

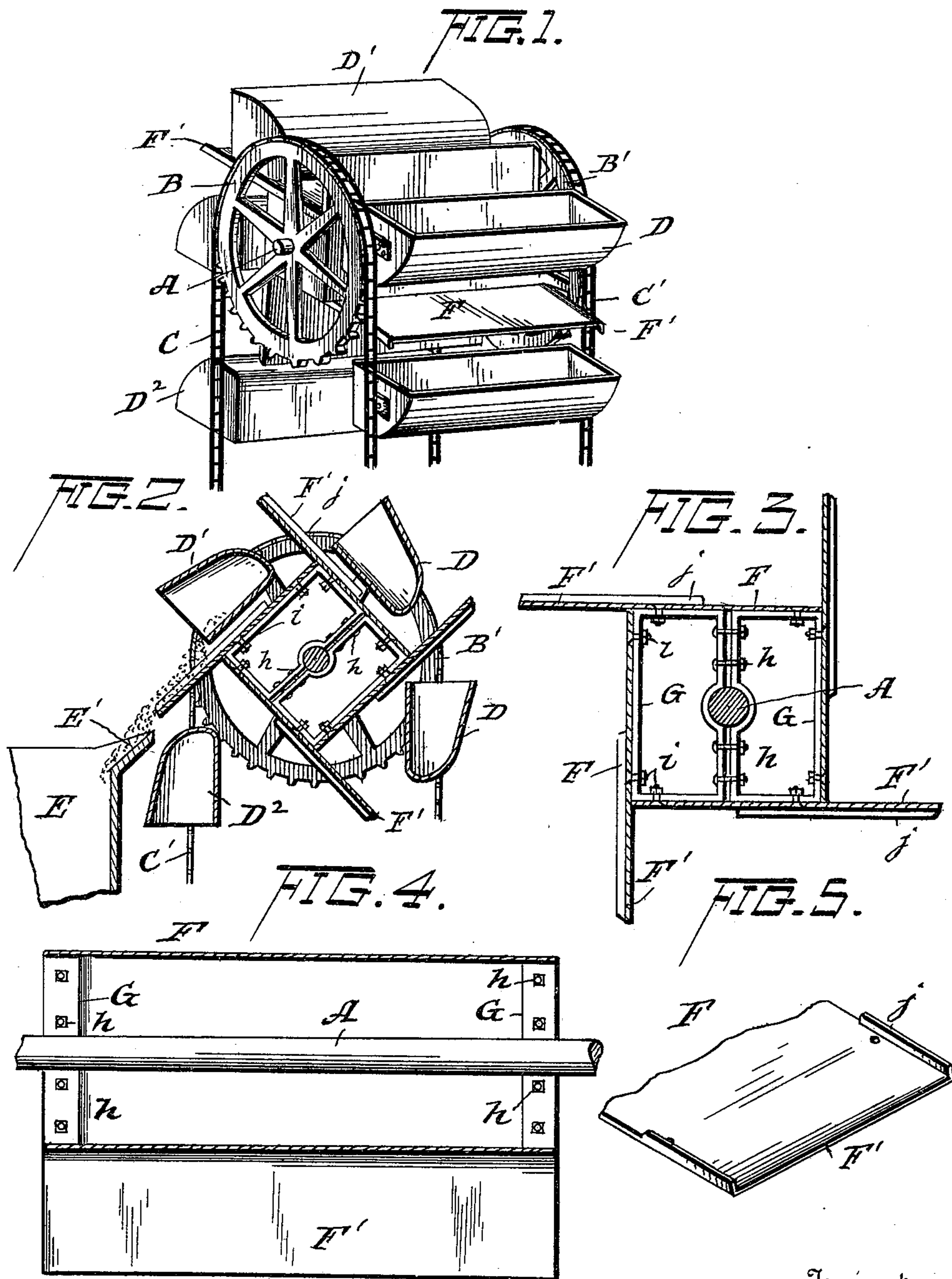
No. 627,409.

Patented June 20, 1899.

G. C. GETCHELL.  
ENDLESS CONVEYER OR ELEVATOR.

(Application filed Jan. 14, 1899.)

