Aug. 12, 1952 A. K. K. ANDERSEN ET AL 2,606,647

ELEVATOR FOR HARVESTING MACHINES

Filed June 22, 1949

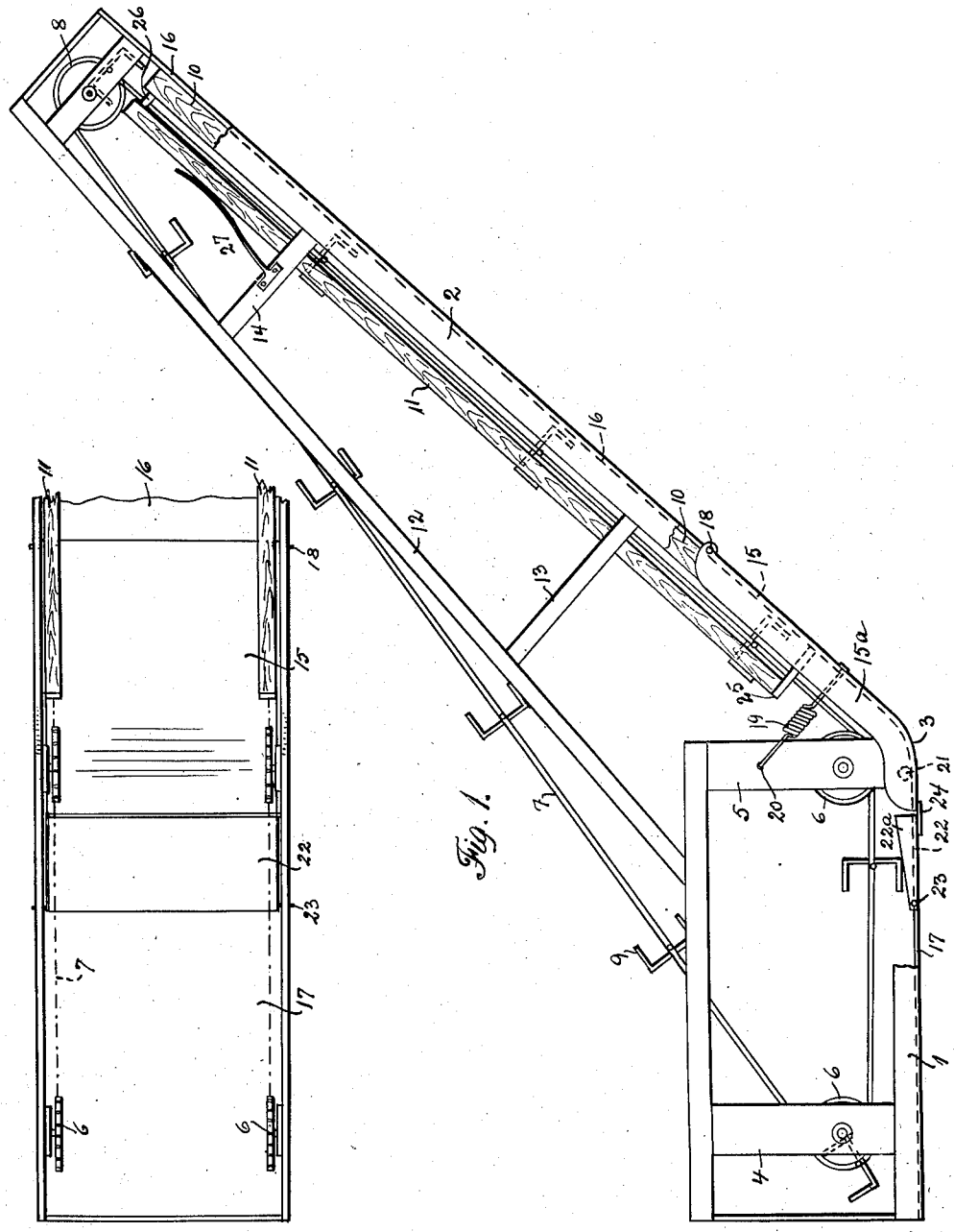


Fig. 1.

Fig. 2.

