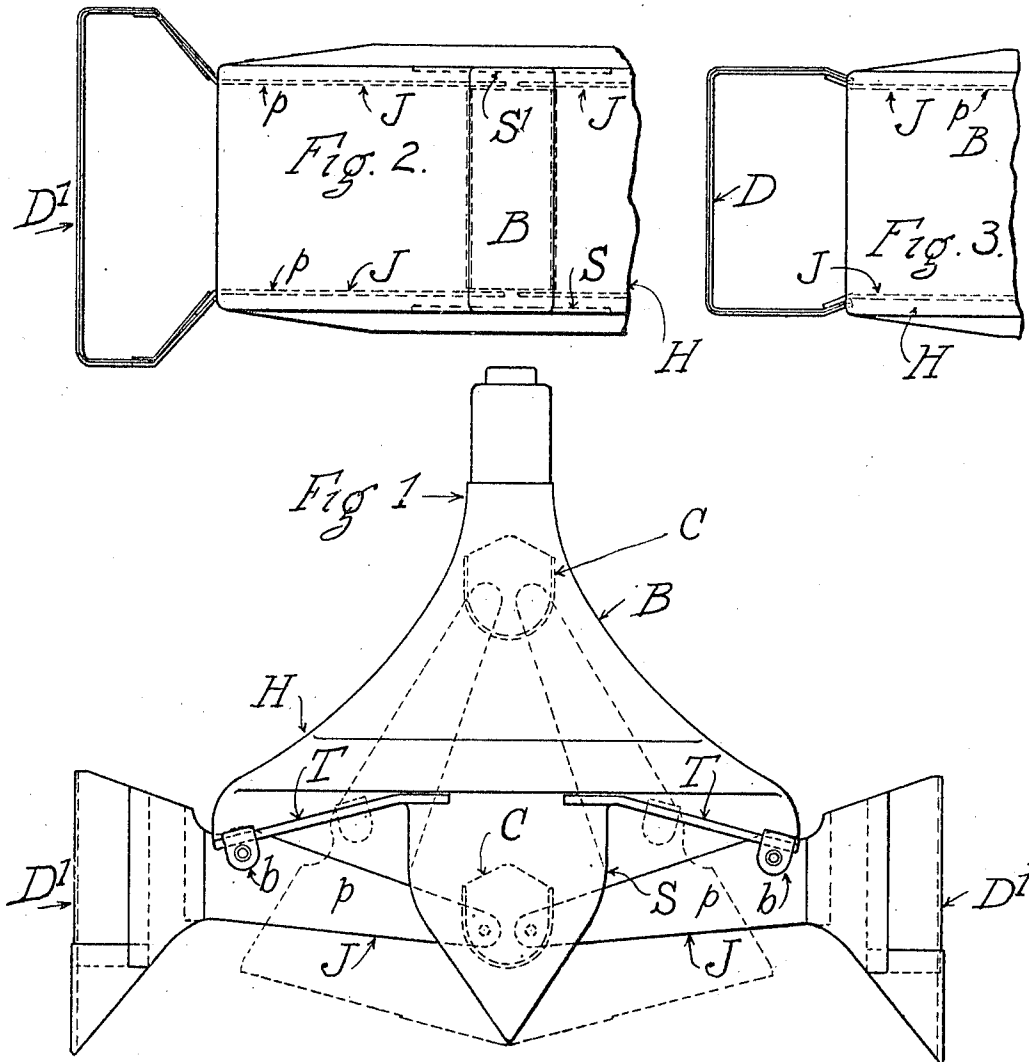


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 GRAB BUCKET.
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947,540.

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GRAB-BUCKET.

947,540.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ALEXANDER E. BROWN, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a new and useful Improvement in Grab-Buckets, of which I hereby declare the following to be a full, clear, and exact description, reference being had to the accompanying drawings as a part of the specification, wherein the same parts are designated by the same letters in every instance.

The invention belongs more especially to that class of automatically loading and dumping buckets, used in handling material contained in vessels, cars, or stock-piles, wherein the load is gathered and held by bringing together two oppositely-related bucket-segments or jaws that are movably fulcrumed upon the shell, or bucket proper, and to that particular type of such class, wherein the opening and closing movement of the bucket-segments referred to is effected by oscillating inwardly-extending arm pieces of the same, in a vertical direction, up and down on either side and within said shell. In this type, these inwardly-extending arm-pieces, or sides of the jaws themselves, are parallelly arranged, with respect to each other, in each jaw or bucket-segment, and, are joined at their outer ends by the blade proper, which is set at a sharp outward pitch or angle to the vertical through its lower or cutting edge when the bucket is closed. For reasons now well understood by those versed in the art, the sides of the jaws, above referred to, are cut away and recede upwardly from the lower and scraping edge of their blades, so that when the jaws or bucket-segments are brought together, and the bucket thereby closed, there will be a considerable open space centrally and on either side of the bucket above the blades. In order to close these apertures or spaces, under these conditions, against the escape of material, and, at the same time provide necessary bearing-surfaces for the extreme downward oscillation of said sides within the bucket's shell, side-pieces, of superficial dimensions to correspond substantially with the space to be closed, are made to project downwardly below and on either side of the shell or framework of the bucket. Experience has developed, however, certain undesirable consequences of this arrange-

ment and has led me to devise certain remedial changes in the same that can advantageously be adopted. These changes constitute the subject-matter of this application. In explaining the same, I choose, as the type of grab-bucket to which my improvement is best applicable, that shown and described in Letters Patent of the United States issued to me under date of March 17, 1903 and numbered 723133 wherein all details of construction, except in the particulars constituting my present invention may be taken as identical with the bucket shown in the drawings herewith.

