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APRON CONVEYER

Filed Sept. 2, 1931

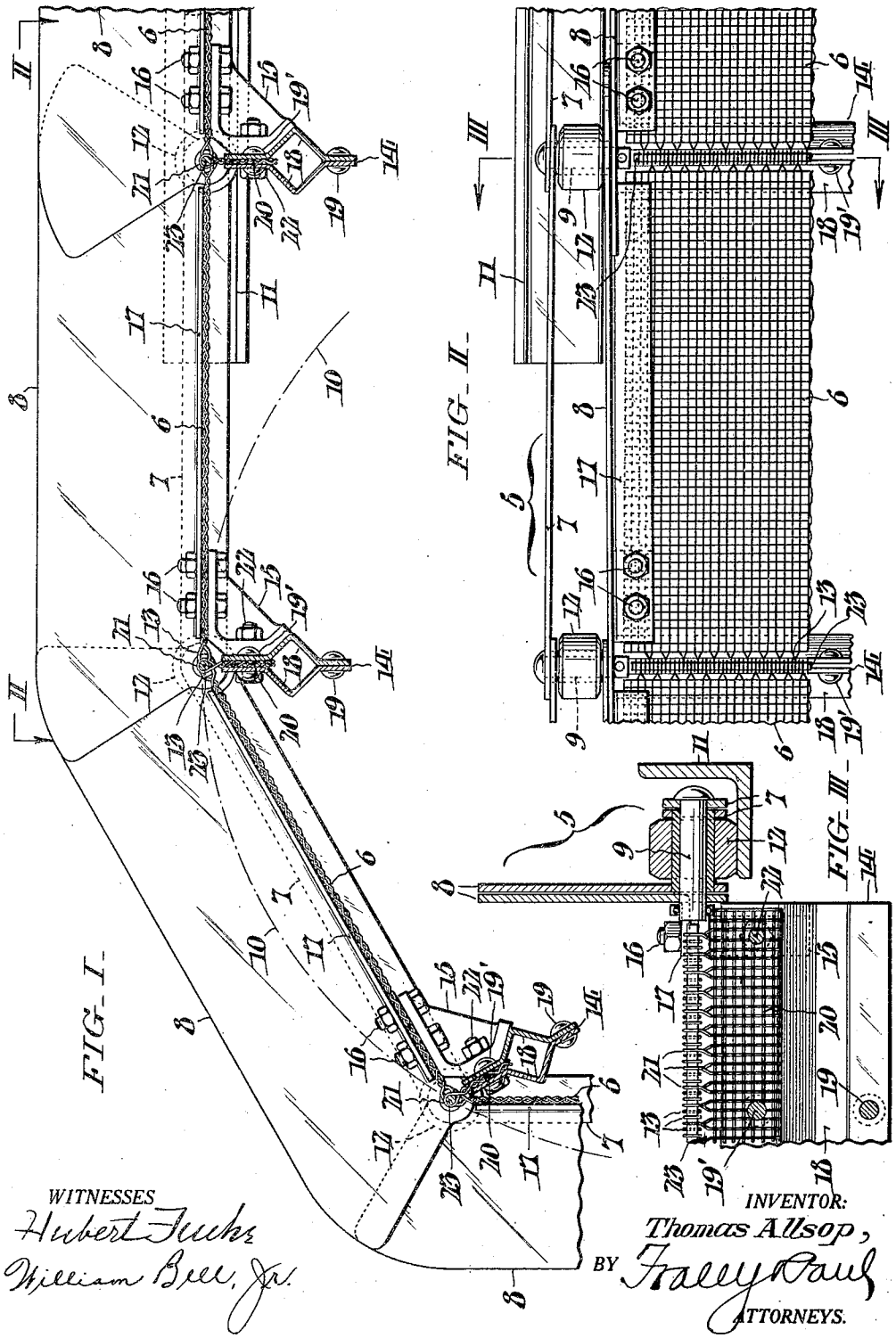

FIG. I.