Anders Karl Kristian Andersen and INVENTORS

BY Thomas Rowsland

Michael Glass

Attorney

Patented Aug. 12, 1952 2,606,647

UNITED STATES PATENT OFFICE

2,606,647

ELEVATOR FOR HARVESTING MACHINES

Anders Karl Kristian Andersen, Stenstrup, and
Thomas Rosenstand, Korinth, Denmark

Application June 22, 1949, Serial No. 100,676

6 Claims. (Cl. 198—204)

1

The present invention relates to improvements in elevators for harvesting machines, and in which the conveyor members travel from a horizontal part of the elevator to an upwardly inclined part thereof.

The main object of the invention is to provide means preventing obstruction by foreign matter of the conveyor members during the passage of the goods being transported from the horizontal to the inclined elevator parts.

Another object of the invention is the provision of means preventing damage of the conveyor members of the elevator on account of the presence of foreign matter.

A still further object of the invention is the provision of guide members for the conveyor chains so arranged that the said chains are not subjected to damage by foreign matter.

Other objects and a fuller understanding of the invention may be had by referring to the following description and claims, taken in conjunction with the accompanying drawing, in which

Fig. 1 is a side elevation of an elevator with some parts broken away, and

Fig. 2 is a top elevation of the lower part of the elevator shown in Fig. 1, parts of which have been eliminated to avoid obscurity.

Referring to the drawing 1 indicates the horizontal lower frame of the harvester, and 2 the lower frame of the inclined elevator part, the curved transition between these two elevator parts being indicated by 3. The horizontal frame part 1 which has rectangular shape, is provided with two pairs of uprights 4 and 5, in each of which is journalled a sprocket 6 for two parallel conveyor chains 7 (shown in dot-and-dash lines in Fig. 2). The two chains are carried over sprockets 8 journalled in the upper end of the inclined elevator part 2 in such a manner that the chains from the base of the horizontal travel up along the base of the inclined elevator part and return to the sprocket 6 farthest from the inclined elevator part. The two chains are interconnected by means of a number of relatively interspaced transverse bars 9 which, during their passage along the base of the elevator, move with their lower edge slightly raised above the said base, and which along the inclined elevator part 2 are guided between two vertically spaced cleats 10 and 11 described in detail later on.

The inclined elevator frame 2 is braced in relation to the horizontal elevator part 1 by means of a longitudinal frame bar 12 and stays 13 and 14.

According to the invention the part of the elevator base constituting the curved transition 3 is resiliently attached to the frame parts 1 and 2. As shown in Fig. 1 the lower portion 15 of the base of the inclined elevator part is detached from the remaining fixed parts 16 and 17 of the said base, and is journalled at its upper end to the frame 2 by means of a hinge 18. Somewhat spaced from the lower end of the hinged base part 15 is attached the one end of a drag spring 19 the other end 20 of which is attached to the nearest upright 5. This spring serves to hold the hinged base part 15 in approximate alignment with the fixed base parts 16 and 17, and to this end stop members 21 attached to the frame 1 are provided.

2

The part 22 of the base of the horizontal elevator part adjacent the lower end of the hinged base part 15 is likewise detached from the fixed base part 17, being rotatably attached thereto by means of a hinge pin 23. This horizontal base part 22 rests with its free edge on a ledge 24 attached to the lower side of the hinged base part 15. Thus, if any congestion arises between the lower edge of the transverse conveyor bars 9 and the fixed horizontal base 17, the material causing such congestion will upon reaching the hinged base part 22 press this part downwardly, and owing to the ledge 24 the hinged base part 15 will likewise be lowered against actuation of spring 19, consequently the congestion will be released and the material will be moved smoothly along the curved transition 3. In case the congestion commences at the curved portion 3 of the base part 15, this part will be depressed by rotating on its hinge 18 against the actuation of spring 19, and the congestion is immediately released. The edges of the hinged base parts 15 and 22 are provided with upwardly extending flanges 15a and 22a respectively on their side edges.

During the travel of material upwardly along the inclined elevator part there is some risk of foreign matter such as stones becoming jammed between the travelling chains 7 and the guide cleats 11 or 12. To prevent any damage being done to the chain, or to the entire machine being stopped, the cleats are arranged in the following manner.

