Jan. 19, 1943. W. DREISEL 2,308,651

POLE-CARRYING MEANS FOR ENDLESS CHAIN CONVEYERS

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Fig.1.

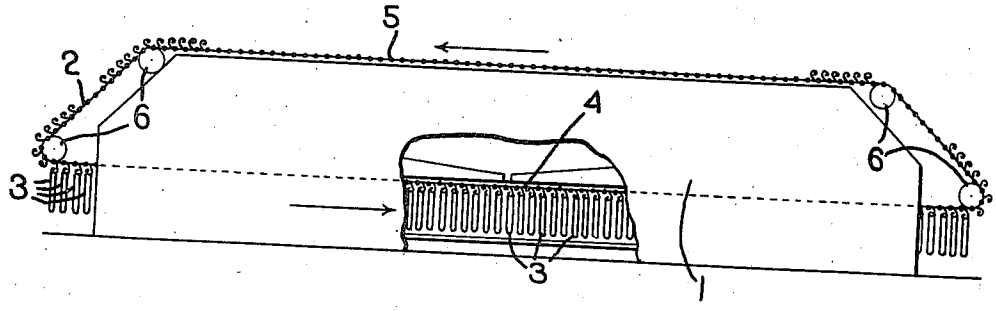


Fig.2.

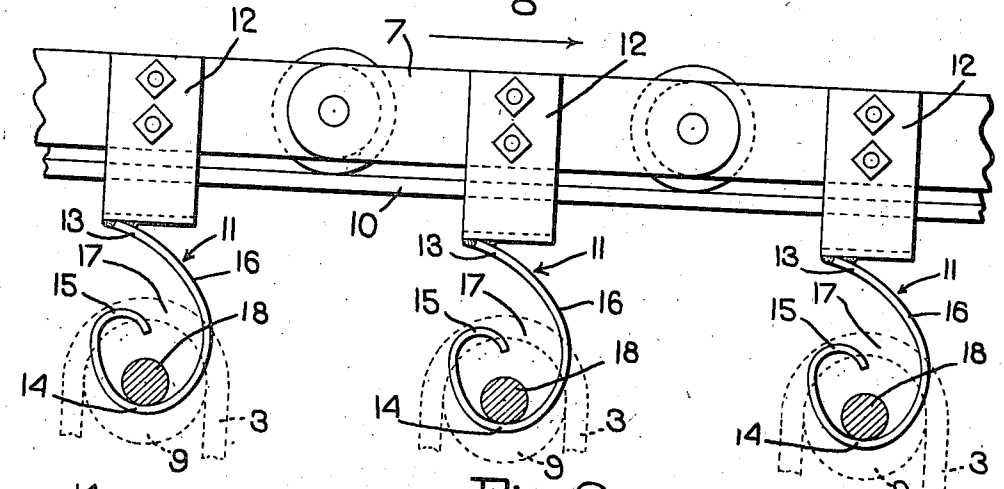
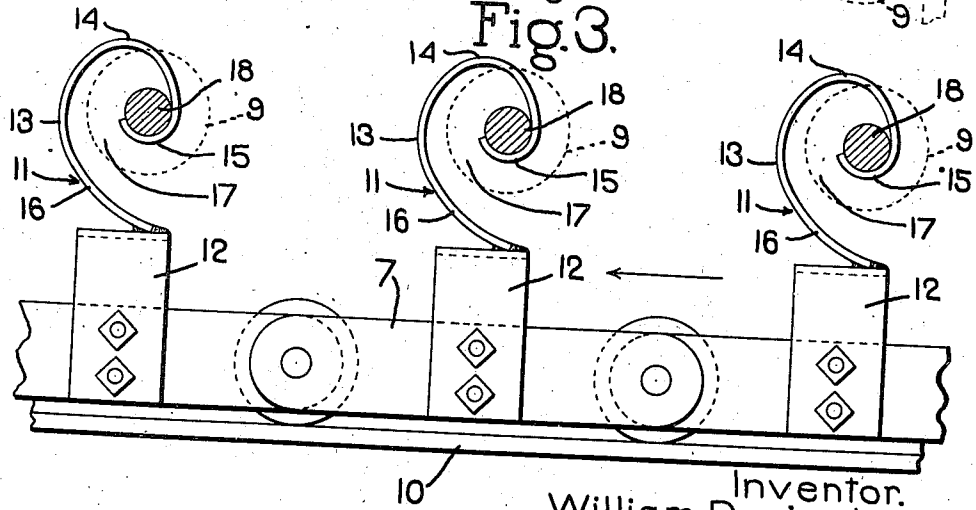


Fig.3.



