

W. A. CRICHTON.
ELEVATOR.
APPLICATION FILED JULY 1, 1911.

1,023,626.

Patented Apr. 16, 1912.

2 SHEETS-SHEET 1.

Fig. 1.

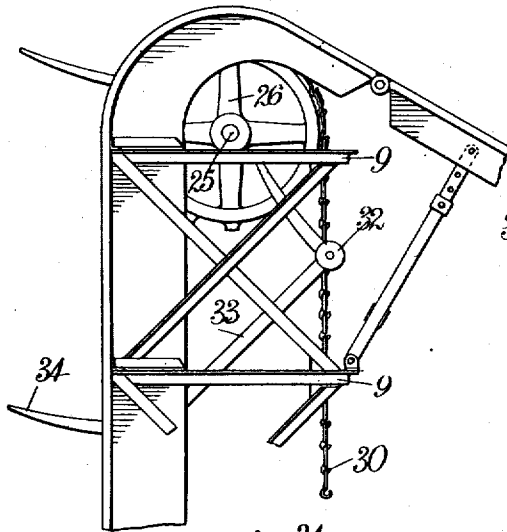
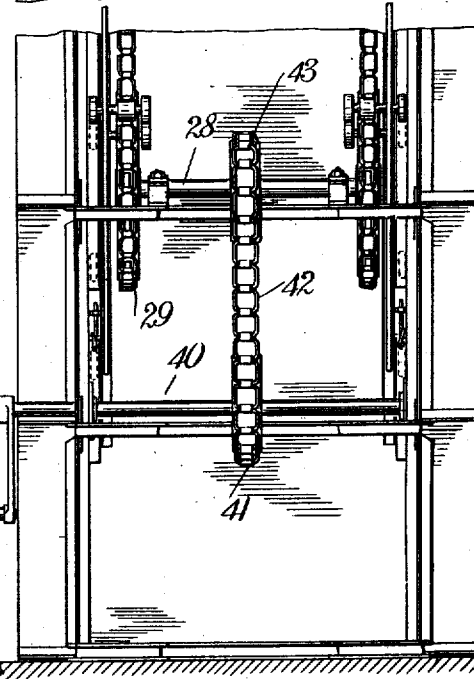
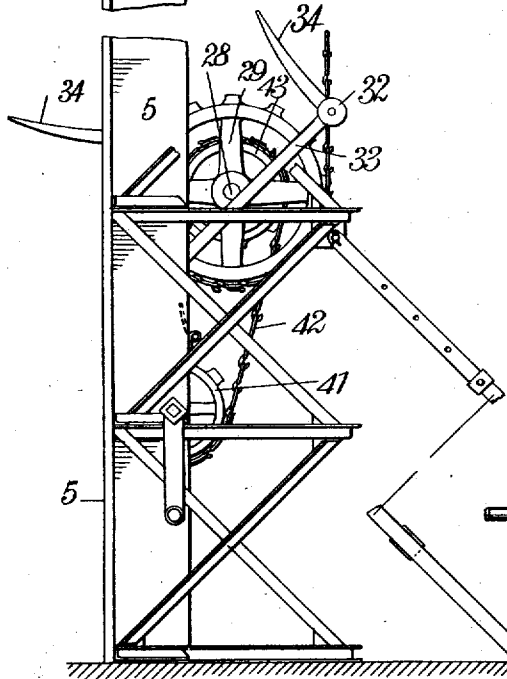
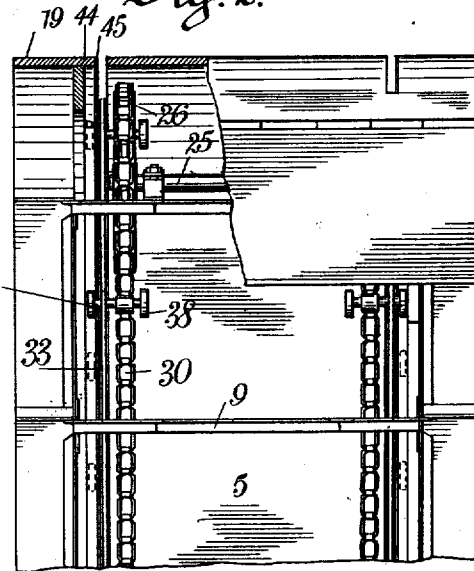


Fig. 2.



