

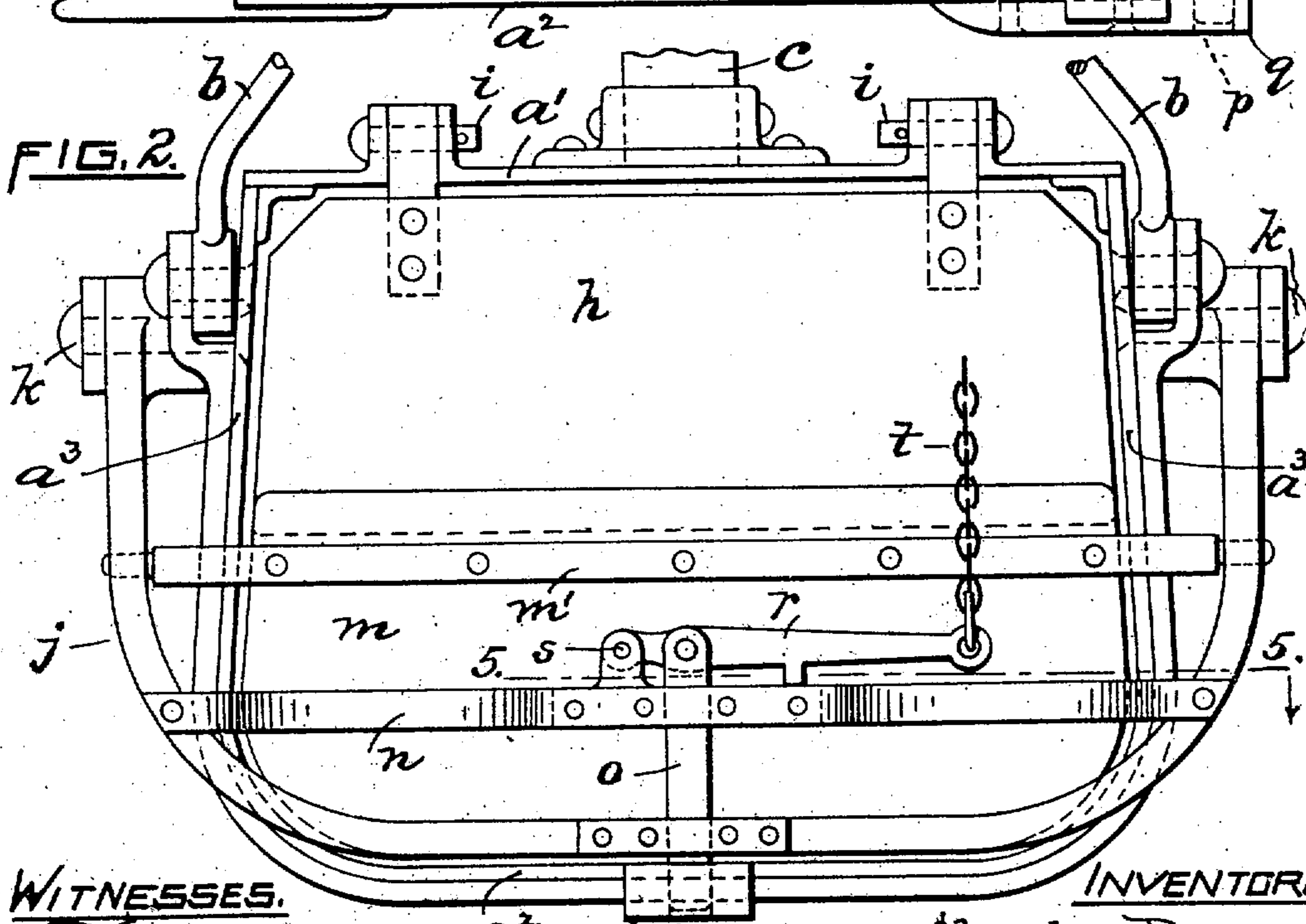