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Fig.4.

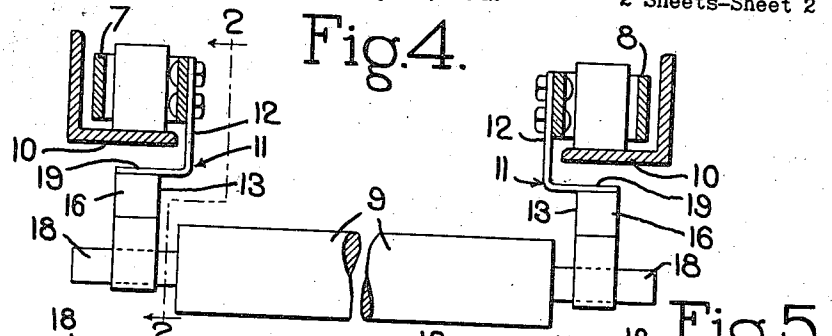


Fig.5.

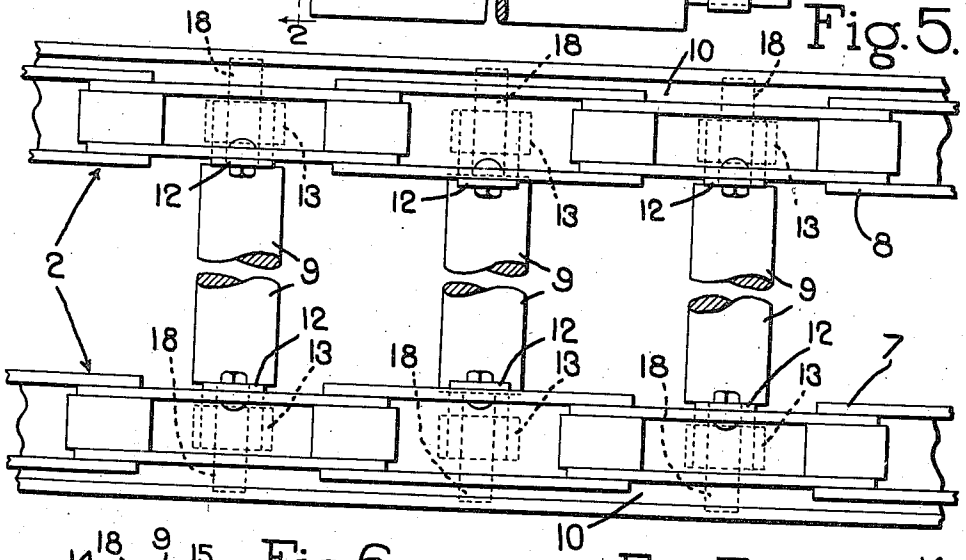


Fig.6.

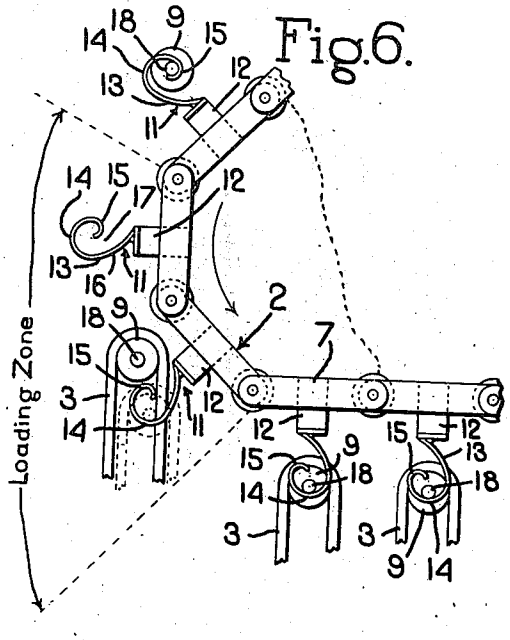
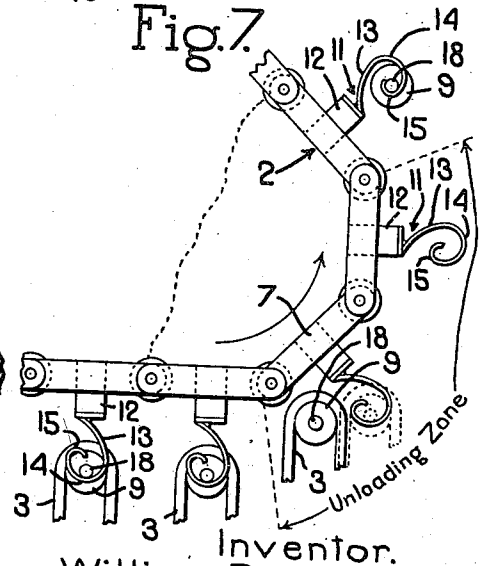


