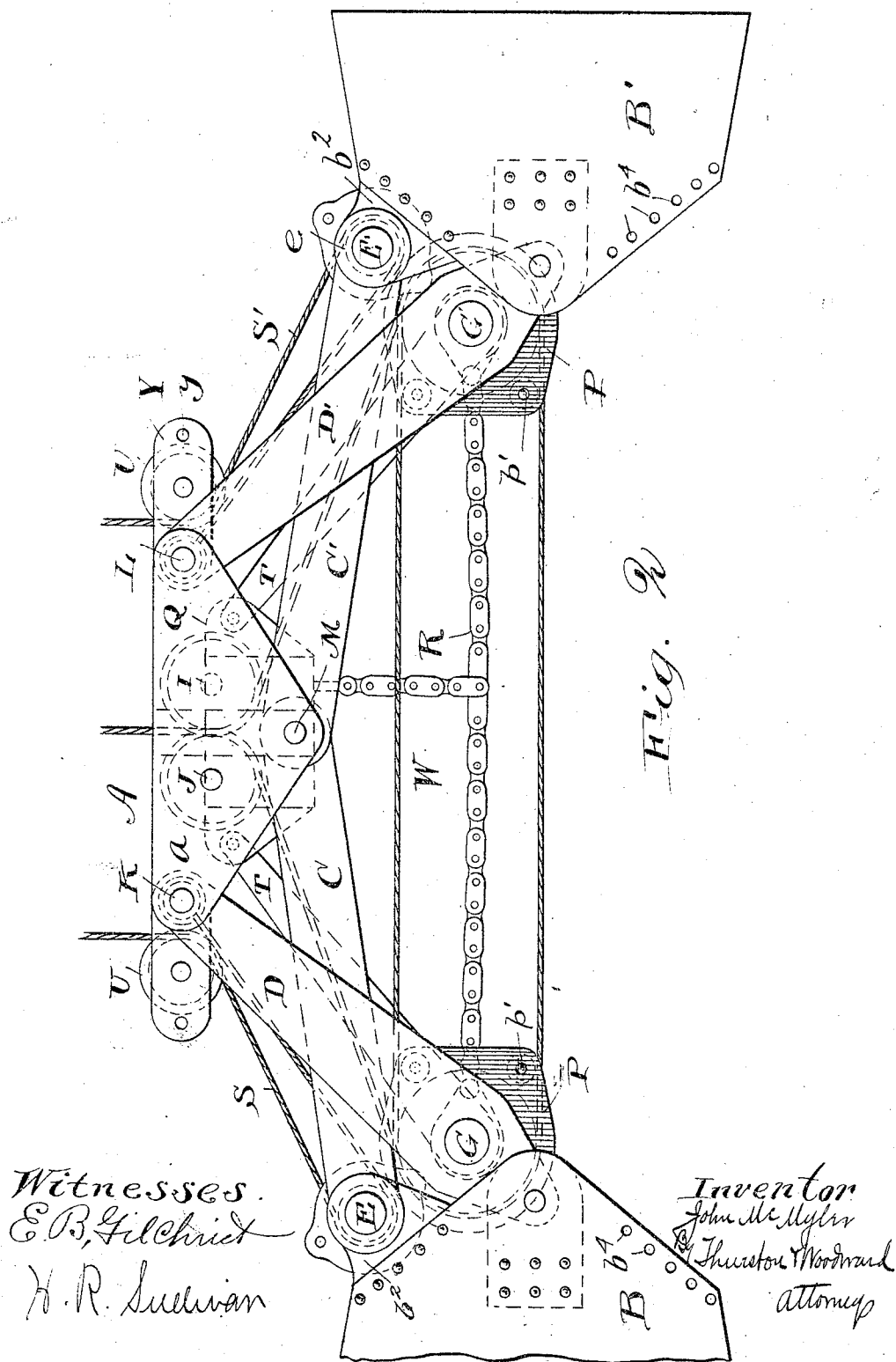


No. 859,240.

