

(No Model.)

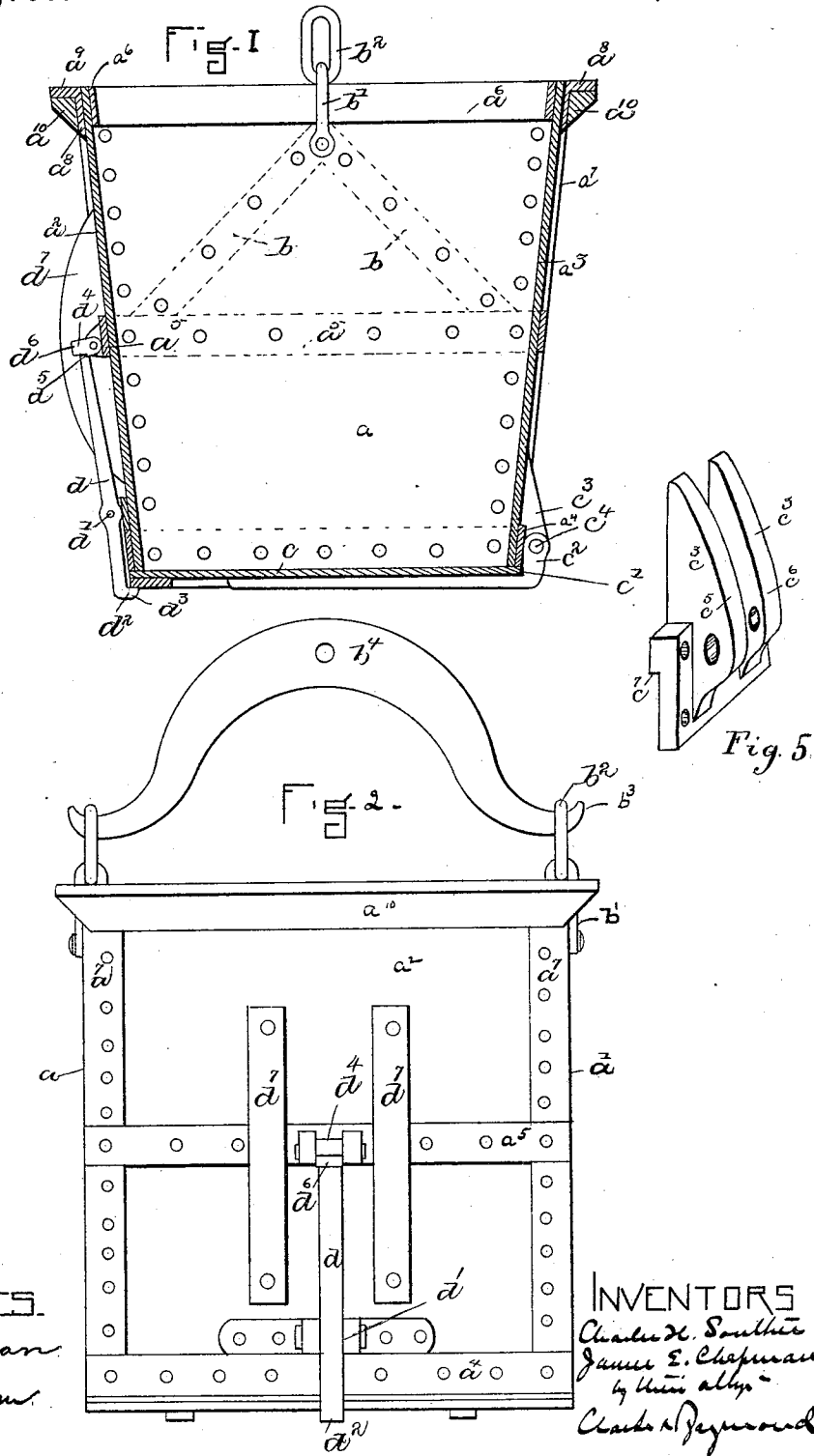
2 Sheets—Sheet 1.

C. H. SOUTHER & J. E. CHAPMAN.

HOISTING BUCKET.

No. 460,708.

Patented Oct. 6, 1891.



WITNESSES.

