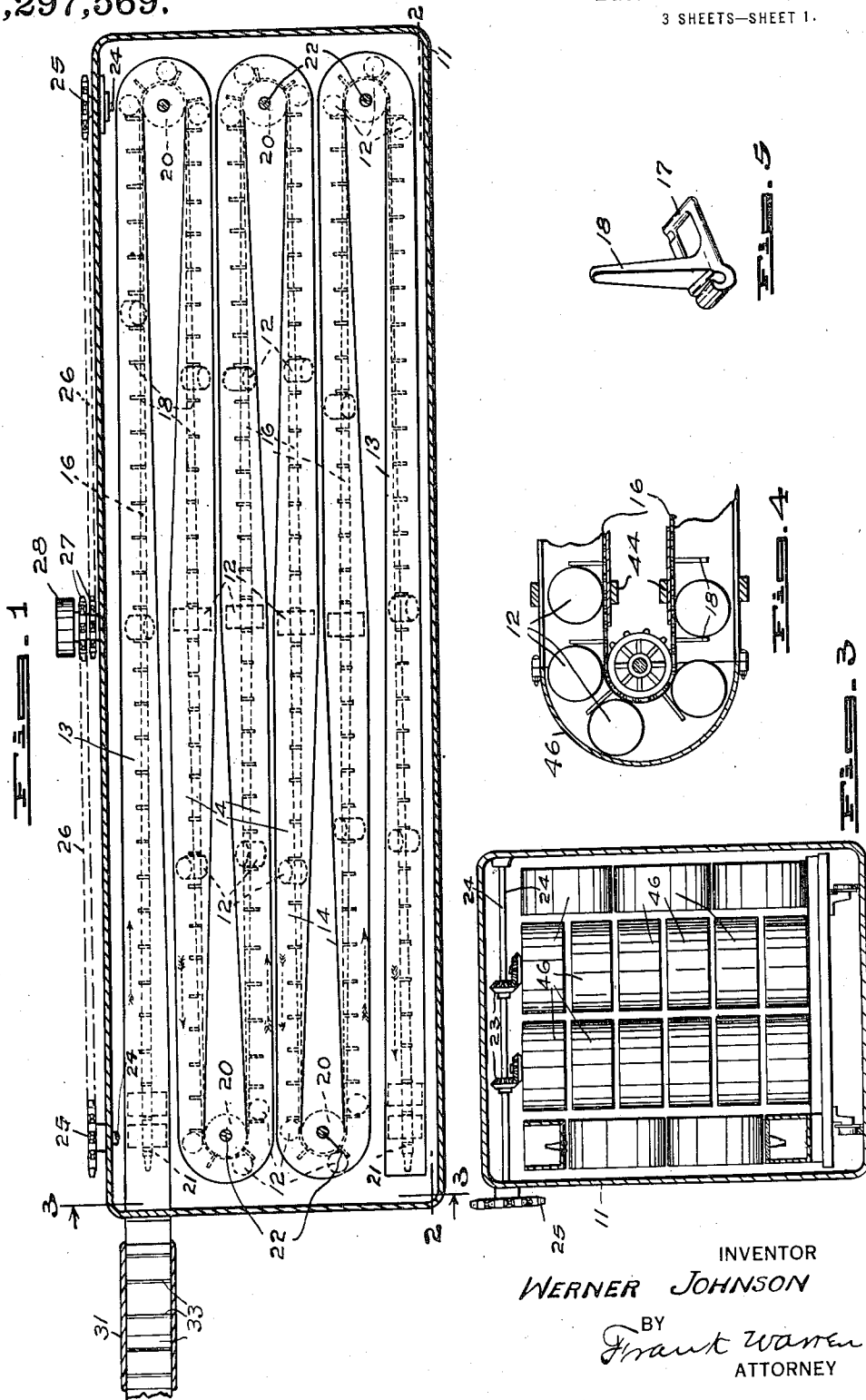


W. JOHNSON.
 CONVEYER.
 APPLICATION FILED SEPT. 3, 1918.

1,297,569.