PATENTED JULY 9, 1907.

J. McMYLER.
CLAM SHELL BUCKET.
APPLICATION FILED OCT. 29, 1906.

6 SHEETS—SHEET 2.

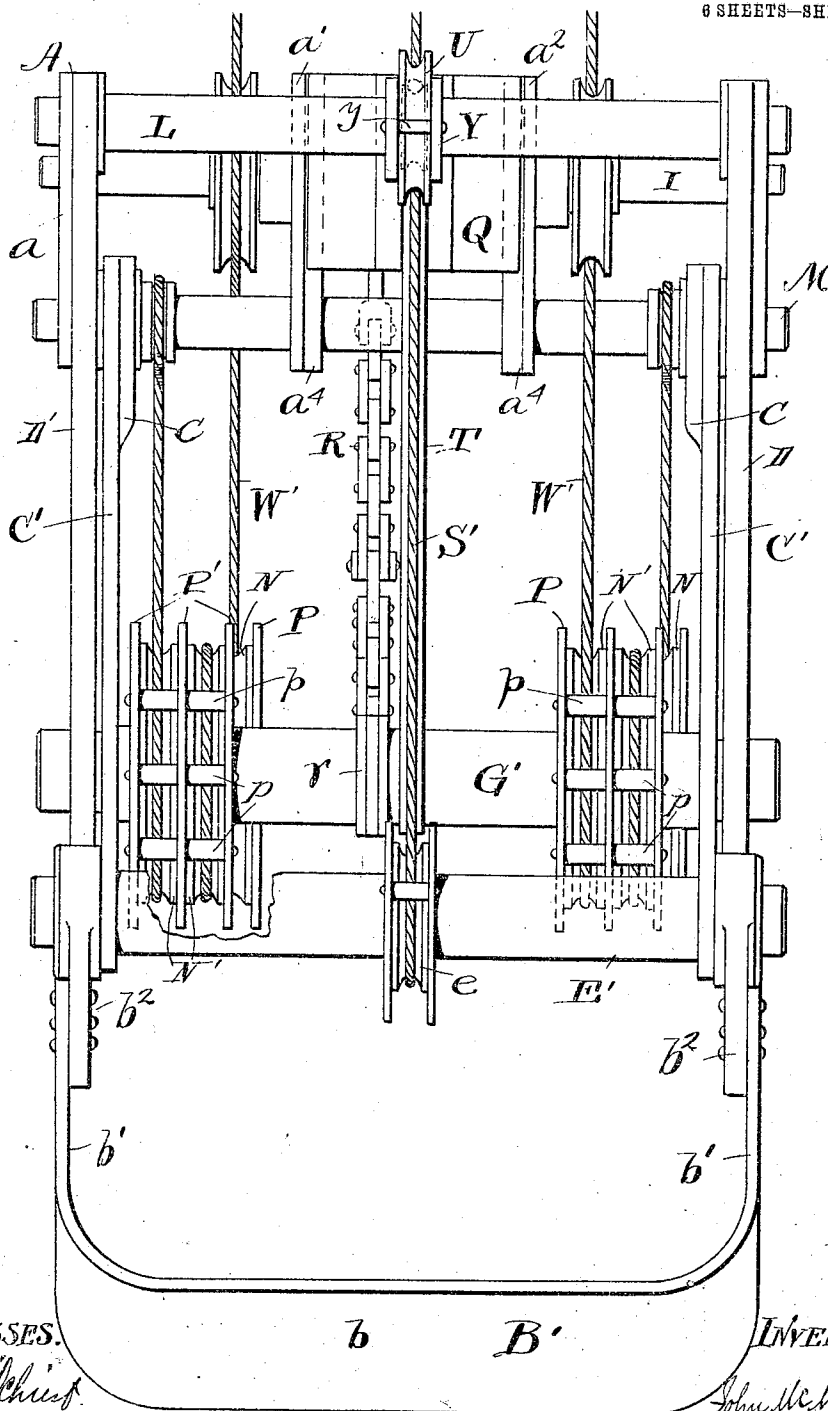


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WITNESSES.