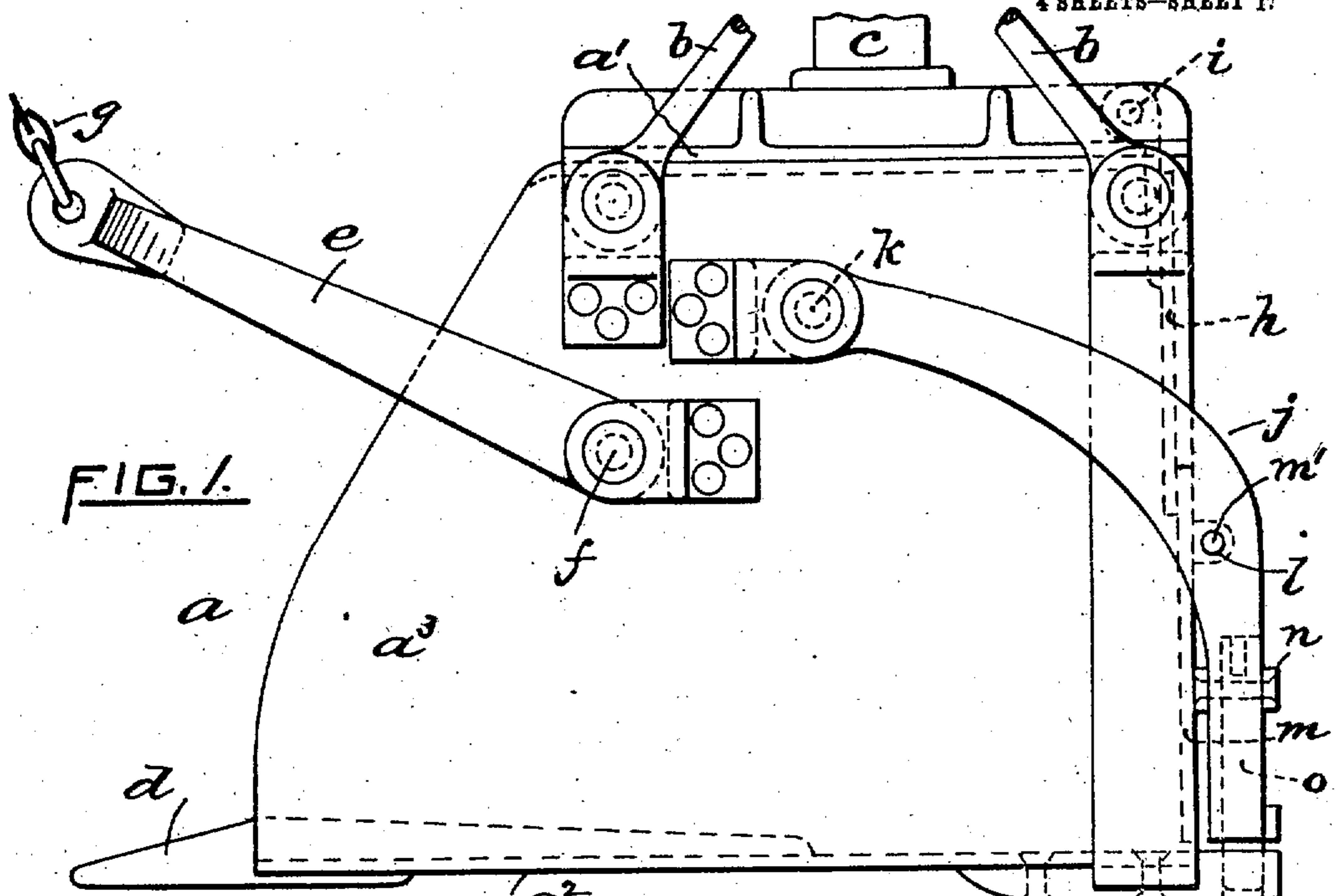
No. 850,096.