Patented Mar. 18, 1919.
 3 SHEETS—SHEET 1.

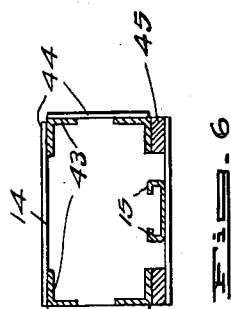
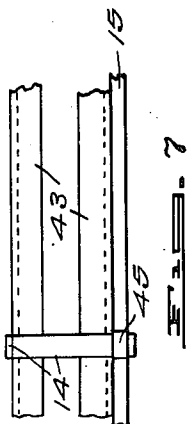
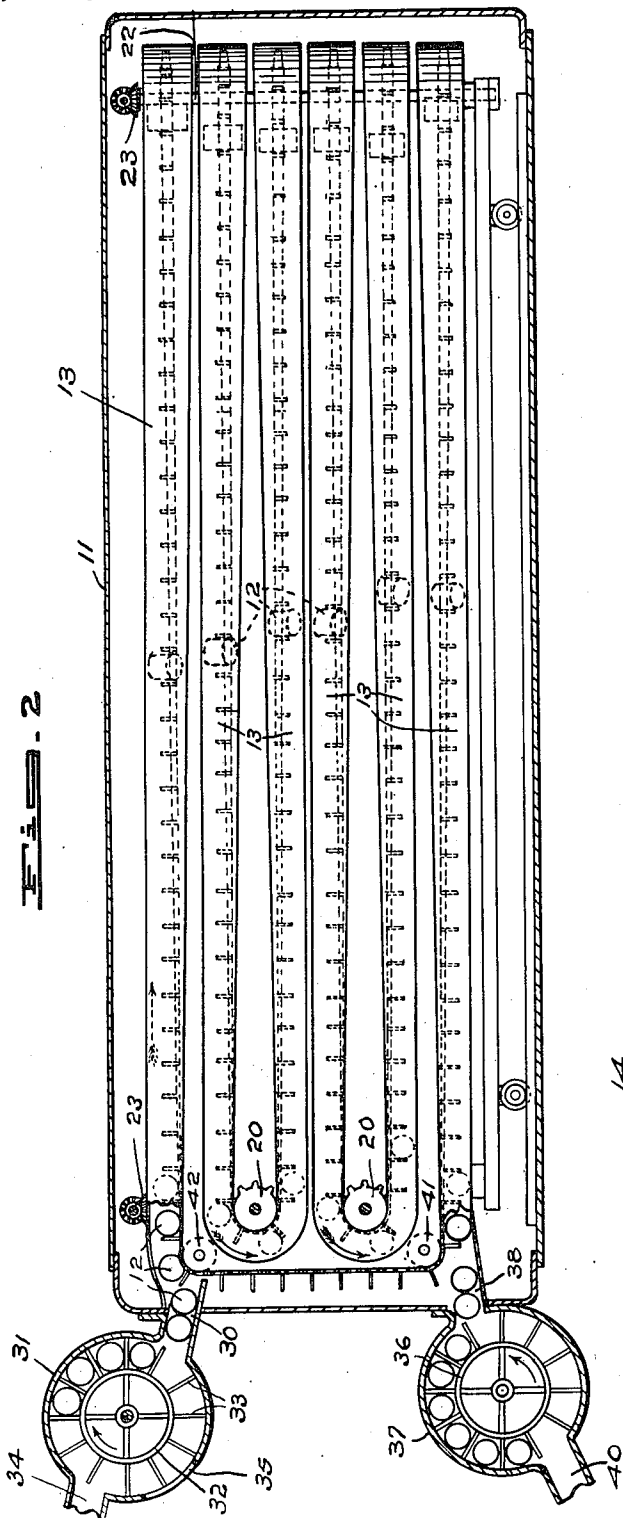


INVENTOR
WERNER JOHNSON
 BY
Frank Warner
 ATTORNEY

1,297,569.

Patented Mar. 18, 1919.