J. M. Dolan
Fred. B. Dolan

INVENTORS

Charles H. Southern
James E. Chapman
by their atty.
Charles H. Ferguson

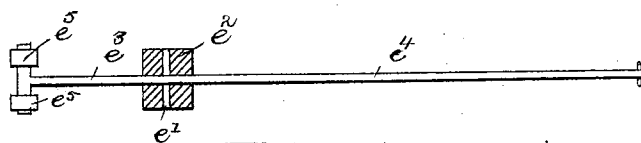
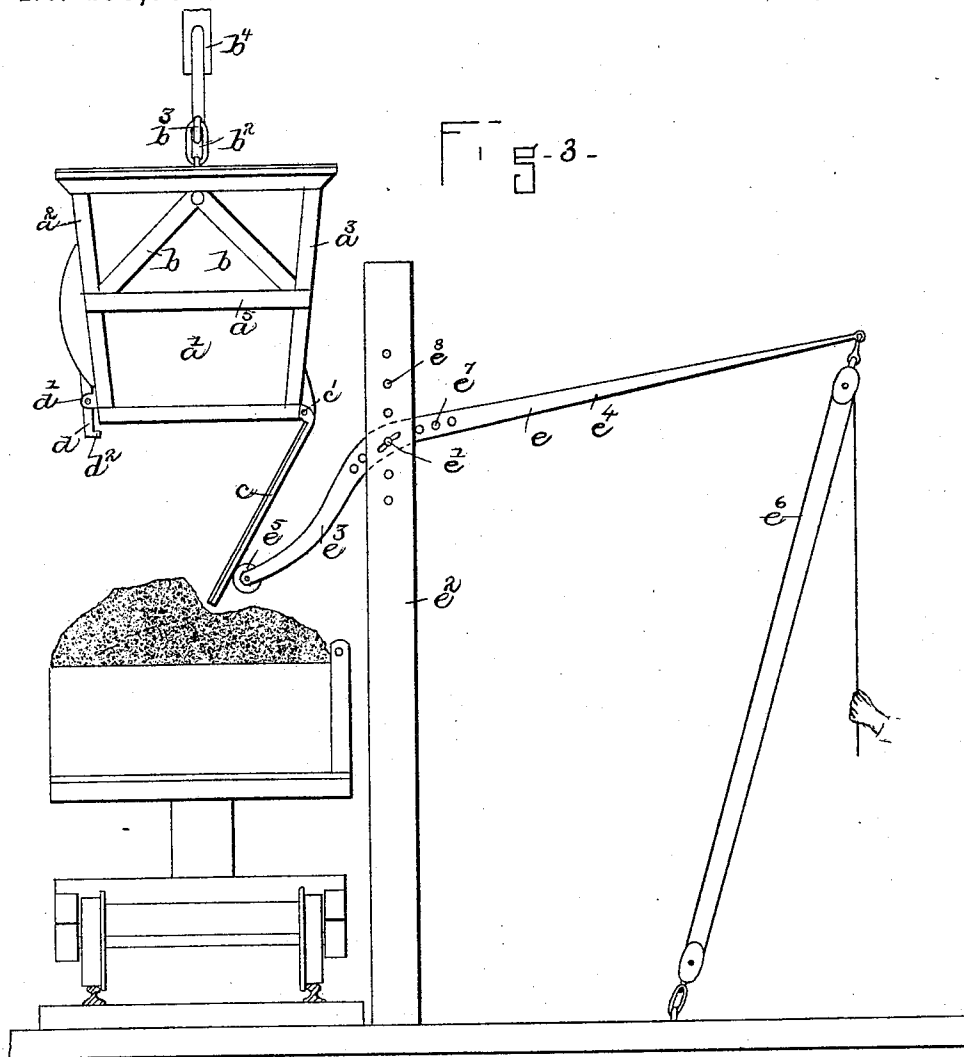
(No Model.)

2 Sheets—Sheet 2.

C. H. SOUTHER & J. E. CHAPMAN.
HOISTING BUCKET.

No. 460,708.

Patented Oct. 6, 1891.



WITNESSES.

J. M. Dolan.
Fred. B. Dolan.

Fig. 4-

INVENTORS

Charles H. Southern
James E. Chapman
by their attys.
Clark & Raymond

UNITED STATES PATENT OFFICE.

CHARLES H. SOUTHER, OF BOSTON, AND JAMES E. CHAPMAN, OF NEEDHAM,
MASSACHUSETTS; SAID CHAPMAN ASSIGNOR TO SAID SOUTHER.