PATENTED APR. 9, 1907.

O. PAY.  
SCOOP BUCKET FOR DREDGING PURPOSES.

APPLICATION FILED JAN. 21, 1907.

4 SHEETS—SHEET 1.



WITNESSES.

*Robert H. Lowe*  
Charles E. Edwards

INVENTOR.

Charles Pay.

By *Charles T. Hannigan*,  
att'y.

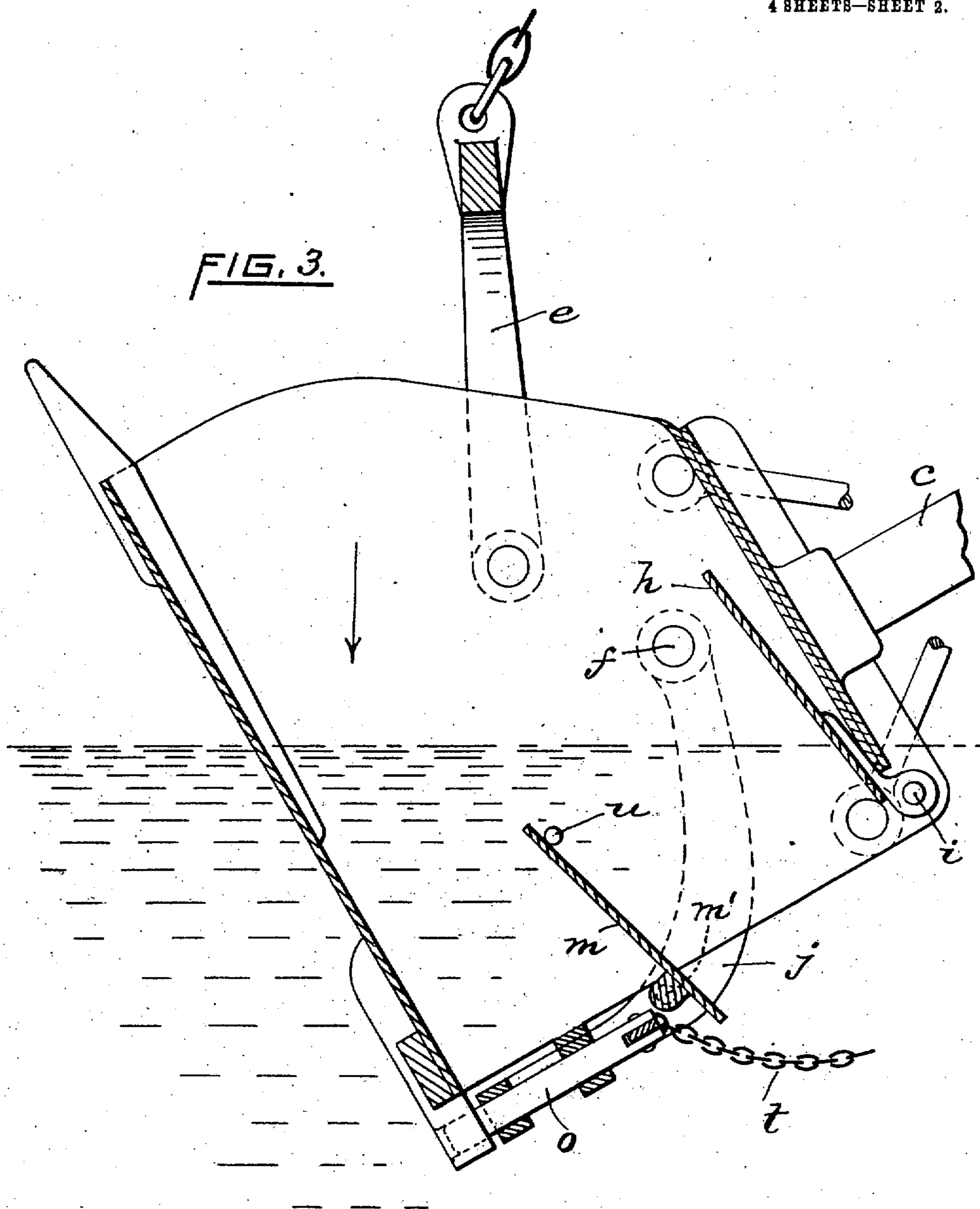
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*Charles E. Edmund.*

