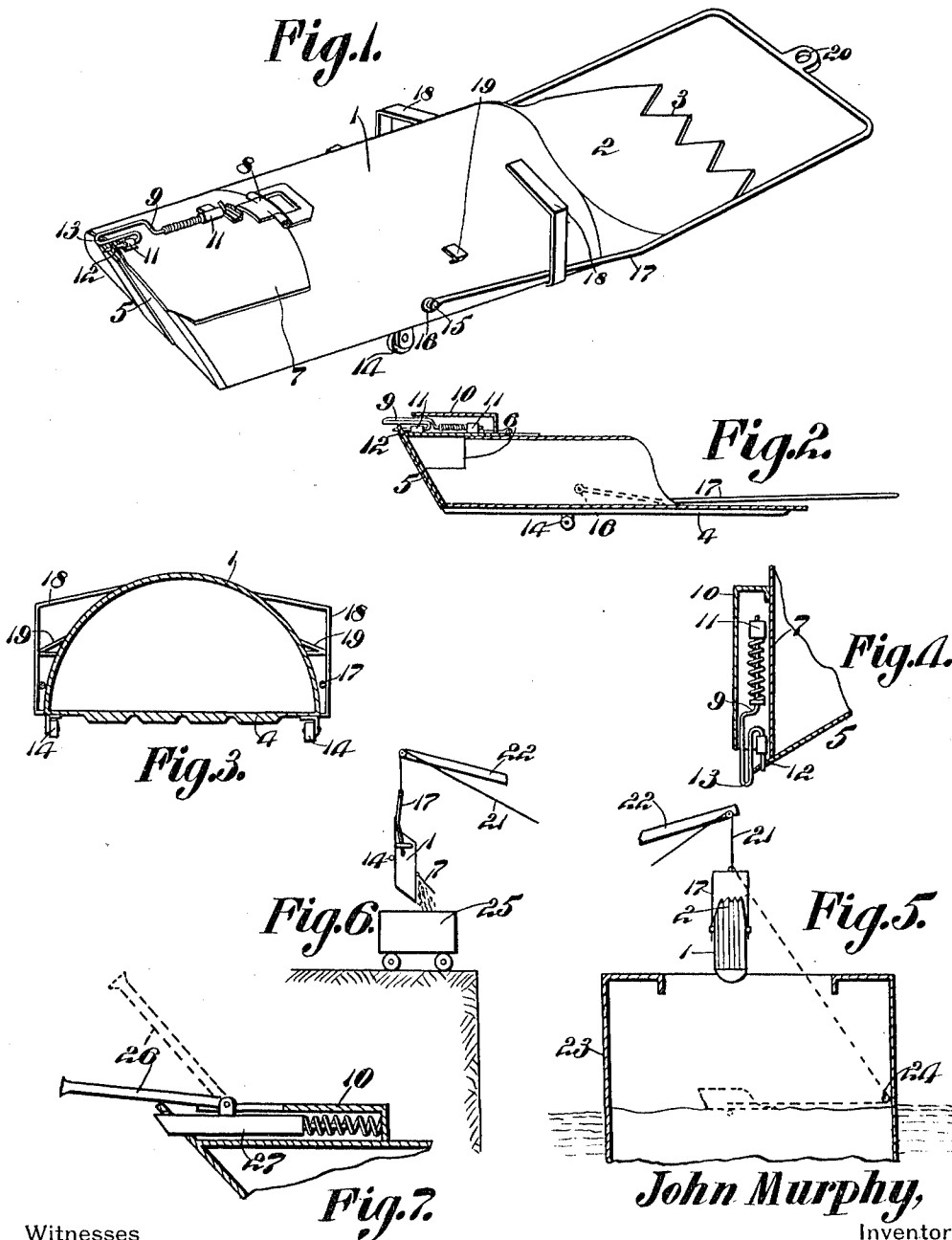


J. MURPHY.
 APPARATUS FOR LOADING AND UNLOADING VESSELS.
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Patented June 10, 1913.



