

W. G. MACKIE.
UNLOADING SAND SCOW.
APPLICATION FILED NOV. 10, 1911.

1,084,889.

Patented Jan. 20, 1914.

3 SHEETS-SHEET 1.

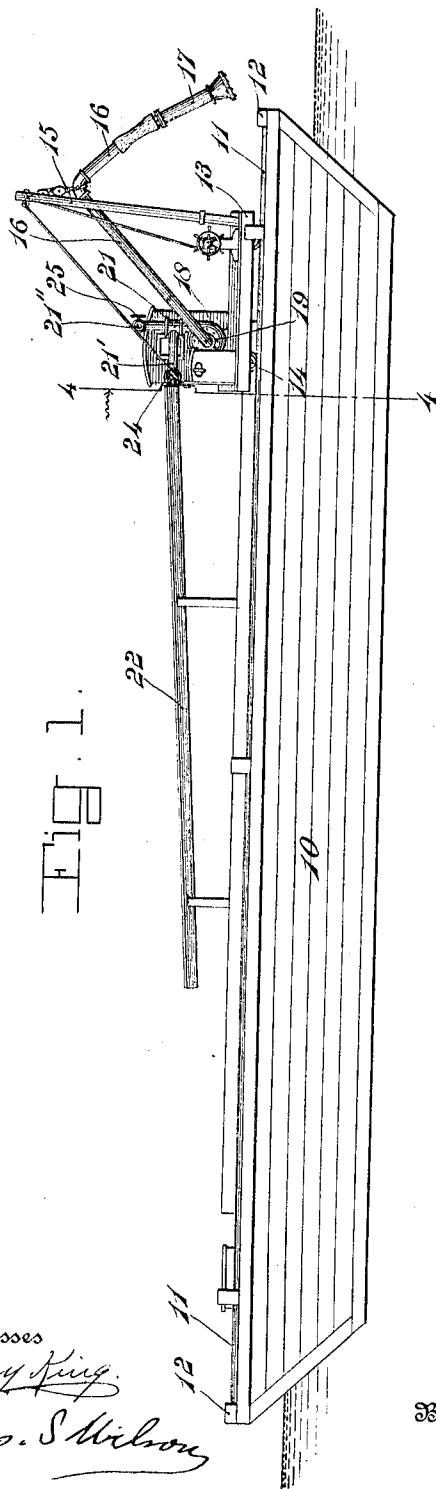


Fig. 1.

Witnesses
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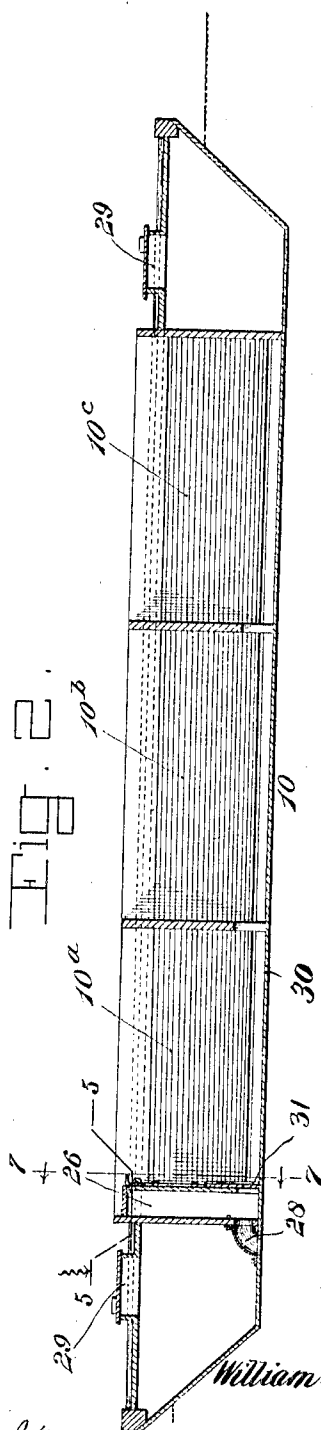


Fig. 2.

