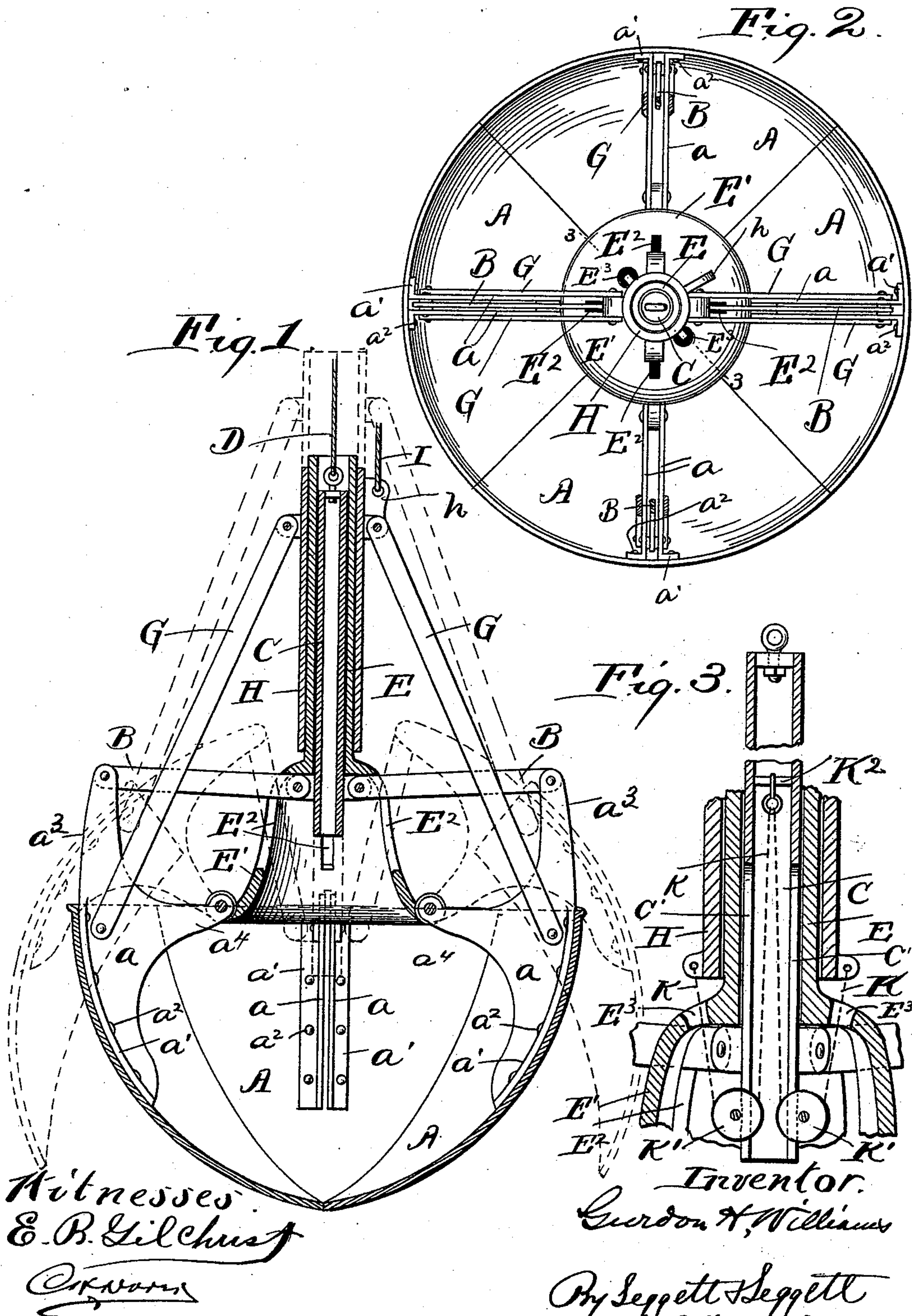


(No Model.)

G. H. WILLIAMS.
EXCAVATING AND HOISTING BUCKET.

No. 528,579.

