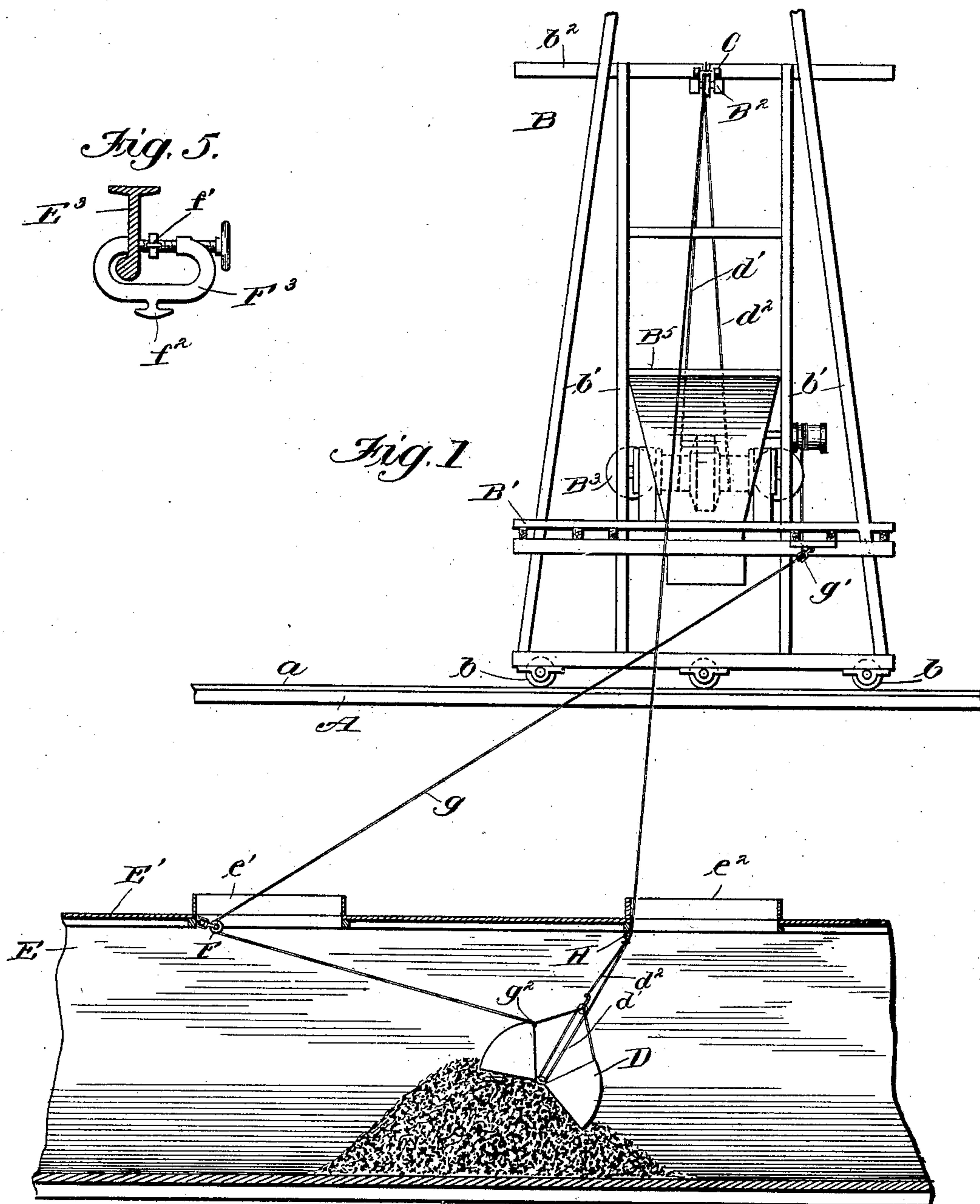


No. 828,426.

PATENTED AUG. 14, 1906.