3 SHEETS—SHEET 2.



INVENTOR
WERNER JOHNSON

BY
Frank Warren
ATTORNEY

W. JOHNSON.
 CONVEYER.
 APPLICATION FILED SEPT. 3, 1918.

1,297,569.

Patented Mar. 18, 1919.
 3 SHEETS—SHEET 3.

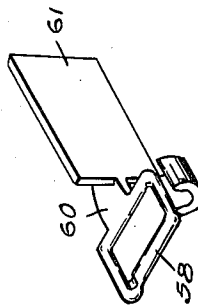
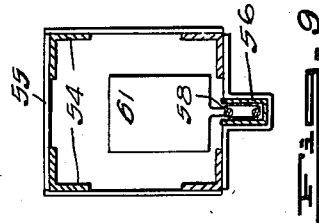
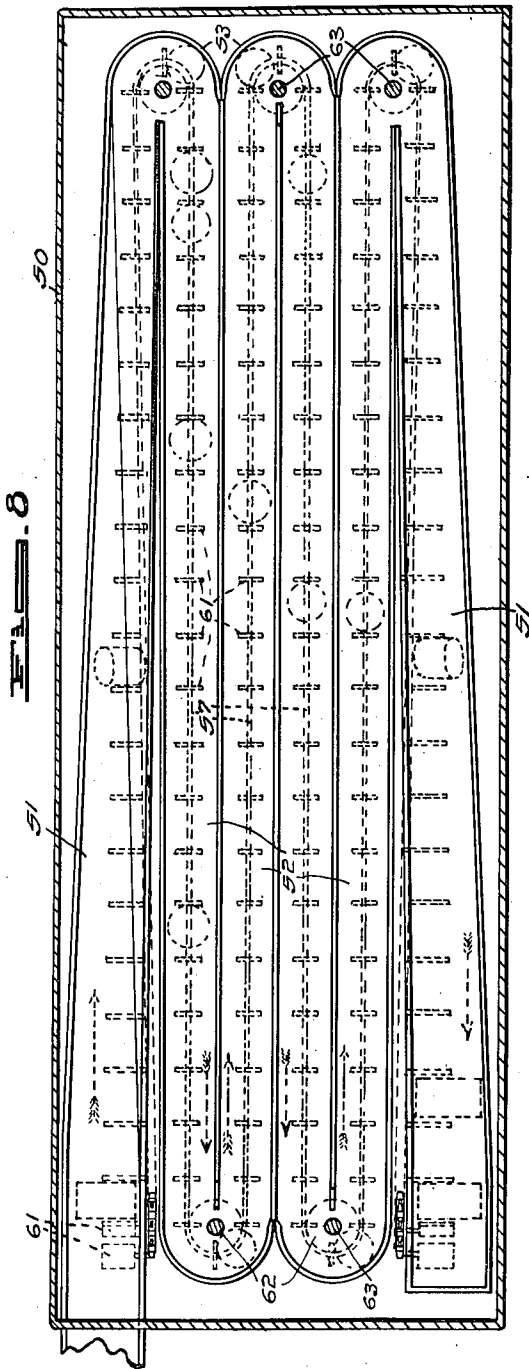


FIG. 10

INVENTOR
WERNER JOHNSON
 BY
Frank Warren
 ATTORNEY

UNITED STATES PATENT OFFICE.

WERNER JOHNSON, OF SEATTLE, WASHINGTON.

CONVEYER.

1,297,569.

Specification of Letters Patent. Patented Mar. 18, 1919.

Application filed September 3, 1918. Serial No. 252,479.

To all whom it may concern.

Be it known that I, WERNER JOHNSON, a citizen of the United States, residing at Seattle, in the county of King and State of Washington, have invented a certain new and useful Improvement in Conveyers, of which the following is a specification.

My invention relates to improvements in link belt conveyers that are adapted to be used for conveying cans through retorts or exhaust boxes and the object of my invention is to provide a conveyer embodying a plurality of trackways arranged side by side in tiers one above another in such manner that a single endless chain may be used, said chain passing back and forth along all of the trackways in one tier and thence passing to an adjacent tier and back and forth along all of the trackways in the adjacent tier and continuing in this manner until it has traversed the entire length of all of said trackways.