Patented Nov. 6, 1894.



Witnesses
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UNITED STATES PATENT OFFICE.

GURDON H. WILLIAMS, OF BRIGHTON, OHIO.

EXCAVATING AND HOISTING BUCKET.

SPECIFICATION forming part of Letters Patent No. 528,579, dated November 6, 1894.

Application filed December 11, 1893. Serial No. 493,374. (No model.)

To all whom it may concern:

Be it known that I, GURDON H. WILLIAMS, of Brighton, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Excavating and Hoisting Buckets; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

My invention relates to improvements in excavating and hoisting-buckets, and it consists in certain features of construction, and in combinations of parts hereinafter described and pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation, mostly in central vertical section, of a bucket embodying my invention. Fig. 2 is a top plan of the same, portions being broken away and in section to more clearly show the construction. Fig. 3 is an enlarged side elevation in central vertical section on line 3—3, Fig. 2.

My invention pertains more especially to that variety of buckets that are composed of two or more sections that form the sides and bottom of the bucket with the sections pivotally supported and arranged in such a manner that the sections, in hoisting and lowering the bucket and in conveying the same from place to place, will be held closed together, and are capable of being swung outwardly upon their pivotal bearing to separate them and thereby open the bucket.

My present invention consists more especially in the means employed for operatively connecting the pivotal sections of the bucket with the hoisting-rope in such a manner that the construction is rendered as simple and durable as possible without liability of the bucket being opened during the hoisting and lowering and conveying operations; and in the means employed for operatively connecting said sections with another rope or cable, whereby the bucket is opened, and positively opened, when required.

The bucket-proper (including the sides and bottom of the bucket) may, as already indicated, be composed of two or more sections, the bucket-proper of the bucket illustrated being shown composed of four sections, A, the contour whereof is such that the sections,

when closed together, as shown in Figs. 1 and 2, form the sides and bottom of the bucket-proper. Each section A, in the case illustrated, is provided, at its upper and central portion with one or more radially arranged plates a that are flanged laterally, at their outer edge, as at a' , with the flanges riveted to the respective bucket-section, as at a^2 . Each plate a has an upwardly-extending arm, a^3 , and an inwardly-extending and centrally-located arm, a^4 , the former, at its outer extremity, being operatively connected, by means of a link, B, with the lower portion of a tubular member C, that is located at the top and centrally of the bucket, and has attached, at its upper extremity, the hoisting-rope or cable D, and arm a^4 , at its inner extremity, is pivotally connected to a sleeve, E, that easily embraces member C, said sleeve being enlarged diametrically at its lower end, as at E' , and arms a^4 of plates a of the bucket-sections being pivoted to one or more lugs or ears projecting laterally and outwardly from the lower extremity of said enlarged portion of sleeve E. Links B are connected with member C below the upper extremity of the enlarged portion E' of sleeve E, the same being pivoted preferably, as shown, to one or more laterally-projecting lugs or ears on member C, and the enlarged portion of sleeve E being slotted, as at E^2 , to accommodate the location and operation of said links. Plates a , preferably at or near the inner extremities of arms a^4 , are operatively connected, respectively, by means of one or more links G, with a sleeve, H, easily embracing sleeve E, a pair of links G being preferably employed for each bucket-section and said links being preferably pivoted to a laterally-projecting lug or ear at or near the upper end of sleeve H. Sleeve H, at its upper extremity, is also provided with a laterally-projecting lug or ear h that has attached an upwardly-extending rope or cable I.

I would here remark that both ropes or cables D and I are connected with winding-drums (not shown) and lead from their connection with the bucket upwardly to and over suitable guide-sheaves (not shown) and thence to the drums, and I would also remark that plates a with their arms a^3 a^4 constitute levers that are pivotally connected, as

already indicated, with the lower extremity of sleeves E and operatively connected by means of links B with the hoisting-cable engaging member C and carry the sections that form the bucket-proper.

