

May 2, 1933.

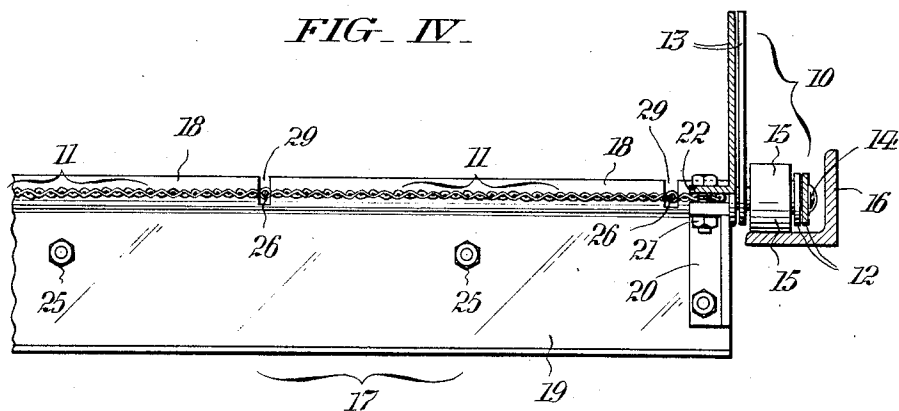
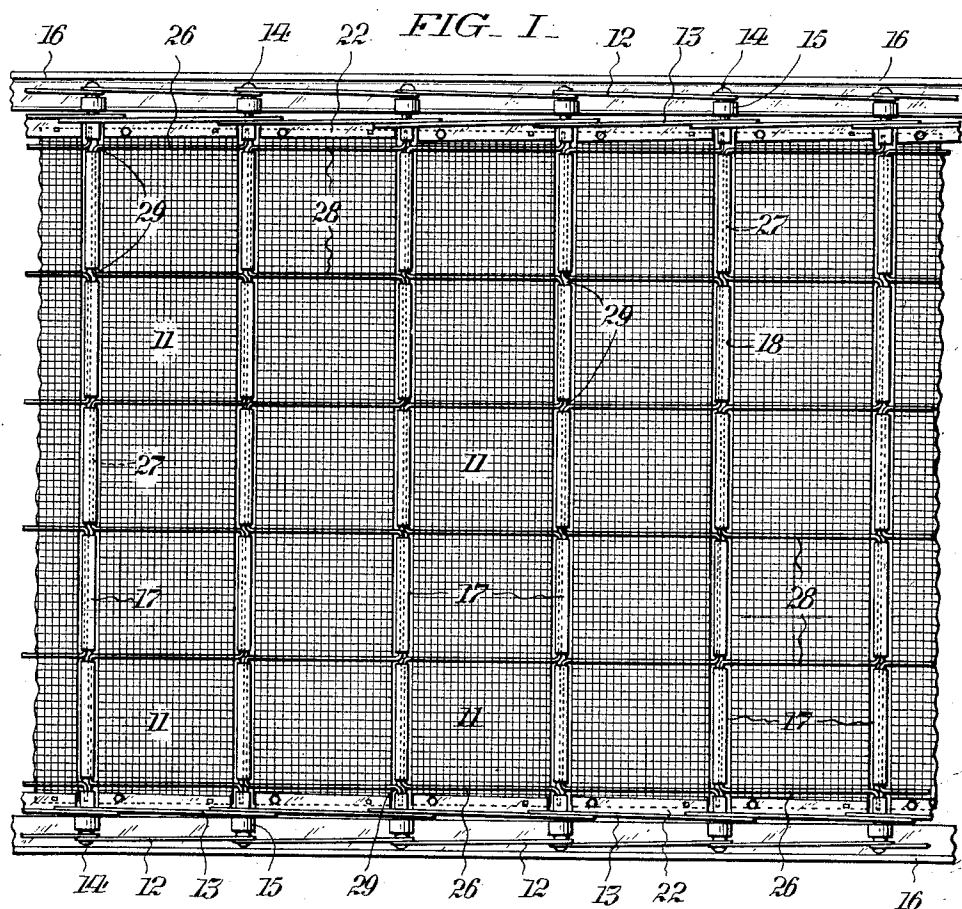
W. W. SIBSON ET AL