Witnesses

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APPARATUS FOR LOADING AND UNLOADING VESSELS.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JOHN MURPHY, a subject of the King of England, residing at Louisburg, Cape Breton, in the Province of Nova Scotia, Dominion of Canada, have invented a new and useful Apparatus for Loading and Unloading Vessels, of which the following is a specification.

This invention relates to apparatus particularly designed for use in loading and unloading vessels, one of its objects being to provide a novel form of scoop having means whereby it can be drawn along the material to be conveyed and, during such movement, will gather a portion of the material.

A further object is to provide mechanism of this character the material engaging portion of which operates as a bucket during the raising or lowering of the material and as a scoop during the gathering of the material.

A further object is to provide a structure of this type having means whereby the load will be automatically discharged when the structure is lowered into contact with the structure on which the material is to be deposited.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed can be made within the scope of what is claimed, without departing from the spirit of the invention.

In the accompanying drawings the preferred form of the invention has been shown.

In said drawings:—Figure 1 is a perspective view of the combined scoop and bucket constituting the present invention. Fig. 2 is a longitudinal section therethrough. Fig. 3 is a transverse section. Fig. 4 is an enlarged section through a portion of the structure and showing the latch. Fig. 5 is a diagrammatical view showing how the device is manipulated during the gathering and elevating of the material. Fig. 6 is a similar view showing the material discharging from the bucket and into a car. Fig. 7 is a sectional view showing a modified form of fastener.

Referring to the figures by characters of

reference 1 designates a bucket which is preferably substantially semi-cylindrical in contour, one end of the bucket being open and having a broad gathering blade or tongue 2 extending from the straight edge thereof in the plane of the flat bottom of the bucket, this gathering tongue or blade having its side edges converging toward the free end of the blade. Teeth 3 are preferably formed along the free edge of said gathering blade and rolled, cast or otherwise formed on the flat face of the bucket 1 and on the bottom face of the blade 2 are longitudinally extending ribs 4, these ribs extending up to the teeth 3. That end of the bucket farthest removed from blade 2 is closed and inclined relative to the flat bottom of the bucket, as shown at 5.

An outlet opening 6 is formed in the arcuate wall of the bucket 1 close to the bottom 5 and is adapted to be closed by an arcuate door 7 hingedly connected to the body 1 as shown at 8. A spring pressed locking bolt 9 is slidably mounted on this door 7 and is adapted to be housed within a casing 10 secured on the closure 7, this casing being removed from Fig. 1 for the purpose of better showing the bolt although it is shown in section in Figs. 2 and 4. The locking bolt extends through guides 11 arranged on the door 7 and the end of the bolt is adapted to project into an opening formed in a keeper 12 extending from the bottom 5 of the bucket. A nose 13 extends from the bolt and below the keeper and is designed, when the bucket is lowered onto a structure, to come into contact with said structure and thus shift the end of the bolt out of engagement with the keeper 12, thereby releasing the door 7. Supporting rollers or casters 14 are connected to the side portions of the buckets close to the center thereof and studs 15 extend laterally from the bucket at points between the supporting rollers and the open end of the bucket. These studs are engaged by eyes 16 formed at the ends of a bail 17. Said bail is mounted to swing within guide straps 18 extending laterally from the bucket and these straps are adapted to limit the swinging movement of the bail. Additional stop devices 19 are also extended from the bucket and serve to limit the swinging movement of the bail in one direction relative to the bucket. The free end portion of the bail is preferably in-

clined relative to the terminal portions thereof, as shown particularly in Fig. 1 and an eye or loop 20 is formed on or connected to the middle portion of the bail and is adapted to be engaged by a fall 21 carried

by the boom 22 of the ship to be loaded or unloaded and a portion of the hold of which has been shown at 23.

