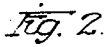


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3 SHEETS—SHEET 1.

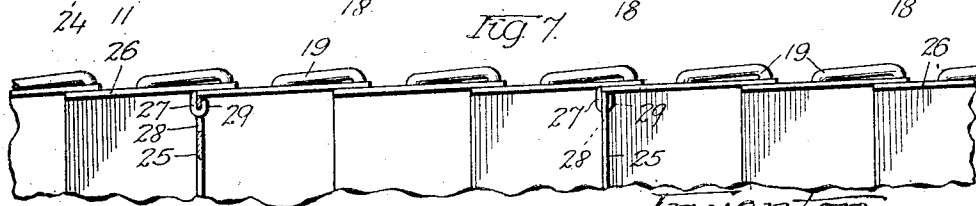
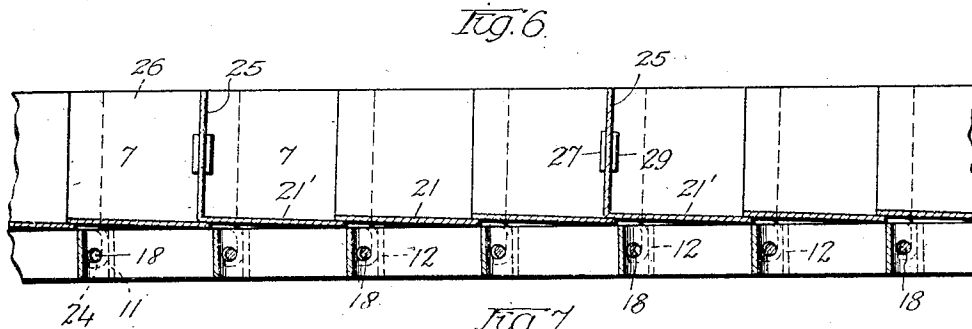
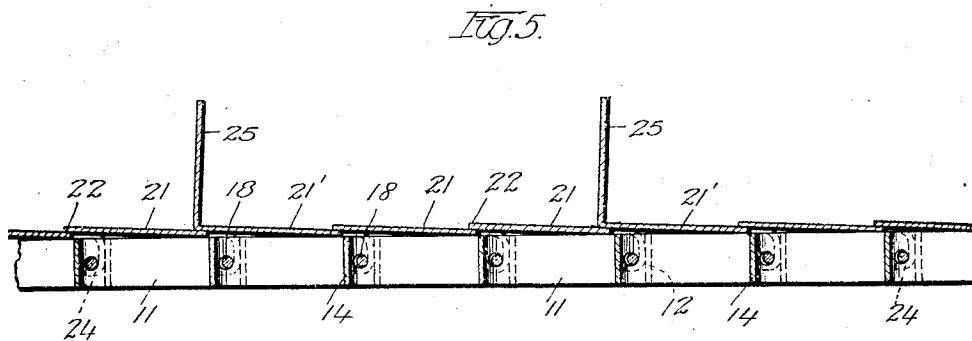
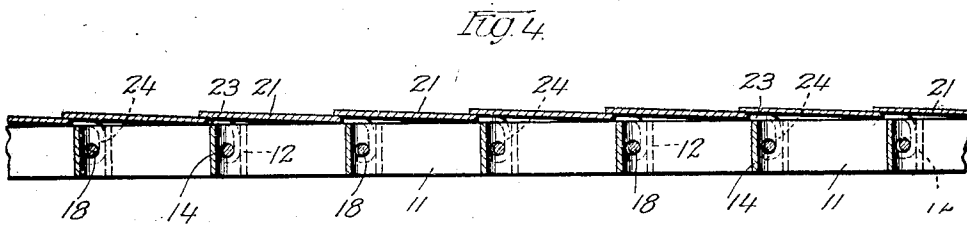
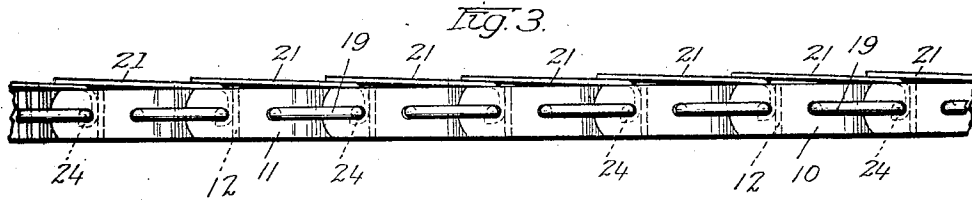


Inventor
Noah S. Harter
Jonas Bain Attys:

1,354,553.