W. J. SELLECK.  
UNLOADING APPARATUS.  
APPLICATION FILED MAR. 3, 1902.

2 SHEETS—SHEET 1.



Witnesses:  
H. S. Gaither  
Geo. L. Wilkinson

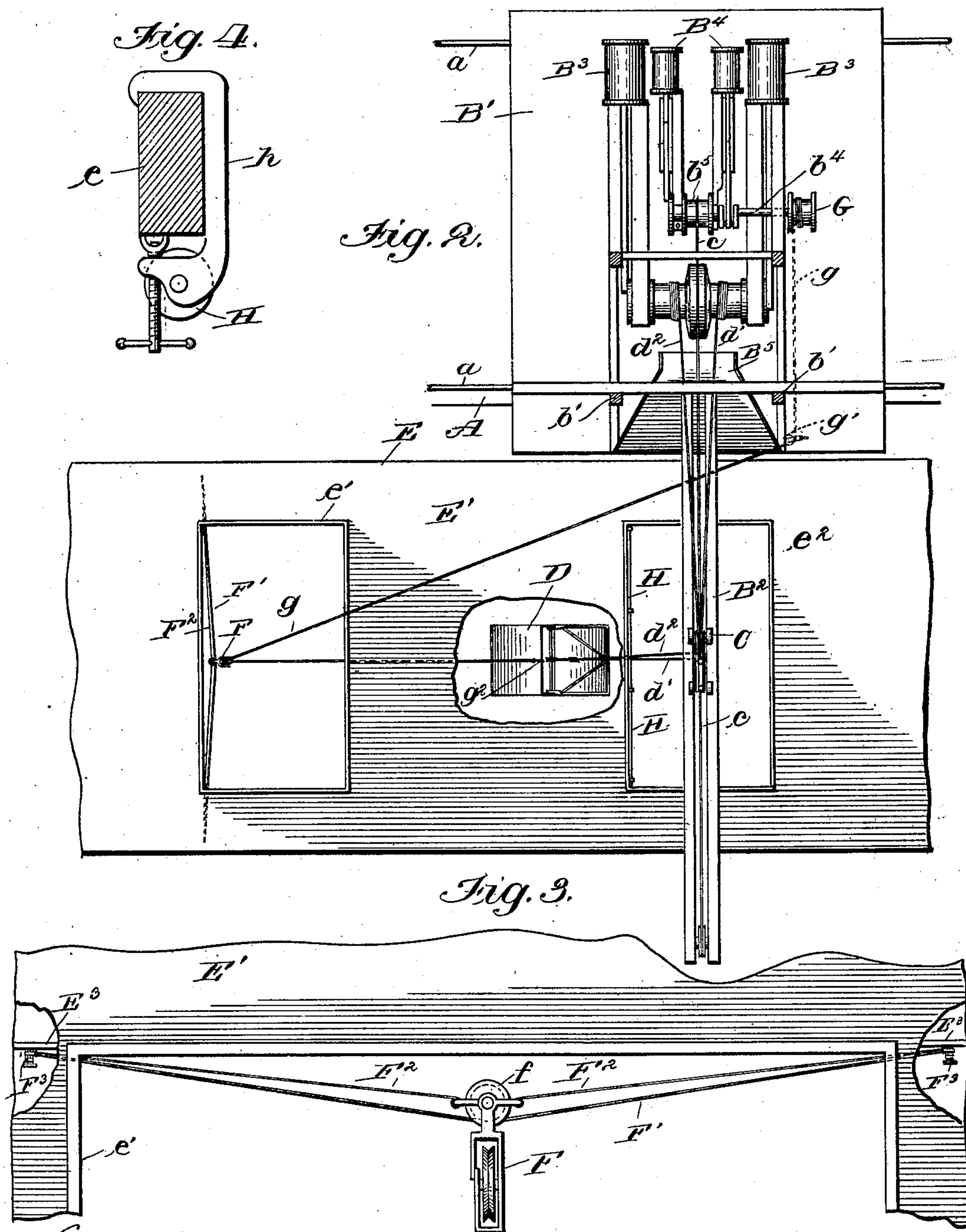
*Truwentor:*  
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*by Walter H. Chamberlain*  
*Attorney.*

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Witnesses:  
H. S. Gaither  
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# UNITED STATES PATENT OFFICE.

WILLIAM J. SELLECK, OF RIVERSIDE, CONNECTICUT.

## UNLOADING APPARATUS.

No. 828,426.

Specification of Letters Patent.

Patented Aug. 14, 1906.

Application filed March 3, 1902. Serial No. 96,447.

*To all whom it may concern:*

Be it known that I, WILLIAM J. SELLECK, a citizen of the United States, residing at Riverside, county of Fairfield, State of Connecticut, have invented a certain new and useful Improvement in Unloading Apparatus; and I declare the following to be a full, clear, and exact description of the invention, such as it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates in general to unloading apparatus, and more particularly to mechanism for facilitating the unloading of coal or other material from vessels.

In unloading coal from vessels by means of machinery for hoisting the well-known clam-shell buckets the buckets are lowered through the hatches and scoop up the coal located vertically beneath the open hatches. It is, however, impossible to remove the coal or other material from the portions of the vessel between the hatches without first shoveling the material by hand to points vertically beneath the hatches where it can be reached by the buckets, which are lowered into the vessel by gravity. Moving the material by hand from points between the hatches to positions within range of the buckets adds greatly to the expense of unloading the vessel.