(No Model.)



Witnesses

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# UNITED STATES PATENT OFFICE.

GEORGE C. GETCHELL, OF CAMBRIA, WYOMING.

## ENDLESS CONVEYER OR ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 627,409, dated June 20, 1899.

Application filed January 14, 1899. Serial No. 702,162. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE C. GETCHELL, a citizen of the United States, residing at Cambria, in the county of Weston and State of Wyoming, have invented certain new and useful Improvements in Endless Conveyers or Elevators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in endless conveyers or elevators of that class which employ a series of buckets connected at regular intervals to chains or equivalent carriers and adapted when arriving at the delivery-point to discharge the material contained therein into a bin or other suitable receptacle or onto a chute leading thereto. In the operation of these elevators there is a constant waste of the material being hoisted, as a part of the load of each bucket drops down onto the preceding bucket directly beneath it and either falls back to the loading-point and must be again hoisted or is scattered and wasted, and this is due to the fact that the bucket necessarily begins to discharge before it reaches the nearest point in its path of travel to the chute and that it is impossible to arrange the chute close enough to receive all of the material discharged without interfering with the proper action of the elevator.

The object of the invention is to provide a simple and effective means for preventing this waste of material and insuring the positive delivery of the entire contents of each bucket to the chute.

To this end the invention consists of an elevator such as illustrated in the drawings and embodying those features of construction and arrangement of parts which I shall now proceed to describe in detail and then point out in the claims hereto annexed.

Reference is to be had to the accompanying drawings, and to the letters marked thereon, forming a part of this specification, the same letters designating the same parts or features, as the case may be, wherever they occur.

In the said drawings, Figure 1 is a perspective view of a portion of an endless elevator embodying my invention, showing the ar-

range ment of the parts at the delivery end thereof. Fig. 2 is a vertical longitudinal section through the elevator and a bin and shows one of the buckets of the elevator arranged to discharge its load upon the bin-chute. Fig. 3 is a similar view showing the shaft and invention on an enlarged scale. Fig. 4 is a cross-sectional view thereof, and Fig. 5 is a detail perspective view of one of the deflecting-plates.

Referring now more particularly to the drawings, A represents the supporting-shaft, mounted to turn in suitable bearings at the upper or delivery end of the elevator; B and B', the sprocket-wheels, rigidly secured to the shaft to turn therewith and spaced apart a suitable distance to allow the buckets to move between them in the usual manner; C and C', the carrier-chains passing over said wheels; D, D', and D<sup>2</sup>, the buckets, rigidly secured at regular intervals to the chains; E, a bin or receptacle of any desired character arranged on the descending side of the elevator, and E' a chute adapted to receive the material as it is discharged from the buckets and conduct it to said bin.

In the operation of elevators of this character the filled buckets D on the ascending stretches of the chains are arranged vertically with their mouths or open ends upwardly and retain this position until they are gradually inverted by the passage of the portions of the chains to which they are attached over and around the sprocket-wheels B and B'. Each bucket as it arrives at the point where the bucket D' is located assumes an inclined position with its mouth facing outwardly and downwardly and begins to discharge its contents, and when it reaches the position occupied by the uppermost of the buckets D<sup>2</sup> on the descending stretches of the chains becomes fully inverted and travels downward to be again filled. In elevators of ordinary construction in common use a portion of the load discharged by the bucket D' instead of being delivered to the chute drops down onto the uppermost inverted bucket D<sup>2</sup>, preceding the discharging bucket, and either falls back to the loading-point, from which it must be again hoisted, or is scattered and wasted. This is a defect inherent to elevators of this character, as the buckets neces-



sarily discharge before arriving at the nearest point in their path of travel to the chute, and the latter cannot be placed near enough to receive the entire load without rendering the elevator inoperative. My invention has been devised for the purpose of overcoming this objection and insuring the positive delivery of the entire contents of each bucket to the chute and bin.