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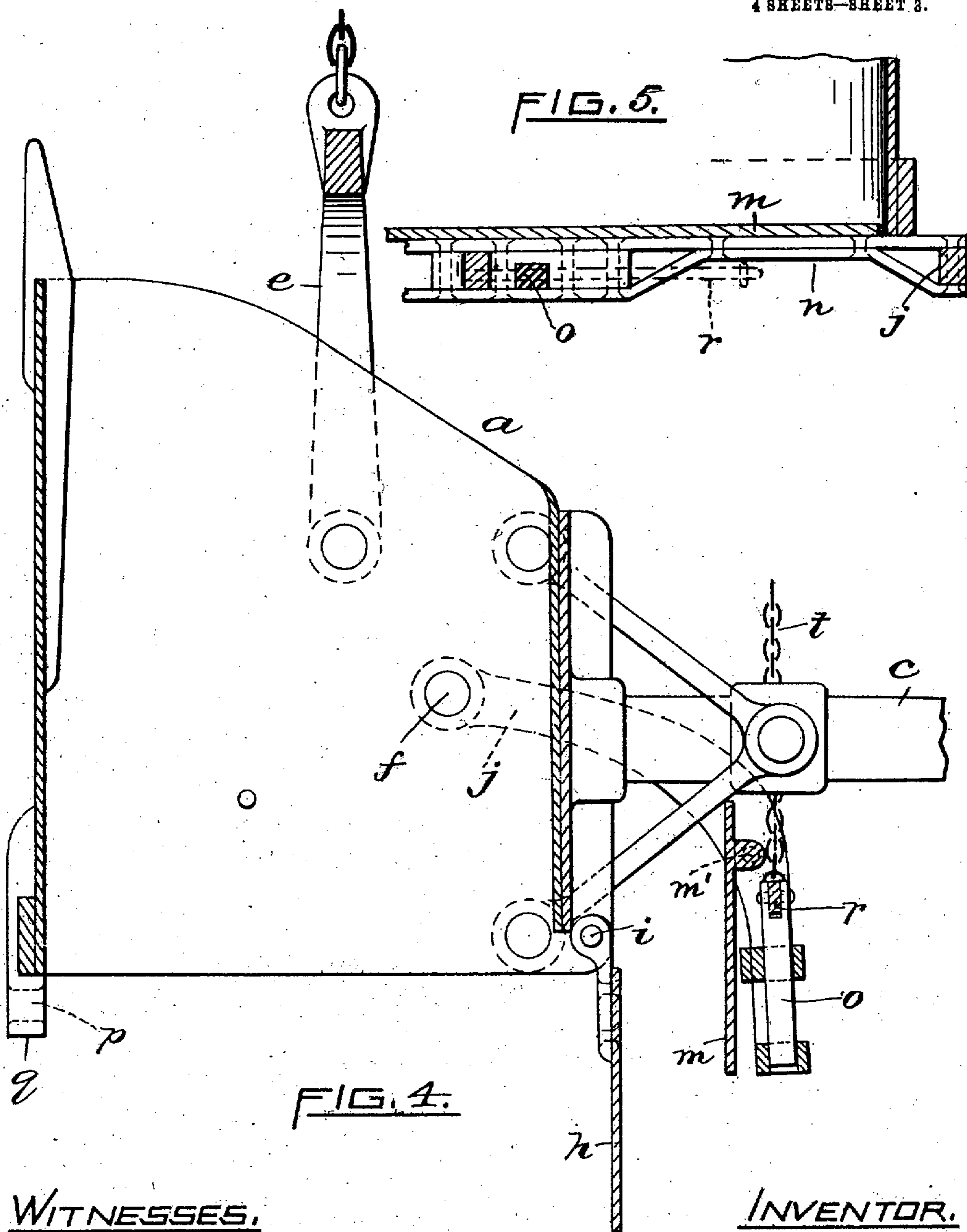
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4 SHEETS--SHEET 3.