In using the apparatus the closure 7 is secured in the position shown in Figs. 1 and 2 and the fall is paid out so as to lower the bucket into the hold. Said bucket is then placed with its flat face or bottom on the material within the hold after which the fall is placed in engagement with a block 24 mounted at one side of the hold. When the fall is taken up, the bucket will be pulled along the material and will operate as a scoop, the teeth 3 and the blade 2 digging into the material and causing it to become lodged within the body 1. During this movement the ribs 4 will travel along the material. After the bucket has become filled the fall is detached from the block 24 either automatically or manually as desired and the bucket will then be elevated from the hold, the body portion thereof hanging from the bail 17 and being limited in its swinging movement relative to the bail by the straps or brackets 18. The bucket is then moved to a point above the structure 25 on which the material is to be deposited and is then lowered. The nose 13 of the locking bolt 9 will first strike the structure 25 and will thus be held against movement during the further downward movement of the bucket. The end of the bolt will therefore be disengaged from its keeper 12, thus unlocking the closure 7. The weight of the contents of the bucket will cause the closure to swing away from the opening 6 and the material in the bucket will therefore gravitate onto the structure 25. After the material has passed from the bucket, the closure 7 will swing closed, the bolt 9 riding over the inclined keeper 12 and ultimately becoming seated within the opening in the keeper.

Instead of an integral nose 13, a releasing strip 26 can be pivotally attached to the bolt 27 as in Fig. 7 so that, while the bucket is being raised from the material in the hold, the strip can swing relative to the bolt and there will thus be no danger of the bolt releasing the closure.

What is claimed is:—

1. A device of the class described including a receptacle having a flattened face, an open top and an inclined closed bottom, there being an outlet in one wall of the receptacle and at the bottom thereof, a bail connected to the receptacle and extending beyond the open end thereof, a closure for the outlet, a locking element for automatically securing the closure when shut, and

means depending from said element for engagement with a structure to unlock the closure when the receptacle is lowered.

2. A device of the class described including a receptacle having a flat face, said receptacle being open at one end and closed at the other end, a blade extending beyond the open end of the receptacle and from the flat face thereof, and reinforcing ribs formed longitudinally upon said flat face and the blade.

3. A device of the class described including a receptacle having a flat face, said receptacle being open at one end and closed at the other end, a blade extending beyond the open end of the receptacle and from the flat face thereof, and reinforcing ribs formed longitudinally upon said flat face and the blade, there being teeth upon the free end of the blade, said receptacle having an outlet in one wall thereof and close to the bottom, and a closure for the outlet.

4. A structure of the class described including a receptacle having a flat face, said receptacle being open at one end and closed at its other end, a collecting blade outstanding from the open end of the receptacle and having terminal teeth, a bail extending from the receptacle and beyond the toothed blade, there being an outlet in one wall of the receptacle and close to the closed end thereof, a closure for the receptacle, and means for automatically securing the closure when shut.

5. The combination with a receptacle having an open end and a closed end, and an outlet adjacent the closed end, of a closure for the outlet, means for automatically securing the closure when shut, and means carried by said securing means for engaging a structure to unlock the closure when the receptacle is lowered.

6. The combination with a receptacle having an open end, a closed end and an outlet, said closed end being inclined downwardly toward the outlet when the receptacle is in use as a bucket, of a bail extending beyond the open end of the receptacle, a closure for the outlet, an element carried thereby for locking the closure when shut, means on said element for engaging a structure when the receptacle is lowered, for unlocking the closure.

7. A device of the class described including a receptacle having a flat face, said receptacle being open at one end and closed at its other end, there being an outlet at the closed end of the receptacle and in one wall thereof, a collecting blade outstanding from the flat face of the receptacle and beyond the open end thereof, a bail extending beyond said end of the receptacle, means on the receptacle for limiting the movement of the bail relative thereto, a closure for the outlet, a locking element carried by the closure, and

means on said element for engaging a structure when the receptacle is lowered, for unlocking the closure.

5 8. The combination with a receptacle having an open end and a closed end, and an outlet adjacent the closed end, of a closure for the outlet, means for automatically securing the closure when shut, and means
10 pivoted to said securing means for engaging a structure to unlock the closure when the receptacle is lowered.

9. A combined scoop and bucket, including a receptacle having an open end and a closed end, there being an outlet opening in

one wall of the receptacle and adjacent the 15 closed end thereof, and a closure for the outlet, said closure being adapted, when unlocked, to swing outwardly and upwardly away from the surface on which the receptacle is mounted while in a vertical or dump- 20 ing position.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

JOHN MURPHY.

Witnesses:

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S. E. KEYTE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."
