

P. J. FICKINGER & S. J. BLAKE.
BUCKET FOR HANDLING DIVERS' MATERIALS.

(Application filed June 27, 1901.)

(No Model.)

2 Sheets—Sheet 1.

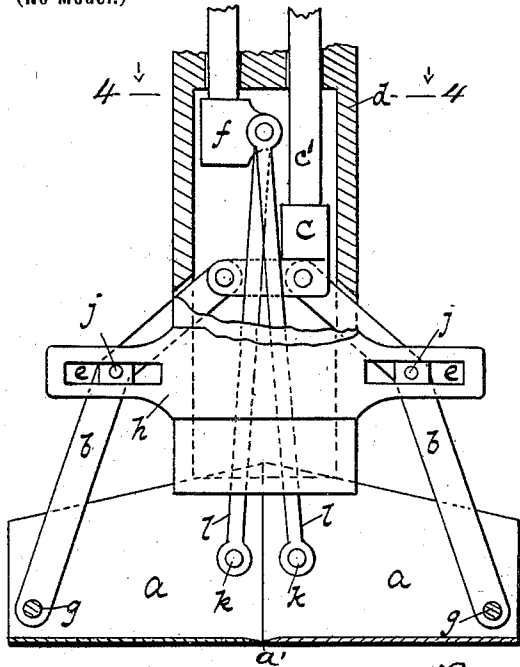


Fig. 1.

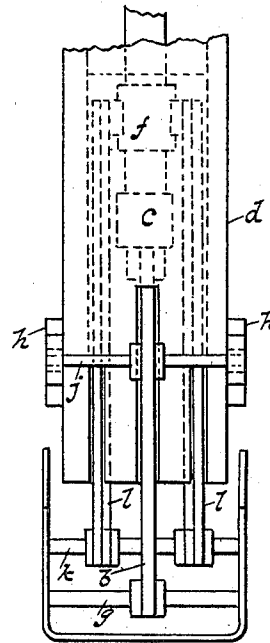


Fig. 3.

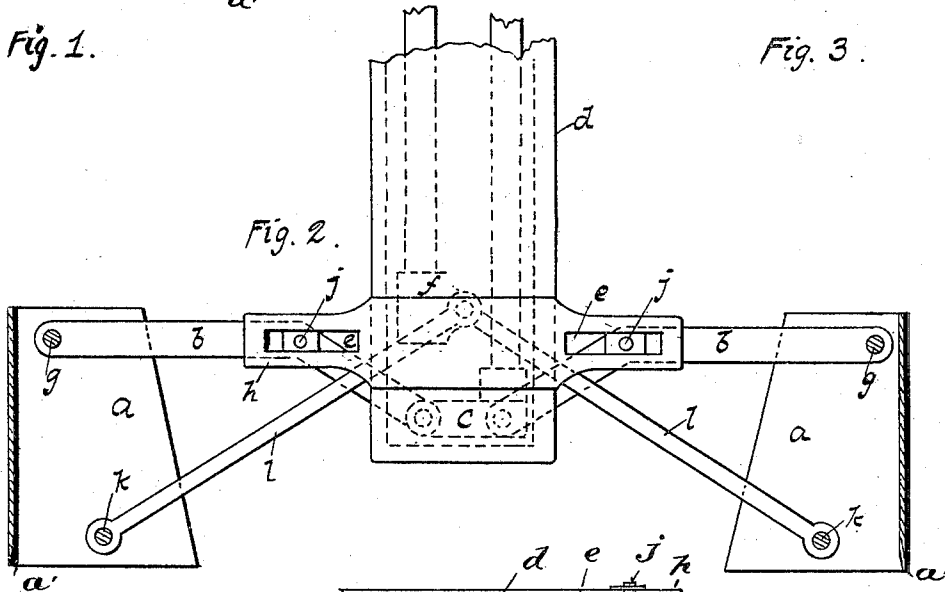


Fig. 2.

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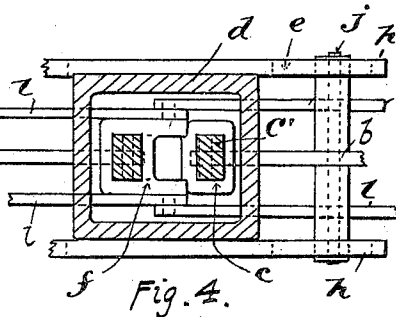


Fig. 4.

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2 Sheets—Sheet 2.