In said drawings Figure 1 is a side view of a grab-bucket when open, with its closed position added in dotted lines. Fig. 2 is a partial plan view of Fig. 1. Fig. 3 is a partial plan view of the blade of the type of bucket displayed in the patent above specified and which it is the object of this invention to improve and change.

B is the bucket as a whole, which is made up of a framework or shell H, flaring at its lower portion to the front and rear, and provided, midway on each side, with said downwardly extending projections, S and S'. Like the corresponding pieces of the existing type of bucket in question, these pieces have the function to prevent the escape of material when the bucket is closed, as well as to extend the framework or shell H downwardly so as to support the constructive details necessary to permit the oscillating movement of the jaws below said shell during the process of opening the same. In consequence said side pieces S and S' may, on occasion, be shortened so as to extend no farther below said shell than is required for the particular functions first above referred to. Along the lower edge of said shell, are securely fastened rails or tracks T, upon which are hung sliding-blocks or pieces b, b, pivotally connected with the forward portion of the jaws or bucket-segments J, J, at each side thereof. Said jaws are composed of two parallel sides p, p, which, in projection, give contours that are cut away and recede upwardly from their lower or outer ends, as in the type considered, but, which, in fact, and as being an essential feature of this invention, are only flat or plane surfaces, through the upper and inwardly extending portions of the sides p, p, and thereafter, from a point

below the pivotal connections therewith of the sliding blocks *b, b*, diverge or slant outwardly from said surfaces and then extend downwardly until their lower edges meet and are joined to the blade part *D*. Such diverging contour is shown in Fig. 2, and on reference to Fig. 3, the characteristic difference of the present bucket-segment or jaws *J, J*, from those in the bucket type in prevailing use, will, at once, be apparent.

It will be seen that the blade-like parts, *D'*, in Fig. 2, differ in no respect from the similar part *D*, shown in Fig. 3, except in a substantially greater longitudinal dimension and area, and, a corresponding increased grabbing capacity, of the bucket-shell to which the blade is attached, as compared with a bucket-shell or framework using jaws or segments and blade-pieces of the same relative dimensions as in the old type.

The remaining details set out in the drawings, as said, are identical with the existing forms of grab-buckets referred to and are familiar to those acquainted with the art. So far as shown, or required for the sake of convenience here, they may be recapitulated as follows; Said shell or framework *H*, has centrally within the same a block or head, indicated, in dotted lines, by *C* to which the inner ends of said jaws *J* are oppositely pivoted, and suitable arrangements for effecting an oscillation of said head upwardly and downwardly in upright grooves, or guides within the shell, in order to thereby correspondingly actuate the jaws, in their working connections with the shell above referred to, to an opening or closing position, as desired. In existing types this operation, because of the downwardly projecting side pieces *S*, and the fact that the side-pieces *p, p*, of the jaws close toward each other, in substantially the same plane, there are four distinct pairs of opposing edges, to close toward and against each other (like shears or scissors) each time a grab is made—and a closing upon a bucket-load attempted. It often happens, therefore, that, on such a closing, lumps, boulders, or other disproportioned material are encountered and caught between one or more of said pairs, that are obstacles to and prevent a complete meeting of the jaws and, a consequent obtaining or retaining of a full load. By making the lower part of said sides of the jaws *p, p*, diverge or bulge outwardly and engage a widened blade below, it is manifest that, on closing, the edges of said sides, will not meet or be in a plane with the edges of

the pieces *S*, and *S'*, but will be staggered with respect to the same, and the liability to inclose lumps, boulders etc., above pointed out, by such construction will be materially reduced or entirely obviated. As before stated a further chief advantage of the construction is the increased load capacity of the bucket, itself, as compared with similarly operating buckets of the same weight of material.

Although my improvement shows the side-pieces *p, p*, as diverging in first a slant and then extending downwardly in a straight line, to meet the blade-piece *D'*, it is clear that my invention also extends to and includes a divergence of the general character described without regard to its precise form. The latter can be effected by bending or making said side-pieces extend outwardly and downwardly in any manner suitable to the purpose to be accomplished as in an arched, curved, slanting, rectangular, bulging, or other protuberant section and still be within said invention.

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

1. In a grab-bucket, the combination, with a framework or shell portion, of bucket-segments or jaws, oppositely hinged or pivotally joined together within the same at their upper ends, and pivotally connected to said framework or shell, between their upper and lower ends by movable fulcrums, the lower portions of said side-pieces extending or diverging outwardly and downwardly from said shell to the bucket's blade; guides or tracks on said framework or shell upon which said fulcrums bear, and suitable means for vertically raising said upper ends of said segments or jaws within said framework, and of permitting the same to similarly descend, substantially as shown and described.

2. In a grab-bucket, the combination of oppositely closing segments or jaws, having sides that are parallel through their upper or inner portions, and that extend outwardly from each other and downwardly, through their lower portions, to a transverse blade or piece that connects the same, together with suitable means for, respectively, closing and opening said segments against and apart from each other, substantially as shown and described.

ALEXANDER E. BROWN.

In presence of—

R. B. SHERIDAN,
GEORGE C. WING.