The primary object of my invention is to provide the usual unloading apparatus comprising buckets of the clam-shell type with mechanism whereby the buckets are enabled to reach the material stored in the vessel between the hatches, thereby avoiding the expense of moving such material by hand.

A further object of my invention is to provide unloading mechanism which will be comparatively simple in construction and efficient in use, whereby coal or other material may be economically unloaded from vessels.

My invention consists, primarily, in a cable connected to a motor and extending longitudinally within the vessel and adapted to engage a bucket and draw the same to points between the hatches.

My invention will be more fully described hereinafter with reference to the accompanying drawings, in which the same is illustrated as embodied in a convenient and practical form, and in which—

Figure 1 illustrates the hoisting mechanism in elevation and a portion of a vessel in

vertical section; Fig. 2, a plan view of the hoisting mechanism and of a portion of a vessel, and Figs. 3, 4, and 5 enlarged detail views.

Similar reference characters are used to designate similar parts in the several figures of the drawings.

Reference-letter A designates a wharf upon which tracks *a a* are supported. These tracks are engaged by wheels *b*, located beneath and supporting a hoisting mechanism B of any suitable construction.

The hoisting mechanism may conveniently be supported upon a tower comprising uprights *b' b'* and a transverse beam *b<sup>2</sup>*, to which is secured a boom *B<sup>2</sup>*, which projects laterally over the position occupied by a vessel when at the dock to be unloaded. The tower is provided with a platform *B'*, on which are supported motors *B<sup>3</sup>* and *B<sup>4</sup>* for operating the hoisting apparatus. A hopper *B<sup>5</sup>* is supported by the tower vertically beneath the end of the boom *B<sup>2</sup>* adjacent to the cross-beam *b<sup>2</sup>*.

A trolley C is guided upon the boom *B<sup>2</sup>* and is provided with means for propelling the same along the boom toward and away from the tower. A cable *c* is connected to the outer end of the trolley and after passing over a guide-pulley journaled in the outer end of the boom is connected to a drum *b<sup>5</sup>*, operatively connected to a shaft *b<sup>4</sup>*, which is rotated by one or more motors *B<sup>4</sup>*. When the drum is loose upon shaft *b<sup>4</sup>*, the trolley will run toward the tower by gravity exerted by the loaded bucket through its supporting-cable *d<sup>2</sup>*.

A bucket D, preferably of the clam-shell type, is supported by the trolley C by means of a cable *d<sup>2</sup>*, which is fixed to the bucket and passes over a guide upon the trolley and is connected to a drum operatively connected to a shaft which is rotated by one or more motors *B<sup>3</sup>*. The bucket D is provided with a cable *d'* for opening and closing the same, which also passes over a guide upon the trolley and is secured to a separate drum upon the shaft rotated by the motors *B<sup>3</sup>*.

The construction and operation of the hoisting mechanism above described are well known in the art and need not be set forth in detail, it being sufficient to state that the trolley is drawn to a position above the hatch of a vessel by connecting the drum *b<sup>5</sup>* to the shaft which it surrounds. The bucket is then lowered through the hatch of the vessel and when in contact with the coal or other material in the vessel is closed, thereby scoop-



ing up the material. The bucket is then elevated to a position beneath the trolley, which is then permitted to run by gravity to a position above the hopper B<sup>5</sup>. The bucket is  
 5 then opened, permitting the coal or other material to fall into the hopper, by means of which it is guided either to railroad-cars or to storage-pockets. The bucket is opened and closed and elevated and lowered by connect-  
 10 ing and disconnecting in a well-known manner the drums to the shaft, which is rotated by means of the motors B<sup>3</sup>, thereby winding and unwinding the cables d' and d<sup>2</sup> and effecting the desired operation of the bucket D.

15 The coal or other material which is stored in the space between the hatches of the vessel—as indicated, for instance, in Fig. 1—cannot be reached by the bucket when provided merely with the usual hoisting means for oper-  
 20 ating the same, and it has consequently been customary heretofore to shovel such coal by hand to points below one of the adjacent hatches e' or e<sup>2</sup>, from which it may be removed by the hoisting mechanism when the  
 25 tower has been propelled to a point opposite the hatch. In order to obviate such handling of the coal by hand, I have provided a cable g, which extends longitudinally within the vessel and may be detachably connected  
 30 to the bucket D by means of a hook g<sup>2</sup> when the bucket has been lowered to a point below an open hatch. The cable g is then drawn longitudinally, thereby moving the bucket to the desired point out of vertical alinement  
 35 with any one of the hatches, as indicated in Fig. 1. Any suitable means may be provided for drawing the cable g. For convenience I have shown the shaft b<sup>4</sup>, which is rotated by the motors B<sup>4</sup>, provided with a drum  
 40 G, which may be connected and disconnected with the shaft in the same well-known manner in which the drums to which the cables d', d<sup>2</sup>, and c are connected and disconnected to their respective drums. A sheave g' is pivotally supported beneath the front end of the  
 45 platform B' and serves to guide the cable g. Other similar sheaves may be provided at any necessary points upon the tower.