The lower ends of the two cleats 10 and 11 are attached vertically spaced to a post 25 so that the chain 7 may travel freely between the two cleats. The opposite end of the lower cleat 10 is rigidly attached to the elevator frame and carries here an abutment 26 upon which the upper end of the upper cleat 11 rests without being attached thereto.

To one of the stays 14 of the elevator frame is attached the one end of a leaf spring 27 extending along the upper end of the upper cleat 11 and pressing this cleat resiliently against the abutment 26. In case a stone or other hard foreign substance is engaged between a chain and a cleat, the resiliency of the upper cleat will allow it to be lifted off the abutment against the actuation of spring 27, thus releasing the foreign object and preventing damage to the chain.

Although the invention is described with a certain degree of particularity, it is understood that the present disclosure has been made only by way of example, and that many alterations in the details of construction and the combination and arrangement of parts may be resorted to without departing from the spirit and the scope of the invention as hereinafter claimed.

We declare that what we claim is:

1. In an elevator having a conveyor chain, a device for preventing damage to the conveyor chain comprising, in combination, a pair of elongated bar members mounted respectively on opposite sides of the conveyor chain and being spaced therefrom, the said bar members being fixedly connected together at one of their respective ends; a stop member fixed to the other of the ends of one of said bar members and reaching toward the other of the bar members; spring means urging the other of the bar members toward said one of the bar members so that the other end of the other of the bar members rests on said stop member, whereby the movement of said elongated bar members toward each other is limited by said stop member and whereby any obstruction between the chain and other bar member will cause the latter to be raised against the action of said spring means so as to prevent injury to the chain.

2. In an elevator having a conveyor chain guided over sprocket wheels, a device for preventing damage to the chain comprising, in combination, a first elongated bar fixedly mounted on the elevator, said first elongated bar being located on one side of a portion of the chain located between two sprocket wheels in substantially parallel relation to the chain portion and being slightly spaced therefrom; a stop member fixed to one end of said first elongated bar and extending from said bar to the side of said chain portion opposite to that on which said first bar is located; a second elongated bar located on the other side of the chain portion from said first elongated bar, said second elongated bar being located in parallel and slightly spaced relation to the chain portion, one end of said second elongated bar being fixedly connected to said first elongated bar and the other end of said second elongated bar bearing against said stop member; spring means urging said second elongated bar towards said stop member and said first elongated bar, whereby said stop member limits the movement of said second elongated bar toward the chain portion and first elongated bar and whereby any obstruction located between the chain portion and second elongated bar will move the latter against the action of said spring means so as to prevent damage to the chain.

3. In an elevator having a conveyer chain guided over sprocket wheels, a device for preventing damage to the chain comprising, in combination, a first elongated bar being located on one side of a portion of the chain located between two sprocket wheels in substantially parallel relation to the chain portion and being slightly spaced therefrom; a stop member fixed to one end of said first elongated bar and extending from said bar to the side of said chain portion opposite to that on which said first bar is located; a second elongated bar located on the other side of the chain portion from said first elongated bar, said second elongated bar being located in parallel and slightly spaced relation to the chain portion, one end of said second elongated bar being fixedly connected to said first elongated bar and the other end of said second elongated bar bearing against said stop member; leaf spring means bearing against the side of said second elongated bar which is distant from the chain portion and urging said second elongated bar towards said stop member and said first elongated bar, whereby said stop member limits the movement of said second elongated bar toward the chain portion and first elongated bar and whereby any obstruction located between the chain portion and second elongated bar will move the latter against the action of said spring means so as to prevent damage to the chain.

4. An elevator comprising, in combination, a first continuous floor portion adapted to receive goods to be conveyed in the elevator; a second continuous floor portion angularly located with respect to said first floor portion and along which goods are adapted to be conveyed from said first floor portion, said second floor portion being spaced from said first floor portion; a plurality of mutually spaced elongated conveyer elements transversely arranged with respect to said floor portions of said elevator; chain and sprocket means connected to said conveyer elements for moving the same over said floor portions and in slightly spaced relation therefrom; a third continuous floor portion located between said first and second floor portions, said third floor portion being hingedly connected at one end thereof to said second floor portion; spring means connected to said third floor portion for urging the other end thereof towards said first floor portion; and stop means for limiting the movement of said other end of said third floor portion towards said first floor portion at the point where said other end of said third floor portion is in substantially the same plane as said first floor portion, whereby any obstructions between said conveyer elements or chain and third floor portion moves the latter against the action of said spring means so that the other end of said third floor portion moves away from said first floor portion.

