April 22 , 1924. 1,491,641

J. STEPHENS

BUCKET ELEVATOR

Filed July 26, 1923

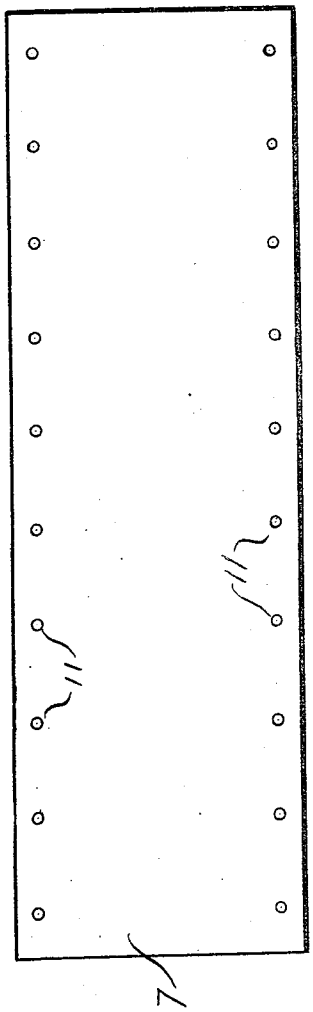


FIG. 2.

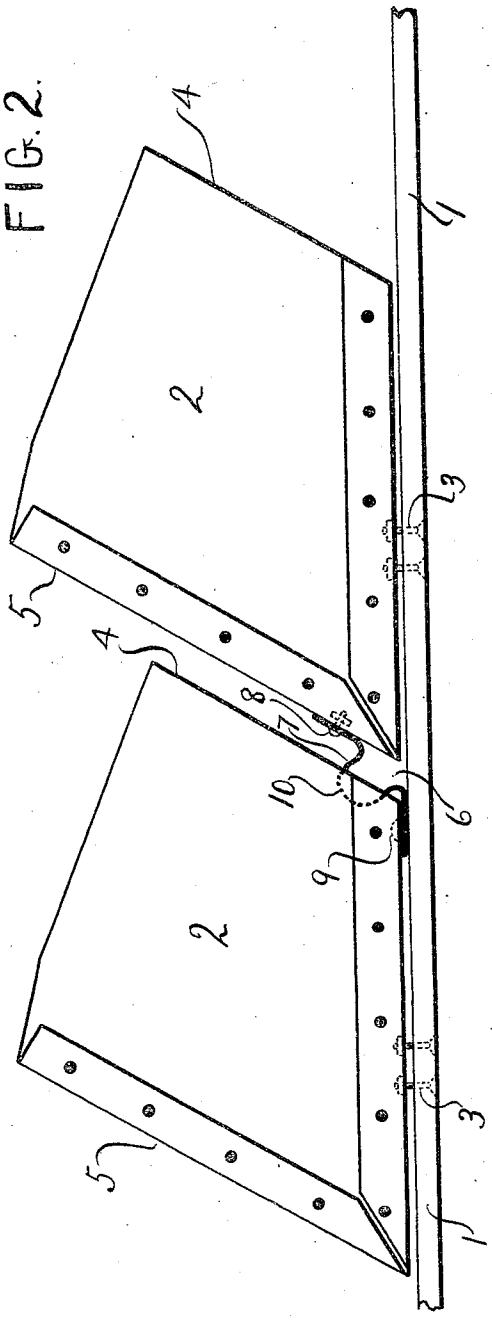


FIG. 1

Inventor

John Stephens

by Fetherston Haughton

Attys.

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UNITED STATES PATENT OFFICE.

JOHN STEPHENS, OF HAGERSVILLE, ONTARIO, CANADA.

BUCKET ELEVATOR.

Application filed July 26, 1923. Serial No. 653,998.

To all whom it may concern:

Be it known that I, JOHN STEPHENS, a subject of the King of Great Britain, and a resident of the village of Hagersville, in the county of Haldimand, Province of Ontario, Dominion of Canada, have invented certain new and useful Improvements in Bucket Elevators, of which the following is the specification.

My invention relates to improvements in bucket elevators and the object of the invention is to provide an improved construction whereby stones, sand or other material being carried by the elevator is prevented from lodging under the buckets and between the buckets and bucket carrying belt, thus seriously interfering with the operation of the elevator, necessitating constant stoppages for the removal of such material and also causing damage to the belt and necessitating frequent renewal thereof.