1,906,642

CONVEYER

Filed April 11, 1931

3 Sheets-Sheet 1



WITNESSES
John C. Bergner
Hubert Fuchs

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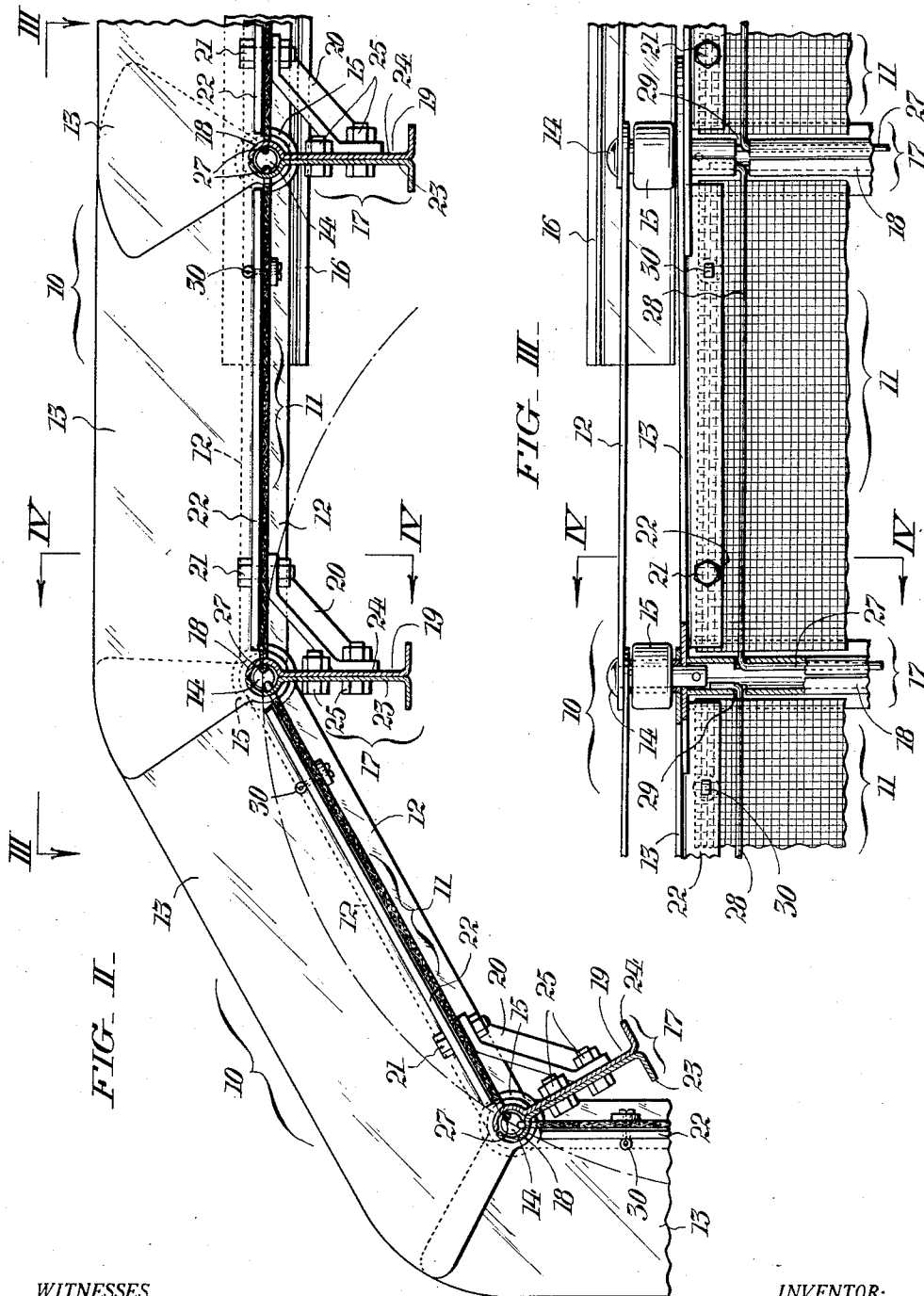
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3 Sheets-Sheet 2



WITNESSES

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FIG. VI.