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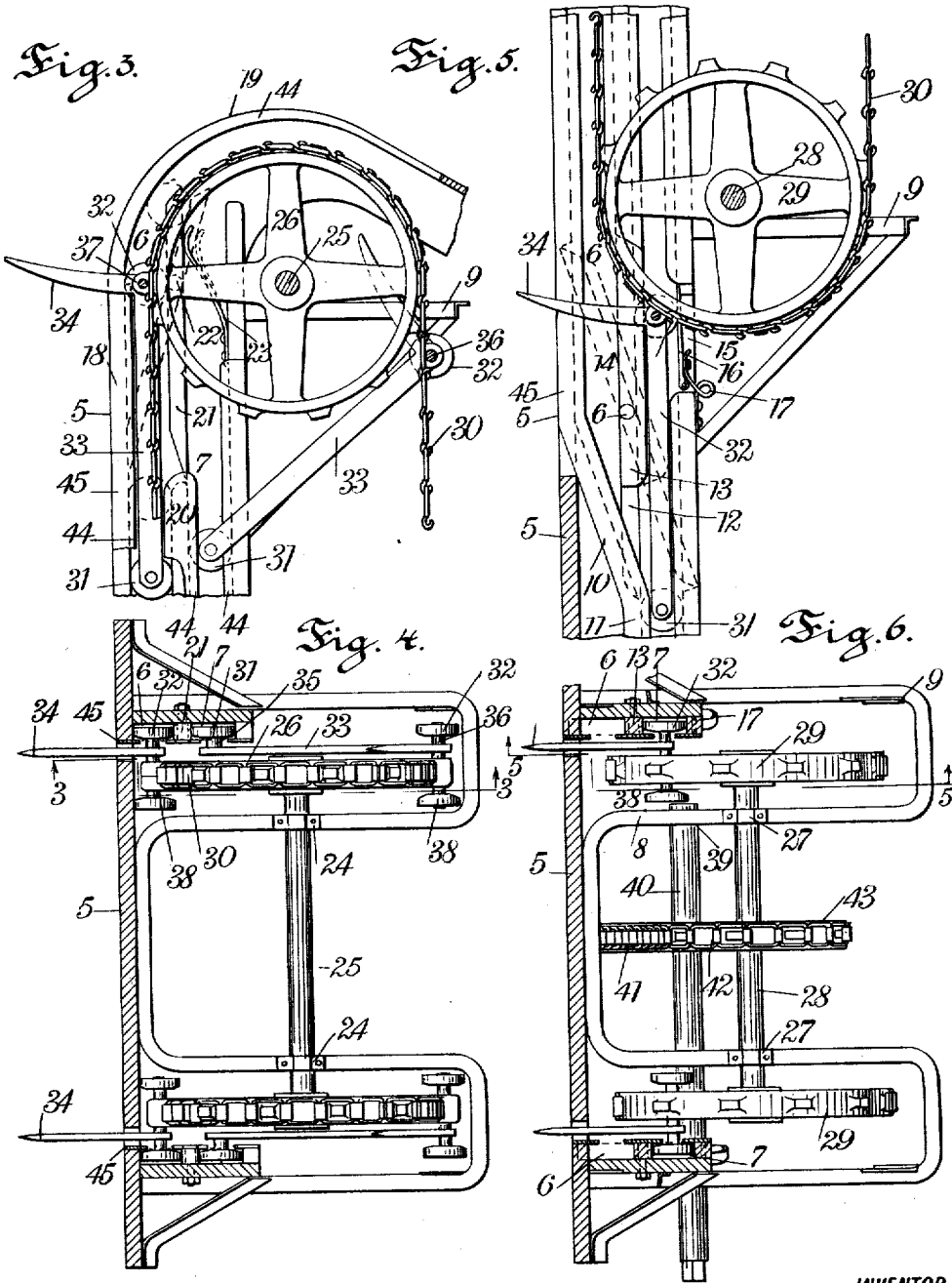
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UNITED STATES PATENT OFFICE.

WILLIAM A. CRICHTON, OF PARIS, ONTARIO, CANADA.

