

W. A. WRIGHT.
Unloading Coal-Barges.

No. 138,727.

Patented May 6, 1873.

Fig. 1.

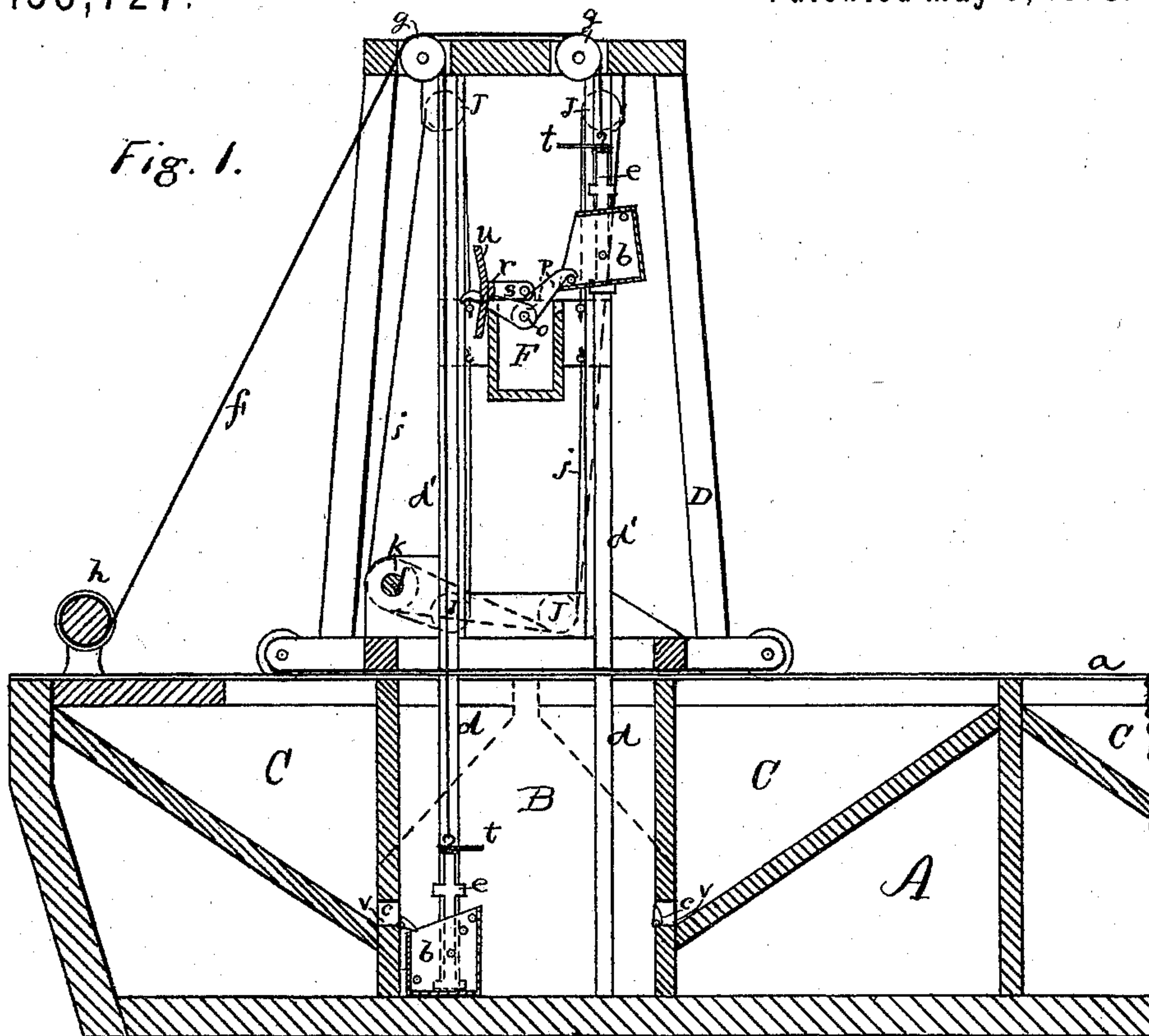
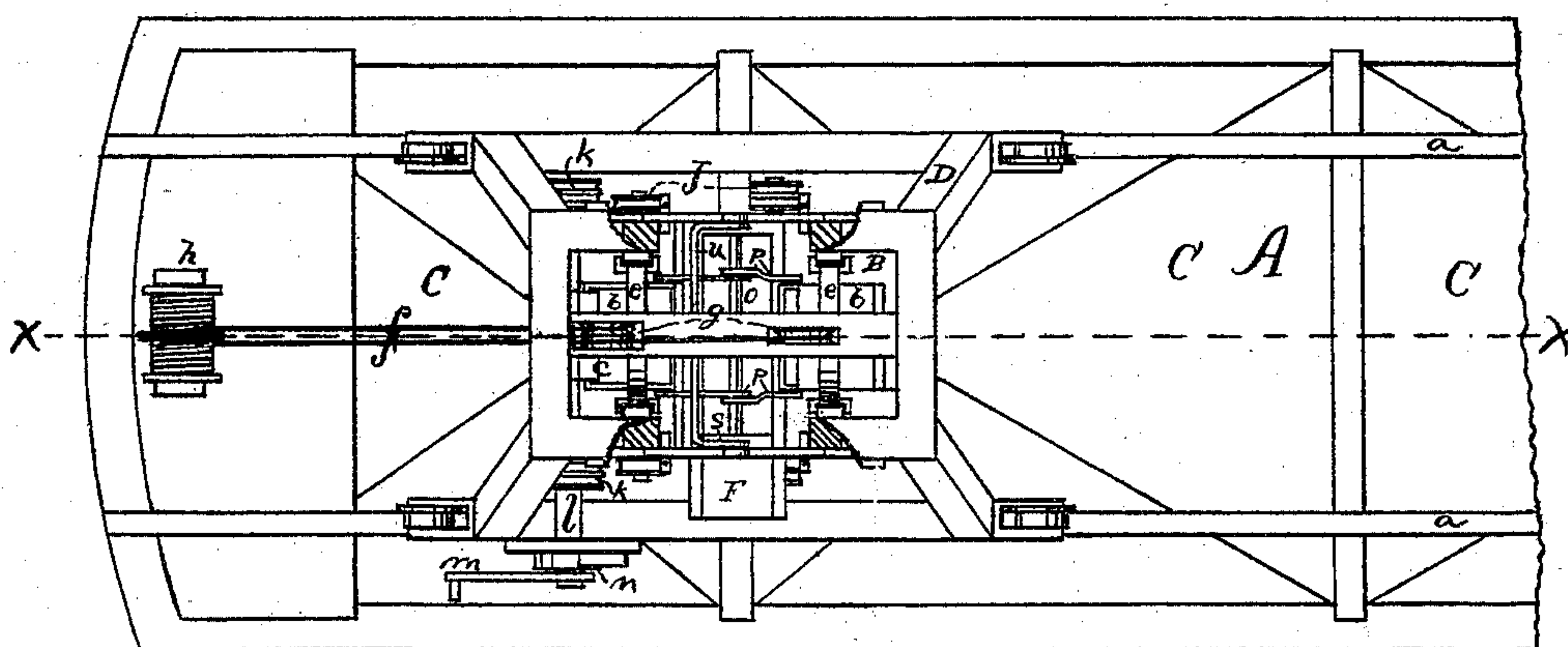


