No. 740,499. PATENTED OCT. 6, 1903.

J. F. WHITE.

ELEVATOR BUCKET.

APPLICATION FILED FEB. 28, 1903.

NO MODEL.

Fig. 1.

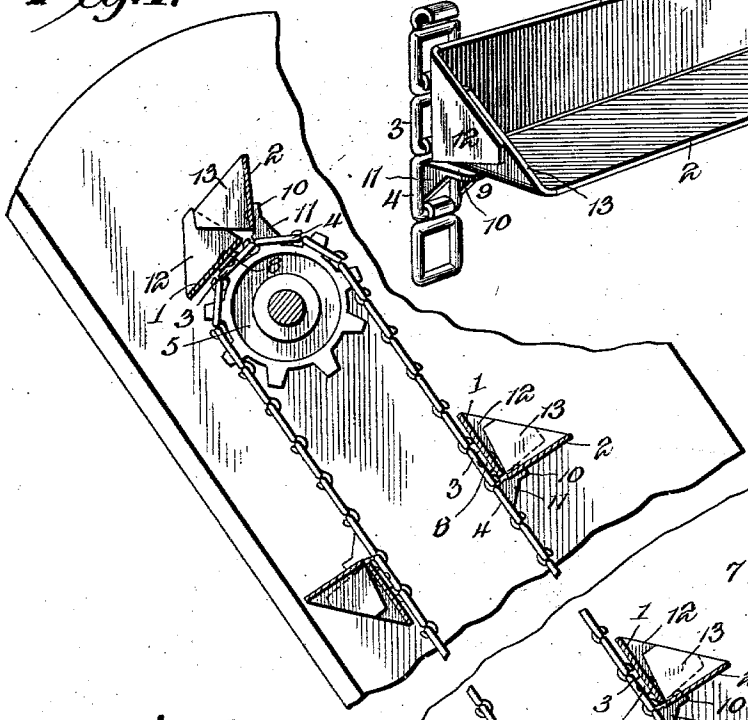


Fig. 2.

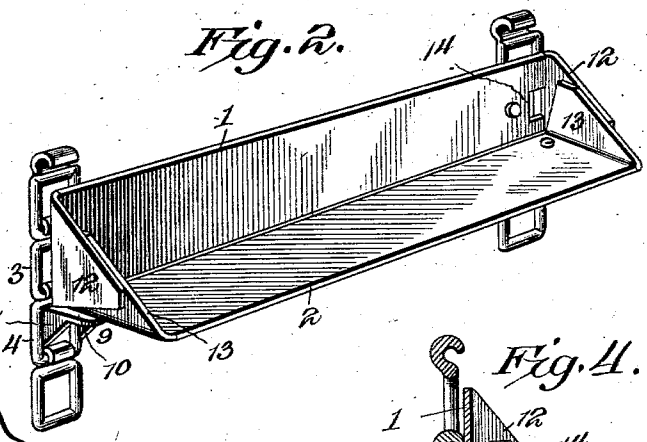


Fig. 4.

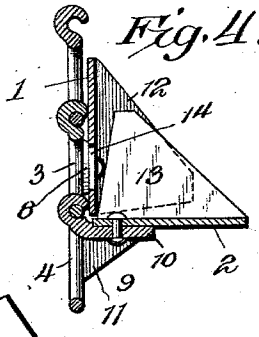
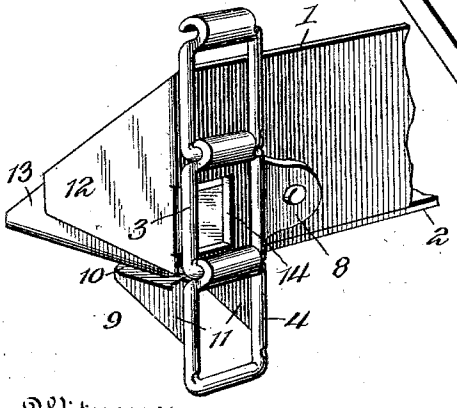
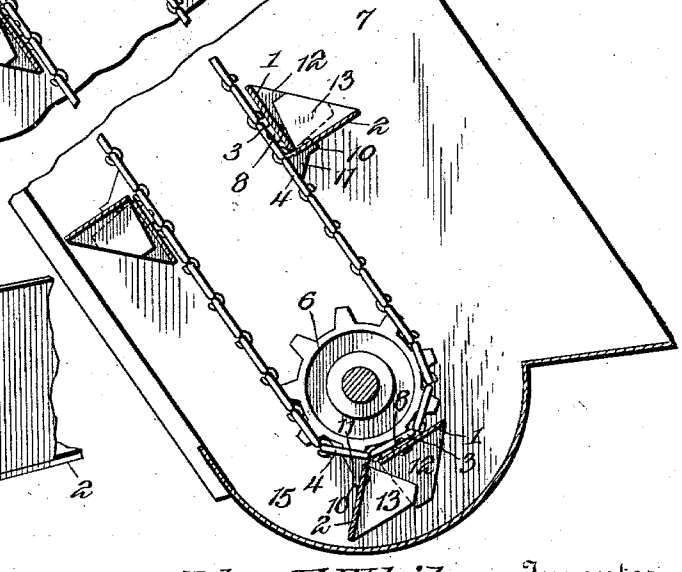


