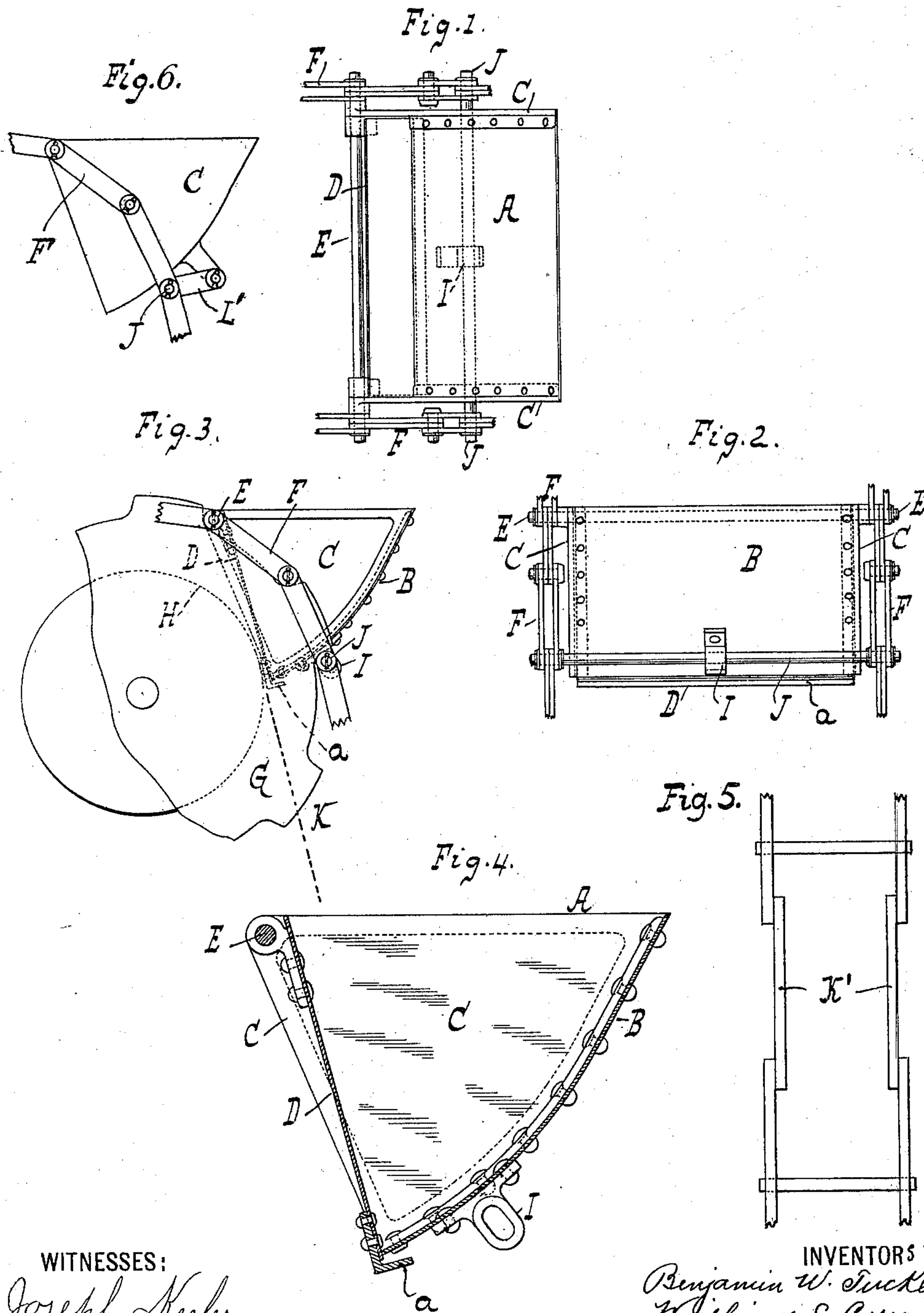


(No Model.)