Fig. 2.



Witnesses.

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Fig. 3.

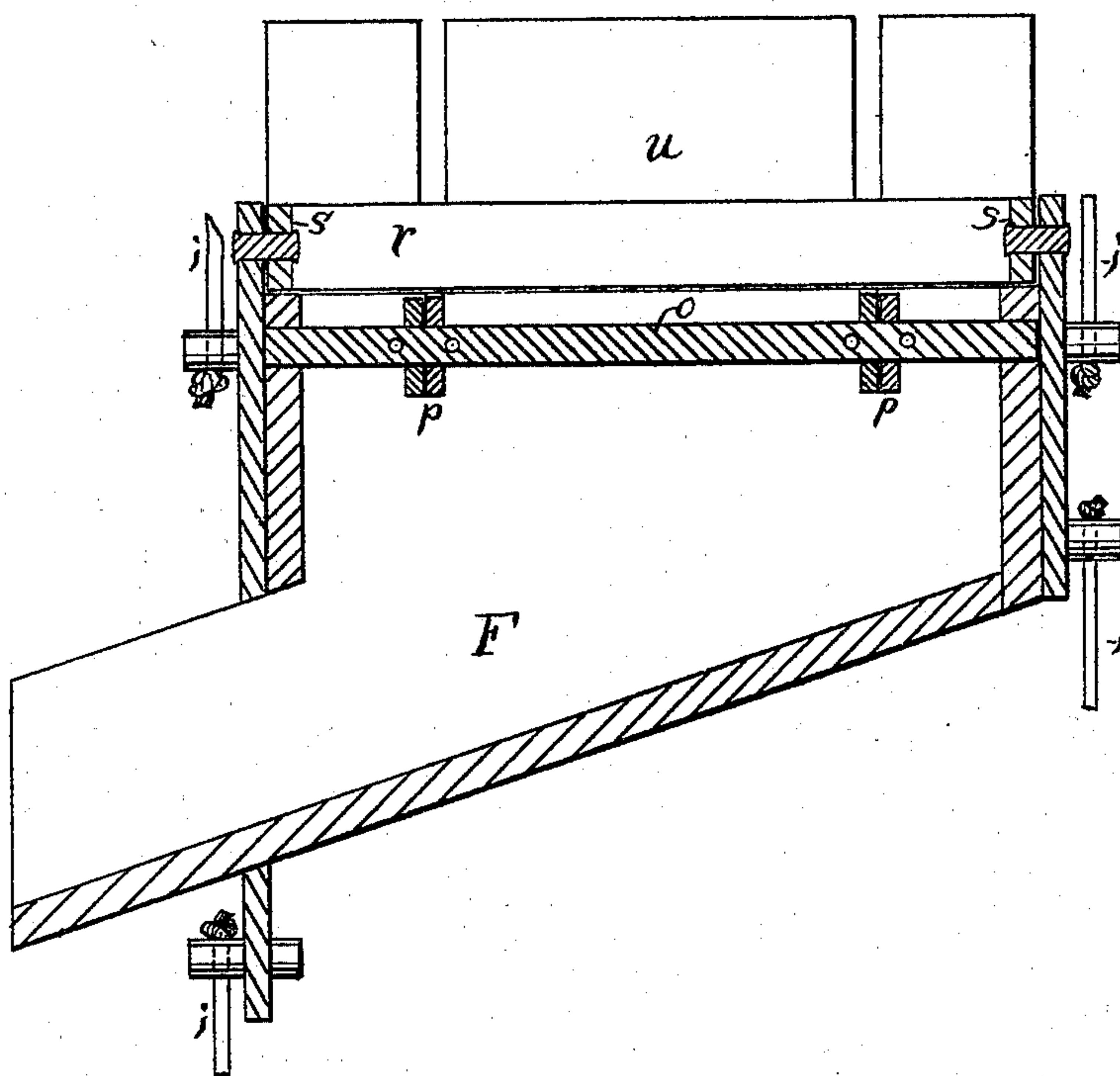


Fig. 4.