ELEVATOR.

1,023,626.

Specification of Letters Patent.

Patented Apr. 16, 1912.

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To all whom it may concern:

Be it known that I, WILLIAM A. CRICHTON, a subject of the King of Great Britain, and a resident of Paris, in the Province of Ontario and Dominion of Canada, have invented a new and Improved Elevator, of which the following is a full, clear, and exact description.

My invention relates to elevators, and it has for its object to provide one simple in construction, which takes up very little floor space, the elevator being constructed with guideways having switches which are operated by guide members connected with the forks, for directing companion guide members in the guideways.

Additional objects of the invention will appear in the following complete specification, in which the preferred form of the invention is disclosed.

In the drawings similar characters of reference denote corresponding parts in all the views, in which—

Figure 1 is a side elevation of the elevator; Fig. 2 is a rear view of Fig. 1; Fig. 3 is a sectional view on the line 3—3 of Fig. 4; Fig. 4 is a sectional plan view of Fig. 3; Fig. 5 is a sectional view on the line 5—5 of Fig. 6; and Fig. 6 is a sectional plan view of Fig. 5.

By referring to the drawings it will be seen that a frame 5 is provided having companion guideways 6 and 7, at one side, and companion guideways 6 and 7 at the other side. The frame 5 has a casing 8, with two sets of looped frame members 9, in which the guideways and the associated members are disposed. The guideways 6 have obliquely disposed bottom members 10, which lead to a vertical wall 11 between the vertical planes of the guideways 6 and 7. Between the bottom of the guideways 6 and the bottom of the guideways 7, there is a passage 12, in which is disposed a switch 13, this switch 13 being pivoted at 14 to the frame, intermediate of its terminals. There is an opening 15 in the outer wall of the guideway 7, this opening 15 being disposed opposite the passage 12. A member 16 is provided for normally closing the opening 15, a spring member 17 being provided connecting the member 16 with the guideways 7, for holding the member 16 yieldingly in

position. The outer wall 18 of the guideway 6 is curved, as shown at 19 at its upper end, and the intermediate wall 20, which separates the guideway 6 from the guideway 7, terminates at a distance below the said upper curved end of the guideway 6. The switch 21, which is pivoted to the frame at 22, intermediate of its terminals, is provided, forming a continuation of the intermediate wall 20 which separates the guideway 6 from the guideway 7. A spring 23 is provided, which is secured to the frame, and which presses yieldingly against the upper terminal of the switch 21, for holding the said switch yieldingly in position.

In the casing 8 there are bearings 24, in which is journaled a shaft 25, the said shaft 25 having its terminals disposed in the looped frame members 9. Disposed in the said looped frame members 9, and secured to the terminals of the shaft 25, there are sprocket wheels 26. Disposed at a distance below the bearings 24, there are bearings 27 in the casing 8, and in these bearings 27 there is journaled a shaft 28, the terminals of which are also disposed in the looped frame members 9, sprocket wheels 29 being disposed in the looped frame members 9, and being secured to the terminals of the shaft 28. Around the sprocket wheels 26 and 29, in each of the looped frame members, there is disposed a belt or sprocket chain 30. Disposed for traveling in each set of guideways 6 and 7 there are guide members 31, there being also provided guide members 32, which travel in the guideways 6. The guide members 31 and 32 are connected in pairs by arms 33, to which the forks 34 are secured. The guide members 31 are preferably journaled to rotate on pins 35, secured to the arms 33, and the guide members 32 are preferably journaled to rotate on pins 36, which are secured to the arms 33. To these pins 36 there are journaled brackets 37, the said brackets 37 being secured to the belt or sprocket chain 30, and guide members 38 are mounted to rotate on the pins 36 at the other side of the said brackets 37. It will be seen that the guide members 32 and 38 will direct the arms 33 and the forks 34 around the curved upper end 19 of the outer wall 18 of the guideways 6. Journaled in bearings 39 in the casing

8, there is a shaft 40, this shaft 40 having a sprocket wheel 41, around which is disposed a sprocket chain 42, this sprocket chain 42 also being disposed around a sprocket wheel 43 secured to the shaft 28. There are flanges 44 on the guideways to prevent the displacement of the guide members 31 and 32.