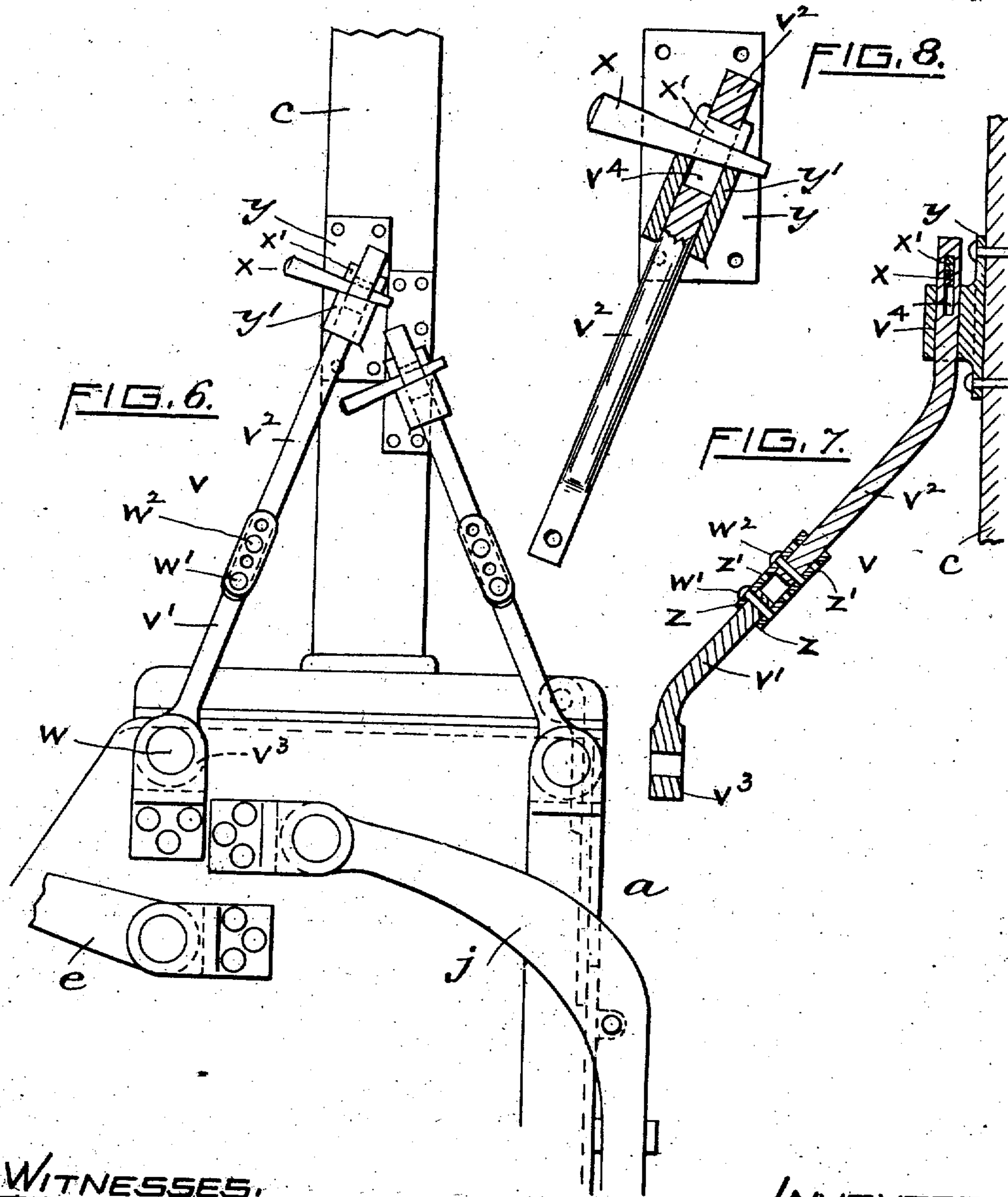


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APPLICATION FILED JAN. 21, 1907.

4 SHEETS—SHEET 4.



WITNESSES:

*Robert H. Lewis*  
*Charles E. Edmunds*

INVENTOR:

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# UNITED STATES PATENT OFFICE.

CHARLES PAY, OF PROVIDENCE, RHODE ISLAND.

## SCOOP-BUCKET FOR DREDGING PURPOSES.

No. 850,096.

Specification of Letters Patent.

Patented April 9, 1907.

Application filed January 21, 1907. Serial No. 353,391.

*To all whom it may concern:*

Be it known that I, CHARLES PAY, a citizen of the United States, and a resident of the city of Providence, in the county of Providence, State of Rhode Island, have invented certain new and useful Improvements in Scoop-Buckets for Dredging Purposes, of which the following is a specification.

The object of my invention is to provide this class of bucket with a double door, arranged to open inwardly of the bucket-body when coming in contact with the water, in order to reduce the concussion caused by the great weight of the bucket when the latter strikes the water, and to permit the hastening of the bucket to the mud material to be lifted.