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Fig. 3.

INVENTOR.

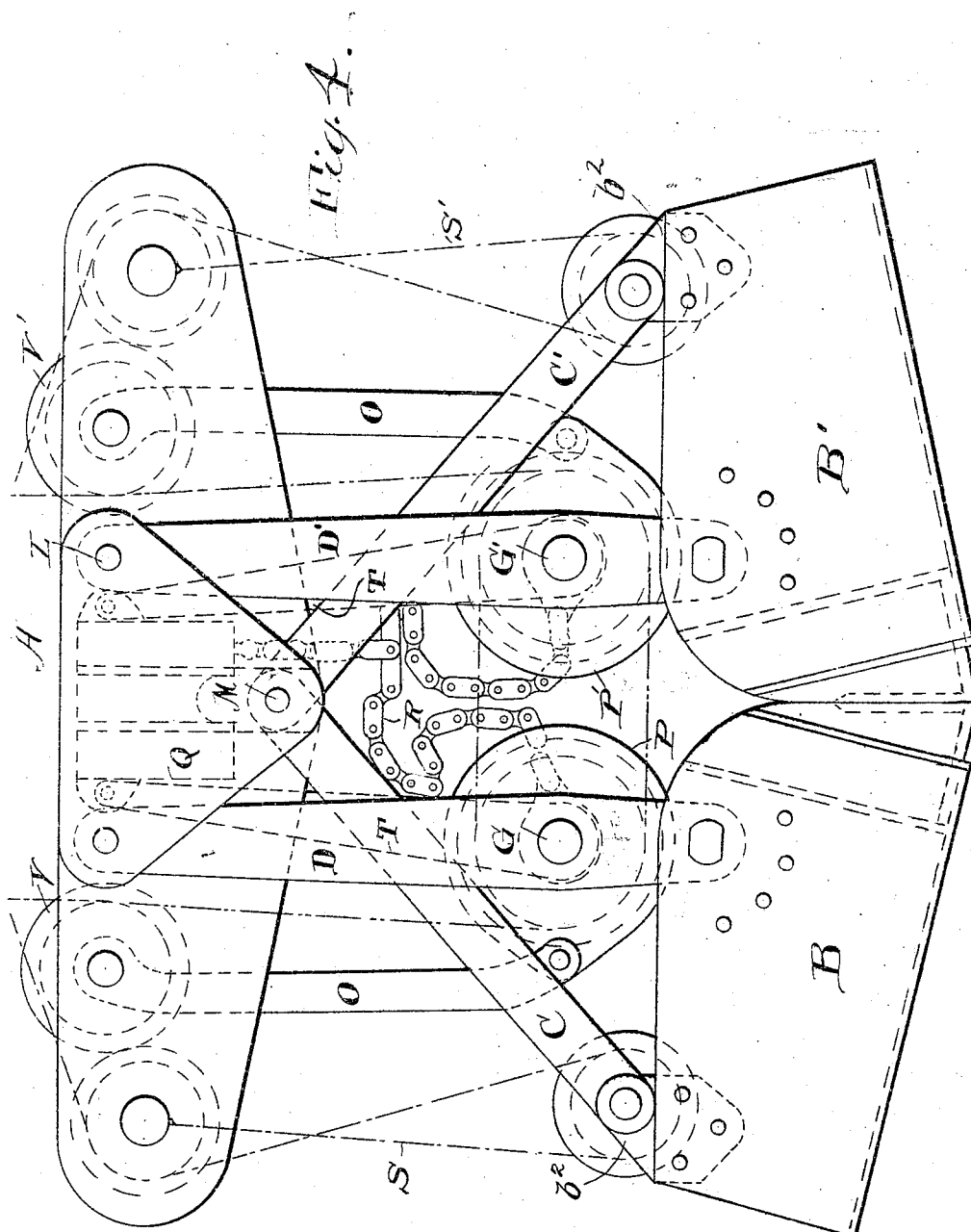
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Witnesses