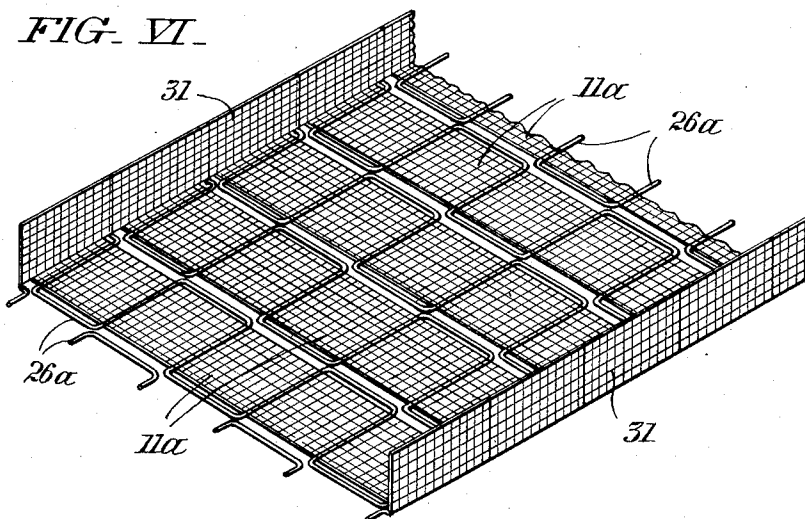


FIG. VII.

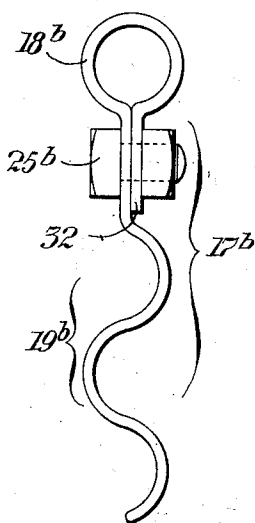


FIG. VIII.

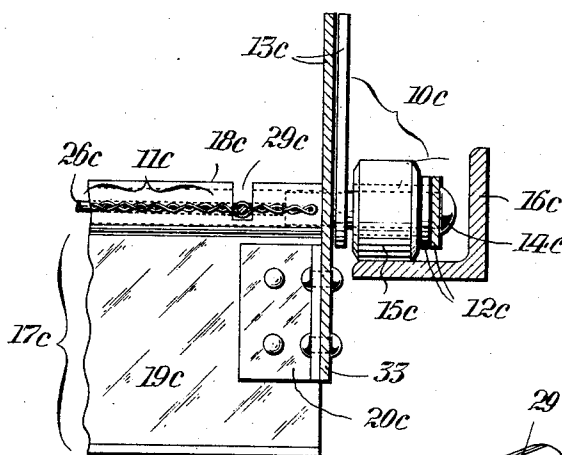
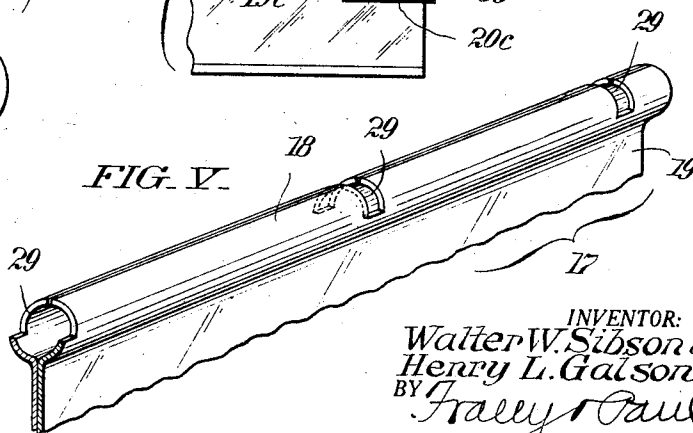


FIG. V.