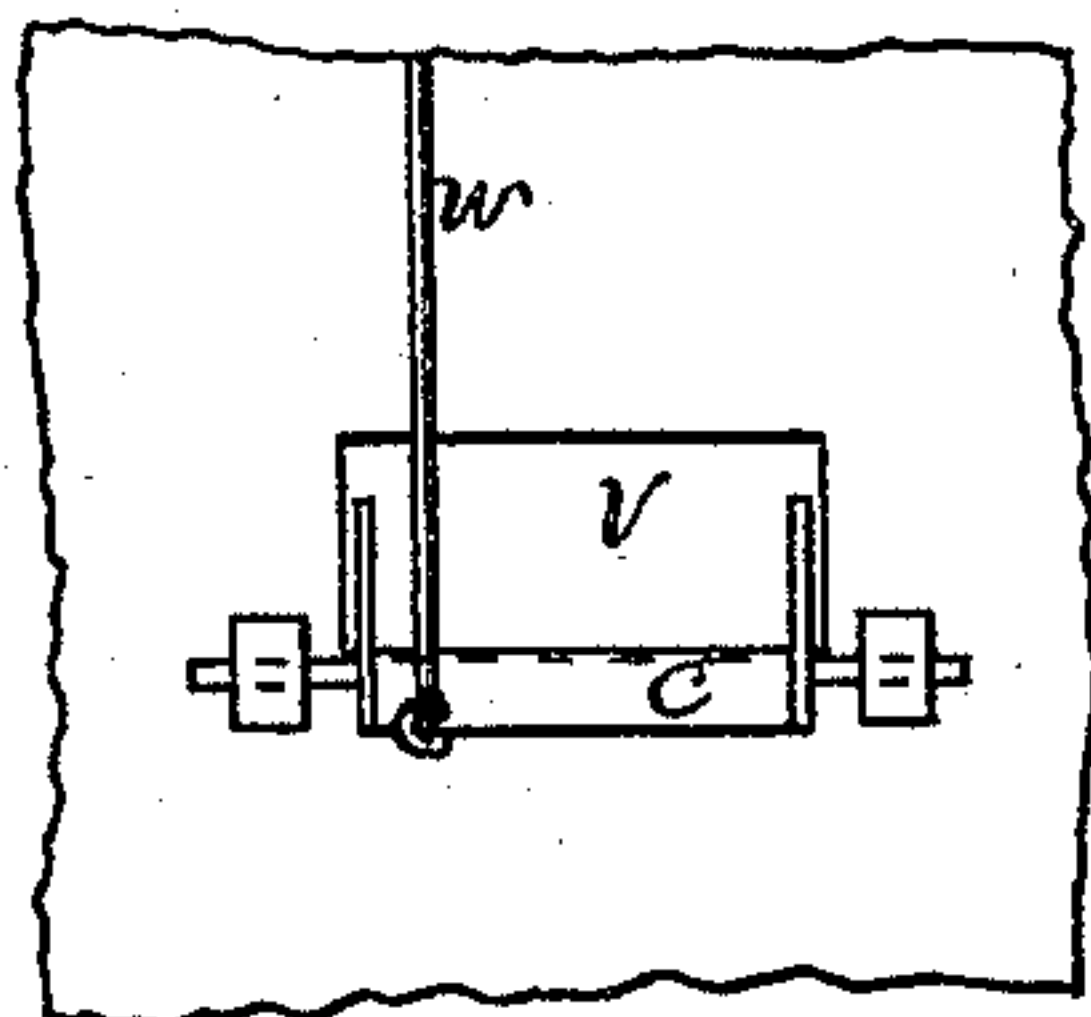
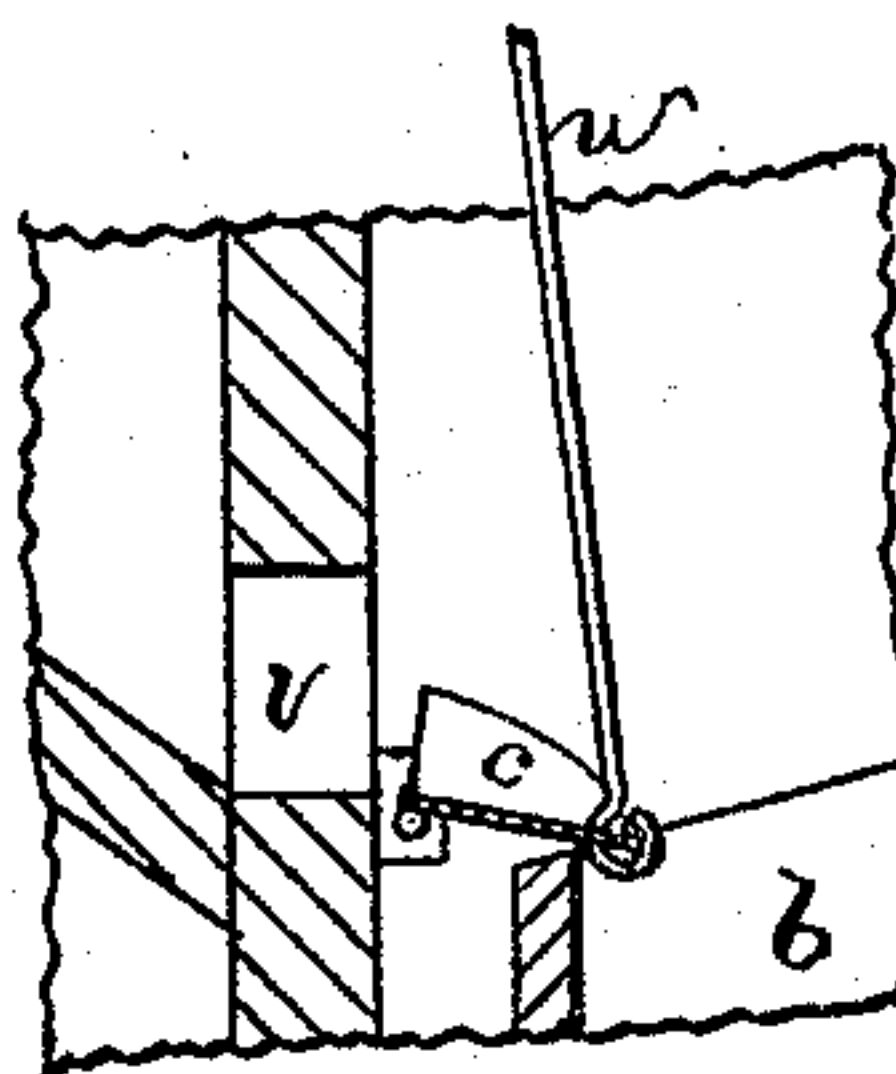