N. S. HARTER.
BELT CONVEYER.
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3 SHEETS—SHEET 2.

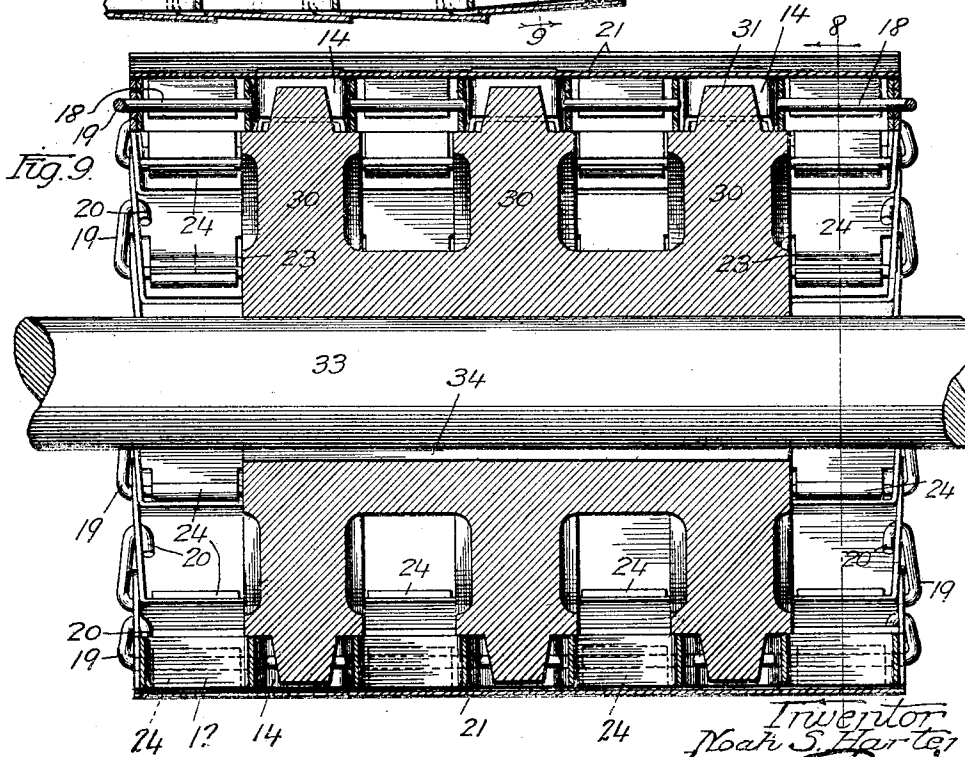
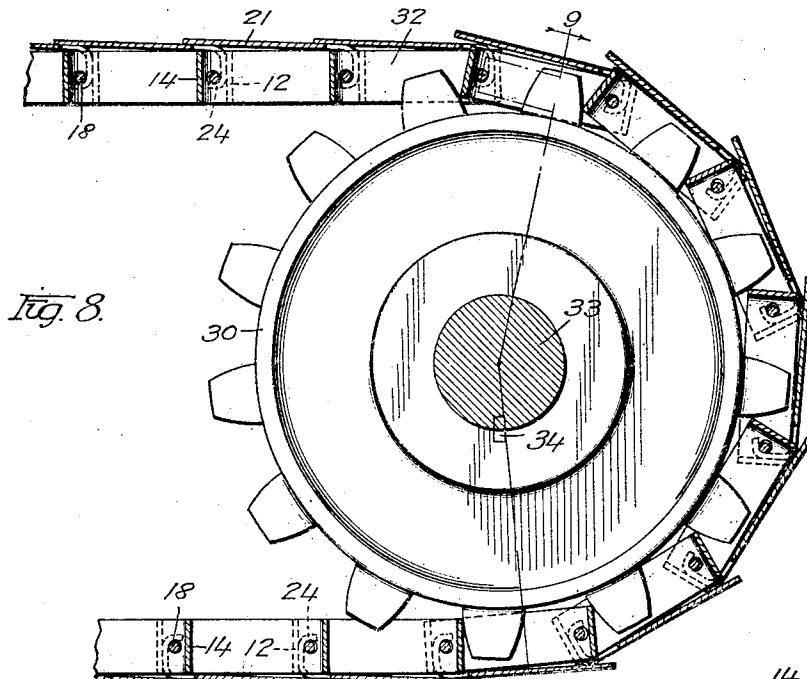


Inventor
Noah S. Harter
J. B. Rain
Attys.

