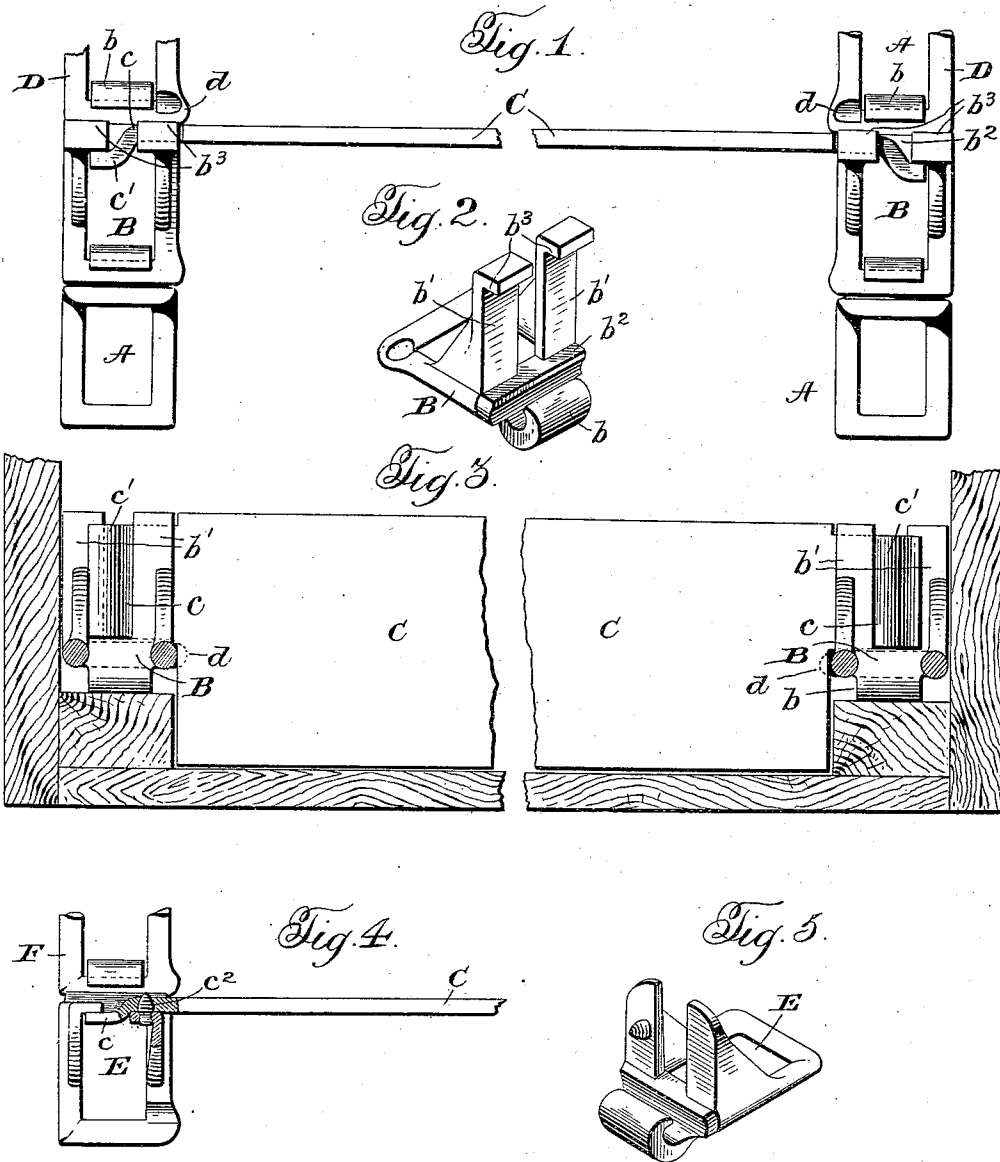


J. F. WHITE.
FLIGHT CONVEYER.

APPLICATION FILED DEC. 18, 1909. RENEWED DEC. 11, 1911.

1,016,192.

Patented Jan. 30, 1912.



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UNITED STATES PATENT OFFICE.

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FLIGHT CONVEYER.

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To all whom it may concern:

Be it known that I, JOHN F. WHITE, a citizen of the United States, residing at Bloomington, in the county of McLean and State of Illinois, have invented certain new and useful Improvements in a Flight Con-
veyer, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to improvements in conveyers and more particularly to the type of conveyers known as flight conveyers.

The object of the present invention is the provision of improved means for connecting the conveyer flights to the carrying means therefor without the use of rivets, bolts and the like and in such a manner that accidental displacement thereof will be impossible and that they may at the same time be readily removed when desired.

