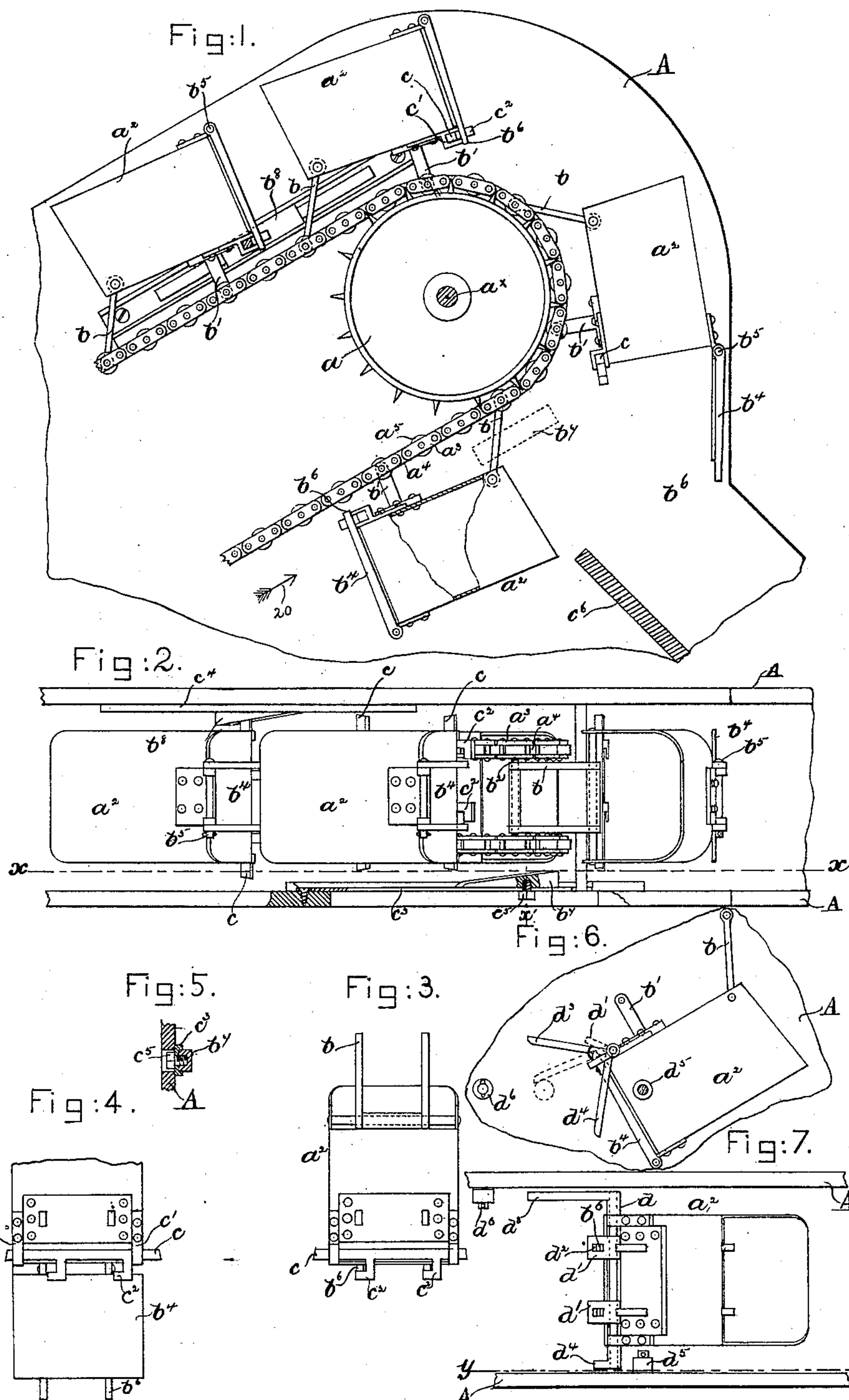


(No Model.)

F. A. LOCKWOOD.
CONVEYER BUCKET.

No. 387,649.

Patented Aug. 14, 1888.



UNITED STATES PATENT OFFICE.

FREDERIC A. LOCKWOOD, OF BOSTON, MASSACHUSETTS.

CONVEYER-BUCKET.

SPECIFICATION forming part of Letters Patent No. 387,649, dated August 14, 1888.

Application filed April 3, 1888. Serial No. 269,482. (No model.)

To all whom it may concern:

Be it known that I, FREDERIC A. LOCKWOOD, of Boston, county of Suffolk, and State of Massachusetts, have invented an Improvement in Conveyer-Buckets, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention relates to conveyers of that class in which an endless chain of buckets is made to travel over suitable drums or wheels supported by a suitable conveyer-frame, my improved conveyer, among other things, being especially adapted to be used on dredgers, grain-elevators, &c.

My invention relates more particularly to conveyer-buckets, and is an improvement upon the bucket shown and described in United States Patent No. 236,138, dated January 4, 1881, and has for its object to improve the construction of the same, whereby the holding capacity of the said bucket is increased and the same rendered substantially gravel-tight.

In accordance with my invention the bucket is provided with a hinged bottom and with a latch or locking device by which the bottom is held closed; and in order that the said bottom may be automatically opened to discharge its load and then be closed to enable it to receive another load means, as will be described, are provided to act on the said latch or locking device.