1,354,553.

N. S. HARTER.
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Patented Oct. 5, 1920.
3 SHEETS—SHEET 3.



Inventor
Noah S. Harter
Jones & Rann
Attys.

UNITED STATES PATENT OFFICE.

NOAH S. HARTER, OF WAUKEGAN, ILLINOIS, ASSIGNOR TO CYCLONE FENCE COMPANY,
OF WAUKEGAN, ILLINOIS, A CORPORATION OF ILLINOIS.

BELT CONVEYER.

1,354,553.

Specification of Letters Patent.

Patented Oct. 5, 1920.

Application filed June 28, 1919. Serial No. 307,463.

To all whom it may concern:

Be it known that I, NOAH S. HARTER, a citizen of the United States, residing at Waukegan, in the county of Lake and State of Illinois, have invented certain new and useful Improvements in Belt Conveyers, of which the following is a specification.

The invention relates to metallic belt conveyers having a flexible, imperforate, conveying surface, flat and smooth, or provided at suitable intervals with appropriate drags, whereby to more positively elevate the material to be conveyed.

One of the objects of the invention is to provide a metallic, flexible, sanitary belt, or conveyer structure, suitably adapted for conveying packages, vegetables, small fruits, grains, and the like, and which does not present interstices, or mesh openings through which small objects may fall or in which they may become lodged.

Another object of the invention is to provide a conveyer having the advantageous features above enumerated and which, being constructed entirely of metal, may be subjected to relatively high temperatures or submerged in water without deleterious effects.

Other, further and more specific objects of my invention will become readily apparent, to persons skilled in the art, from a consideration of the following description, when taken in conjunction with the drawings, wherein:—

Figure 1 is a top plan view of one form of a smooth, imperforate, flexible cover for the mesh fabric upon which it is mounted, as shown in elevation in Fig. 6.

Fig. 2 is a bottom view showing the fabric upon which the covering is supported.

Fig. 3 is a side elevation of the structure.

Fig. 4 is a longitudinal section of the conveyer.

Fig. 5 is a similar sectional view showing the drags projecting from the cover, at intervals.

Fig. 6 is another similar view showing the drags and the upturned ends of the plates forming the flexible cover.

Fig. 7 is a top plan view of Fig. 6 showing part in section, taken on line 7—7 of Fig. 6.

Fig. 8 is a section taken on line 8—8 of Fig. 9.

Fig. 9 is a section taken on line 9—9 of

Fig. 8, and shows how the conveyer may be driven by sprocket wheels.

Each link of the fabric is composed of a relatively narrow strip 10 bent into undulating form, into U-shaped members, as at 11, 12, 13 and 14. The legs or parts 11 and 13 of each link extend transversely to the longest axis of the link, while the parts 12 and 14 are substantially parallel therewith. The U-shaped closed parts 15 of one link enter between the open legs 13 of the succeeding link, while the U-shaped closed part 16 of the link enters between the open legs 11 and 12 of an adjacent link, and so on, throughout the structure. The links are perforated, as shown very clearly in Fig. 2, and through the perforations a pintle rod 18 passes through each member of the hinged links to form the joint between the adjacent links. The rod is preferably longer than the width of the belt and is bent, at each end, as shown at 19 and enters the end members of the link. The rod 18 forms a pintle for the link members, and the ends 19 and 20 prevent its removal from the fabric.

To make a smooth conveying surface on top of the fabric thus described, and which is flexible in character, I provide a series of plates 21, that overlap the adjacent plate, as at 22. The plates are, in width, substantially equivalent to the length of the adjacent links. The plates are cut away, at intervals, as at 23, to provide projections 24 that are turned about the rod 18, upon which the plates are thus hinged, so that when the fabric belt is deflected the plates, being hinged upon the same pintles as the succeeding links, are as flexible as the reticulated structure underlying it.