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UNITED STATES PATENT OFFICE

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CONVEYER

Application filed April 11, 1931. Serial No. 529,370.

This invention relates to what are known as apron conveyers such as are extensively used to convey materials in loose form, for example, cotton or wool stock while subjected to treatment in drying or conditioning machines, and wherein a succession of open mesh or screen sections are individually supported between corresponding links of a pair of spaced side chains for ability to move around guide sprockets.

In the main our invention is directed toward making possible, in conveyers of the type referred to, the uniform distribution of load and working stresses between the side chains without imposition of strains such as would be likely to interfere with the ready movement of the conveyers about the sprockets. This desideratum we attain as hereinafter fully disclosed, through provision of cross members whereby corresponding links of the two side sprocket chains of the conveyers are rigidly connected together and which afford, in coaxial relation to the pivot centers of sprocket chain links, tubular portions to receive and sustain the edges of contiguous screen sections with capacity for independent pivotal action.

Our invention is further concerned with structural refinements whereby the screen sections of the conveyers are effectively reinforced without the addition of appreciable weight, and whereby they are provided, at the same time, with substantial edgings to engage the connecting stress-distributing cross members in the manner aforementioned.

Other objects and attendant advantages of this invention will be manifest from the detailed description following taken in connection with the attached drawings, wherein Fig. I is a plan view of a portion of an apron conveyer conveniently embodying the present improvements.

Fig. II is a fragmentary longitudinal sectional view of the conveyer drawn to a larger scale.

Fig. III is a fragmentary plan view of one side of the conveyer, viewed as indicated by the arrows III—III in Fig. II, and having portions broken away or in section to expose important structural details.

Fig. IV is a fragmentary cross sectional view of the conveyer taken as indicated by the arrows IV—IV in Figs. II and III.

Fig. V is a perspective view showing a fragment of one of the transverse connecting members of the conveyer.

Fig. VI is a perspective view showing a modification of our invention.

Fig. VII is a detail view showing an alternative form of cross-connecting stress-distributing member for the conveyer; and,

Fig. VIII is a cross sectional view corresponding to Fig. IV showing a further modification of our invention.

In the form delineated in Figs. I—IV of these illustrations, our improved apron conveyer comprises a pair of spaced sprocket chains 10, which jointly support between them a series of screen sections 11. The chains 10 are formed with double links whereof the outside components are indicated at 12 and the inside components at 13, the components of the contiguous links interlapping at their ends and being there connected by pivot pins 14. In order to serve as guards to prevent spill along the side edges of the conveyer, the in-side components 13 of the chains 10 are in this instance made to such width as to reach well above the level of the screen sections 11, see Figs. II and IV. The chain link components 13 are moreover extended at their ends beyond the points of interpivoting, as shown in Fig. II, with assurance of ample overlapping to preclude edge spill incident to travel of the conveyer about guide sprockets. Rotative on the pivot pins 14 between the chain link components 12, 13 are rollers 15 which are adapted to travel along horizontal angular guide rails 16, see Figs. I and IV, so that

the conveyer is supported against sagging under load.

Extending between corresponding links of the two chains 10, are transverse or cross-connecting stress-distributing members 17 with tubular portions 18 engaging over the inwardly projecting ends of the chain link pivot pins 14, and with web portions 19 depending from said tubular portions. As shown in Figs. II and IV, the cross-connecting members 17 just referred to are supported by angle brackets 20 which are secured, by means of bolts 21, to laterally turned flanges 22, of the *in*-side components 13 of the chain links intermediate the ends of said link components. The transverse connecting members 17 are in the present instance split, i. e., each is composed of two counterpart halves 23, 24, Fig. II, fashioned from sheet metal and separably clamped together by bolts 25.