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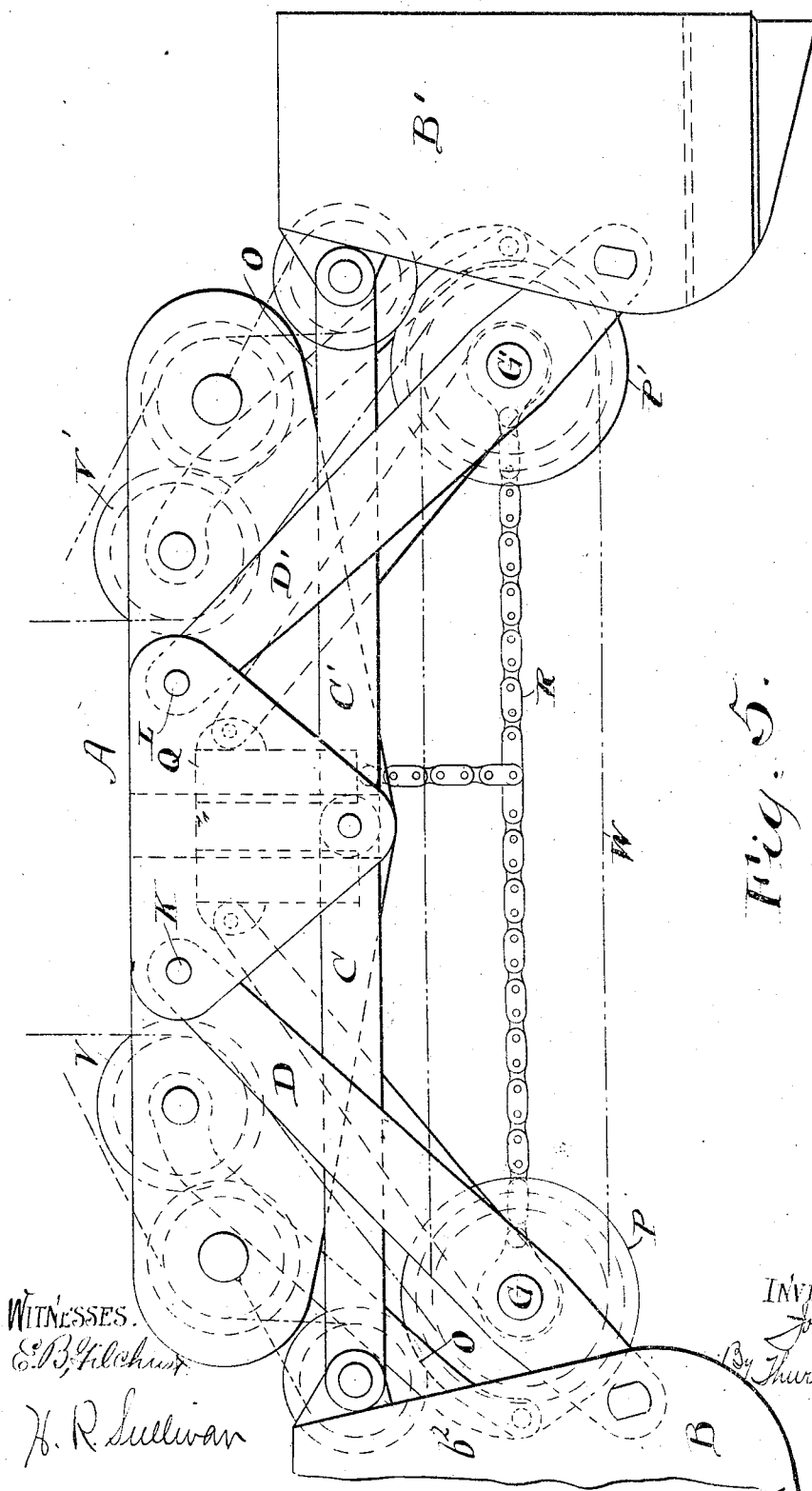
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6 SHEETS—SHEET 5.