A further object of my invention is to provide means for firmly securing the bucket-body to its handle or post.

My invention consists of the novel construction, arrangement, and combination of parts, as hereinafter described, and specifically set forth in the claims.

Figure 1 is a side elevation of the scoop-bucket as closed and in operative position to receive its load. Fig. 2 represents the discharge end of the bucket, showing the parts embodying my improvement and corresponding to the position of parts shown in Fig. 1. Fig. 3 is a sectional view of the bucket, showing the position the doors assume when the bucket strikes the water. Fig. 4 is a sectional view of the bucket in vertical position and showing the relation of parts as when the bucket-load is discharged. Fig. 5 is a top plan section taken in line 5 5 of Fig. 2. Fig. 6 illustrates my improved means of securing the bucket-body to its handle or post. Fig. 7 is a sectional view of one pair of the brace connections for the bucket-body and its post, and Fig. 8 shows the manner of securing a brace connection to a fixed plate of the bucket-post.

Like reference characters indicate like parts in the several views of the drawings.

Referring to Figs. 1 and 2,  $a$  designates the body or shell of the scoop-bucket, which is of the conventional rectangular form in cross-section, said bucket having its top  $a'$  secured by braces  $b b$  to the end of the bucket handle or post  $c$ , which receives power to force the bucket into the mud material to be lifted, the prongs  $d$  secured to the bottom  $a^2$  of the bucket to embed in said material, the bail  $e$

pivoted at  $f$  to the sides  $a^3 a^3$  of the bucket and having a hoist-chain connection  $g$ , which receives power to lift the bucket to a vertical position after receiving its load, and a swinging door  $h$  pivoted at points  $i i$  to the top of the bucket.

All aforesaid parts as commonly constructed and arranged in this class of bucket, with the exception that I design the door  $h$  to close about one-half the discharge end of the bucket.

I will now proceed to explain the parts embodying my improvement.

$j$  represents a yoke member, whose lower portion extends in front of the discharge end of the bucket, near to its bottom  $a^2$ , and about midway of the discharge end of the bucket said yoke member straddles over and is pivotally connected to the sides  $a^3$  of the bucket, as at points  $k k$ , and said yoke member is provided with circular openings  $l$  through its sides and arranged opposite each other, so as to form journal-bearings, whose axial centers come beyond the free end portion of the door  $h$  when the latter is within the discharge end of the bucket.

A second door  $m$  has an axle-shaft  $m'$  secured thereto and whose ends are mounted in the journal-bearings  $l$  of the yoke member  $j$ . This second door  $m$  is of a size to close the remaining portion of the discharge end of the bucket that is left by the door  $h$ , and said second door overlaps the edge of the free end portion of the door  $h$  when both doors are in a closed position within the discharge end of the bucket, as shown in Fig. 1. On the yoke  $j$  is secured a truss  $n$ , which rests upon the outer surface of the door  $m$  and arranged to support a device to operate in locking both said doors  $h m$  after they close the discharge end of the bucket. This device comprises a latch-bar  $o$ , which is slidable through the truss or support extension  $n$  and yoke  $j$ , respectively, and said bar is arranged to enter an opening  $p$ , formed in a block  $q$ , which is secured to the bottom of the bucket. The opposite end of the bar  $o$  is connected to a trip-lever  $r$ , which has one end pivoted on the truss or support extension  $n$ , as at  $s$ , and at its other end connected to a pull-chain  $t$ .

On the bucket handle or post  $c$  is secured the usual toothed rack, (not shown,) which meshes with a power-driven gear, whereby the bucket is caused to move to the position desired.

Prior to the bucket striking the water the

two doors are allowed to swing within the bucket-shell, so as to allow the latch-bar  $o$  to fall by gravity within the opening  $p$  of the block  $q$ , and thus securing said doors in a locked position within the bucket-shell. The bucket is then ready to fall to the river mud bottom, and the moment the bucket strikes the water the two doors, which previously closed its discharge end, simultaneously open inwardly of the bucket approximately to the position shown in Fig. 3, and thereby allowing the bucket-shell to fall rapidly through the water to the bed of the river. After the bucket has received its load of mud material and is carried to the position shown in Fig. 4 the chain  $t$  is pulled upon to withdraw the bar  $o$ , which as soon as released from its locked position permits both doors to swing outwardly from the bucket-shell, and thereby cause the discharge of mud material.