A further object of the invention is the provision of an improved chain link which is adapted to be interlocked with one end of the conveyer flight and to be secured in the usual carrying chain and which can only be separated from the flight by an abnormal relative movement of the chain and flight, in combination with means for preventing such abnormal movement of the parts.

A further object of the invention is the provision of a chain link of such a construction that it may be interlocked with either end of a conveyer flight and secured in one of the carrying chains, thus doing away with the necessity of forming differently constructed links for attachment to the opposite ends of the conveyer flights.

Other objects of the invention will be apparent from the detailed description hereinafter when read in connection with the accompanying drawings forming a part hereof, wherein a convenient embodiment of the invention is illustrated and wherein like characters of reference refer to similar parts in the several views.

In the drawings, Figure 1 is a fragmentary plan view of a flight conveyer showing one of the flights and the manner of securing the same to the carrying chains, Fig. 2 is a perspective view of one of the links adapted for engagement with one end of the flight, Fig. 3 is a side elevation of the conveyer,

parts being shown in section, Fig. 4 is a fragmentary plan view illustrating a modified form of the invention, and Fig. 5 is a perspective view of the link shown in Fig. 4.

Referring now more particularly to the drawings, A A designate the carrying chains, which are adapted to be supported in the usual manner and which are formed of a plurality of detachably connected links of any suitable construction. Interposed in the carrying chains A A at suitable intervals are a plurality of specially formed links B B, to which the ends of the conveyer flights are adapted to be connected, in a manner to be herein more particularly set forth.

C designates one of the flights of the conveyer which is in the form of a flat metal plate the upper portion of which is provided with laterally projecting extensions *c* at the ends thereof, the outer extremities of which extensions are offset, as at *c'*, so as to lie in a plane parallel to the plane of the body of the flight.

The links B B which are secured in the two carrying chains A A are identical in construction and each comprises an open frame which is provided at one end with a hooked portion *b* which is adapted to receive the forward end of the frame of the adjacent link in the carrying chain. Projecting upwardly from the body of the link B adjacent the hook *b* at the end thereof are a pair of spaced arms *b'* *b'* which are provided with flat front and rear faces positioned in the same planes. The arms *b'* *b'* project upwardly from the body of the hook B at a slight distance from the end thereof, so that a shoulder *b²* is formed at the lower ends of said arms and the upper ends of said arms are provided with outwardly projecting portions *b³* which form shoulders at the upper ends of the arms. When the link B is secured to the flight, the innermost arm *b'* thereof underlies the extension *c* at one end of the flight C, while the outermost arm *b'* rests upon the offset portion *c'* of the extension *c* of the flight and the extension is confined between the shoulder *b³* at the upper end of the innermost arm *b'* and the shoulder *b²* at the lower portion of said arm. With this construction, it will

be seen that substantially a central draft on the flight is obtained in pulling the load and that the chain link B can be readily separated from the flight by shifting the same angularly to an abnormal position relatively to the flight. In the present embodiment of the invention means are provided to prevent such abnormal movement of the link and flight as will permit of their separation. D designates a link of the carrying chain, the bar at one end of which is adapted to engage the hook *b* at the end of the link B. The link D is provided with a lateral protuberance *d* at the inner end thereof which is adapted when the inner end of such link is connected to the hook of the link B to overlie the outer surface of the flight C, which constitutes a stop to prevent the relative movement of the link B and flight C necessary to effect their separation and it will therefore be obvious that in order to separate the link B from the flight C, the chain will first have to be uncoupled by disengaging the link D from the link B, after which the link B may be readily detached. The link D and hook *b* of the link B are preferably of such a construction that the link D must be moved to a substantially vertical position alongside of the flight C before it can be disengaged from the link B, and as when the conveyer is in use the tension in the carrying chains is such that the link D could never assume this position, it is obvious that it is practically impossible for the flights to become accidentally disconnected from the carrying chains.

The conveyer as thus described is adapted to be supported in the usual trough and in the corners of said trough are mounted blocks or cleats which underlie the lateral extensions *c* at the ends of the flights C and serve as supports upon which the carrying chains A A run.

In Fig. 4 of the drawings is illustrated a slightly modified form of the invention. In this form of the invention the flight is similar in construction to the flight C heretofore described and the links E which are secured to the ends thereof are provided with spaced arms which project upwardly from the frame thereof adjacent the hook end of the link, which arms are provided with flat front and rear faces and the innermost arm of each link E is provided with an outwardly projecting stud *e* which when the link is secured to the flight is adapted to engage an aperture *e*² formed in the inner portion of the lateral extension *c* of the flight. Links F are utilized to lock the links E against such abnormal movement as will permit their disengagement from the flights, such links being provided with lateral protuberances which are adapted to overlie portions of

the flight similar to those described in connection with the links D which are utilized to hold the links B against such movement.