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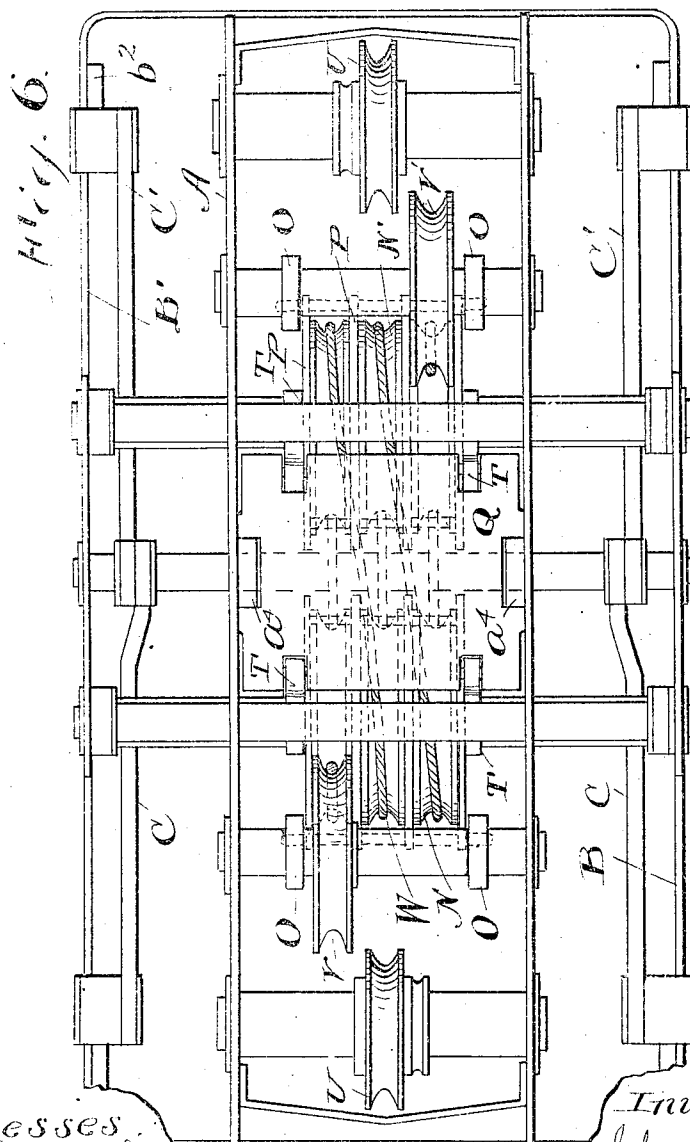
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6 SHEETS--SHEET 6.



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UNITED STATES PATENT OFFICE.

JOHN McMYLER, OF CLEVELAND, OHIO, ASSIGNOR TO THE McMYLER MANUFACTURING COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF OHIO.

CLAM-SHELL BUCKET.

No. 859,240.

Specification of Letters Patent.

Patented July 9, 1907.

Application filed October 29, 1906. Serial No. 340,978.

To all whom it may concern:

Be it known that I, JOHN McMYLER, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Clam-Shell Buckets, of which the following is a full, clear, and exact description.

The object of this invention is to provide an efficient and durable clam shell bucket, adapted especially for use in picking up and transporting from one place to another, ore or analogous material.

The invention is shown in the drawing in the best form now known to me; and may be here summarized as the combinations of parts hereinafter described, as definitely pointed out in the claims.