Each screen section 11 of the conveyer is made from a strip of relatively fine wire mesh of a width corresponding substantially to the length of the sprocket chain links. The screen sections 11 are stiffened by reinforcements 26 fashioned to angularly-corrugate configuration from stout wire. These reinforcements 26 may be incorporated with the screen mesh in any convenient manner, for example, by inter-weaving as shown in Figs. II and IV, with their longitudinally aligned segments 27 forming substantial edgings for the wire mesh of the screen sections. The cross segments 28 of the reinforcements 26, serve on the other hand to effectively prevent sagging of the screen mesh between edges. From Fig. I it will be noted that the edge segments 27 of the reinforcement 26 of one screen section 11 are inter-aligned with those of the contiguous screen sections. From the latter figure and also from Figs. II and III, it will be furthermore observed that the edge segments 27 of the reinforcements 26 of contiguous screen sections are engaged with capacity for independent pivotal movement within the tubular portions 18 of the transverse connecting members 17, which, to accommodate the cross segments 28 of the screen reinforcements, are slotted or notched at intervals as at 29, see Figs. I, III, IV and V. In view of the immediately foregoing and by virtue of the fact that the cross members 17 are made of separable parts, it will be seen that the edge segments 27 of the screen section reinforcements 26 can be readily inserted into the tubular portions 18 of the said connecting members incident to assembling of the conveyer. The screen sections 11 of the conveyer are thus supported mainly by the cross connecting members 17 which are in turn supported from the sprocket chain links 12, 13 by the angle brackets 20. Although the tubular portions 18 of the connecting member 17 engage over the inner ends of the link pivot pins 14 of the chains no

strains are communicated to the said pivot pins by reason of the weight carried on the conveyer. The side edges of the wire mesh constituting the screen sections 11, in the present instance, underlie the laterally turned flanges 22 of the *in*-side components of the sprocket chain links 13 whereto they are secured adjacent one end by the bolts 21 which fasten the brackets 20, and adjacent the other ends of the links by separate securing members 30.

Fig. VI shows a modification of our invention in which the wire mesh of the screen sections 11a of the conveyer are turned up perpendicularly as at 31 to function, in lieu of the *in*-side link components of the sprocket chains of the first described embodiment, as side guards to prevent edge spill from the conveyer.

Fig. VII shows an alternative form of cross-connecting stress-distributing member 17b fashioned from a single piece of sheet metal. The tubular portion 18b is in this case formed as a loop with a flange 32 to abut the pendant portion 19b; and screw bolts 25a are relied upon to clamp the said loop. For the purposes of increased rigidity, the pendant portion 19b of the modified connecting member 17b is longitudinally corrugated as illustrated.

In Fig. VIII, the *in*-side link components 13c of the sprocket chains 10c instead of being laterally flanged, as in Figs. I-III, are extended downward as at 33 to enable attachment of angle brackets 20c for the cross connecting members 17c.

Having thus described our invention, we claim:

1. An apron conveyer comprising a pair of laterally-spaced chains; transverse-connecting stress-distributing members having tubular portions coaxial with the chain link pivots and stiffening webs pendant from the said tubular portions; and screen sections with reinforcements of angular-corrugate formation affording pivot segments along their contiguous edges engaging within the tubular portions of the transverse connecting members.
2. An apron conveyer comprising a pair of laterally-spaced chains; transverse-connecting stress-distributing members having tubular portions coaxial with the chain link pivots and stiffening webs pendant from the said tubular portions, the said connecting members being supported by brackets secured to corresponding links of the two chains intermediate the ends of the latter; and screen sections embodying reinforcements of angular-corrugate formation affording spaced pivot segments along their contiguous edges engaging within the tubular portions of the transverse connecting members.
3. An apron conveyer comprising a pair of laterally-spaced chains; transverse-con-

necting stress-distributing members having tubular portions coaxial with and engaging over inwardly projecting ends of the chain link pivot pins, and stiffening webs pendant from the tubular portions, the said connecting members being supported by brackets secured to corresponding links of the two chains intermediate the ends of such links; and screen sections with incorporated continuous reinforcements of rectangularly-corrugate formation affording alignedly spaced segments along their contiguous edges pivotally engaging within the tubular portions of the transverse connecting members.

