Dec. 14, 1937. R. E. JOHNSON 2,102,569

CONVEYER CHAIN WITH READILY DETACHABLE FEED LUG

Filed May 22, 1935

Fig. 1

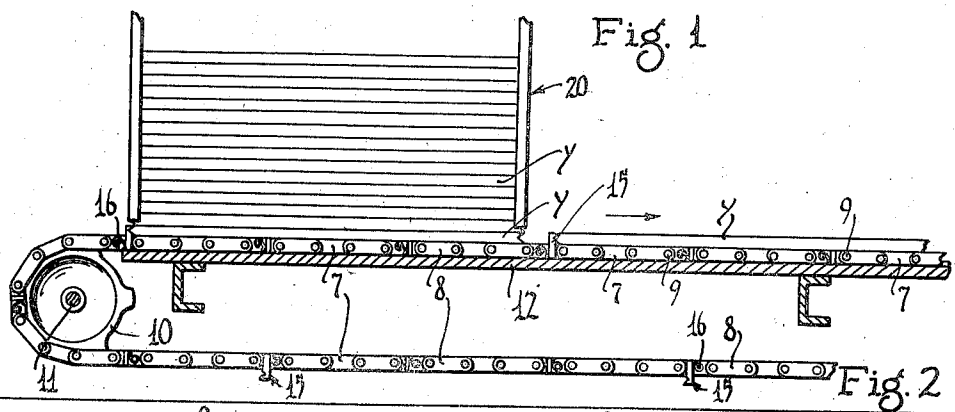


Fig. 2

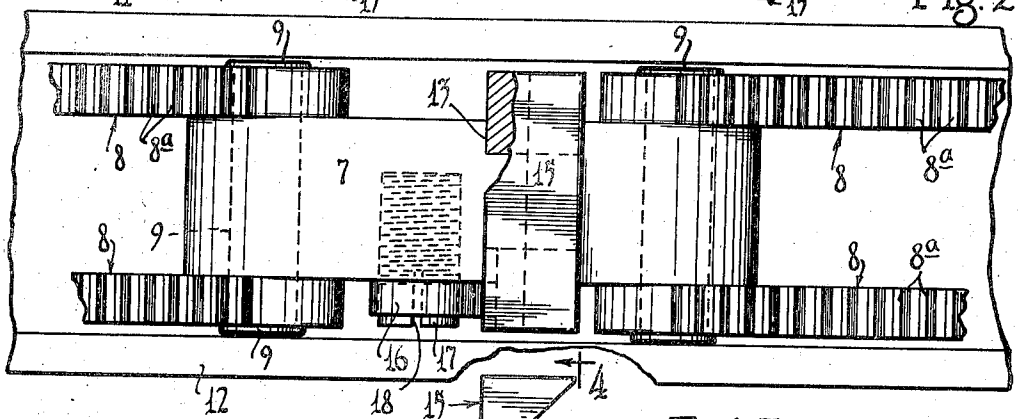


Fig. 3

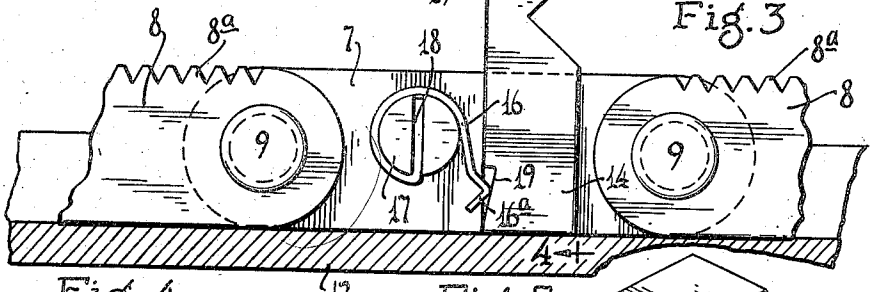


Fig. 6

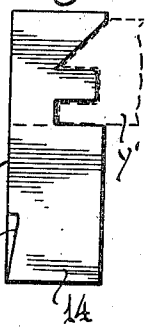


Fig. 4

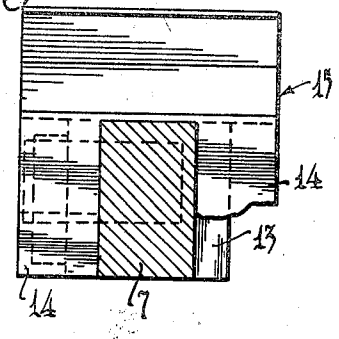
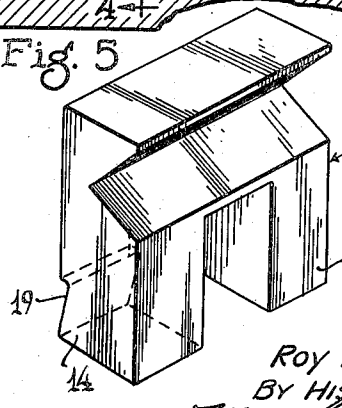


Fig. 5



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Patented Dec. 14, 1937 2,102,569

UNITED STATES PATENT OFFICE

2,102,569

CONVEYER CHAIN WITH READILY DETACHABLE FEED-LUG

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Application May 22, 1935, Serial No. 22,755

6 Claims. (Cl. 198—175)

My present invention relates to conveyer chains such as used in conveying sheets of wall board and the like past edge trimmers or formers, cutting saws and surfaces, and has for its primary object the provision of chains of this general character having readily detachable and interchangeable feed-lugs for engagement with the material under conveyance.