B. W. TUCKER & W. S. CORWIN.  
ELEVATOR BUCKET.

No. 598,829.

Patented Feb. 8, 1898.



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# UNITED STATES PATENT OFFICE.

BENJAMIN W. TUCKER AND WILLIAM S. CORWIN, OF NEWARK, NEW JERSEY.

## ELEVATOR-BUCKET.

SPECIFICATION forming part of Letters Patent No. 598,829, dated February 8, 1898.

Application filed October 12, 1897. Serial No. 654,934. (No model.)

*To all whom it may concern:*

Be it known that we, BENJAMIN W. TUCKER and WILLIAM S. CORWIN, citizens of the United States of America, and residents of Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Elevator-Buckets, of which the following is a specification.

Our invention relates to that class of buckets for use in coal, grain, and other similar elevators in which an endless chain or chains, to which the buckets are attached, are used for conveying said buckets. Such buckets are sometimes provided with a swinging door on the side toward the elevator, which door is kept closed by the chain holding said door against the inclined ways of the elevator, said door being allowed to swing inward when an opening in the ways is reached by the bucket. Such buckets are also usually made concave at the door-opening to conform with the peripheries of the drums in order that there may be pressure on the lower end of the door to keep it closed when passing around said drums and in order that they will ride smoothly over the same.

Our invention has for its objects, first, to provide simple and efficient means for keeping the door of the bucket closed while the bucket is passing around the drum without the necessity of making said door concave; secondly, to increase the capacity of the buckets; thirdly, to cheapen the cost of manufacture of the buckets; fourthly, to prevent spilling of the coal from the bottoms of the buckets during transit, and, fifthly, to strengthen the buckets and increase their durability.

To this end our invention consists generally in attaching the lower ends of the links of the chain to the bucket in a movable manner, so that said links can give when rounding either of the drums.

Our invention further consists in a bucket for use in elevators, &c., having a discharge-opening and a swinging door for said opening pivoted or hinged at or near its upper end, and said door being provided at its lower end with a flange adapted to underlap the bottom of the bucket when the door is closed.

The nature of our invention will best be understood when described in connection with the accompanying drawings, in which—

Figure 1 represents a plan view of our improved elevator-bucket, together with a portion of the elevator-chain to which the bucket is attached. Fig. 2 is a front view of the same. Fig. 3 is an elevation of a portion of one of the sprocket-wheels and the chain of the elevator with a bucket attached to the chain and in the act of passing around the upper drum, said drum being shown in dotted lines. Fig. 4 is a transverse section, on an enlarged scale, of our improved bucket. Fig. 5 is a front elevation of a portion of the ways. Fig. 6 is an end elevation illustrating a modified manner of attaching the bucket to the chains.

Similar letters of reference designate corresponding parts throughout the several views of the drawings.

Referring to Figs. 1 to 4 of the drawings, the letter A represents the top opening of the bucket, B its front side, and C C its two ends.

D is the swinging door of the bucket, which is pivoted in the usual manner to the bar E, which extends between the upper inner corners of the ends C of the bucket.

F F are the two lifting sprocket-chains of the elevator to which the two ends of the rod E are secured.

G is one of the upper sprocket-wheels, Fig. 3, over which one of the chains F is passed, the other sprocket-wheel for gearing with the other chain not being shown. The position of the drum H is shown by dotted lines in Fig. 3. The wheels G are concentric with the drum H, but of larger diameter than said drum.

I is an eye secured to the front side B of the bucket and situated at a distance from the door D when closed about equal to the distance between the periphery of the drum H and the base-line of the teeth on the wheel G. (See Fig. 3.)