A further object is to twist certain of the trackways through one-fourth of one complete turn so that a link belt conveyer chain will run over successive sprocket wheels that are mounted for rotation in planes at right angles to each other and to twist certain other trackways through one-half of one complete turn so that a sprocket chain that follows the twist of these trackways and has arms that project outwardly from one side thereof can be made to run back and forth in side by side relation over a plurality of sprocket wheels disposed in a common plane and will always have the side from which the arms project turned outwardly or away from the sprocket wheels.

A still further object is to provide a retort wherein the trackways are disposed in closely associated and compact relation so that the retort will have a large capacity in proportion to its size and the cans will remain in the retort for a relatively long period of time during their passage there-through.

My invention consists in the novel construction and arrangement of the trackways and in the adaptation and combination thereof with of the link belt conveyer and actuating

mechanism therefor as will be more clearly hereinafter described and claimed.

I accomplish these objects by devices illustrated in the accompanying drawings, wherein—

Figure 1 is a view in cross-section of a retort constructed in accordance with my invention, the trackways being shown by a somewhat diagrammatical plan view to avoid unnecessary confusion of lines;

Fig. 2 is a view in vertical section on broken line 2, 2 of Fig. 1 the trackways being shown in elevation;

Fig. 3 is a view in cross-section on broken line 3, 3 of Fig. 1 the ends of the trackways being shown in elevation;

Fig. 4 is an enlarged fragmentary detail illustrating the construction of the ends of the trackways;

Fig. 5 is a view in perspective of a link that may be used in the link belt conveyer;

Fig. 6 is an enlarged view in cross-section illustrating the structure of a preferred form of trackway;

Fig. 7 is a fragmentary view in side elevation of the trackway shown in Fig. 6;

Fig. 8 is a somewhat diagrammatic view partly in cross-section and partly in plan illustrating a modified form of my invention;

Fig. 9 is a fragmentary view in cross-section of a trackway that may be used in the device illustrated in Fig. 8; and

Fig. 10 is a view in perspective of a form of link that is adapted to be used in connection with the device shown in Fig. 8.

Referring to the drawings throughout which like reference numerals indicate like parts, the numeral 11 designates the walls of a retort which may be formed of a substantially rectangular shape and are of steam tight construction so that steam under pressure may be retained therein.

Disposed within the retort 11 are a plurality of trackways that substantially fill the interior of the retort and through which cans 12 are adapted to be continuously moved.

The trackways that are disposed on each of the opposite sides of the retort and herein

designated by the numerals 13 are each twisted through one-fourth of one complete turn so that they will turn the cans through an angle of ninety degrees, as the cans pass from one end to the other of the retort.

Connected with the trackways 13 and disposed within the central portion of the retort are other trackways 14 that are each twisted through one-half of one complete turn so that they will turn a can through an angle of one hundred and eighty degrees during its passage from one end of the retort to the other end. All of the trackways 13 and 14 are preferably provided with chain guides 15 as illustrated in Fig. 6 within which a link belt conveyer chain 16 may run and by which such chain 16 is twisted to conform to the twist of the tracks.

The link belt conveyer is of the ordinary type and is provided at frequent intervals with links 17, as shown in Fig. 5, that are each formed with an arm 18 projecting therefrom at right angles to the plane of the link, the arms 18 being adapted to engage the cans 12 and move them along the trackways 13 and 14.

The link belt conveyer 16 is adapted to pass around sprocket wheels 20 that are mounted for rotation in a horizontal plane and around other sprocket wheels 21 that are mounted for rotation in a vertical plane, the sprocket wheels 20 being rigidly secured upon vertical shafts 22 that are connected by bevel gears 23 with transverse shafts 24 at each end of the retort.

The shafts 24 are provided on the exterior of the retort with sprocket wheels 25 and are adapted to be driven by sprocket chains 26, shown diagrammatically in Fig. 1, that pass around sprocket wheels 27 that are mounted for rotation and may be connected with a belt pulley 28 by which they may be driven.