While several convenient embodiments of the invention are illustrated in the accompanying drawings, it will be obvious that many changes may be made in the form and construction therein shown without departing from the spirit and scope of the invention as defined in the appended claims.

I claim:—

1. The combination with a conveyer flight, of a chain link directly interlocked therewith and separable therefrom upon an abnormal movement of one of said parts relatively to the other, and a link detachably connected to said first mentioned link and fashioned to prevent such abnormal movement of the parts while the links are connected.

2. The combination with a conveyer flight, provided with an opening therein, of a chain link provided with a single arm lying upon each face of the flight, said arms being laterally separated and one of said arms being provided with a projection normally engaging the opening in the flight, whereby the parts are normally interlocked and may be disengaged by an abnormal movement of one of said parts relatively to the other.

3. The combination with a conveyer flight, of a chain link provided with two laterally separated portions lying one upon each face of said flight, means extending from one of said portions and normally engaging the body of the flight to interlock said link and flight, said means permitting the separation of the parts upon an abnormal relative movement of the link and flight, and means for preventing such abnormal movement of the parts.

4. The combination with a conveyer flight, of a chain link provided with laterally separated portions projecting therefrom and lying upon opposite faces of the conveyer flight, one of said portions and the adjacent portion of said conveyer flight being provided with inter-engaging parts, and means detachably connected to the chain link and overlying the body of the conveyer flight opposite one of the portions projecting from the link to normally prevent relative movement of the link and flight.

5. The combination with a conveyer flight, of a chain link having a hooked portion at one end thereof, a pair of spaced arms projecting upwardly from the body of said link adjacent the hooked end thereof, the outermost arm overlying the body of the conveyer flight, and the innermost arm underlying the body of the flight, and a chain link detachably connected to the

hooked portion of said first mentioned link and provided with a portion overlying the body of the conveyer flight to normally prevent separation of the flight and said first mentioned link.

6. The combination with a conveyer flight provided with a lateral extension at one end thereof, a chain link provided with a pair of separated arms extending upwardly therefrom and lying on opposite sides of said extension, one of said arms being provided with shoulders engaging the upper and lower edges of said extension.

7. The combination with a conveyer flight provided with a lateral extension at one end thereof, a chain link provided with a pair of separated arms extending upwardly therefrom and lying on opposite sides of said extension, one of said portions being provided with shoulders engaging the upper and lower edges of said extension, and means detachably connected to said link and normally overlying the body of said flight to prevent relative movement between said link and flight.

8. The combination with a conveyer flight provided with a lateral extension at one end thereof, the outer portion of which is offset to lie in a plane parallel to the plane of the body of the conveyer flight, of a chain link provided with separated portions projecting therefrom, one of which is adapted to overlies the offset portion of the extension at the end of the flight and the other of which is adapted to underlie such extension, and means for preventing relative movement of said chain link and flight.

9. The combination with a conveyer flight provided with a lateral extension at one end thereof, the outer portion of which is offset to lie in a plane parallel to the plane of the body of the conveyer flight, of a chain link provided with separated portions projecting therefrom one of which is adapted to overlies the offset portion of the extension at the end of the flight and the other of which is adapted to underlie said extension and is provided at the upper end thereof with a shoulder adapted to engage said extension.

10. The combination with a conveyer flight provided with a lateral extension at

one end thereof, the outer portion of which is offset to lie in a plane parallel to the plane of the body of the conveyer flight, of a chain link provided with a pair of separated aligned arms projecting therefrom and arranged to lie upon opposite sides of the extension at the end of said flight, said chain link being provided with a shoulder at the lower ends of said arms and said arms being provided with outwardly projecting portions at the upper ends thereof.

11. The combination with a conveyer flight provided with a lateral extension at one end thereof, the upper portion of which is offset to lie in a plane parallel with the plane of the body of the conveyer flight, of a chain link provided with a pair of separated aligned arms projecting therefrom and arranged to lie upon opposite sides of the extension at the end of said flight, the upper portion of said arms being provided with outwardly extending portions, and a chain link detachably connected with said first mentioned chain link and provided with a portion adapted to overlies the body of the conveyer flight.

12. The combination with a flight conveyer, of a carrying member therefor underlying the edge of said flight and provided with two laterally separated arms extending upwardly therefrom and arranged to lie upon opposite faces of said flight and a removable stop carried by said carrying member and overlying the body of the conveyer flight opposite one of the arms projecting from the link.

13. The combination with a conveyer flight, of a chain link provided with a single arm lying upon each face of the flight, said arms being laterally separated, the adjacent portion of said flight and one of said arms being provided with interengaging portions normally holding the flight and link interlocked and permitting separation thereof upon an abnormal movement of said flight and link relative to each other.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN F. WHITE.

Witnesses:

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ELIZABETH SMITH.