5. An elevator comprising, in combination, a first continuous floor portion adapted to receive goods to be conveyed in the elevator; a second continuous floor portion angularly located with respect to said first floor portion and along which goods are adapted to be conveyed from said first floor portion, said second floor portion being spaced from said first floor portion; a plurality of mutually spaced elongated conveyer elements transversely arranged with respect to said floor portions of said elevator; chain and sprocket means connected to said conveyer elements for moving the same over said floor portions and in slightly spaced relation therefrom; a third continuous floor portion located between said first and second floor portions, said third floor portion being hingedly connected at one end thereof to said second floor portion; spring means connected to said third floor portion for urging the other end thereof towards said first floor portion; stop

means for limiting the movement of said other end of said third floor portion towards said first floor portion at the point where said other end of said third floor portion is substantially in the same plane as said first floor portion; and a fourth continuous floor portion pivotally connected at one end thereof to said first floor portion and resting with its other end on the other end of said third floor portion, whereby said spring means connected to said third floor portion also maintains said fourth floor portion in proper position so as to form a continuation of said first floor portion and whereby any obstruction between said conveyer elements or chain and said third and fourth floor portions causes said third and fourth floor portions to be moved against the action of said spring means so that the other ends of said third and fourth floor portions move away from said first floor portion and away from each other.

6. An elevator having a conveyer chain guided over sprocket wheels comprising, in combination, a first continuous floor portion adapted to receive goods to be conveyed in the elevator; a second continuous floor portion angularly located with respect to said first floor portion and along which goods are adapted to be conveyed from said first floor portion, said second floor portion being spaced from said first floor portion; a plurality of mutually spaced elongated conveyer elements transversely arranged with respect to said floor portions of said elevator; chain and sprocket means connected to said conveyer elements for moving the same over said floor portions and in slightly spaced relation therefrom; a third continuous floor portion located between said first and second floor portions, said third floor portion being hingedly connected at one end thereof to said second floor portion; spring means connected to said third floor portion for urging the other end thereof towards said first floor portion; stop means for limiting the movement of said other end of said third floor portion towards said first floor portion at the point where said other end of said third floor portion is substantially in the same plane as said first floor portion; a fourth continuous floor portion pivotally connected at one end thereof to said first floor portion and resting with its other end on the

other end of said third floor portion, whereby said spring means connected to said third floor portion also maintains said fourth floor portion in proper position so as to form a continuation of said first floor portion and whereby any obstruction between said conveyer elements or chain and said third and fourth floor portions causes said third and fourth floor portions to be moved against the action of said spring means so that the other ends of said third and fourth floor portions move away from said first floor portion and away from each other; a first elongated bar fixedly mounted on said second floor portion, said first elongated bar being located on one side of a portion of the chain located between two sprocket wheels in substantially parallel relation to the chain portion and being slightly spaced therefrom; a stop member fixed to one end of said first elongated bar and extending from said bar to the side of said chain portion opposite to that on which said first bar is located; a second elongated bar located on the other side of the chain portion from said first elongated bar, said second elongated bar being located in parallel and slightly spaced relation to the chain portion, one end of said second elongated bar being fixedly connected to said first elongated bar and the other end of said second elongated bar bearing against said stop member; additional spring means urging said second elongated bar towards said stop member and said first elongated bar, whereby said stop member limits the movement of said second elongated bar toward the chain portion and first elongated bar and whereby any obstruction located between the chain portion and second elongated bar will move the latter against the action of said additional spring means so as to prevent damage to the chain.

ANDERS KARL KRISTIAN ANDERSEN.
THOMAS ROSENSTAND.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
2,167,818	Wagner	Aug. 1, 1939
2,286,250	Albertoli	June 16, 1942