In the drawing, Figure 1 is a side elevation of the bucket when closed. Fig. 2 is a side elevation thereof when open. Fig. 3 is an end view of the bucket when closed.

The head A is composed of a plurality of parallel metallic plates, in the present instance four, indicated by a , a' , a^2 , a^3 , and a plurality of transverse members, for example, the members I, J, K, L and M, which hold the plates the required distance apart, and connect them so as to make a rigid structure.

B B' represent the two bucket jaws in the particular novel form shown in the drawing. These bucket jaws have no rear end wall; each consisting only of a bottom b and two parallel sides b' b' turned up from the bottom. The top edge of each side inclines upward from both ends thereof, and is highest at a point midway between its ends,—these high middle parts serving as ears for the attachment of the suspension bars D D', and also to increase the holding capacity of the buckets.

Four suspension bars C C' are pivoted to the head by being loosely hung on the cross member M. The lower ends of two of these bars C C are pivotally connected with the rear end of one bucket jaw, while the other two bars C' C' are pivotally connected with the rear end of the other jaw. This pivotal connection is obtained by the following means, to wit: ears b^2 are riveted or bolted to the side members of the bucket at the rear end thereof and along the inclined top edge.

A shaft E, associated with each jaw, extends between and is connected with the ears b^2 thereof. The lower ends of the suspension bars C C' loosely embrace these shafts E respectively. Two pairs of other suspension bars D D' are also hung from the head. The pair of bars D D freely hang from the transverse head member K, being thereby pivoted to said head, and the lower ends of these two bars are pivotally connected with the sides of one of the bucket jaws B. The other two suspension bars D' are hung from the corresponding

transverse head member L, and their lower ends are pivotally connected with the sides of the other bucket jaw B'. The connecting pivots between the suspension members D D' and the two bucket jaws respectively are midway between the ends of said jaws and near the highest point of said sides.

Extending between and connecting the suspension bars D is a horizontal cylindrical shaft G; and a similar shaft G' extends between and connects the suspension bars D'. Upon each of the two shafts G and G' sheaves N and N' are loosely mounted. As shown, there are two pairs of such sheaves mounted on each of these shafts. There are three guide plates P respectively associated with each pair of said sheaves N. One of the plates lies between the sheaves of the pair, and the other two guide plates lie outside of the sheaves of the pair; and these three guide plates are connected together by the rods p p' which hold the plates close to the faces of said sheaves. The plates P serve two functions, viz: they guide the ropes W W' which pass around the sheaves N or N', so as to keep the ropes out of contact with each other and to direct them to the proper sheave; and they, or rather the rods p which connect their rear ends, prevent the ropes from flying out of engagement with the sheaves. What may be termed the front ends of each set of plates are connected by tie rods p' , and the horizontal reaches of the ropes W W' engage with said pins, and thereby the plates P are prevented from rotating upon the shafts G G'; that is to say the upper horizontal reaches of said rope engage with the top of the upper pins p' , while the lower reaches of said ropes engage with lower surfaces of the lower pins.

A block Q is movably mounted in the head A. This block lies loosely between the two center plates a' , a^2 , and has grooves in its sides which embrace vertical ribs a^4 on the inner face of said plates. This block may therefore move up and down but is guided in said movements. Two arms T are respectively pivoted to opposite ends of this block, and their lower ends respectively embrace two shafts G G'.

A chain or rope R is attached at its ends to two rings r , which respectively embrace loosely the two shafts G G', and this chain is of such length that when the bucket jaws are open, as shown in Fig. 2, as far as it is desired to have them, this chain is straightened out and prevents any further opening movement of said jaws. The middle part of this chain is connected with another piece of chain or rope, or equivalent device r' , and the upper end of this device is connected with said vertically movable block Q, and this prevents the chain R from dropping down into or between the jaws.