J is a bar extending loosely through the eye I and secured to the chains F F beyond the ends of the bucket. The lower edge of the door D has a forwardly-extending flange *a*, which laps under the lower edge of the front side B to more completely close the bucket



when the door D is shut and to better prevent the contents of the bucket from falling out during transit. The inclined ways K meet the peripheries of the drums tangentially, and the pressure of the bucket against said ways will, as usual, keep the door D closed when in contact with said ways. When, however, the bucket leaves the ways and passes around the drum H, the space between the periphery of said drum and those of the wheels G will be taken up by that portion of the bucket between the lower end of the door D and eye I, and consequently the door D will have no room to open. (See Fig. 3.) When the links connected with the bucket reach the sprocket-wheels, the distance between the two bars E and J naturally becomes less, and we provide for this foreshortening of the distance by the elongated slot in the eye I, which slot allows of the necessary movement of the rod J consequent upon the change in the positions of the links.

Instead of having the rod J playing loosely in the eye I it could be connected to the links of the chain F at their joints, as shown in Fig. 6, and be connected by links L' to the front of the bucket. This construction would allow of the necessary relative movement between the rod J and the bucket consequent upon the change in the positions of the links in rounding the drums.

The buckets may be held closed by any suitable form of ways or tracks K; but in practice we prefer to use the form shown in Fig. 5, wherein the track K' is staggered—that is to say, the ends of the rails constituting the ways or track overlap each other to form an irregular way or track. This construction insures the removal of any obstruction on the rails as the buckets alternately pass a wide or contracted section of the track.

In order that the bucket may be closed as completely as possible when the door D is shut, we pivot said door to the bar E between the ends C C, as shown in Fig. 4.

What we claim as new is—

1. A bucket for use in elevators, &c., having a discharge-opening and a swinging door for said opening hinged at or near its upper end, and said door being provided at its lower end with an inwardly-turned flange adapted to underlap the bottom of the bucket when the door is closed to form a closure preventing the dropping of smaller particles, substantially as described.

2. An elevator-bucket for use in chain elevators, having a swinging door pivoted or hinged at or near its upper end, and adapted to close the discharge-opening in said bucket, and said bucket also having an eye on its front side and said eye and the upper inner end of the bucket being adapted for connection with the elevator-chain, substantially as described.

tion with the elevator-chain, substantially as described.

3. An elevator-bucket having a swinging door pivoted or hinged at or near its upper end, and adapted to close the discharge-opening in said bucket, and said bucket also having an eye on its front side, and a bar passing loosely through said eye, and said bar and the upper inner end of the bucket being adapted for connection with the elevator-chain, substantially as described.

4. An elevator-bucket having a swinging door pivoted or hinged at or near its upper end, and adapted to close the discharge-opening in said bucket, and said bucket also having an oblong eye on its front side, and a bar passing through said eye, and said bar and the upper inner end of the bucket being adapted for connection with the elevator-chain, substantially as described.

5. In combination with the chain of an elevator, a bucket having a swinging door pivoted or hinged at or near its upper end and adapted to close the discharge-opening in said bucket, and said bucket also having an eye on its front side at a distance from the door when closed, and said eye and the upper inner end of the bucket connected with said chain, substantially as described.

6. In combination with the chain of an elevator, a bucket having a swinging door pivoted or hinged at or near its upper end and adapted to close the discharge-opening in said bucket, and said bucket also having an eye on its front side, and at a distance from the door when closed, and a bar passing loosely through said eye, and said bar and the upper inner end of the bucket being connected with said chain, substantially as described.

7. In combination with the sprocket-wheel and drum of an elevator; said drum being concentric with said wheel but of less diameter, the sprocket-chain engaging with said wheel, a bucket having a swinging door pivoted or hinged at or near its upper end, and adapted to close the discharge-opening in said bucket, and said bucket also having an eye on its front side at a distance from the door when closed about equal to the distance between the peripheries of the drum and wheel, and said eye and the upper inner end of the bucket being connected with said chain, substantially as described.

In testimony that we claim the foregoing as our invention we have signed our names, in presence of two witnesses, this 8th day of October, 1897.

BENJAMIN W. TUCKER.  
WILLIAM S. CORWIN.

Witnesses:

A. FABER DU FAUR, Jr.,  
JOSEPH KEELER.