In order to limit the inward swing of the door  $m$ , a stud is secured in the side of the bucket-body, as at a point  $u$  in Fig. 3, and thus forming a stop for said door.

Having described my improved door arrangement, I will now explain my improved structure for securing the bucket-body to its handle or post.

Referring to Fig. 6, a brace connection  $v$  extends from each corner of the top portion of the bucket-body to the post  $c$ , and each brace connection consists of two members  $v'$  and  $v^2$ , as shown in Fig. 7. The brace member  $v'$  has an eye  $v^3$  formed at one end and provided with an opening to receive the pin  $w$ , which is secured in the side of the bucket-body, and said member  $v'$  has its opposite end provided with an opening to receive a rivet  $w'$ . The brace member  $v^2$  has one end provided with an opening to receive a removable bolt  $w^2$ , and its opposite end provided with a slotted opening, as at  $v^4$ , to receive a wedge-key  $x$  and gib  $x'$ , respectively. Head-plates  $y$  are secured in a fixed position upon each side of the post  $c$ , each plate having an integral hub  $y'$ , provided with a bore to receive therethrough the slotted end portion of the brace member  $v^2$ . The inner ends of each pair of brace members  $v' v^2$  are secured between link-plates  $z z$  by the rivet  $w'$  and the bolt  $w^2$ , which pass through said plates. Each plate  $z$  is provided with openings  $z'$ , that register opposite each other and arranged to permit of positioning the brace members  $v' v^2$  by the bolt  $w^2$  in securing the bucket-body to its post. As the wedge-key  $x$  is driven in place it bears against the upper face of the hub  $y'$  and the lower edge of the gib  $x'$ , which latter rests against the shoulder formed by the upper end of the slot  $v^4$ . Thus said key causes a pull upon the brace members  $v' v^2$ , and thereby holds the bucket-body rigidly secured to its post. It is therefore apparent that should the bucket-body become loose upon its post all that is necessary is to

simply drive the keys  $x$  farther in place to again secure the bucket firmly in position.

In case of breakage of any of the four brace connections  $v$  the bolt  $w^2$  may be easily withdrawn and each member  $v' v^2$  readily got at for repair.

Thus it is seen that by my construction of double-door arrangement, as described, I am enabled to greatly overcome the shock or concussion caused by the great weight of the bucket in striking the water and to permit a rapid descent of the bucket to the river mud bottom. Furthermore, my structure for firmly securing the bucket-body to its post readily permits of disconnecting any of its brace members when in need of repair.

What I claim, and desire to secure by Letters Patent, is—

1. In a scoop-bucket whose shell is substantially rectangular in cross-section and having a door pivoted to its top and of a size to partially close the discharge end of said bucket, a second door having an axle-shaft secured thereto, and said second door of a size to close the remaining portion of the discharge end of said bucket and overlapping the edge of first-mentioned door; a yoke pivoted to the sides of said bucket, near its top and having its lower portion to rest upon said second door, and said yoke provided with journal-bearings to receive the axle-shaft of the latter, and locking means carried by said yoke to operate in holding said two doors in a closed position upon said bucket.

2. The combination in a scoop-bucket for dredging purposes, of a door pivotally mounted on the top of said bucket and of a size to partially close the discharge end of the latter; a yoke to straddle said bucket, pivoted to the sides and near the top of the latter, and said yoke having its lower portion extending in front of the discharge end of said bucket; a second door pivoted upon said yoke, of a size to close the remaining portion of the discharge end of said bucket and overlapping the edge of first-mentioned door; a block secured on the bottom of said bucket and provided with an opening; a support extension secured on said yoke, in front of and beneath the pivot-center of said second door; a trip-lever pivoted on said extension; a latch-bar connected to said lever and adapted to enter the opening of said block, and a pull-chain connection from the free end of said lever to operate in unlocking whereby both said doors swing open in the same direction, in the discharge of the bucket-load.