A sheave is detachably supported within  
 50 the vessel, around which the cable g passes in order that the bucket D may be drawn to the desired point. Such sheave may conveniently be supported at the farthest side of the hatch adjacent to the hatch through which  
 55 the bucket has been lowered. In Fig. 1, for instance, the bucket D has been lowered through the hatch e<sup>2</sup>, and a sheave F, supported within the adjoining hatch e', guides the cable g, so that the bucket is drawn to the  
 60 desired point between the hatches e' and e<sup>2</sup>. The sheave F may be supported in any desired manner. For convenience, however, I have shown the same as provided with a trolley f, which engages a flexible track or cable  
 65 F'. The cable F' may be supported at its

opposite ends by means of clamps F<sup>3</sup>, which are secured to the deck-beam E<sup>3</sup>, as indicated in Fig. 3. The clamp F<sup>3</sup> is of common construction, as indicated in Fig. 5, and is provided with a ring f' or other means, to which  
 70 the end of the cable F' may be secured. The trolley f of the sheave F is preferably provided with means for retaining the same at any desired point upon the cable F' in order that the direction in which the bucket is  
 75 drawn may be so varied as to enable any point between the hatches to be reached. The means which I have shown for retaining the sheave in the desired position upon the cable F' consist in bails extending from op-  
 80 posite sides of the bearings of the trolley f, to which are connected ropes F<sup>2</sup>, the opposite ends of which may be fastened to cleats f<sup>2</sup>, preferably formed upon the clamps F<sup>3</sup>, thereby retaining the sheave in the desired posi-  
 85 tion.

In order to prevent the cables d' and d<sup>2</sup>, which are connected to the bucket D, from being worn through contact with the edges of the hatch through which the bucket is low-  
 90 ered, guide-rollers H are preferably detachably supported at the side of the hatch adjacent to the point to which the bucket is to be drawn, as indicated in Figs. 1 and 2. The guide-rollers may be secured in the desired  
 95 position by any suitable means. For convenience I have shown (see Fig. 4) the rollers as journaled in clamps h, which may be removably secured through engagement with the coaming e at the edge of the hatch. Any  
 100 suitable number of guide-rollers H may be provided. In Fig. 2, for instance, three of such rollers are shown as located end to end, so as to protect the cables d' and d<sup>2</sup> when the bucket is drawn in any direction toward the  
 105 hatch e'.

The operation of my invention is as follows: The tower B is propelled in the usual manner to a point opposite one of the hatches e<sup>2</sup> in the vessel E. After all of the coal in ver-  
 110 tical alinement with the hatch has been removed the guide-rollers H are secured to the edge of the hatch by engaging the clamps h, in which they are journaled, with the coaming of the hatch. The sheave F is secured in  
 115 position in the adjacent hatch e' by engaging the clamps F<sup>3</sup> with the deck-beam E<sup>3</sup> and securing the opposite ends of the cable F' to the rings f', supported by the clamps F<sup>3</sup>. The hook g<sup>2</sup> on the end of the cable g is then  
 120 connected to the bucket and the cable wound up by connecting the drum G with the shaft b<sup>4</sup>. When the bucket has been drawn to the desired point between the hatches, the drum G is disconnected from the power-shaft and  
 125 the hook g<sup>2</sup> disengaged from the bucket. The bucket is then closed and elevated in the usual manner, thereby removing the coal from between the hatches. When the material has been removed along the line deter-  
 130



mined by the position of the sheave F, the latter may be adjusted upon the cable F' by shortening or lengthening the distance between its supporting-trolley *f* and the cleats *f*<sup>2</sup> upon the clamps F<sup>3</sup>.

When the material has been removed from between the hatches *e'* and *e*<sup>2</sup>, the guide-rollers H may be removed by disconnecting the clamps *h*, and the sheave F and its supporting-cable F' may be disconnected by unscrewing the clamps F<sup>3</sup> and disengaging the same from the deck-beam E<sup>3</sup>.