Fig. 5.



Witnesses.

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UNITED STATES PATENT OFFICE.

WILLIAM A. WRIGHT, OF EAST HAVEN, ASSIGNOR TO AMERICAN COAL-BARGE COMPANY, OF BRISTOL, CONNECTICUT.

IMPROVEMENT IN UNLOADING COAL-BARGES.

Specification forming part of Letters Patent No. 138,727, dated May 6, 1873; application filed January 3, 1873.

To all whom it may concern:

Be it known that I, WILLIAM A. WRIGHT, of East Haven, in the county of New Haven and State of Connecticut, have invented certain Improvements in Apparatus for Unloading Coal-Barges, of which the following is a specification:

My invention relates to an improvement upon the coal-barge patented to Julius A. Preston, September 24, 1867; and consists in the peculiar construction and combination of the various parts, as hereinafter more fully described.

In the accompanying drawing, Figure 1 is a vertical section of a coal-barge and its elevator, which embody my invention, the plane of section being indicated by line *x x*, Fig. 2. Fig. 2 is a plan or top view of the same; and Figs. 3, 4, and 5, are detached views of the same.

In Fig. 2 the top of the elevator-frame is represented broken and a part removed in order to better show the other parts.

A designates the body or hull of the barge or other vessel, provided with one or more wells, B, and receptacles or pockets C, substantially as in the Preston patent above referred to. Upon the deck of the barge I place two rails, *a a*, for a track. On this track is an elevator or tower frame, D, mounted on rollers so that it may be moved, and then secured over either of the wells B. These wells are walled openings, which extend below the bottoms of the pockets C a distance a little greater than the height of the buckets *b b*, so that when the buckets rest upon the bottom of the well B the material in the pockets will, of itself, flow out through the gates *c c* into the tub, as shown in Fig. 1. Each well is provided with two sets of guides or ways, *d d*, Fig. 1, and the frame D has like ways *d d'* immediately above the ways *d d*, thus making them continuous from the bottom of the well to near the top of the tower D. Fitted to move vertically between these ways *d d* is a bucket-frame, *e*, inside of which is the bucket *b*, hung by pivots at each side, so as to swing with its mouth over the dump-chute F, as shown at the right of the tower in Fig. 1. To the bucket-frame *e* a rope or chain, *f*, is attached, which passes over pulleys *g g* to a drum, *h*, or other suitable