In using the invention when the shaft 40 is rotated it will rotate the shaft 28 by means of the sprocket wheels 41 and 43, which are connected by the sprocket chain 42, and as this shaft 28 rotates it will operate the belt or sprocket chains 30. As the belt or sprocket chains 30 are operated they will carry the guide members 32 and 31 up the guideways 6 and as the guide members 32 are brought into contact with the upper terminals of the switches 21, they will push the upper terminals of the switches 21 to the right, thereby moving the lower terminal of the switches 21 to the left, so that when the guide members 31 reach the switches they will be directed between the lower terminal of the switches 21 and the intervening members between the guideways 6 and 7. In this manner the guide members 31 will be directed from the guideways 6 to the guideway 7, while the guide members 32 are moved around the top of the sprocket wheels 26. When the guide members 32 have been moved to the right of the sprocket wheel 26, the guide members 31 are disposed in the guideways 7, below the horizontal planes of the guide members 32, and as the guide members 32 are moved down with the belt or sprocket chain at the right of the sprocket wheels 26, they will carry with them the arms 33, and the guide members 31, the said guide members 31 continuing to move downwardly in advance of the guide members 32. When the guide members 32 have reached the sprocket wheels 29, the guide members 31 have been moved to a position opposite the lower terminals of the obliquely disposed bottom walls 10 of the guideways 6, and when the guide members 32 are moved through the openings 15 and push aside the members 16, normally disposed in the said openings 15, and across to the upper terminals of the switches 13, pressing the upper terminals of the switches 13 to the left, so that the guide members 32 may move to the guideways 6, it will be found that the lower terminals of the switches 13 will be moved to the right, so that when the guide members 32 are moved upwardly, with the belt or sprocket chains 30 at the left of the sprocket wheel 29, the upward movement of the guide members 32, with the arms 33, will draw the guide members 31 upwardly, and they will be directed into the guideways 6, by means of the lower terminal of the switch 13. In this way the forks 34 will be moved up through the openings 45 in the frame 5, and will be moved

down at the rear of the device, the forks, during the upper and lower movements, being disposed in the same direction.

As my elevator is constructed it is especially valuable as a sheaf elevator.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. In an elevator two guideways with a passage connecting the guideways, an arm, a fork secured to the arm, two guides spaced apart on the arm for traveling in one of the guideways, a pulley, a belt disposed around the pulley, and means connecting the arm with the belt for moving the two guides in one of the guideways, and one of the guides over the pulley and the other guide through the passage to the other guideway.

2. In an elevator, two guideways with a passage connecting the guideways, a pivoted switch commanding the passage, an arm, a fork secured to the arm, two guides spaced apart on the arm for traveling in one of the guideways, a pulley, a belt disposed around the pulley, and means connecting the arm with the belt for moving the two guides in one of the guideways to the switch, and one of the guides against the switch and around the pulley to open the switch to permit the other guide to travel through the passage to the other guideway.

3. In an elevator a frame having two guideways with an intervening member, a switch pivoted to the frame and normally forming a continuation of the intervening member, two guide members normally disposed in one of the guideways, one in advance of the other, an arm connecting the guide members, a fork secured to the arm, and means to press the leading guide member against the switch to open the switch and permit the following guide member to pass from one guideway to the other.

4. In an elevator a frame having two guideways with an intervening member, a switch pivoted to the frame and normally forming a continuation of the intervening member, two guide members normally disposed in one of the guideways, one in advance of the other, an arm connecting the guide members, a fork secured to the arm, means to press the leading guide member against the switch to open the switch and permit the following guide member to pass from one guideway to the other, and resilient means for holding the switch normally in position.

5. In an elevator a frame having two guideways with an intervening member and bearings, a switch mounted on the frame, movable relatively thereto, and normally forming a continuation of the intervening member, two guide members disposed in one of the guideways, one in advance of the other, an arm connecting the guide mem-

bers, a fork secured to the arm, a shaft journaled in the bearings, a wheel mounted on the shaft, a belt disposed around the wheel, and means for connecting the arm with the belt to move the leading guide member against the switch to open the switch for the other guide member.