Fig. 3.





Witnesses
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 740,499. Patented October 6, 1903.

UNITED STATES PATENT OFFICE.

JOHN F. WHITE, OF BLOOMINGTON, ILLINOIS, ASSIGNOR TO U. S. PORTABLE ELEVATOR CO., OF BLOOMINGTON, ILLINOIS, A CORPORATION OF NEW JERSEY.

ELEVATOR-BUCKET.

SPECIFICATION forming part of Letters Patent No. 740,499, dated October 6, 1903.

Application filed February 28, 1903. Serial No. 145,584. (No model.)

To all whom it may concern:

Be it known that I, JOHN F. WHITE, a citizen of the United States, residing at Bloomington, in the county of McLean and State of Illinois, have invented a new and useful Elevator-Bucket, of which the following is a specification.

The invention relates to improvements in buckets for elevators.

The object of the present invention is to improve the construction of buckets for elevators and to provide a simple and comparatively inexpensive one of great strength and durability adapted to be run at a high rate of speed without liability of tearing off or breaking the chains.

A further object of the invention is to provide a bucket of this character designed especially for use in portable grain-elevators and adapted for handling small grain—such as wheat, shelled corn, and the like—and capable of unfolding as it passes around the wheels or gears at the ends of the elevator-frame, whereby it is adapted to cut its way through the material in the boot or bottom of the elevator to avoid clogging or interfering with the rapid operation of the elevator and also to discharge its contents completely at the top of the elevator to prevent any of the grain or other material from being carried backward, as often results from operating the elevator at a high rate of speed when buckets of the ordinary construction are employed.

The invention also has for its object to provide an elevator-bucket of this character which will also be adapted for operating effectively in large elevators for handling ear-corn and similar material and which will enable gear-wheels of a smaller diameter than those usually employed to be used.

With these and other objects in view the invention consists in the novel construction and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and particularly pointed out in the claims hereto appended, it being understood that changes in the form, proportion, and minor details of construction within the scope of the claims may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings, Figure 1 is a vertical sectional view of an elevator constructed in accordance with this invention. Fig. 2 is a detail perspective view of one of the buckets. Fig. 3 is a similar view of one end of a bucket, illustrating the manner of securing the same to a chain. Fig. 4 is a detail sectional view of the same.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

1 and 2 designate bars or sections of a bucket for elevators, and the said sections are secured to links 3 and 4 of endless sprocket-chains. The bars or sections, which are normally arranged at right angles to each other to form a bucket, are adapted to conform to the movement of the links and are unfolded or opened when the links are arranged at an angle to each other in passing around the sprocket-wheels 5 and 6 at the top and bottom of the frame 7 of the elevator. The link 3 is provided at its inner side with a laterally-disposed ear 8, which is riveted to the rear face of the bar or member 1, as clearly illustrated in Fig. 3 of the accompanying drawings. The other link 4 is provided with a bracket 9, consisting of a lug or flange 10 and supporting webs or flanges 11, formed integral with the link and with the lug or flange 10, which is riveted to the bar or member 2, as clearly shown in Fig. 4 of the drawings. The ear 8 and the lug or flange of the bracket of the other link fit flat against the bars or members, and the latter by being secured to the links in this manner possess great strength and durability and are adapted to withstand more strain than those buckets which are mounted on a single link. The improved bucket herein shown and described is adapted to be run at a high rate of speed without liability of breaking the chains or becoming torn therefrom.