3. In a scoop-bucket whose shell is substantially rectangular in cross-section and having a swinging door designed to partially close its discharge end, the combination therewith, of a yoke member pivoted to the sides of said bucket and having its lower portion extending in front of the discharge end of said bucket and opposite of the pivot-center

ter of said door, and said member provided with journal-bearings; a second door having an axle-shaft secured thereto and mounted in the journal-bearings of said yoke member, and last-mentioned door resting upon the latter and overlapping the free lower portion of first-mentioned door, and means carried by said yoke member to permit of locking or releasing both said doors, at the time of dredging or discharging of the bucket-load.

4. The combination with a scoop-bucket which is substantially rectangular in cross-section and having a swinging door suspended from its top and designed to partially close the discharge end of said bucket, of a yoke whose end portions are pivoted to the sides of said bucket, near its top, and said yoke having its lower portion extending in front of the discharge end and near to the bottom of said bucket; a second door pivoted on said yoke, adapted to rest upon the latter and to overlap the edge portion of first-mentioned door, and means to hold both said doors in a locked position upon said bucket and to permit both said doors swinging outwardly together in the discharge of the bucket-load.

5. The combination with a scoop-bucket having its top properly secured on the end of a swinging post, and said bucket having a door pivoted on its top and of a size to partially close the discharge end thereof, of a yoke member whose lower portion extends in front of the discharge end of and near the bottom of said bucket, said member having its ends pivoted to the sides of the latter and provided with journal-bearings arranged opposite each other; a second door overlapping the outer edge portion of first-mentioned door and resting upon the lower portion of said yoke member, and said second door having a shaft secured thereto and whose ends are mounted in the journal-bearings of said yoke member; a block secured on the bottom of said bucket and provided with an opening; a support extending across and having its ends secured to said yoke member, and a locking device for said doors, comprising a lever pivoted to said support; a latch-bar connected to said lever and arranged to enter the opening of said block, and a pull-chain connection from the free end of said lever.

6. The combination with a scoop-bucket properly mounted on the end of a swinging post, and said bucket having a hinged door designed to partially close the discharge end thereof, of a yoke member whose free ends straddle over and are pivoted to the sides of said bucket, and said member provided with openings that form journal-bearings arranged opposite each other; a second door to rest upon the yoke member and overlapping the outer edge portion of first-mentioned door, and said second door having a shaft se-

cured thereto and whose ends are mounted in the journal-bearings of said yoke member, and means carried by said yoke member to hold both said doors either in a locked or opened position upon said bucket.

7. In a scoop-bucket for dredging purposes, the combination with the bucket-shell, of two doors to close the discharge end of the shell and arranged to open inwardly of the latter by concussion with the water, and locking means to permit both doors to open outwardly from the shell in the discharge of the material.

8. The combination with a scoop-bucket having a handle, of a clamping structure consisting of a brace member having an eye to receive a fixed pin of the bucket; a second brace member provided with a circular opening at one end and a slotted opening formed through its other end; link-plates secured upon the free end of first-mentioned member, and each plate provided with circular openings that register opposite each other; a removable bolt to enter through the circular openings of said plate and through the circular opening of second-mentioned member; a head-plate secured upon the handle and having an integral hub which is bored to receive the slotted end portion of second-mentioned brace member; a gib to rest against the shoulder formed by the upper end of the slot in second-mentioned brace member, and a wedge-shaped key to bear against the hub of said head-plate and said gib respectively, whereby said key may exert a pull upon both said brace members.

9. In a scoop-bucket having a handle, the combination therewith, of head-plates secured on the sides of said handle and each plate having an integral hub which is provided with a bore; four brace connections arranged in pairs, each pair having one end connected to the sides of the bucket, near the top, thereof, and its other end to enter through the bore of the hub of each of said plates; means to hold the inner free ends of each pair of brace connections together, and means mounted in each hub of said plates to permit of exerting a pull upon each pair of said brace connections, all arranged substantially as shown and for the purpose specified.

10. A scoop-bucket having two pivotally-mounted doors to close the discharge end thereof, both doors arranged to open inwardly of the bucket-body by contact with the water, and means to hold both doors in either a closed position on the bucket-body, or to permit both doors to swing outwardly of the latter, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES PAY.

Witnesses:

ROBERT H. LOWE,  
CHARLES E. EDWARD.