6. In an elevator a frame having two guideways, with an intervening member and bearings, a pivoted switch normally forming a continuation of the intervening member, two guide members disposed one in advance of the other, an arm connecting the guide members, a fork secured to the arm, a shaft in the bearings, a wheel mounted on the shaft, a belt disposed around the wheel, and means for connecting the arm with the belt to move the leading guide member against the switch at one side of its pivot, so that the switch will be opened to permit the other guide member to pass between the other side of the switch and the intervening member.

7. In an elevator a frame having two guideways with a passage between the guideways and an opening through the side of one of the guideways opposite the passage, a switch normally closing the passage, a guide member for traveling in one of the guideways, a second guide member for traveling at a distance beyond the guideways, an arm connecting the guide members, and means for moving the second-mentioned guide member through the opening, against the switch, and through the passage, the switch being thereby operated to permit the first-mentioned guide member to pass through the passage.

8. In an elevator a frame having two guideways with a passage between the guideways and an opening through the side of one of the guideways opposite the passage, a switch normally closing the passage, a guide member for traveling in one of the guideways, a second guide member for traveling at a distance beyond the guideways, an arm connecting the guide members, means for moving the second-mentioned guide member through the opening, against the switch, and through the passage, the switch being thereby operated to permit the first-mentioned guide member to pass through the passage, a member normally disposed in the opening, and means for holding the last-mentioned member yieldingly in position.

9. In an elevator a frame having two guideways, with a passage from one guideway to the other and an opening through the outer side of one of the guideways opposite the passage, a pivoted switch normally closing the passage, two guide members, one normally disposed above the horizontal plane of the other, an arm connecting the guide members, the lower guide member

being adapted to travel in one direction in the guideway having the opening, and in the direction of the passage, the upper guide member being adapted to travel in the same direction beyond the guideways, and means for moving the upper guide member through the opening against the switch and through the passage, thereby opening the switch for directing the lower guide member through the passage.

10. In an elevator a frame having two guideways, with a passage from one guideway to the other and an opening through the outer side of one of the guideways opposite the passage, a pivoted switch normally closing the passage, two guide members, one normally disposed above the horizontal plane of the other, an arm connecting the guide members, a fork secured to the arm, the lower guide member being adapted to travel in one direction in the guideway having the opening, and in the direction of the passage, the upper guide member being adapted to travel in the same direction beyond the guideways, and means for moving the upper guide member through the opening against the switch and through the passage, thereby opening the switch for directing the lower guide member through the passage.

11. In an elevator a frame having two guideways, with a passage from one guideway to the other and an opening through the outer side of one of the guideways opposite the passage, a pivoted switch normally closing the passage, two guide members, one normally disposed above the horizontal plane of the other, an arm connecting the guide members, a fork secured to the arm, the lower guide member being adapted to travel in one direction in the guideway having the opening, and in the direction of the passage, the upper guide member being adapted to travel in the same direction beyond the guideways, means for moving the upper guide member through the opening against the switch and through the passage, thereby opening the switch for directing the lower guide member through the passage, a member for closing the opening, and resilient means for holding the last-mentioned member yieldingly in position.

12. In an elevator a frame having a guideway with a passage through one of its sides, a switch pivoted intermediate of its ends for closing the passage, two guide members, an arm connecting the two guide members, and means for moving one guide member against the switch at one side of its pivot, and through the passage, for operating the switch to direct the other guide member through the passage at the other side of the pivot.

13. In an elevator a frame having a guideway with a passage through one of its sides, a switch pivoted intermediate of its

ends for closing the passage, two guide members, an arm connecting the two guide members, a fork secured to the arm, means for moving one guide member against the switch at one side of its pivot, and through the passage, for operating the switch to direct the other guide member through the passage at the other side of the pivot.

14. In an elevator a frame having a guideway with a passage through one of its sides, a switch pivoted intermediate of its ends for closing the passage, two guide members, an arm connecting the two guide members, means for moving one guide mem-

ber against the switch at one side of its pivot, and through the passage, for operating the switch to direct the other guide member through the passage at the other side of the pivot, and resilient means for holding the switch in position.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM A. CRICHTON.

Witnesses:

GEORGE L. TELFER,

WILLIAM LUDDON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."