FIG. II.

FIG. III.

WITNESSES

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APRON CONVEYER

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This invention relates generally to apron conveyers and, more particularly, to the type commonly known as sectional conveyers useful, for example, to transport material in loose or bulk form through treating apparatus, such as drying and conditioning machines.

Conveyers of the kind referred to usually comprise perforate sections pivotally connected in sequence and suitably sustained between spaced progressing means.

An important object of this invention is to provide a sectional conveyer, of the referred to form, characterized by novel features effective to positively prevent "sagging" at the union of consecutive sections.

Another object is to provide an endless sectional conveyer which functions smoothly at all times, as well as when negotiating curvilinear paths or passing around the sprockets whereby such conveyers are usually progressed.

Other objects of my invention will appear from the following description which is directed to a practical embodiment thereof, reference being had to the accompanying sheet of drawing forming a part of this specification; while the features of novelty are more particularly expressed in the claims hereto appended.

In the drawing:—

Fig. I is a fragmentary longitudinal section of a portion of an apron conveyer embodying the present improvements.

Fig. II is a partial plan view of the preceding illustration, taken as indicated by the arrows II—II thereabove; and,

Fig. III is a vertical section, taken as indicated by the arrows III—III in Fig. II.

Referring more in detail to the drawing, the numeral 5 designates one of a pair of spaced sprocket chains, one only being shown to avoid unnecessary illustration, that jointly support between them a series of screen sections 6. Each chain 5 is composed of double links whereof the outside components are indicated at 7 and the inside at 8, the components of the contiguous links interlapping at their ends and being connected by pivot pins 9. In order to serve as "spill" preventing guards, at the sides of the conveyer, the in-side chain components 8 are made of a suitable depth so as to extend well above the screen sections 6, and they project at their ends beyond the pivot pins 9 so as to overlap even when rounding the progressing sprockets, the pitch line of one of which is indicated by a dot-and-dash line 10 in Fig. I. Rollers 12 are mounted on the pivot bushings or pins 9, between the link components 7, 8, and adapted to travel along suitable guide rails 11, so that the conveyer is supported against sagging under load.

Each screen section 6 is made from suitable mesh wire screening, of a width closely approximating the distance between the in-side chain components 8, and of an over-all length substantially corresponding with the dimension intervening the axes of the successive pivot pins 9. Furthermore, it is to be particularly noted, I appropriately fashion the longitudinal wires of each screen section 6, so as to provide a series of end eyes or selvage loops 13 in axial alignment, for a purpose later on again referred to.

Extending between and in alignment with the axes or pivot pins 9 of the sprocket chains 5 are transverse girts 14, which are supported at their ends by angle-brackets 15, in turn clamped, by suitable securing means such as bolts 16, to laterally turned flanges 17 integral with the in-side components 8 of said sprocket chains, with interposition of the adjoining screen section corners, as is obvious from the drawing. Each girt 14 comprises opposed symmetrical rectangularly-grooved components 18 with flanking co-planar flanges proportioned to give sufficient stiffness across the width of the conveyer, and at their lower flanged portions, as viewed in Figs. I and III, they are rigidly connected, as by rivets 19. Between the upper flanged portions of the girt components 18 there is clamped, as by rivets 19′, a section 20 of woven wire mesh provided with selvage loops 21 (Figs. I and III) as above described in relation to the screen sections 6; while the girts 14 are secured to the brackets 15 by bolts 22. These loops 21 of the girt sections 20, as well as loops 13 of the screen sections 6,

jointly afford aligned bearing elements for the hinge wires or rods 23, which are introduced through the loops 13 and 21, in an obvious manner, so as to form a hinge connection the axis whereof is in direct axial alignment with the axes of opposing sprocket chain pivot pins 9. It is to be noted, however, that the loops 13 of the screen sections 6 are arranged to permit a limited amount of lateral movement; while it is to be particularly remarked that the supporting girts 14 are located directly below the hinge wires or rods 23, whereby the latter are maintained in positive axial alignment at all times with respect to the sprocket chain pivot pins 9.