In Fig. 5, the selected plates 21' are turned up, as at 25, each to form a drag and between the upturned parts 25 are a series of plates 21. The plate 21' of which the drag constitutes a part, is the same in every other respect as the plate 21, shown in the other figures, with the exception of the drag part 25.

When the belt is constructed, as shown in Fig. 5, it may be used as shown, or in a space between two side members, as usual with belts of this general character, the relatively stationary side members forming trough compartments, with the adjacent drags 25, or the belt may be made as shown in Fig. 6, in which parts 26, which are the terminal

ends of the plates 21, are out-turned, and connected to the drags 25, as clearly shown in cross section in Fig. 7, wherein a part 27, of the plate 26, is out-turned and passes through an orifice 28 in the drag 25, and then downturned, as at 29, to secure the ends 26 to the respective drags to form pockets between adjacent drags, as constituting a part of the conveyer.

10 In Figs. 8 and 9, I have shown spaced apart sprocket wheels 30, having sprockets 31 adapted to enter the interstices of the mesh openings 32 of the fabric, of the conveyer, whereby the conveyer may be positively driven. The sprocket wheel may be made in one piece, as shown, in Fig. 9, or it may constitute separate wheels, mounted at suitable intervals on the shaft 33 and held in place thereon, as by a feather 34.

20 The belt or conveyer herein described may, of course, be driven by a smooth surface pulley where the load is not so great as to overcome the tractive adhesion between the belt and pulley, but where a more positive drive is required, the sprocket arrangement shown in Figs. 8 and 9 is preferable.

Having described my invention, what I claim is:—

1. A conveyer having in combination a link fabric comprising a series of links hinged together and a flexible imperforate covering, comprising a series of overlapping plates, each plate hinged to one of the link hinge members of the respective links.

35 2. A conveyer having in combination a link fabric comprising a series of links hinged together and a flexible, imperforate covering, comprising a series of overlapping plates, each hinged to one of the link hinge members of the respective links, a suitable number of which have their longitudinal unattached edges outturned to form drags.

45 3. A conveyer having in combination a link fabric comprising a series of links hinged together and a flexible, imperforate covering comprising a series of overlapping plates, each plate having its ends outturned and having one longitudinal edge hinged to one of the link hinge members, of the respective links, and a suitable number of which have their longitudinal, unattached edges outturned to form drags.

50 4. A conveyer having in combination a link fabric comprising a series of links

hinged together and a flexible imperforate covering, comprising a series of overlapping plates, each plate having its ends outturned and having one longitudinal edge hinged to one of the link hinge members of the respective links, and a suitable number of which have their longitudinal, unattached edges outturned to form drags, the drag of each plate being attached to its outturned ends.

5. A conveyer having in combination a relatively thick link fabric; a flexible, imperforate relatively thin covering overlying the fabric comprising a series of overlapping plates, each plate being hinged at one edge to a link and free at its other edge and sprocket wheels having sprockets adapted to enter the interstices of the fabric to drive the conveyer.

6. A conveyer having in combination a series of links, each link comprising a flat strip bent into a continuous sinuous series of connected tapered U-shaped members, the closed ends of the members of one link lying within the open ends of the members of the adjacent links, a pintle rod passing through all of the members of both adjacent links, thus hinging the links together, and a series of flat plates each hinged to the pintle rod of the respective links, the free longitudinal edge of each plate overlapping the hinged edge of the adjacent plate to provide a smooth flexible imperforate covering for the conveyer.

7. A conveyer having in combination a series of links, each link comprising a flat strip bent into a continuous, sinuous series of tapered U-shaped members, the closed ends of the members of one link lying within the open ends of the members of the adjacent links; a pintle rod passing through all of the members of both adjacent links thus hinging them together, and a series of flat plates, each plate being hinged to the pintle rod of the respective links, the free longitudinal edge of each plate overlapping the hinged edge of the adjacent plate to provide a smooth flexible imperforate covering for the conveyer and a part of the free edge of selected plates outturned at substantially right angles to the body part thereof to provide conveyer drags.

In testimony whereof I hereunto subscribe my name.

NOAH S. HARTER.