Fig.7.



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POLE-CARRYING MEANS FOR ENDLESS CHAIN CONVEYERS

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Application May 25, 1942, Serial No. 444,306

7 Claims. (Cl. 198—131)

This invention relates to pole-carrying means for endless chain conveyers. Such conveyers carrying poles for supporting the material to be conveyed are used in connection with various devices, one common use being for conveying material to be dried through the drying chamber of a drying apparatus, and it is in connection with a drying apparatus that I have chosen to illustrate the invention. I wish to make it clear, however, that the invention is not limited in its use to drying apparatus but is capable of use in connection with many other kinds of apparatus in which material is transported from one point to another by means of poles mounted on an endless chain conveyer.

In the operation of a drying apparatus of the above type each pole is loaded with the material to be dried while removed from the endless chain carrier, and is then placed on the traveling carrier at the entering end of the drying chamber, the traveling movement of the carrier conveying the loaded pole through the drying chamber. As each pole with its load of dried material arrives at the discharge end of the drying chamber an attendant removes the pole from the traveling carrier and then strips the dried material therefrom. The empty pole must then be returned to the entering end of the drying chamber to be again loaded and mounted on the traveling carrier for another journey through the drying chamber.

One of the objects of the present invention is to provide an endless chain carrier having novel pole-carrying members, each of which is formed to provide one pole-supporting portion for supporting a loaded pole while said member is in one run of the endless chain carrier and is traveling through the drying chamber from the entering end to the discharge end, and another pole-supporting portion to support an empty pole when said member is in the other run of the endless chain carrier and is traveling from the discharge end of the drying chamber back to the entering end, whereby the empty poles are returned by the carrier.

A further object of the invention is to provide a pole-carrying member which is constructed to facilitate the placing of poles on and their removal from the endless chain carrier.

In the drawings herein I have illustrated a selected embodiment of my invention:

Fig. 1 is a view of the drying apparatus embodying the invention.

Fig. 2 is a fragmentary view of the endless chain carrier showing the pole-carrying members as supporting loaded poles, said figure being taken on the line 2—2 Fig. 4.

Fig. 3 is a fragmentary view of the endless chain carrier showing the portion thereof which is supporting empty poles and returning them from the discharge end of the drying chamber to the entering end thereof.

Fig. 4 is a transverse section through the endless chain carrier.

Fig. 5 is a plan view of Fig. 4 with part broken out.

Fig. 6 is a fragmentary view showing the portion of the endless chain carrier that occupies the loading zone in which the loaded poles are mounted on the endless chain carrier.

Fig. 7 is a fragmentary view illustrating the portion of the endless chain carrier occupying the unloading zone in which the loaded poles are removed from the carrier and empty poles are replaced therein and returned to the loading zone.

In Fig. 1, 1 indicates the drying chamber of a drying apparatus in which the material is dried and 2 indicates a traveling endless chain carrier by which the poles loaded with the material to be dried are conveyed through the drying chamber 1. This endless chain carrier may be driven by any suitable means, not shown. In the construction here illustrated the loaded poles carrying the material 3 to be dried are supported on the lower run 4 of said carrier, the upper run 5 of the carrier being carried over and above the drying chamber 1. 6 indicates suitable direction pulleys or sprocket wheels around which the carrier passes and by which it is properly guided.

As usual, in apparatus of this type, the endless chain carrier comprises two parallel endless chain elements 7 and 8 and each endless chain element is provided with pole-carrying means for supporting one end of each of the poles, said poles being indicated at 9.