As is well-known, sawing and edge forming machines and the like are customarily provided with feed-lug-equipped conveyer chains for conveying the material past the saws or cutters. Obviously, if such machines are always to be employed for use only in connection with material of the same character and size or having the same shaped edges, then the feed-lugs of the conveyer chains may be permanently formed on or anchored to the chains in desired spaced relation; but if the machines are to be used in connection with materials of different character and dimensions or having different shaped edges, then it becomes necessary to interchange the feed-lugs for some suitable in size and shape for the different material or materials and/or to change the spacing of the feed-lugs on the feed chains.

There has long existed a demand for feed-lug-equipped conveyer chains which could readily be adapted for use in connection with different materials requiring different character feed-lugs and my invention has as an object the fulfillment of this demand.

The above and other important objects and advantages of the invention will be made apparent from the specification and claims.

In the accompanying drawing, which illustrates the invention, like characters indicate like parts throughout the several views.

Referring to the drawing:

Fig. 1 is a fragmentary view in side elevation of a conveyer chain incorporating a plurality of my improved feed-lugs, and illustrating also certain associated apparatus;

Fig. 2 is a greatly enlarged fragmentary plan view of a lug-equipped portion of a feed chain of Fig. 1;

Fig. 3 is an enlarged fragmentary view illustrating in side elevation the portion of the chain shown in Fig. 2;

Fig. 4 is a transverse sectional view taken on the line 4—4 of Fig. 3 and having some parts broken away;

Fig. 5 is a perspective view of one of the feed-lugs of Figs. 1 to 4, inclusive; and

Fig. 6 is a view in side elevation of a feed-lug which is like the feed-lug of Figs. 1 to 5, inclusive, in all respects, except that its material-engaging face is differently shaped.

The feed chain is made up of alternate solid block links 7 and laterally spaced sectional links 8. The sectional links 8 overlap the end portions of the adjacent block links 7 and are pivotally connected thereto by rivets or the like 9. The chain runs over a pair of chain sprockets 10, only one of which is here illustrated, and is driven by one thereof. The sprocket 10 is mounted upon a suitable shaft 11. Whereas there is but one chain here illustrated, it will be understood that in practice a plurality of like chains will be employed in laterally spaced relation for engagement with laterally spaced portions of a sheet of material to be conveyed. The upper portion of each chain is supported, intermediate its sprockets 10, by channeled skid-bars 12.

The solid block links 7 of the chain are provided, intermediate the overlapping sectional links 8, with parallel transverse grooves or channels 13 that are adapted to receive opposite depending legs 14 of feed-lugs 15. The feed-lug legs 4 are formed by bifurcating the lower portions of the feed-lugs. The lugs 15 are bifurcated to a depth equal to the height of the block links 7 and for a width equal to the space between the link channels 13 so that the legs 14 snugly fit and extend the full length of the link channels.

For the sake of strength, the over-all width of the bifurcated lower portions of the lugs is wider than the chain links 7, but is of no greater width than the width of the chain between opposite sides thereof at the sectional links 8. This is important since a chain equipped with these lugs will be no wider than one not so equipped and will, therefore, be capable of running in a skid-bar 12 having a channel of just sufficient width for the chain irrespective of feed-lugs.

The legs 14 of the feed-lugs are snugly but slidably seated in the chain link channels 13 and are releasably held against accidental displacement therefrom by resilient latch springs 16 that are anchored at their inner ends to the block links 7 by means of anchoring screws 17. The anchoring screws 17 are tightly screw-threaded into the links 7 and are provided with screw-driver slots 18 in which the inner ends of the latch springs 16 are securely driven.

One leg 14 of each lug 15 is formed for engagement by the free end portion of a latch spring 16 with a cam surface 19 that diverges outwardly in respect to the line of movement of the lug legs 14 and the link channels 13. The yielding pressure

exerted by the latch springs 16 on the cam surfaces and the taper of the cam surfaces are so proportioned that the lugs 15 will be maintained normally under sufficient downward pressure to prevent accidental displacement of the lugs.