HOISTING-BUCKET.

SPECIFICATION forming part of Letters Patent No. 460,708, dated October 6, 1891.

Application filed May 31, 1890. Serial No. 353,775. (No model.)

To all whom it may concern:

Be it known that we, CHARLES H. SOUTHER, of Boston, in the county of Suffolk and State of Massachusetts, and JAMES E. CHAPMAN, of Needham, in the county of Norfolk, in said State, citizens of the United States, have invented a new and useful Improvement in Hoisting-Buckets, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in explaining its nature.

In certain forms of dredging the dredged or excavated material requires to be moved or transported from the dredging-machine in buckets. Such buckets must be strongly constructed and have means by which they may be readily handled and emptied; and our invention relates to a bucket of this character, and especially to its construction, whereby great strength is obtained and also whereby it is adapted to be easily emptied of its contents.

The invention further relates to means for closing the gate through which the contents of the bucket escape.

Referring to the drawings, Figure 1 is a view in vertical section, enlarged, of one of the buckets. Fig. 2 is a view in elevation, enlarged, of one of the buckets. Fig. 3 is a view to illustrate the apparatus for closing the bottom of the bucket. Fig. 4 is a view, principally in plan, of the bucket-bottom-closing lever. Fig. 5 is a perspective view of one section of one of the hinges.

The sides of the bucket are made, preferably, of plate-iron. Preferably two of the sides are parallel and two inclined from the top inward. This is for the purpose of making the base of the bucket in one direction of less width than the top, and provides means of entering the bottom of the bucket into the space without the employment of undue care and without liability of injury to the side of the scow or adjacent bucket or buckets.

In the drawings, a a' are the straight sides of the bucket and a^2 a^3 the inclined sides. The metal plates of which the sides are composed are fastened together at their lower ends by the band a^4 , at their centers by the band a^5 , and at their tops by the band a^6 ,

placed inside the cavity of the bucket, the other two bands being outside. They are further secured together at their corners by the angle-irons or pieces a^7 , the bands and angle-irons being riveted to the plates.

The bucket has at its upper edge an angle-piece a^8 , extending around it and riveted to it, and the section a^9 of the angle-piece extends outward from the top edge of the bucket to partially cover a buffer a^{10} , of wood, preferably oak, which is riveted or bolted to the sides below said projection. The bucket also has upon each of the straight sides a a' , extending from the middle band a^5 near each corner upward and inward, the plates b , which come together or are united at their upper ends and are riveted to the side. These plates b upon each side carry upon their upper ends a clevis b' , which in turn has links b^2 to receive the hook ends b^3 of the bail b^4 .

The bottom c of the bucket is made of iron or steel. It is hinged at its edge c' to one of the inclined sides of the bucket by means of hinges comprising the sections c^2 , which extend upward from the rear edge of the bottom and at a right angle thereto and between the ears c^3 , to which they are secured by pivots c^4 . Each ear c^3 has two sides c^5 c^6 , connected together and adapted to receive the section c^2 of the hinge between them, and they also have shoulders c' to rest upon the upper edge of the lower strap a^4 . (See Figs. 1 and 5.)

The cover is latched in closed position by means of a latching lever or bar d , pivoted at d' to lugs upon the inclined side of the bucket opposite that to which the bottom is hinged. This lever has at its lower end a lip or latch d^2 , which, when the upper end of the lever has moved outward, projects under the edge of the cover. This lip may be slightly inclined upon its upper surface and may be slightly tapered or beveled away at its lower corner d^3 . To latch the cover or bottom in position the upper end of the lever is moved away from the side of the bucket. This brings the lip d^2 beneath the cover in position to receive and hold it. The lever is held with the lip in this position by means of a pivoted dog d^4 . This dog is pivoted to lugs extending from the middle band a^5 , and it has upon its

under side a shoulder d^5 , against which the upper end of the lever d rests. The end of the dog extends beyond the lever to provide an extension d^6 , by which it may be moved to disengage the shoulder from the lever by means of a blow given by a mallet or other striking instrument or by being pushed upward from the end of the lever, or in any other desired way. This permits the upper end of the lever to move or be moved inward, thereby withdrawing the latch from underneath the bottom c and permitting it to swing outward and open the bucket. The dog and lever are protected from injury and the dog from being accidentally moved to unlatch the lever while the bucket is being transferred by means of the two protectors or buffers d^7 , preferably of wood, bolted or riveted to the said plate.

