(No Model.) 3 Sheets—Sheet 2.

J. ABBOTT.

LOADING AND UNLOADING APPARATUS.

No. 453,851. Patented June 9, 1891.

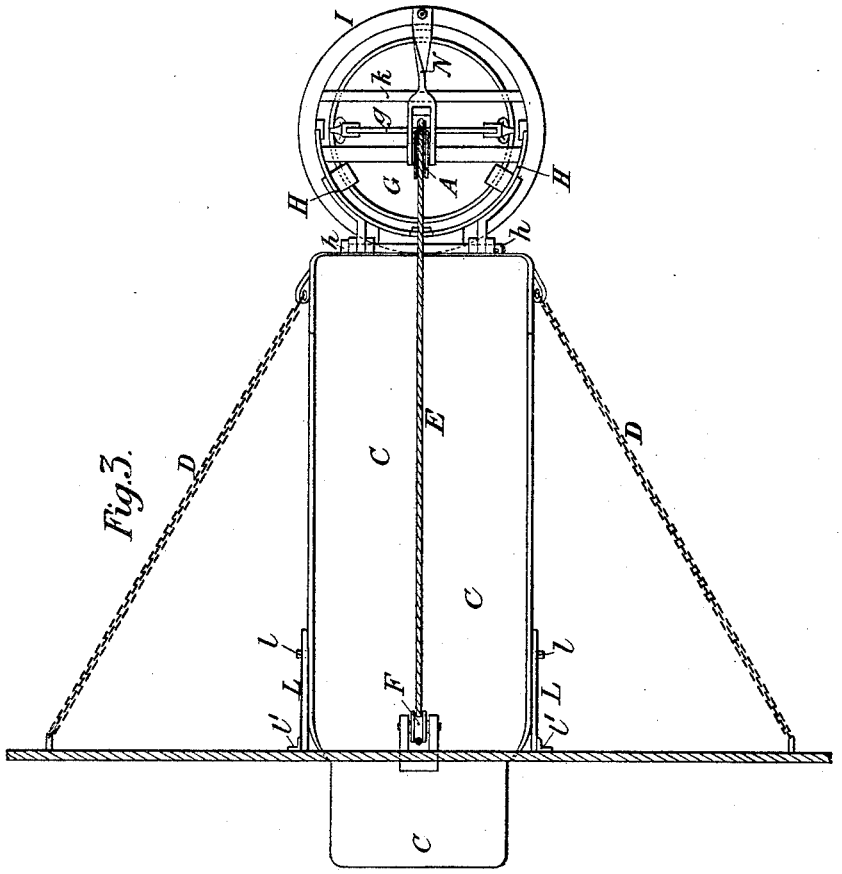

Fig. 3.

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(No Model.) 3 Sheets—Sheet 3.

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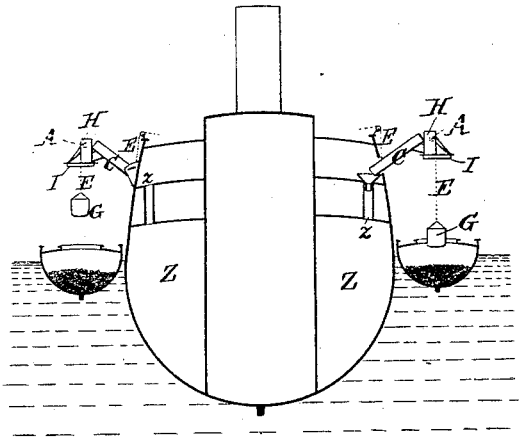
Fig. 4.



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UNITED STATES PATENT OFFICE.

JOHN ABBOTT, OF BLACKHEATH, ENGLAND.

LOADING AND UNLOADING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 453,851, dated June 9, 1891.

Application filed September 9, 1890. Serial No. 364,468. (No model.) Patented in England June 23, 1890, No. 9,720.

To all whom it may concern:

Be it known that I, JOHN ABBOTT, a subject of the Queen of Great Britain, residing at Blackheath, in the county of Kent, England, have invented an Improved Means for Loading and Unloading Vessels, (for which I have obtained a patent in Great Britain, No. 9,720, bearing date June 23, 1890,) of which the following is a specification.

The object of this invention is to provide means whereby vessels may be more conveniently and expeditiously loaded and unloaded; and it will be found of particular advantage for coaling vessels at sea or loading same with other material in bulk, whereby a great economy in time and labor (and consequently in expense) will be effected, while the risk of a portion of such coal or other material being lost when being raised from a lighter or other craft to the vessel will be greatly diminished.