4. An apron conveyer comprising a pair of laterally-spaced chains; screen sections extending between corresponding links of the two chains, each said section having a wire reinforcement of angularly-corrugate formation affording aligned pivot segments along paralleling edges; and transverse-connecting stress-distributing members with tubular portions adapted to receive, within them, the pivot wires along the meeting edges of contiguous screen sections, said connecting members being split for convenience of inserting the aforementioned pivot wires incident to assembling the conveyer.

5. An apron conveyer comprising a pair of laterally-spaced chains; screen sections extending between corresponding links of the two chains, each section embodying a continuous rectangularly-corrugate wire reinforcement affording aligned relatively-staggered pivot segments along parallel edges; and transverse - connecting stress - distributing members with tubular portions adapted to receive, within them, the pivot wires along the meeting edges of contiguous screen sections, said connecting members comprising counterpart components of sheet metal separable for convenience of inserting the aforementioned pivot wires incident to assembling the conveyer.

6. An apron conveyer comprising a pair of laterally spaced chains; screen sections of fine wire stiffened by incorporated rectangular-corrugate reinforcements of stout wire with the longitudinally-extending segments of the latter slightly-projecting along the end edges of the screen sections; and transverse-connecting stress-distributing members between corresponding links of the two chains having tubular portions within which the projecting edge segments of the reinforcing wires of contiguous screen sections are engaged with capacity for independent pivotal movement.

7. An apron conveyer comprising a pair of laterally-spaced chains; screen sections of fine wire stiffened by rectangular-corrugate reinforcements of stout wire, with segments of the latter along opposite end edges of the screen sections; and transverse-connecting stress-distributing members between corresponding links of the two chains, having

tubular portions adapted to respectively receive within them, the aforementioned segments of the stiffening wires along the edges of the contiguous screen sections, the said connecting members being formed of separable parts and notched at intervals to facilitate assembling of the conveyer.

8. An apron conveyer comprising a pair of laterally-spaced chains; screen sections of fine wire stiffened by rectangular-corrugate reinforcements of stout wire with the longitudinal segments of the latter along the end edges of the screen sections; and connecting members with tubular portions co-axial with the chain link pivots adapted to be pivotally engaged by the edge segments of the reinforcements of contiguous screen sections.

9. An apron conveyer comprising a pair of laterally-spaced chains; screen sections of fine wire stiffened by rectangular-corrugate reinforcements of stout wire with the longitudinal segments of the latter along the end edges of the screen sections, the longitudinally extending segments of the stiffening wire along the edge of one screen section being inter-aligned with those along the contiguous edge of the adjacent screen section; and connecting stress-distributing members transversely between corresponding links of the two chains, the said connecting members having tubular portions within which the edge segments of the wire reinforcements of contiguous screen sections are engaged with capacity for independent pivotal movement.

10. An apron conveyer comprising a pair of laterally spaced chains, rectangular screen sections supported between corresponding links of the two chains, each said section embodying a continuous corrugate-reinforcement with the aligning-segments providing pivot portions beyond opposing edges of the screen section, and the other opposing edge portions of said section being upwardly-angled relative to the general plane of the latter to prevent spill along the sides of the conveyer.

11. An apron conveyer including screen sections individually made from fine wire mesh stiffened from side to side by a continuous corrugate reinforcement of stout wire, and said corrugate reinforcement having the aligning-segments thereof projecting beyond opposing sides of the screen section to form pivot elements.

12. An apron conveyer including consecutive sections each of which is made from fine wire mesh stiffened from side to side by an in-woven rectangularly-corrugated reinforcement of stout wire, and the aligning-segments of said reinforcement projecting beyond opposing edges of the screen section in alternating relation to provide pivot elements for said section.

13. An apron conveyer comprising a pair

of laterally spaced chains; and screen sections of fine wire mesh extending between corresponding links of the two chains, the said screen sections being stiffened by corrugated
5 reinforcements of stout wire, and arranged with the reinforcement corrugations of one screen interlapping with those of adjacent sections along meeting edges.

In testimony whereof, we have hereunto
10 signed our names at Philadelphia, Pennsylvania, this 2nd day of April, 1931.

WALTER W. SIBSON.
HENRY L. GALSON.

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