assembly thereof on an overhead rail and through a conveyer chain by inserting said extensions through said sleeve and a link of said conveyer chain to a point where said bosses are below said link and said slots are partially covered by said sleeve, by thereafter upwardly inserting said hanger between said extensions until said hole is in registration with the uncovered portion of said slots, by then inserting said pin in said hole in the uncovered portion of said slots and by finally lowering said hanger and said pin until said pin sets in the bottom and covered portion of said slots.

11. A trolley for overhead conveyers including two oppositely disposed trolley brackets, each with an extension at its lower end; each extension being shaped so as to engage the inner sides of a link of a conveyer chain and being provided with a keyhole-shaped slot, a hanger member insertable between said extensions and being provided with a hole registerable with said slots, a link of a conveyer chain engaging said extensions and surrounding said extensions and said hanger member, and a retaining pin of increased central section insertable in said hole and said keyhole-shaped slots, the shape and position of said slots and of said hole and the shape of said retaining pin being such that movement of said hanger member in the direction of normal load on said trolley operates to lock the narrowed end portions of said retaining pin in the bottoms of said keyhole-shaped slots.

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