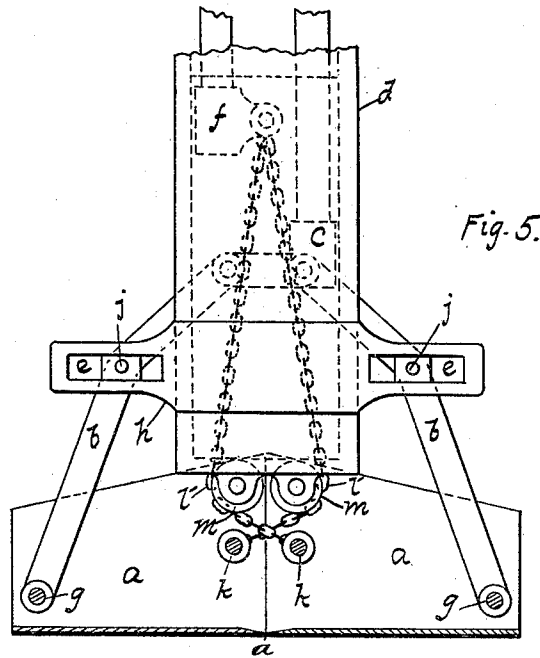


Fig. 5.

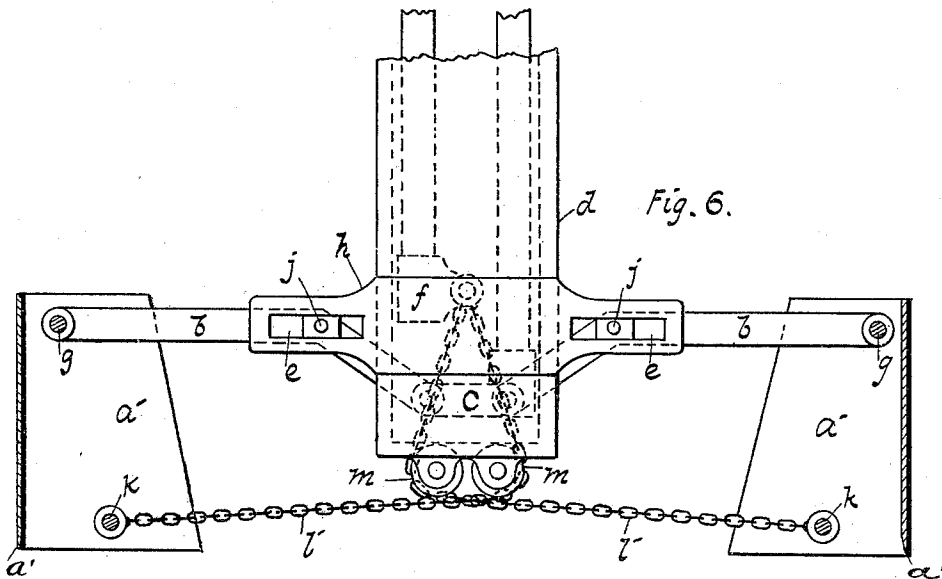


Fig. 6.

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UNITED STATES PATENT OFFICE.

PRESLY J. FICKINGER AND SHERMAN J. BLAKE, OF CONNEAUT, OHIO.

BUCKET FOR HANDLING DIVERS MATERIALS.

SPECIFICATION forming part of Letters Patent No. 684,633, dated October 15, 1901.

Application filed June 27, 1901. Serial No. 66,190. (No model.)

To all whom it may concern:

Be it known that we, PRESLY J. FICKINGER and SHERMAN J. BLAKE, residing and having post-office address at Conneaut, county of Ashtabula, State of Ohio, have invented certain new and useful Improvements in Buckets for Handling Divers Materials, of which the following is a specification, accompanied by drawings.

The invention relates particularly to buckets for handling solid and semisolid materials either in dredging operations or in the general handling of dry or wet materials.

The principal objects of the invention are to produce an improved mechanical bucket which may be forced into the material with greater ease than heretofore, the planes of the cutting edges being nearly parallel to the direction of motion, which will require but small vertical space for its mechanical movements in picking up the material, which can be used for opening or breaking up piled material as well as picking up material from a horizontal surface, and which finally may have certain adjustments and mechanical motions which will be best understood by an immediate description of certain preferred forms of the invention.

In the drawings, Figures 1 and 2 show one form of bucket in closed and open positions, respectively. Fig. 3 is an end view of the bucket closed, as in Fig. 1. Fig. 4 is a plan view partly in section and looking downward on the plane 4-4 of Fig. 1. Figs. 5 and 6 show a modified form of the same closed and opened, respectively.