By the arrangement described it will be seen that each of the sprocket wheels 20 is a driving wheel so that the conveyer chain is driven from a plurality of different points and no section of the chain is subjected to excessive strain.

The cans 12 are admitted to the retort through a passageway 30 that connects with a cylindrical casing 31 within which is rotatably mounted a wheel 32 having peripheral vanes 33 that are spaced from each other a sufficient distance to admit a can therebetween and that are adapted to make a close fit with the walls of the casing 31 to prevent the escape of steam.

The casing 31 is provided with an inlet opening 34 through which cans may be admitted and is provided below the inlet opening 34 with an opening 35 for the discharge of steam.

The wheel 32 may be connected with suitable actuating mechanism, not shown, by

which it may be rotated at the proper speed to feed the cans into the retort as fast as they can be taken care of.

By the use of the feeding mechanism just described it will be seen that the cans are disposed within the retort without losing any considerable amount of steam, the only steam that is lost being that which fills the space between adjacent vanes 33 as the wheel 32 rotates.

The outlet mechanism for the cans is similar to the feeding mechanism just described and comprises a wheel 36 rotatably mounted with a cylindrical casing 37 that is connected by a passageway 38 with the last trackway of the retort and that is provided with a discharge passageway 40 so that when the wheel 36 is rotated the cans 12 will enter the spaces between the vanes on such wheel and be carried around thereby and discharge through the passageway 40.

The feeding mechanism and the discharge mechanism are preferably both located on the same side of the retort and as the cans are discharged the conveyer chain 16 passes around an idler sprocket 41 and thence upwardly around another idler sprocket 42 as shown in Fig. 2 and into the end of the trackway in which the cans enter, the arms 18 on the links 17 receiving the cans 12 from the inlet passageway 30.

When the cans 12 are received by the conveyer chain 16 they are in a horizontal position or are lying on their sides and as they pass toward the opposite end of the retort through the first trackway 13 they will be gradually turned by the twist in the trackway from a horizontal to a vertical position and will be standing on end as they pass around the first sprocket wheel 20.

The cans are thence moved backward and forward from one end to the other of the retort until they have traversed its entire width, and are thence carried downwardly onto the next flight of trackways where they will be conveyed back and forth until they reach the opposite side of the retort and are caused to pass downwardly on to the next flight of trackways.

In this manner it will be readily seen that the cans will pass from one flight of trackways to the other until they have moved from the inlet to the discharge passageway of the retort.

By twisting the trackways 13 at the outer sides of the retort through one-fourth of one complete turn the cans are transferred from one flight of trackways to the next flight below, the one-fourth twist enabling the conveyer chain 16 to pass over a sprocket wheel 21 arranged in a vertical plane at one end of the retort and a sprocket wheel 20 arranged in a horizontal plane in the opposite end of the retort.

As the sprocket chain passes around the

sprocket wheel 20 it will be observed that the arms 18 project outwardly in radial directions from such sprocket wheel and it will be readily seen that if the sprocket chain is allowed to pass to the next sprocket wheel 20 at the opposite end of the retort without being twisted the device will be inoperative for the reason that the arms 18 will be turned inwardly toward the last named sprocket wheel. For this reason I have found it necessary to twist the trackways 14 between successive horizontal sprocket wheels 20 through one-half of one complete turn so that the sections of the link belt conveyer 16 between successive horizontal sprocket wheels 20 will be twisted through one-half of one complete revolution, thereby causing the arms 18 always to project outwardly from the sprocket wheels 20 around which the link belt conveyer passes.

In Figs. 6 and 7 I have illustrated the details of one form of trackway that may be satisfactorily used in carrying out this invention. This trackway is formed of four angle bars 43 that are located in such manner that they form the four corners of the trackway and are secured to each other by strips or bars 44. The chain guide 15 is secured between two of the angle bars 43 in such manner that it will be slightly below the plane of the cans that are supported within the trackways, the strip 44 to which the chain guides 15 are secured preferably being spaced from the angle bars 43 by blocks 45.