10 indicates supporting tracks for supporting the upper and lower runs of the endless chain elements.

The pole-carrying members are indicated at 11. Each pole-carrying member is formed with a body section 12 which is secured to one of the links of the endless chain carrier and extends laterally somewhat beyond said link and a pole-receiving section 13 which is situated on the opposite side of the track 10 from the endless chain element 7 or 8, and which is formed with two opposed hook portions 14 and 15, one of which is adapted to receive and support a loaded pole while traveling through the drying chamber and

the other of which is adapted to receive and support an empty pole while traveling along the upper run 5 of the endless chain carrier. Each pole-receiving portion 13 is formed with a shank portion 16 which terminates in the hook-shaped portion 14 that faces toward the endless chain element and constitutes one pole-supporting portion of the pole-carrying member, the nose portion of the hook 14 being bent backward to form the other pole-supporting portion 15 which faces away from said endless chain element. The pole-receiving section 13 is also shaped to provide a throat 17 between the tip of the pole-supporting portion 15 and the shank 16 through which the pole-ends may be passed when the poles are being mounted on the pole-carrying members or removed therefrom.

Each pole 9 is provided with reduced end portions 18, as usual in apparatus of this type, and the throat 17 is of sufficient transverse dimension to permit such reduced ends to freely pass therethrough.

Since there are two endless chain units, 7 and 8, each having these pole-carrying members, there will be a pair of such pole-carrying members for each pole.

As each pair of pole-carrying members pass into the loading zone adjacent to the entering end of the drying chamber (left hand Fig. 1) the operator will place a pole 9 loaded with the material 3 to be dried into a pair of pole-carrying members as indicated in Fig. 6, the loaded pole being so manipulated that the reduced end sections 18 thereof will pass through the throats 17 of the pole-carrying members and drop into the pole-supporting portions 14. This operation is shown in full and dotted lines in Fig. 6, wherein the full line position shows the loaded pole about to be placed in the pole-carrying members and the dotted line position shows the loaded pole seated in the pole-supporting seats 14.

As each loaded pole reaches the unloading zone at the discharge end of the drying chamber an attendant will remove the pole from the endless carrier as indicated in Fig. 7. This may be very easily done by simply manipulating the loaded pole so as to move the reduced ends 18 thereof out through the throats 17 as shown by the dotted and full lines in Fig. 7.

After each loaded pole has been removed from the endless carrier then the material 3 thereon, which has become dried by its passage through the drying chamber, will be stripped or removed from the pole and the latter will then be replaced on the endless chain carrier for its return journey to the loading zone.

The replacement of the empty pole on the carrier involves merely entering the reduced ends thereof through the throats 17 of a pair of pole-carrying members and placing said ends in the pole-supporting portions of said members. As each pole-carrying member moves from the lower run to the upper run of the endless chain carrier the empty poles will gravitate into the pole-supporting portions 15 of the pole-carrying members as shown in Fig. 3 and at the upper portion of Figs. 6 and 7.

The empty poles are thus conveyed back to the loading zone through the upper run of the endless chain conveyer, and as each pole approaches or enters the loading zone the attendant will remove it from its carrying members and then reload it with more material to be dried and then replace it on the endless chain carrier. All these operations are accomplished during the traveling movement of the endless chain carrier.

There is thus provided pole-carrying members, each of which has two opposed pole-supporting portions, one portion being adapted to receive and support the pole when it is traveling through one run of the endless chain carrier and the other being adapted to receive and support the pole while it is traveling through the other run of said carrier.

The body section 12 of each pole-carrying member is shown as having an L shape, and the pole-receiving section 13 is secured to and extends from the horizontal leg 19 thereof. Each pole-carrying member is secured to the endless chain element with the horizontal leg situated beneath said element so that said pole-supporting portions will be located directly beneath the endless chain element, thereby preventing the chain element from tipping over due to eccentric loading. The movement of the endless chain conveyer may be described as a cyclic movement and during the movement of any one of the pole-carrying members in one portion of said cyclic movement (the lower run) the hook portions 14 are in position to receive and support the poles, while in another portion of said cyclic movement (the upper run) the hook portions 15 are properly positioned for receiving and supporting the poles.

The apparatus here illustrated is adapted for drying any material which can be supported on poles, that herein illustrated being in the nature of skeins of yarn.