The arrangement of parts is such that upon releasing the hoisting rope or cable or permitting the same to be paid out and placing a draft upon rope or cable I, member C, links B, levers a , a^3 , a^4 , and attached bucket-sections shall be actuated in the direction to effect the separation of the bucket-sections, thereby opening the bucket or placing the same in condition to take up or discharge its load, as shown in dotted lines Fig. 1, and that by releasing or permitting rope or cable I to pay out, and causing the draft to be on the hoisting-rope or cable, the parts of the bucket just referred to will assume the position shown in solid lines in the drawings, as required preparatory to the hoisting and conveyance of the load, the upper end of the enlarged portion E' of member E forming a stop to limit the elevation of the hoisting-rope-engaging-member independently of the other parts of the bucket.

I would also remark that sleeve H, at its lower end, has attached one or more ropes, chains or cables K (see Fig. 3) that lead thence downwardly to and over sheaves K' suitably supported within the enlarged portion E' of sleeve E and thence upwardly a suitable distance into member C, to which the chains or cables K are connected, as at K², member C and the enlarged portion E' of sleeve E, being slotted, as at C' and E³, respectively, to accommodate the location and operation of said chains or cables.

By the construction thus described, it will be observed that chains or cables K assist in the operations of opening and closing the bucket.

What I claim is—

1. In a bucket of the variety indicated, the combination with the sections that form the sides and bottom of the bucket-proper, of a reciprocating hoisting-cable-engaging-member located at the top and centrally of the bucket, a sleeve or tubular member E embracing said hoisting-cable engaging-member, levers rigid with the aforesaid bucket-sections and pivotally connected to the lower end of the aforesaid sleeve, links operatively connecting said levers with the hoisting-cable-engaging-member, and suitable means operatively connected with the bucket-sections for actuating the latter to separate or open, substantially as set forth.

2. In a bucket of the variety indicated, the combination with the sections that form the

sides and bottom of the bucket-proper, of a reciprocating hoisting-cable-engaging-member located at the top and centrally of the bucket, a sleeve or tubular member E embracing said hoisting-cable-engaging-member, said sleeve being enlarged diametrically at its lower end, a plate a secured to each of the aforesaid bucket-sections, said plates having, respectively, an upwardly-extending arm a^3 and an inwardly-extending arm a^4 , the latter being pivotally connected to the lower end of the aforesaid sleeve, links operatively connecting arms a^3 of said plates with the hoisting-cable-engaging-member, and suitable means operatively connected with said plates at or near the inner extremity of the inwardly-extending arms of the plates for actuating the aforesaid bucket-sections to separate or open, and the aforesaid sleeve being slotted to accommodate the location and operation of the aforesaid links, substantially as set forth.

3. In a bucket of the variety indicated, the combination of the sections that form the sides and bottom of the bucket-proper, said sections being adapted to separate and thereby open the bucket; a relatively stationary member E; levers, a a^3 a^4 , fulcrumed to said stationary member, and rigidly secured to the aforesaid bucket-sections; a reciprocating hoisting-cable-engaging-member and links B operatively connecting the aforesaid levers with said hoisting-cable-engaging-member; another reciprocating member H and means operatively connecting the same with the bucket-sections; a rope or cable attached to said member H for elevating the latter, and one or more chains or cables attached at opposite ends to the aforesaid two reciprocating-members, respectively, the arrangement of parts being substantially as and for the purpose set forth.

4. In a bucket of the variety indicated, the combination of the sections that form the sides and bottom of the bucket-proper; member E enlarged at its lower end, as at E', and slotted, as at E², E³; hoisting-cable; inner reciprocating-member C having laterally-projecting lugs C'; levers a a^3 a^4 ; links B; outer reciprocating-sleeve, H; cable I; links G; one or more chains or cables K, and sheaves or guides K', all arranged and operating substantially as shown, for the purpose specified.

In testimony whereof I sign this specification, in the presence of two witnesses, this 18th day of November, 1893.

GURDON H. WILLIAMS.

Witnesses:

C. H. DORER,
WARD HOOVER.