In Figs. 1 and 2 a bucket composed of two similar members *a* is shown, though the invention is not limited to such two similar members. A description of the action of one member will make the action of both clear. *d* is the supporting member, which may be attached to or form part of the machine for operating the bucket. As the invention has no relation to such framework, it is omitted from the drawings. Upon the support *d* is fixed a pair of slotted cross-heads *h*. In the slots *e* of these cross-heads *h* play pins *j*, as shown, secured to guide lever-arms *b*, which actuate each bucket and are pivotally attached to the buckets at *g*. The other ends of the lever-arms *b* are attached to a movable head *c*, ac-

tuated by a suitable means *c'*. At *k* the bucket is pivotally secured to links *l*, the other ends of which are pinned or pivotally secured to a movable head *f*, which moves within the support *d*. The position of the parts when the bucket is closed is shown in Fig. 1. If now the movable heads *c* and *f* are both depressed relatively to the cross-heads *h* until they reach the positions shown in Fig. 2, the bucket members *a* will be opened to the position shown in Fig. 2 and their bottoms and cutting edges *a'* will be parallel with each other and with the support *d*. In this position the support *d* may be thrust downward to force the bucket into the material with the least possible resistance, because of the position of the cutting edges *a'*. From this position the bucket may be closed in either of two distinct manners or in a third manner combining both. First, the head *f* may be drawn upward in advance of head *c*, which will cause the cutting edges *a'* of the two bucket members to be drawn directly toward each other without being forced farther downward, so that a sort of scraping action is produced, the movable head *c* being left free to move; secondly, both the heads *c* and *f* may be drawn upward simultaneously, forcing the bucket members down into the material and drawing the bucket members together, so as to close and pick up a mass of the material; thirdly, the head *c* may be drawn partly up slightly in advance of the head *f* and then both brought up together, which will cause the bucket members to dig downward into the material and then close within it.

Instead of opening the buckets, as shown in Fig. 2, they may be used when closed for attacking sidewise a mass of piled-up material. To accomplish this, the bucket may be brought against the side of the material while in the position shown in Fig. 1, and then by forcing down the head *c* the outer ends of one bucket member are forced outward sidewise to attack and cut into the pile.

Finally, it must be understood that the heads *c* and *f* may be independently actuated in a great variety of ways at the will of the operator, and as the means by which this is done are not material to the present invention they are neither shown nor described.

The bucket shown in Figs. 5 and 6 differs

from that shown in Figs. 1 and 2 in having chains or flexible members *l'* in place of the links *l*. This modification permits the bucket members to swing freely, if desired, when the bucket is opened, as will be seen in Fig. 6. The chains and the links are alike in both, constituting tension members. Guide-wheels *m* may be employed with advantage and the chains crossed beneath them, as illustrated.

As the invention in its broader aspect is present in the attachment and movement of either bucket member and should be protected even though one bucket member were replaced by a stationary part or by some other form of movable member, some of the following claims are not limited to the presence of two similarly-mounted bucket members.

We claim as the novel and characteristic features of our invention the following:

1. An improved bucket member provided with actuating mechanism comprising at least the following elements: a support, three relatively movable cross-heads, two at least of which travel relatively to the said support, a lever-arm pivotally connected to the bucket and to one of the said heads, and movably connected to another of the said heads, and one or more tension members connecting the bucket member to the third one of the said heads, whereby the relative movement of the said heads may actuate the bucket member, substantially as set forth.

2. An improved bucket having two cooperating bucket members and having actuating mechanism comprising at least the following elements: a support, one or more cross-heads affixed thereto, two movable cross-heads traveling relatively to the said support, one or more lever-arms for each bucket member pivotally secured to one of the said heads

and to one bucket member and slidably secured to the fixed cross-head to be guided thereby, and a tension member for each bucket member connecting the bucket to the other of the said traveling cross-heads, whereby the motion of the cross-heads may actuate the bucket members in various manners at will, substantially as set forth.

3. As an improved article of manufacture, a hollow support, a cross-head fixed thereto, a bucket having two cooperating bucket members, two movable cross-heads traveling within said support, lever-arms pivotally secured to one of said heads and to said bucket members, and mounted to slide in said fixed cross-head, and tension members pivotally secured to the other of said movable cross-heads and to said bucket members, whereby said cross-heads may actuate the bucket members, substantially as set forth.

4. In combination with a bucket member, actuating mechanism therefor comprising a lever pivotally secured at one end to the bucket member, means for actuating the other end of the lever, means for movably supporting an intermediate part of the lever and permitting it to move in a predetermined path at an angle with the motion of the actuated end of the lever, and means for supporting and actuating the said bucket member at another point, removed from the pivotal attachment of the said lever, substantially for the purposes set forth.

Signed this 22d day of April, 1901, at Cincinnati, Ohio.

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Witnesses:

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