My invention consists, essentially, in the use of a chute the lower end of which can be secured to or placed through or over the side of the vessel in the proper position for delivering the coal or other material either into the coal-port or onto the deck of the vessel, as desired, in combination with a guard or tippler hinged to its upper end and provided with a stop which arrests the upward movement of a bucket containing the coal or other material, such guard or tippler carrying a hoisting-pulley over which passes a rope or chain to receive the bucket, which is caused to turn over, together with the guard or tippler and pulley attached thereto, when its upward movement is arrested by the stop on the latter, whereby the contents of such bucket are delivered into the chute.

In the accompanying drawings, Figure 1 is a longitudinal section, Fig. 2 a front elevation, and Fig. 3 a plan view, of my improved apparatus; and Fig. 4 is a cross-section of a vessel with an apparatus applied to each side thereof and taking coal from lighters on each side to deliver same into such vessel.

A chute C has a guard or tippler H hinged to its outer end, such guard or tippler carrying a pulley A at or near its upper end and a stop or ring I at its lower end. The ring I has depending tongues *i* to direct the bucket G into such ring when it is raised, as hereinafter described. A forked stay N may be employed to insure stability to the support of pulley A, such fork being secured to ring I and embracing the pulley A. A block O, secured to the under side of chute C, near its outer end, arrests the downward movement of the guard or tippler H and ring or stop I and holds it in the required position to receive bucket G. The lower end of the chute C passes through the coal-port of the vessel to be loaded, so as to deliver the coal directly into the coal-bunker Z, or, when more convenient, the chute C may be passed through or over the vessel's side, so as to deliver the coal onto the deck, (as shown on left-hand side of Fig. 4,) whence it will be shoveled into the bunkers Z through suitable passages *z;* or the upper end of the latter may be provided with a funnel, into which chute C will deliver, as shown on right-hand side of Fig. 4, whereby the coal or other material will pass directly through the passage *z* to the bunkers without requiring to be shoveled. The upper end of the chute is secured to the side of the vessel by guy ropes or chains D, which support same in position and enable its inclination to be adjusted to suit particular circumstances and materials.

The mode of action is as follows: The rope or chain E from a winch or other suitable hoisting apparatus (which may be situated either on the vessel or on the lighter or collier, or in any other convenient or suitable position) passes over a pulley F, temporarily secured to the side of the vessel to be loaded, and then over pulley A on the guard or tippler H and down into the lighter or collier, or to the point from which the coal or cargo in bulk is to be transferred to the vessel. The coal or other material is placed in buckets, one of which G is then hooked onto rope or chain E, and when the latter is pulled up the bucket is raised until it enters the ring or stop I on the lower end of the guard or tippler H, and its upward movement is consequently arrested, when the continued pull of the rope or chain E upon pulley A, affixed to the guard or tippler H, causes such guard or tippler H to turn on its hinges, carrying the bucket G with it, and thereby causes same to turn over to the position shown in broken lines in Fig. 1 and deliver its contents into the chute C, and so into the vessel to be loaded.

In order to insure the yoke *g* of bucket G presenting as small an obstacle as possible to the free delivery of the coal from the bucket to the chute C when it is tipped, such bucket is caused to turn so that the yoke *g* occupies a position transverse to the axis of the chute. For this purpose the upper surface of the yoke *g* is made of an inclined or curved form, as shown, and a cross-bar *k* is secured in the ring I, so that as the yoke *g* in its upward movement comes in contact with such cross-bar *k*, before such upward movement is arrested by the stop or ring I, the cross-bar will cause the bucket G to turn into the required position.

The guard or tippler H may either be of cylindrical form, as shown in the drawings, or it may be of segmental form.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The improved loading and unloading apparatus consisting of a chute C, a guard or tippler H, hinged to the outer end, provided with a pulley A, mounted at or near its upper end, and a ring or stop I, rigidly secured to its lower end, forming an integral part of such guard or tippler, and a rope E, passing from any suitable hoisting apparatus round the pulley A, mounted upon the guard or tippler and then down through the ring or stop I to receive a bucket or other suitable receptacle, substantially as specified.

2. The combination of an inclined chute, a tippler hinged to the upper end thereof, provided at its upper end with a pulley adapted to receive a hoisting-rope and at its lower end with a stop-ring having depending tongues and a cross-bar, substantially as described.

3. The combination of an inclined chute provided with a laterally-projecting block near its upper end, and a tippler hinged to the upper end of said chute and adapted to engage said block as a stop, said tippler being provided with a pulley for a lifting-cord, substantially as described.

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