From the foregoing it will be apparent that by supporting the girts 14 at their ends, through the medium of the brackets 15, rigidly relative to the chain components 8, that said girts in turn similarly support the hinge wires or rods 23 across the whole width of the conveyer by means of the loops 13, 21, which thereby effectively prevents "sagging" of said wires or rods, with resultant smoother functioning of the conveyer when operating and passing around its progressing sprockets.

Stiffening wires, not shown, may be incorporated in the screen sections 6 to prevent sagging between the respective girts 14, and looped for passage of the hinge wires or rods 23, in an obvious manner.

In conclusion the details of construction of the various parts, and the proportions thereof, may all be varied as desired without departing from the spirit of my invention as set forth in the following claims.

Having thus described my invention, what I claim, is:—

1. An apron conveyer comprising laterally-spaced link chains, screen sections having end apertures axially alignable with the chain link pivots, transverse girts with serial apertures similarly positioned relative to said pivots, hinge elements introduced through the contiguous screen and girt apertures, and means to rigidly sustain the girts whereby the hinge elements are maintained in direct axial alignment with the link pivot axes and sagging at the union of consecutive screen sections is prevented.

2. An apron conveyer comprising a pair of laterally-spaced link chains, screen sections of perforate material having end eyes axially alignable with the chain link pivots, transverse girts including an element affording serial eyes similarly located relative to said pivots, hinge elements introduced through the contiguous screen and girt eyes, and brackets rigidly supporting the girts from corresponding links of the two chains whereby the hinge elements are maintained in direct axial alignment with the link pivot axes and sagging at the union of the consecutive screen sections is prevented.

3. An apron conveyer comprising a pair of laterally-spaced link chains, conveyer sections of woven wire mesh with the longitudinal strands fashioned to provide serial selvage loops axially alignable with the chain link pivot pins, transverse girts including a woven wire section with serial selvage loops similarly located relative to said pivots, hinge elements introduced through adjoining conveyer wire sections and associated girt wire section loops, and brackets rigidly supporting the girts transversely below corresponding links of the two chains whereby the hinge elements are constantly maintained in direct axial alignment with the axes of opposing chain link pivot pins and sagging at the union of consecutive conveyer sections is prevented.

4. An apron conveyer comprising a pair of laterally-spaced link chains, conveyer sections of woven wire mesh with the longitudinal strands fashioned to provide serial selvage loops axially alignable with the chain link pivot pins, said selvage loops being spacially arranged to permit a limited amount of lateral movement, transverse girts including a woven wire section with serial selvage loops similarly located relative to said pivots, hinge elements introduced through adjoining conveyer wire sections and associated girt wire section loops, and brackets rigidly supporting the girts transversely below corresponding links of the two chains whereby the hinge elements are constantly maintained in direct axial alignment with the axes of opposing chain link pivot pins and sagging at the union of consecutive conveyer sections is prevented.

5. In an apron conveyer of the kind described, a girt comprising a stiffening portion with an attached reticulate section, said section embodying axially-aligned integrally-formed selvage loops.

6. In an apron conveyer of the kind described, a girt embodying opposed rectangularly-grooved portions, and an interengaging woven wire section having serial selvage loops in direct axial alignment.

7. In an apron conveyer of the kind described, a girt comprising opposed rectangularly-grooved components with co-planar flanking flanges, a woven wire section engageable between a pair of the adjoining flanges, said section having serial selvage loops in direct axial alignment along its free edge, and means for clamping said parts in permanent association.

In testimony whereof, I have hereunto signed my name at Philadelphia, Pennsylvania, this 25th day of August, 1931.

THOMAS ALLSOP.