device, operated by any desired motive power for raising and lowering the buckets. Between the uprights of the tower is suspended an adjustable dump-chute, F, (shown by an enlarged view in Fig. 3.) This chute is arranged with flanges and pins or rollers which rest against the uprights that support the ways *d d*, (or with other suitable ways,) so as to prevent any lateral movement of said dump-chute and to allow of its vertical movement. Four ropes or chains, *i*, Figs. 1 and 3, are secured with both ends of each chain attached to the dump-chute F, which chains pass around the pulleys *j* at the top and bottom of tower D, as indicated by broken lines in Fig. 1, and around pulleys *k* upon a common shaft, *l*, so that a rotary motion of said shaft will simultaneously move all the chains, and thereby raise or lower the dump-chute F. The shaft *l* is provided with a crank, *m*, or other suitable device for rotating said shaft, and also with a ratchet-wheel and pawl, *n*, to prevent the lowering of the dump-chute only by design. At the middle of the dump-chute F is a horizontal shaft *o*, upon which is hung two pairs of oscillating hooks or arms, *p p*, placed at such a distance apart that the buckets, when elevated, will just pass between their outer ends. At the edges of the buckets *b b* are small projections which engage with the hooks *p*, as shown in Fig. 1, and cause the bucket to swing upon its pivots and discharge its contents into the dump-chute F, the bottom of which chute is inclined, so that the coal will flow from it into a car or other receptacle designed to receive it. The dump-chute may be extended to any length desired, preferably by means of a jointed tube provided with a gate at its effluent end to prevent the abrasion of the coal. It is evident that if the car to be loaded is two or more tracks distance from the barge, the dump-chute will have to be raised higher in order to give the necessary incline than it would in case the car was near the barge. The barge will also gradually buoy up as its cargo is removed, and therefore in time will raise the dump-chute so high as to throw the coal beyond the car designed to receive it. Such a result can be avoided by lowering the dump-chute upon its frame as the barge buoys up.

In order to economize space, and make a narrow dump-chute receive all the coal from the buckets, I employ a changeable apron, *u*. This apron has a central piece, *r*, hung by arms *s* upon pins at the middle of the dump-chute. The edge of the center piece *r* rests upon the edge of the dump-chute and answers for a stop for the apron, as clearly shown in Fig. 1. Extending from the center piece *r*, in both directions, and inclining outward so as to meet the edge of the dump-chute *F*, is the apron proper *u*, which is slotted in order to prevent it from interfering with the tripping-hooks *p p*. Each bucket-frame *e* is provided with a suitable projection, *t*, which, as the bucket ascends, engages with the lower edge of the apron *u*, raises it up, turning it upon its pins or hinges until it falls of its own weight upon the side of the dump-chute opposite the ascending bucket, which position it assumes previous to such an engagement of the tripping-hooks *p* as causes the buckets to discharge; therefore the apron is in position to prevent coal from flowing over the edge of the dump-chute when the bucket discharges its load. After discharging the bucket descends and the opposite bucket ascends, when the apron will be changed, as before described, and so on indefinitely as the buckets are worked alternately.

In order to prevent coal from flowing between the buckets and sides of the well at the bottom, I employ a hinged gate, *c*, hung at the lower edge of the opening *v* in the sides of the well *B*, as more clearly shown in Figs. 4 and 5. This gate is also provided with end pieces, thus forming a kind of trough of such size as to close into the opening *v*, as shown at the right in Fig. 1. When the gate is thus closed the bucket descends to the bottom of the well. By means of a rod, *w*, Figs. 4 and 5 only, or other suitable device, the gate is thrown down and rests upon the edge of the tub, as shown in Figs. 1 and 5, when the coal will flow over the gate and into the tub *b*. If

desired a vertically-sliding gate may be used in connection with this hinged or apron gate *u*. The tower may either be allowed to remain upon the barge during its voyages, or it may be rolled off to any convenient place upon the wharf. It might also be fixed upon a special wharf elevated so far above the water that the barge can be sailed under the tower and then secured thereto.

By suspending the dump-chutes with chains it makes it yielding, so that in case the buckets are brought up with undue force a violent concussion or breakage is avoided. If desired, instead of making the pockets and wells in the hull of a barge or vessel, they might be built upon land for large coal-yards, when the same devices would be applicable for unloading the pockets in the same manner as herein described.

I claim as my invention—

1. The combination of the pockets *C*, well *B*, tower *D*, dump-chute *F*, and tub *b*, all operating in connection with each other, substantially as described, and for the purpose set forth.

2. The arrangement herein described for suspending the dump-chute, whereby it is made yielding when forced upward by the buckets, substantially as described, and for the purpose set forth.

3. The combination of the body or hull of the barge tower or elevator frame with the dump-chute and vertically-adjusting mechanism, substantially as and for the purpose described.

4. The combination of the dump-chute, changeable apron *u*, and buckets *b b*, operating alternately, all substantially as described, and for the purpose set forth.

5. The gate *c*, hinged at the bottom of the opening *v*, in combination with the bucket *b*, substantially as and for the purpose described.

WILLIAM A. WRIGHT.

Witnesses:

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JOHN BOUTON.