While I have shown the cable for moving the bucket to points out of vertical alinement with the hatches as passing through the hatch adjacent to the one vertically beneath the boom of the tower, it is obvious that the sheave for determining the direction of movement of the cable, and consequently the line of movement of the bucket, may be supported at any desired point within the vessel and also that the cable may be directed within the vessel by any desired arrangement of guide-sheaves, as any means for drawing the bucket to points within a vessel which could not be reached by the usual means of raising and lowering the bucket is within the scope of my invention.

While I have described more or less precisely the details of construction, I do not wish to be understood as limiting myself thereto, as I contemplate changes in form, the proportion of parts, and the substitution of equivalents, as circumstances may suggest or render expedient, without departing from the spirit of my invention.

Having now fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In an apparatus for unloading material through the hatches of a vessel, the combination with a two-part self-filling bucket, of a cable for lowering the open bucket through a hatch in the vessel, a second cable extending longitudinally within the vessel adapted to be detachably secured to the empty bucket, means for propelling said second cable to draw said bucket to positions over material out of vertical alinement with the hatches, a third cable disconnected from the vessel and engaging said bucket for automatically closing the two parts thereof and thereby filling the same with material, said third cable also serving as an elevating means for lifting the filled bucket out of the vessel.

2. In an apparatus for unloading material from a vessel, the combination with a self-filling bucket, of hoisting mechanism for raising and lowering said bucket through the hatches of the vessel, cables disconnected from the vessel and adapted to pass freely through a hatch therein connecting said bucket with the hoisting mechanism, means for moving said bucket when empty to positions above material out of vertical aline-

ment with the hatches, and guide-rollers detachably secured to the side of the hatch through which the bucket passes adapted to be engaged by and protect said cables when the bucket is moved out of vertical alinement with the hatches.

3. In an apparatus for unloading material from a vessel, the combination with a two-part self-filling bucket, of hoisting mechanism comprising means for raising and lowering said bucket through the hatches of the vessel, and also comprising means for automatically closing the two parts of the bucket and thereby filling the same with material, means for moving said bucket transversely with respect to the vessel, and means for moving said bucket longitudinally within the vessel whereby the bucket may be located above material at points out of vertical alinement with the hatches and said material thereby unloaded by the bucket.

4. In an apparatus for unloading material from a vessel, the combination with a two-part self-filling bucket, of hoisting mechanism for raising and lowering said bucket through the hatches of the vessel, said mechanism also serving to close and thereby fill the bucket with material beneath the same a cable extending longitudinally within the vessel, means for detachably connecting said cable with the bucket, and means for propelling said cable whereby the empty bucket may be drawn to points out of vertical alinement with the hatches and automatically filled with material.

5. In an apparatus for unloading material from a vessel, the combination with a two-part self-filling bucket, of hoisting mechanism for raising and lowering said bucket through the hatches of the vessel, said mechanism also serving to close and thereby fill the bucket with material beneath the same a cable extending longitudinally within the vessel, a guide for said cable located within and adjustable transversely with respect to the vessel, means for detachably connecting said cable with the bucket, and means for propelling said cable, whereby the empty bucket may be drawn to points out of vertical alinement with the hatches and automatically filled with material.

6. In an apparatus for unloading material from a vessel, the combination with a bucket, of hoisting mechanism for raising and lowering said bucket through the hatches of the vessel, a cable extending longitudinally within the vessel, a sheave for determining the line of movement of said cable, a trolley secured to said sheave, a track for said trolley, means for detachably connecting said cable with the bucket, and means for propelling said cable.

7. In an apparatus for unloading material from a vessel, the combination with a bucket, of hoisting mechanism for raising and lower-



ing said bucket through the hatches of the vessel, a cable extending longitudinally within the vessel, a sheave for determining the line of movement of said cable, a trolley secured to said sheave, a flexible track for said trolley, means for detachably engaging the vessel to which said flexible track is secured, and means for retaining the trolley at any desired point upon its flexible track.

10 8. In an apparatus for unloading material from a vessel, the combination with a bucket, of hoisting mechanism for raising and lowering said bucket through the hatches of the vessel, a cable extending longitudinally within the vessel, a sheave for determining the  
15 line of movement of said cable, a trolley se-

cured to said sheave, a flexible track for said trolley, clamps adapted to detachably engage the vessel to which the ends of said flexible track are secured, cleats fixed to said clamps, and ropes secured to said trolley and adapted to engage said cleats to retain the sheave in any desired position thereby determining the direction of movement of said cable.

25 In testimony whereof I sign this specification in the presence of two witnesses.

WILLIAM J. SELLECK.

Witnesses:

GEO. L. WILKINSON,

CLARA C. CUNNINGHAM.