The ropes S and S', by means of which the bucket jaws may be opened, are respectively made fast to the

two head members K and L. These ropes, from their said points of connection, pass around sheaves ϵ loosely mounted on the two shafts E E' and thence up in contact with other sheaves U mounted upon the head A; or to more particularly describe the specific form of supports for these sheaves, as shown, each consists of a pair of plates Y, which are respectively hung loosely on the transverse head members K and L. Each pair of plates is connected by a tie rod y; and each sheave U lies between the plates of a pair and is rotatively connected thereto.

There are two closing ropes W and W'. The rope W may be secured at one end to the head member M. From this point it passes around a sheave N on the shaft G, thence around a sheave N on the shaft G', back around another sheave N on the shaft G, and then around another sheave N on the shaft G', and thence up in engagement with a sheave V rotatably mounted on the transverse head member I. The other closing rope W' is fastened at one end to the head member M and then passes similarly back and forth over the sheaves N' on the two shafts G and G', and thence up in contact with a sheave V' rotatably mounted on the head member J. By slackening the ropes W W', and taking in the ropes S S', the bucket jaws will be drawn open as far as the chain R will permit. Block Q will move down during this operation thereby helping to open the bucket. To close the bucket, the ropes S S' are allowed to slacken; the two ropes W W' are taken up, thereby drawing the two shafts G G' toward each other, which results in closing the bucket. If the front edges of the two bucket jaws become bent or battered, or broken, the ears b^2 may be taken from the rear end of said jaws and secured to the other end thereof; the rivet or bolt holes b^4 for this purpose being shown. Then said bucket jaws may be turned around and again connected with the lower ends of the suspension bars D and C. By this means the rear end of the bucket will become the front end. This characteristic of construction, namely, making the two ends of the bucket jaws alike, and connecting the suspension bars D with the middle of the bucket, together with the provision of means of transferring the ears b^2 from one end of the bucket to the other, will enable the structure to last about half as long again as buckets heretofore constructed which did not employ the reversible jaws.

It will be understood that in many respects the particular construction shown may be modified without departing from the invention; the essential characteristics of which are defined and definitely pointed out in the claims.

A modified construction is shown in Figs. 4, 5 and 6,—Fig. 4 being a side view with the bucket jaws closed; Fig. 5 a similar view with the bucket jaws open, and Fig. 6 a plan view. The modified construction shown in these figures resembles the form shown in Figs. 1, 2 and 3 in most particulars. The form of bucket jaw, however, is different; and the suspension bars D D' are connected at their lower ends to the bucket jaws near the front ends thereof instead of at the middle, as in the other construction. The guide plates P, which lie between the sheaves N, are held in operative position by means different from the means employed in the other form, to wit, two bars O O are

suspended from the head, and their lower ends are pivotally connected with the rearsides of said plates. As the bucket jaws open and close, there will be a slight rotation of the shafts G G' within said plates, but nevertheless the plates will be so held by said bars Q, that, in all positions of the jaws a straight line will pass through the axes of the shafts G G' and of the pivots by which bars O are connected with said plates.

In the modified form shown only one closing rope is employed. Two strands W' of the rope pass down through the head in contact with the guide sheaves and the bight of this rope is run back and forth around sheaves N N' mounted on shafts G G'. There are, therefore, only one set of sheaves N and one set of sheaves N',—there being three sheaves in each set. In all other respects the bucket shown in the last three figures is substantially like that shown in the first three figures; and the parts thereof are indicated by the said reference characters.