My invention therefore consists, essentially, in the combination, with a conveyer-frame and endless chain therein, of a bucket provided with a hinged bottom, a locking device, and link and hanger to attach said bucket to said chain, and means to operate said locking device, substantially as will be described.

Figure 1 is a sectional elevation of a sufficient portion of a conveyer-frame and an endless chain of buckets therein to enable my invention to be understood, the section being taken on line $x x$, Fig. 2, one of the buckets being broken out at one side; Fig. 2, a top or plan view of Fig. 1, the front wall of the frame and chute being broken out; Fig. 3, an under side view of a bucket detached from the endless chain to more clearly show the manner of locking the bottom; Fig. 4, an under side view of a bucket with the bottom open; Fig. 5, a

sectional detail in line x' , Fig. 2; Fig. 6, a sectional elevation of a modification to be referred to, the section being taken on line $y y$, Fig. 7; and Fig. 7, a top or plan view of Fig. 6.

The conveyer-frame consisting, as herein shown, of inclined sides or walls A, supporting in suitable bearings the journals a^x of drums or sprocket-wheels a , (but one being shown,) about which is made to travel an endless chain, to which are secured buckets a^2 , is and may be such as commonly employed on dredging-vessels and in grain-elevators.

The endless chain, as herein shown, is composed of a series of open links, a^3 , pivotally joined to solid links b^4 , (see Fig. 2,) the said open links having journaled in them rollers a^5 . The endless chain has secured to it at suitable intervals apart the bucket a^2 , the said buckets being connected by a link, b^6 , and hanger b^7 to shafts b^2 , (see Fig. 2,) supported by the endless chain, the said buckets being maintained by said link and hanger in proper position with relation to the said endless chain.

Each bucket a^2 is provided with a pivoted bottom, b^4 , hinged, as at b^5 , and provided, as shown, with legs or projections b^6 , which in practice are engaged by a latch or locking device to lock the said bottom when the bucket is to be loaded.

The latch or locking device referred to may be of any desired form capable of being automatically locked and unlocked by means of cams $b^7 b^8$, or similar devices, secured to or projecting from the walls or sides A of the conveyer-frame.

The latch or locking device, as shown in Figs. 1 to 4, inclusive, consists of a bar, c , having its ends extended on either side of the bucket through suitable guides, c' , secured to the said bucket, and provided between the said guides with bent fingers or hooks c^2 , to engage the lugs or projections b^6 on the bottom when the latter is closed, as will be described.

The walls of the conveyer-frame have secured to them above and below the endless chain, as herein shown, cam-guides $c^3 c^4$, in which are secured, as by screw c^5 , (see Figs. 2 and 5,) the cams $b^7 b^8$, the cam-guide c^3 and cam b^7 being located at or near the chute c^6 , (see Fig. 1,) into which the load carried by the buckets is discharged.

To enable my invention to be understood,

let it be supposed that the endless chain of buckets is traveling in the direction of arrow 20, Fig. 1, the said buckets being loaded at the bottom of the conveyer-frame. As the loaded buckets are brought up the conveyer-frame by the endless chain, each bucket in its turn has its bottom opened by the cam b^7 , which acts on one end of the slide-bar c and moves it from its positive position shown in Fig. 3 to the position shown in Fig. 4, thus disengaging the fingers or hooks c^2 from the lugs or projections b^6 , and thereby permitting the bottom to be opened by the weight of the load, which is discharged into the chute c^6 . After the bucket has discharged its load and has passed over the wheel or drum a the bottom is closed by gravity and again locked by the cam b^8 acting on the bar c , the said cam moving the said bar from the position shown in Fig. 4 to that shown in Fig. 3. Some material, from its nature and condition, requires a longer time than other material to be discharged from the bucket, and in this case the cam b^7 may be adjusted with relation to the chute c^6 by means of the screw c^5 , so as to open the bottom of the buckets sooner or later, as required. Instead of the locking device described, I may employ a bar, d , having lugs or ears d' , provided with holes d^2 , through which the projections b^6 extend when the bottom is closed. The bar d is provided at its opposite ends with arms $d^3 d^4$, extended from

the said bar substantially at right angles to each other, as shown in Fig. 6. The arms $d^3 d^4$ co-operate with studs or rollers or other projections $d^5 d^6$ on the walls A of the conveyer-frame. When the arm d^4 strikes the stud or roller d^5 , the bar d is turned into the dotted-line position, Fig. 6, to lift the lugs or ears d' away from the projections b^6 and permit the bottom to be opened. When the bucket has passed over the drum or wheel a , the arm d^3 strikes the stud or roller d^5 , and is closed down over the studs b^6 on the bottom, which has been brought into position to be locked by gravity.

In my invention the bottom b^4 is located at the extremity of the bucket, so that all the space between the sides of the bucket is utilized to carry the material.

I claim—

The combination, with a conveyer-frame and endless chain therein, of a bucket provided with a hinged bottom, a locking device and link b and hanger b' , to attach said bucket to said chain, and means to operate said locking device, substantially as described.

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

FREDERIC A. LOCKWOOD.

Witnesses:

G. W. GREGORY,
J. C. SEARS.