My invention consists essentially of a flexible apron secured to and extending between adjacent buckets of a bucket elevator and covering the interstices between said adjacent buckets, all as hereinafter more particularly described and illustrated in the accompanying drawings in which;—

Fig. 1 is a diagrammatic side elevation of a portion of a bucket elevator showing the manner in which my invention is applied.

Fig. 2 is a face view of a flexible apron used in my invention, showing it in the flat before being secured in position.

In the drawings like characters of reference indicate corresponding parts in the different views.

1 indicates the customary endless elevator belt upon which the buckets 2 are mounted in the usual manner, being secured by fastenings 3.

4 is the top or open front end of the bucket and 5 is the rear or bottom end.

6 indicates the space or interstice between the rear end of one bucket and the front end of the next adjacent bucket.

7 is a flexible apron made of rubberized fabric or other suitable flexible material.

One end of the apron 7 is secured exteriorly at 8 to the rear end of the bucket, the opposite end of the apron being secured exteriorly to the forward end of the next adjacent bucket at 9.

The length of the apron 7 is such that, when the buckets are in their normal position with the belt 1 as shown in Fig. 1, said length is greater than the distance between the points 8 and 9 at which the apron is secured to the two buckets.

Owing to this excess length of the apron the central portion is curved upwardly at 10. The purpose of this will appear hereinafter.

11 are eyelet holes provided in the apron 7 for permitting its attachment to the buckets.

The construction and operation of my invention is as follows.

The belt 1 is of the ordinary endless type used in such elevators and operates in the usual manner over suitable drums but as this forms no part of my present invention detailed description is not thought necessary.

It will be noted that the member 7 constitutes a flexible apron connecting adjacent buckets, which apron completely covers the open space between these adjacent buckets and therefore effectively prevents any of the contents of the buckets from falling in between the buckets and becoming lodged upon the belt or between the bucket and the belt.

Hitherto considerable trouble has been experienced due to this foreign material becoming lodged upon the belt which lodgement has necessitated frequent stopping of the elevator for the removal thereof, and also has caused serious damage and wear to the belt itself thus necessitating frequent replacement of the belt.

The apron 7 is made of such length that it permits sufficient clearance for the swinging of the buckets when rounding the drums.

A further important feature of my invention resides in the provision of the upwardly curved portion 10 of the apron which, from an inspection of Fig. 1, it will be noted constitutes a resilient cushion between the buckets and thus is able to withstand the action of stones, sand or other material falling thereon with much less wear than would be the case if no cushioning action were present.

While I have illustrated only two buckets it will of course be understood that my invention is applied to the customary type of elevator using a chain of buckets secured upon an endless belt and that an apron 7 will be provided connecting the rear end of each bucket to the forward end of the next adjacent bucket.

From the foregoing it will be apparent that I have devised valuable improvements in bucket elevators which will greatly improve their efficiency and economy of operation.

What I claim as my invention is:

1. In a bucket elevator, the combination with the spaced apart buckets thereof, of a flexible filler element secured to adjacent buckets and constituting an apron covering the interstices between said adjacent buckets.

2. In a bucket elevator, the combination with the spaced apart buckets thereof, of a flexible apron covering the interstices between adjacent buckets, the ends of said apron secured respectively to the rear end of one bucket and the forward end of the next succeeding bucket.

3. In a bucket elevator, the combination with the spaced apart buckets thereof, of a flexible apron covering the interstices between adjacent buckets, the ends of said apron secured respectively to the rear end of one bucket and the forward end of the next succeeding bucket, the length of said apron being substantially greater than the normal distance between its points of attachment to the aforesaid buckets.

4. In a bucket elevator, the combination with the spaced apart buckets thereof, of a flexible rubberized fabric apron covering the interstices between adjacent buckets, the ends of said apron secured respectively to the rear end of one bucket and the forward end of the next succeeding bucket.

5. In a bucket elevator, the combination with the spaced apart buckets thereof, of a flexible apron covering the interstices between adjacent buckets, the ends of said apron secured respectively to the rear end of one bucket and the forward end of the next succeeding bucket, the length of said apron being substantially greater than the normal distance between its points of attachment to the aforesaid buckets, and the loose central portion of the apron being curved upwardly to form a resilient cushion element.

JOHN STEPHENS.

Witnesses:
JOHN G. HAYWARD,
NORIEEN COLES.