Having described my invention, I claim:

1. In a clam shell bucket, the combination of a head, and two bucket jaws, with the suspension bars C C' which are suspended from said head and are pivotally connected at their lower ends with the rear ends of the bucket jaws respectively, the suspension bars D D' which are also suspended from said head and which respectively cross the bars C C' and are pivotally connected at their lower ends with the bucket jaws respectively at points midway between the ends of said bucket jaws, and mechanism for opening and closing said bucket jaws.
2. In a clam shell bucket, the combination of a head, and two bucket jaws, with the suspension bars C C' which are suspended from said head and are pivotally connected at their lower ends with the rear ends of the bucket jaws respectively, the suspension bars D D' which are also suspended from said head and which respectively cross the bars C C' and are pivotally connected at their lower ends with the bucket jaws respectively at points midway between the ends of said bucket jaws, each bucket jaw being substantially alike on opposite sides of the transverse plane at right angles to the bottom of the bucket which passes through the axis of the pivot by which the last mentioned suspension bars are connected with said bucket jaw, and mechanism for opening and closing said bucket jaws.
3. A bucket jaw, for a clam shell bucket, which comprises a bottom and two upturned sides, each of said sides having a perforated ear which extends upward from said side midway between its ends, and having perforations adjacent to both ends for the accommodation of bolts or rivets by means of which ears may be secured to said sides at either end thereof.
4. In a clam shell bucket, the combination of a head, and two bucket jaws, ears secured to the sides of said bucket jaws at the rear end thereof, which ears are capable of being similarly connected with said sides near the front end thereof, with two pairs of suspension bars D D', which are suspended from said head and whose lower ends are respectively pivoted to the two bucket jaws at points midway between the ends thereof, other suspension bars C C' which are respectively pivoted to the ears on said bucket and are pivotally suspended from said head on a common axis, and means for opening and closing said bucket jaws.
5. In a clam shell bucket, the combination of a head, two bucket jaws, and suspension bars hanging from said head and pivotally connected with said bucket jaws, with a chain suitably connected at its ends with said bucket jaws, and mechanism for opening and closing said bucket jaws.
6. In a clam shell bucket, the combination of a head, two bucket jaws, and suspension bars hanging from said head and pivotally connected with said bucket jaws, with a chain suitably connected at its ends with said bucket jaws, and mechanism for opening and closing said bucket

jaws, and a supporting device connected with the head and the middle part of said chain.

7. In a clam shell bucket, the combination of a head, two bucket jaws, ears secured to the rear top edges of the sides of said jaws, the shafts E E connecting said ears, suspension bars C C' suspended from the head and engaging said shafts E E, the suspension bars D D' suspended from said head and pivotally connected with said bucket jaws respectively, a sheave on each of the shafts E E, opening ropes connected at the head and passing around said sheaves respectively, and thence upward.

8. In a clam shell bucket, the combination of a head, two bucket jaws, suspension bars pivotally connected with the head and with said bucket jaws respectively, shafts G G' supported by some of said suspension bars and associated respectively with the two bucket jaws, sheaves mounted upon said shafts, guide plates upon said shafts close to the sides of said sheaves, and means preventing the rotation of said guide plates upon said shafts.

9. In a clam shell bucket, the combination of a head, two bucket jaws, suspension bars pivotally connected with the head and with said bucket jaws respectively, shafts G G' supported by some of said suspension bars and associated respectively with the two bucket jaws, sheaves mounted upon said shafts, guide plates upon said shafts

close to the sides of said sheaves, means connecting the rear sides of said plates in each set behind the associated sheaves, and means preventing the rotation of said plates upon said shafts.

10. In a clam shell bucket, the combination of a head, two bucket jaws, suspension bars pivotally connected with the head and with said bucket jaws respectively, shafts G G' supported by some of said suspension bars and associated respectively with the two bucket jaws, sheaves mounted upon said shafts, guide plates upon said shafts close to the sides of said sheaves, means connecting the rear side of the plates in each set behind the sheaves, two rods connecting the front ends of each set of plates and located respectively near the top and bottom thereof, and a closing rope which passes back and forth around said sheaves and between said plates,—the horizontal reaches of said rod being outside of the last mentioned rods and in engagement therewith.

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

JOHN. McMYLER.

Witnesses:

E. B. GILCHRIST,
H. R. SULLIVAN.