The ends of two trackways that lie side by side may be connected by a semi-circular track member 46 through which the cans 12 may pass from one trackway to another.

In Figs. 8, 9 and 10 I have illustrated a modified form of construction by which I am enabled to dispose a plurality of trackways in tiers one above the other to cause cans to traverse throughout the entire length of the trackways in one tier and thence to be transferred to the trackways in an adjacent tier.

In this modified form of construction I provide a retort 50 that is of substantially the same form of construction as the retort 11 and may be provided with inlet and outlet means similar to the inlet and outlet means shown and described in connection with Figs. 1 and 2.

Within the retort 50 there is provided a plurality of trackways 51 and 52, the trackways 51 being located at the sides of the retort and each being twisted through one-fourth on one complete turn in substantially the same manner as are the trackways 13 in the device shown in Figs. 1 to 7 inclusive. The trackways 52 which are located between side trackways are not twisted at all and are disposed side by side and connected at their outer ends by curved sec-

tions 53 so that the cans may pass continuously from one to the other of such trackways.

The trackways 52 may be constructed of four angle bars 54 that are secured together by cleats or strips 55. The lower portion of the trackways 52 may be provided with a chain guide 56 of a form more clearly shown in Fig. 9.

The sprocket chain 57 used in this form of conveyer is of the ordinary well known type and is provided at frequent intervals with links 58 that are each formed with an upwardly projecting rib 60 that terminates in a flight or paddle 61.

The conveyer chain 57 is adapted to be disposed edgewise within the chain guide 56 in such manner that the flights 61 will project within the trackways 51 and 52 to engage the cans and move them lengthwise within the trackways.

It will be readily seen that any number of tiers of trackways of the form illustrated in Fig. 8 may be disposed one above the other within a retort, the one-fourth twist that is imparted to the side trackway 51 enabling the conveyer chain and can to pass from one tier of trackways to another.

The conveyer chain 57 is adapted to run over sprocket wheels 62 that are secured on vertical shafts 63 at opposite ends of the straight trackways 52 and are necessarily disposed below the level of the bottom of such trackways.

The driving mechanism for the device shown in Fig. 8 may be similar to the driving mechanism illustrated in Figs. 1, 2 and 3, each of the shafts 63 being driven so that the strain will not be excessive on any section of the conveyer chain 57.

It is obvious that changes in the precise form of construction and arrangement of the various parts of my invention may be resorted to within the scope of the following claims:

What I claim is:

1. A conveyer of the class described comprising a plurality of tiers of trackways disposed in parallel planes, certain of said trackways being twisted through one-fourth of one complete turn and an endless link belt conveyer movable continuously throughout the entire length of all of said trackways the said twisted trackways permitting the link belt conveyer to pass from one to the other of the tiers of said trackways.

2. A conveyer of the class described comprising a plurality of tiers of trackways disposed in parallel planes, the outside trackways of each tier being twisted through one-fourth of one complete revolution to afford connection with the outside trackways of the next adjacent tier, chain guides carried by said trackways and having a twist that conforms to the twist of said trackways and

an endless conveyer chain movable in said chain guides.

3. A device of the class described comprising a retort, a plurality of tiers of trackways disposed therein in parallel planes, the outside trackways of each tier being twisted through one-fourth of one complete turn and connected with the outside trackways of the tiers next adjacent and an endless conveyer chain adapted to follow said trackways and being twisted to conform to the twist of said outside trackways.

4. A device of the class described comprising a retort, a plurality of tiers of track-

ways disposed therein in parallel planes, the outside trackways of each tier being twisted through one-fourth of one complete turn and connected with the outside trackways of the tiers next adjacent, and the trackways disposed between said side trackways being without any twist and an endless conveyer chain adapted to follow said trackways and being twisted to conform to the twist of said outside trackways.

In witness whereof, I hereunto subscribe my name this 26th day of August, A. D. 1918.

WERNER JOHNSON.