The bars or members are constructed of heavy sheet-steel or similar material, and their terminals may be bent at right angles to form overlapping ends 12 and 13 for closing the ends of the bucket; but these end portions 12 and 13 may be omitted, if desired. The bar or member 1, which is arranged flat against the adjacent links, as shown in Fig. 2, when such links are in alinement, is provided at its ends with suitable openings 14 to receive the teeth of the sprocket-wheels when the bucket is passing around the same.

The bars or members are arranged at an obtuse angle to each other when the bucket is passing through the bottom or boot 15 of the elevator, and the said bucket is thereby adapted to cut its way through the material, and the outwardly-extending bar or member 2 offers less resistance to the movement of the elevator, and the bucket also occupies less transverse space. The elevator is prevented from clogging, and the bucket offers less resistance to the rapid operation of the elevator.

The bars or members of the bucket also assume a position similar to that heretofore described when they arrive at the top of the elevator-frame, and the arrangement of the bars or members at an obtuse angle, as shown in Fig. 1, facilitates the discharge of the contents of the bucket and enables the elevator to be operated as rapidly as desired without liability of the material being carried back by the buckets, as is often the case when elevators having the ordinary form of bucket are rapidly operated. Also by this unfolding of the bucket and the rapid discharge of its contents small wheels of about six inches diameter will operate effectively where the ordinary bucket requires wheels from two to three feet in diameter. It has been found by experience that the greatest capacity of the bucket is secured by arranging the elevator at about an angle of forty-five degrees.

It will be seen that by mounting the members on separate links they are hingedly connected and twice the number of fastening devices may be effectively employed than can be used with the ordinary bucket or scraper and that the strength and durability of the bucket are greatly increased and that the elevator may be operated at a high rate of speed without liability of tearing off the buckets or breaking the chains. Also it will be apparent that the bucket, while being especially adapted for handling small grain which an ordinary scraper will not carry, is also capable of operating effectively and advantageously on large material, such as ear-corn. Furthermore, it will be understood that the hinged members of the bucket automatically open or increase the angle between them while passing around the ends of the elevator to enable the bucket to cut its way through the material in the boot and to provide a clearance-space therein and also to discharge the material at the top of the elevator.

What is claimed is—

1. An elevator provided with a bucket composed of two members arranged at an angle to each other when closed, and means for automatically increasing the angle between the members and thereby opening the bucket at each end of the elevator, substantially as described.

2. An elevator provided with a bucket composed of two members arranged at an angle to each other when closed and also hingedly mounted on a common axis, and means for automatically opening the bucket when the same passes around each end of the elevator, substantially as described.

3. An elevator having chains and sprocket-wheels, and provided with a bucket composed of sections or members arranged at an angle to each other and mounted on separate links, whereby the bucket will be opened when the same passes around the ends of the elevator, substantially as described.

4. An elevator having sprocket-gearing and provided with a bucket composed of two members arranged at an angle to each other and mounted on separate links and adapted to swing apart to open the bucket when the same passes around the ends of the elevator, said members having ends arranged to slide on each other, substantially as described.

5. In an elevator, the combination with two links of a sprocket-chain, one of the links being provided with a laterally-extending ear and the other having an outwardly-projecting flange, of a bucket composed of two members secured respectively to the ear and the flange, whereby the bucket is adapted to open when it passes around the ends of the elevator, substantially as described.

6. The combination with two links of a sprocket-chain, one of the links being provided with a laterally-extending ear and the other having an outwardly-projecting flange, of a bucket composed of two members secured respectively to the ear and the flange and extending over the links, the member attached to the ear being provided with an opening corresponding to the opening of the adjacent link, substantially as described.

7. In an elevator, the combination with two links of a sprocket-chain, of a bucket composed of two members mounted on separate links and having their terminals bent at an angle and overlapped and slidable on each other, and means for automatically opening the bucket at each end of the elevator, substantially as described.

8. An elevator provided with a bucket composed of two members normally arranged at approximately right angles to each other, said elevator being provided with means for automatically increasing the angle formed by the members to an obtuse angle as the bucket passes around each end of the elevator, substantially as described.

9. An elevator comprising a chain, a bucket

composed of two members mounted on contiguous links of the chain and both swinging from the same axis, and means for automatically opening the bucket when the same passes around each end of the elevator, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JOHN F. WHITE.

Witnesses:
MABEL DAVISON,
EARL G. IRVIN.