There is located at the discharge-place of the bucket and in operative relation thereto a closing device for moving the hinged bottom of the bucket from its vertical or swinging position back to a horizontal position or one to permit the latch d^2 to engage it, and this device is represented as embodied in a lever e , which is pivoted by a pin e' to an upright or post e^2 . The shorter or operative end e^3 of the lever is bent or curved in relation to the longer end e^4 and supports at its end anti-friction rolls e^5 . The lever is operated by a tackle e^6 , attached to the end of its long arm, and the downward movement of the lever brings the rolls against the under surface of the swinging bottom and causes it to be lifted from its perpendicular to the horizontal position. (See Fig. 4.) The lever e^4 is adjustable horizontally from the support or post e^2 by means of the additional pin-holes e^7 , and it is adjusted vertically upon a support e^2 by means of the additional pin-holes e^8 therein.

In use the bucket is lifted from the scow by a crane to a position over the car or other place where its contents are to be dumped. The dog d^4 is then lifted and the latch d^2 removed from beneath the bottom by pushing the upper end of the lever d inward. The bottom then automatically drops upon its hinges, producing an opening of the entire area of the bucket, through which the contents escape or drop. There is located at the dumping-point the stand c^2 and bottom-closing lever e , and after the dumping the rolls upon the end of the lever are brought to bear against the bottom by the movement of the lever and the bottom moved from a perpendicular to an inclined position, and the latch d^2 engaged with it to hold it locked, (see Fig. 4.) when the empty bucket is returned by the crane to the scow.

A bucket of the construction herein specified is very strong and has great capacity and is easily handled.

It will be seen that by making the sections c^2 of the hinge to extend upward from the edge of the bottom outside of the side to which

the cover is hinged when the cover is opened its inner surface swings away from the inner surface of the wall to which it is attached, so that the material leaving the bucket does not strike it, and also so that a full opening to the bucket is obtained, and also so that material cannot lodge in the hinge or between that part of the bottom and the lower edge of the wall adjacent to the hinge, and thus impede the closing of the cover or its movement to a closed position.

We would not be understood as limiting the device for lifting the hinged bottom to a lever operated by a tackle, or to a lever at all, as there are many mechanical equivalents which can be used in lieu of a lever for this purpose.

Having thus fully described our invention, we claim and desire to secure by Letters Patent of the United States—

1. A bucket for the purpose specified, having the straight sides $a a'$, the inclined sides $a^2 a^3$, made of metal plates, the lower metal band a^4 , the central metal band a^5 , extending about the plates to re-enforce and strengthen them, the metal band a^6 at the upper end of said plates and upon the inside thereof, firmly fastened to said plates, the corner angle-pieces a^7 , the angle-piece a^8 upon the outside of said plates at the top, and the hinged bottom c , as and for the purposes described.

2. A bucket for the purposes specified made of metal plates strapped together below its top upon its outside, having the hinged bottom, the interior strap a^6 at its top, the angle-iron a^8 , and the wooden buffer a^{10} , substantially as described.

3. The combination, in a bucket of the character specified, having the inclined sides and straight sides and hinged bottom c , hinged to one of the inclined sides, of a latching-lever for locking the bottom closed attached to the other inclined side, a lever-lock for locking it in closed position carried by said last-named inclined side, and the latch or lock protectors d^7 , secured to said inclined side upon each side of said lever latch or lock and to project beyond the same, as and for the purposes specified.

4. A bucket of the character specified, having the straight sides $a a'$, the inclined sides $a^2 a^3$ of metal plates, the lower exterior re-enforcing band a^4 , the exterior middle re-enforcing band a^5 , the upper inner band a^6 , the outer angle-bar a^8 , the corner angle-pieces a^7 , the hinged bottom c , and the exterior inclined plates b , extending upon the straight sides of the bucket from the middle band upward and inward and supporting at their upper ends the clevises b' and links b^2 , substantially as and for the purposes described.

CHARLES H. SOUTHER.
JAMES E. CHAPMAN.

Witnesses:

F. F. RAYMOND, 2d,
FRED. B. DOLAN.