10 In carrying out my invention I employ a rotary deflector consisting of one or more deflecting-plates F, carried by the shaft A, the number of plates used being determined by the number of buckets which are arranged in  
15 proximity to and pass around the sprocket-wheels at each revolution of the shaft. In the present instance I have shown four such plates arranged at right angles, or substantially so, to each other and mounted upon the  
20 shaft in the following manner: Arranged near each end of the shaft and on the inner side of each sprocket-wheel is a rectangular supporting-frame composed of a pair of plates G, placed at right angles to the shaft and on  
25 opposite sides thereof and having their meeting edges notched or recessed to receive the same and flanged for the passage of bolts *h*, which hold them firmly connected to each other and clamped to the shaft. The sides  
30 of these supporting-frames are of equal length and are flanged, as shown, for the reception of bolts *i*, which secure the inner portions of the plates thereto. The plates are made approximately of the same width as the buckets  
35 and longer than the sides of the frames to provide projecting portions F', which are provided with side flanges *j* for a purpose hereinafter described. By this construction and arrangement of parts it will be seen that as  
40 each filled bucket D approaches the delivery end of the elevator on the ascending side the projecting portion F' of a plate which has position below the shaft will be caused by the turning of the shaft to move outwardly  
45 and upwardly in advance thereof in the space between the ascending stretches of the chains C and C' and between said bucket and the preceding bucket. This plate will retain its position above and in advance of  
50 the bucket until the latter reaches the discharge position assumed by the bucket D', when it will be arranged at an inclination directly below the same and bridge across and close the space between the mouth of said  
55 bucket D' and the bottom of the preceding bucket — namely, the uppermost inverted bucket D<sup>2</sup> on the descending side of the carrier. The load discharged by the bucket D will thus fall directly upon the inclined deflecting-plate and will clear the bucket D<sup>2</sup> and  
60 flow by gravity off the outer edge of the plate directly into the bin or upon the chute leading thereto, the flanges *j* of the plate serving to conduct the load to the outer end of the  
65 plate and prevent the material from falling

off at the sides thereof. By this means that part of the load which usually falls down to the loading-point in rear of the bucket D<sup>2</sup> or is scattered and wasted by falling on said bucket is saved and the entire load conducted  
70 to the bin. After the bucket D' has discharged its load the deflecting-plate gradually begins to move inward or toward the ascending side, and when the bucket is fully inverted and assumes the position of the bucket D<sup>2</sup> the plate  
75 is withdrawn from between the stretches of the carrier-chains on the descending side and is caused by the turning of the shaft to move across to the ascending side to again take position in advance of another filled bucket and  
80 perform the operation above set forth. This operation is continuous, and in the construction shown, wherein four buckets are arranged in close proximity to and pass around the  
85 sprocket-wheels at each revolution of the shaft, it will be seen that two plates are constantly arranged in advance of the filled buckets D approaching the discharge-point. A third plate is arranged below the discharging  
90 bucket D' to receive the load therefrom, while the fourth plate having performed that function for the preceding inverted bucket D<sup>2</sup> is retracted and being moved across to the ascending side of the elevator to take the place  
95 of the plate immediately preceding it and project in advance of the succeeding filled bucket.

It will of course be understood that changes in the form, proportion, and minor details of construction may be made within the scope of the invention without departing from the  
100 spirit or sacrificing any of the advantages thereof.

Having thus described the invention, what is claimed as new is—

In an endless elevator of the character described, the combination, with the supporting-shaft at the delivery end thereof, sprocket-wheels mounted on said shaft, carrier-chains passing over the sprocket-wheels, and buckets carried by the chains, of a rotary deflector  
105 comprising supporting-frames rigidly mounted on the shaft between the sprocket-wheels and each composed of a pair of plates arranged at right angles to the shaft and on opposite sides thereof and having their meeting  
110 edges recessed to receive said shaft and flanged for the passage of fastening devices which hold them firmly connected to each other and clamped to the shaft, and deflecting-plates secured to the outer sides of said  
115 frames and projecting beyond the same so as to successively move in advance of the filled buckets and receive the load therefrom at the discharge-point.

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

GEORGE C. GETCHELL. [L. S.]

Witnesses:

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