In the preferred arrangement illustrated, the cam surfaces are tapered at an angle of approximately 12½° in respect to the link channels 13, since experiments have proven that the latch spring when engaging a cam surface of this angulation will positively prevent accidental displacement of the legs and at the same time will yield readily to outward pulling action exerted on the lugs which permits displacement of the same. It is, of course, difficult to so accurately manufacture and locate the latch springs 16 that the free ends thereof will always engage the lug legs at exactly the same point, and hence, it is desirable that the cam surfaces 19 be of sufficient length to permit considerable variation in points of engagement of the latch springs with the cam surfaces.

The head portions of the feed-lugs will usually project above the chains a distance approximately equal to the thickness of the material to be conveyed and the front faces thereof are preferably shaped to conform to the shape of engaged edges of the material. This latter feature is particularly desirable when the material to be conveyed is relatively soft and easily damaged. In the example illustrated in Fig. 1, the material under conveyance may be assumed to be relatively soft sheets of fibrous wall board *y* having V-shaped tongue-forming edges which are engaged by the feed-lugs and the feed-lugs are formed with V-grooves for engagement with the V-tongue edges of the wall board. Now if it is desired to use the chains for conveyance of material having different shaped edges such, for example, as the material indicated by dotted lines *y'* in Fig. 6, the lugs may be readily removed and replaced with lugs like the lug 15' of Fig. 6 which has a material-engaging face corresponding to the contour of the edge of the material *y'*.

The requirements for spacing of the feed-lugs of the chains will vary according to the flat dimensions of the material to be conveyed and for the purpose of obtaining a high degree of flexibility in this respect I have shown every second block link 7 of the chains as being provided with lug-receiving channels 13 and latch springs 16. Obviously, this arrangement permits substantially any desired spacing required.

It is customary in practice to supply the conveyer chains with material from a gravity fed hopper, such as indicated by 20, containing a stack of sheets of material *y* or the like.

With the above described arrangement it will be seen that the conveyer chains may be efficiently employed for use in connection with material of various different characters and that a minimum of time and effort will be needed to adapt the chains to different work, it merely being necessary to pull off one set of feed-lugs and snap on in desired spaced relation another set having the required shaped heads. As a means for further reducing the possibility of damaging the lug-engaged faces of the sheets *y* or the like, I preferably make the upper surfaces of the links irregular so as to increase the frictional drag of the chains on the flat under surfaces of the material. This may be accomplished in different ways but is preferably accomplished by forming the links 8 with transverse teeth 8*a*. Obviously, the links 7 could be likewise formed, if desired.

Whereas feed lugs are essential in some classes of work and in connection with some kinds and sizes of material, they are neither desirable or usable for use in connection with other kinds or sizes of material. For example, it will be seen that should it be desired to convey a piece of material longer than the in-feed portions of the conveyer itself, such as would project beyond the illustrated sprocket 10, feed-lugs would have no opportunity to contact the edge of the material, and would render the conveyer useless for the purpose. However, with the conveyer illustrated the feed-lugs place no limitation on the usefulness of the conveyer since they may be readily removed when desired and when thus used, independent of feed-lugs, the increased frictional drag of the chain on the material, due to the chain teeth 8*a*, is particularly important.

What I claim is:

1. In a conveyer chain made up of pivotally connected links, transversely extended parallel slots in opposite sides of a chain link, a feed-lug having laterally spaced parallel legs, said lug legs being slidably seated in the transverse slots of said chain link, and yielding means for locking the lug against accidental displacement from the chain, said yielding means being automatically releasable by pull exerted on the lug.

2. In a conveyer chain made up of pivotally connected links, transversely extended parallel slots in opposite sides of a chain link, a feed-lug having laterally spaced parallel legs, said lug legs being slidably seated in the transverse slots of said chain link, and a yielding latch normally retaining the lug against accidental displacement from the chain, said latch being releasable by pull exerted on the lug.

3. In a conveyer chain made up of pivotally connected links, transversely extended parallel slots in opposite sides of a chain link, a feed-lug having laterally spaced parallel legs, said lug legs being slidably seated in the transverse slots of said chain link, and a spring latch device carried by one of the slidably engaged parts and having yielding engagement with the other thereof, said latch being releasable by pull exerted on the lug.

4. In a conveyer chain made up of pivotally connected links, transversely extended parallel slots in opposite sides of a chain link, a feed-lug having laterally spaced parallel legs, said lug legs being slidably seated in the transverse slots of said chain link, and means for releasably locking the feed-lug to the chain link, said means comprising a cam surface on one of the slidably engaged parts and yielding latch device carried by the other thereof and yieldingly engaging the cam surface, the action of the spring latch on the cam surface being such as to normally maintain the feed lug under tension to move toward the feed chain.

5. In a conveyer, a chain made up of alternate single section links and laterally spaced sectional links overlapping the end portions of the single section links and pivoted thereto, at least one of said single section links being provided at opposite sides with transverse channels, a feed-lug having laterally spaced legs slidably seated in the lug channels, and yielding means automatically releasable to pull on the lug for normally locking the lug against accidental displacements.

6. The structure defined in claim 5 in which the over-all width of the lug and locking means is no greater than the maximum width of the chain at points below the top of the chain.

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