Although I have shown my invention as used in connection with a drying apparatus, yet as stated above the invention is not limited in its use to a drying apparatus, but can equally well be used in other devices in which material is transported from one point to another on poles that are mounted on an endless chain carrier.

I claim:

1. Pole-carrying means for endless chain conveyers comprising an endless chain carrier, a track on which said carrier is supported, and pole-carrying members mounted on said carrier, each member having a shank portion situated in vertical alinement with the track and terminating in a hook-shaped pole-supporting portion adapted to removably support a pole end when occupying one run of the endless chain carrier, the nose end of said hook-shaped portion terminating in an open pole-supporting hook adapted to removably support a pole end when occupying the other run of said endless chain carrier.

2. Pole-carrying means for endless chain conveyers comprising an endless chain carrier, a track on which said carrier is supported, pole-carrying members each having two opposed pole-supporting portions in which pole ends may be removably placed, and means mounting each pole-carrying member on the endless chain carrier with the opposed pole-supporting portions in vertical alinement with the track and both situated on the same side thereof, one pole-supporting portion of each member being in operative pole-supporting position when in one run of the endless chain carrier, and the other pole-supporting portion being in its operative pole-supporting position when in the other run of said carrier.

3. Pole-carrying means for endless chain conveyers comprising an endless chain carrier, pole-carrying members each comprising an L-shaped body section and a pole-receiving section carried by the horizontal arm of the body section and

formed with two opposed pole-supporting portions in which pole ends may be removably placed, means securing the vertical arm of the body section of each pole-carrying member to the side of the chain carrier with the horizontal arm in vertical alinement with said chain carrier, one pole-supporting portion of each pole-carrying member being in its operative pole-supporting position when in one run of the endless chain carrier, and the other pole-supporting portion being in its operative pole-supporting position when in the other run of said carrier.

4. Pole-carrying means for endless chain conveyers comprising an endless chain element, a track on which said element is supported, and pole-carrying members mounted on said endless chain element, each pole-carrying member having a shank portion situated in vertical alinement with the endless chain element but on the opposite side of the track therefrom and extending outwardly from said track, said shank portion having at its outer end a hook portion facing the track and adapted to receive a pole end when traveling in one run of the endless chain element, the nose end of said hook portion being bent backwardly to form a second hook portion facing away from the track and adapted to receive a pole end when traveling in the other run of the endless chain element.

5. Pole-carrying means for endless chain conveyers comprising an endless chain element and pole-carrying members mounted on said endless chain element, each pole-carrying member having a shank portion situated in vertical alinement with said endless chain element and extending outwardly therefrom, said shank having at its outer end a hook portion which faces the endless chain element and is adapted to receive a pole end when traveling in one run of said endless chain element, the nose end of said hook portion being bent backwardly to form a second hook portion which faces away from said endless chain element and is adapted to receive a pole end when traveling in the other run of said element.

6. Pole-carrying means for endless chain conveyers comprising an endless chain element, a track on which said element is supported, and pole-carrying members mounted on said endless chain element, each pole-carrying member comprising a body section secured to the endless chain element, and a pole-receiving section carried by the body section and situated on the opposite side of the track from the endless chain carrier element, said pole-receiving section comprising a shank portion extending outwardly away from the track at an angle thereto and having at its outer end a hook portion facing the track and adapted to receive a pole end when traveling in one run of the endless chain element, the nose end of the hook portion being bent backwardly to form a second hook portion which faces away from the track and is adapted to receive a pole end when traveling in the other run of the endless chain element.

7. Pole-carrying means for conveyers operating in a cyclic path of movement comprising a conveyer member moving through said path, pole-carrying members mounted on the conveyer member, and each comprising a body section secured to the conveyer member and a pole-receiving section, the latter being in the form of a strip bent to present a shank portion one end of which is secured to said body section and which has its length dimension extending outwardly from said body section, said strip being bent at the outer end of the shank to form a hook portion that faces the body section and is adapted to support a pole end when traveling in one portion of the cyclic path, the nose end of said hook portion being bent backwardly to form a second hook portion which faces away from the body section and is adapted to support a pole end when traveling in another portion of the cyclic path, said second hook portion being spaced from the shank portion to provide between them a throat through which a pole end may be introduced into the hook portion.

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