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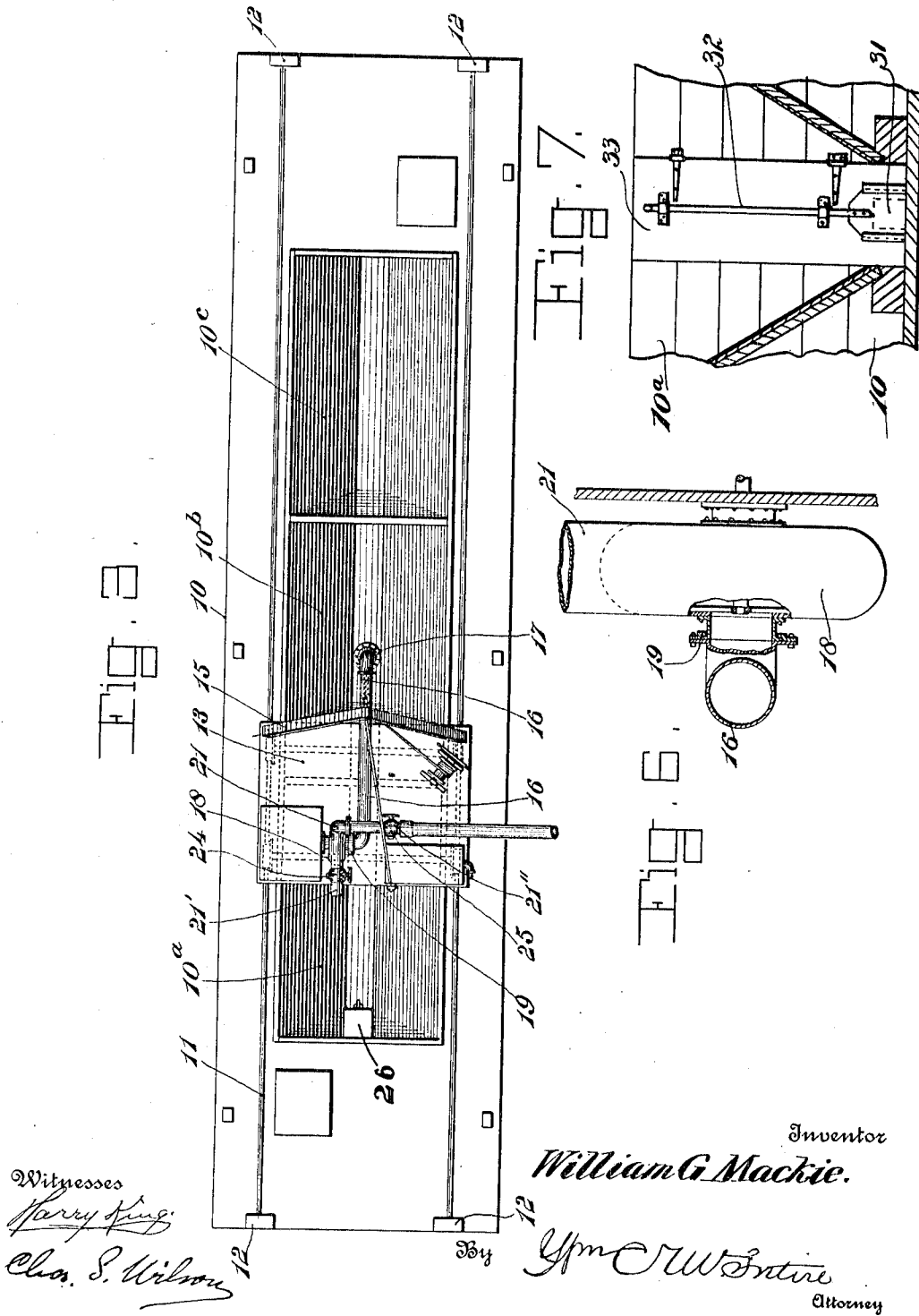
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3 SHEETS-SHEET 3.

Fig. 4.

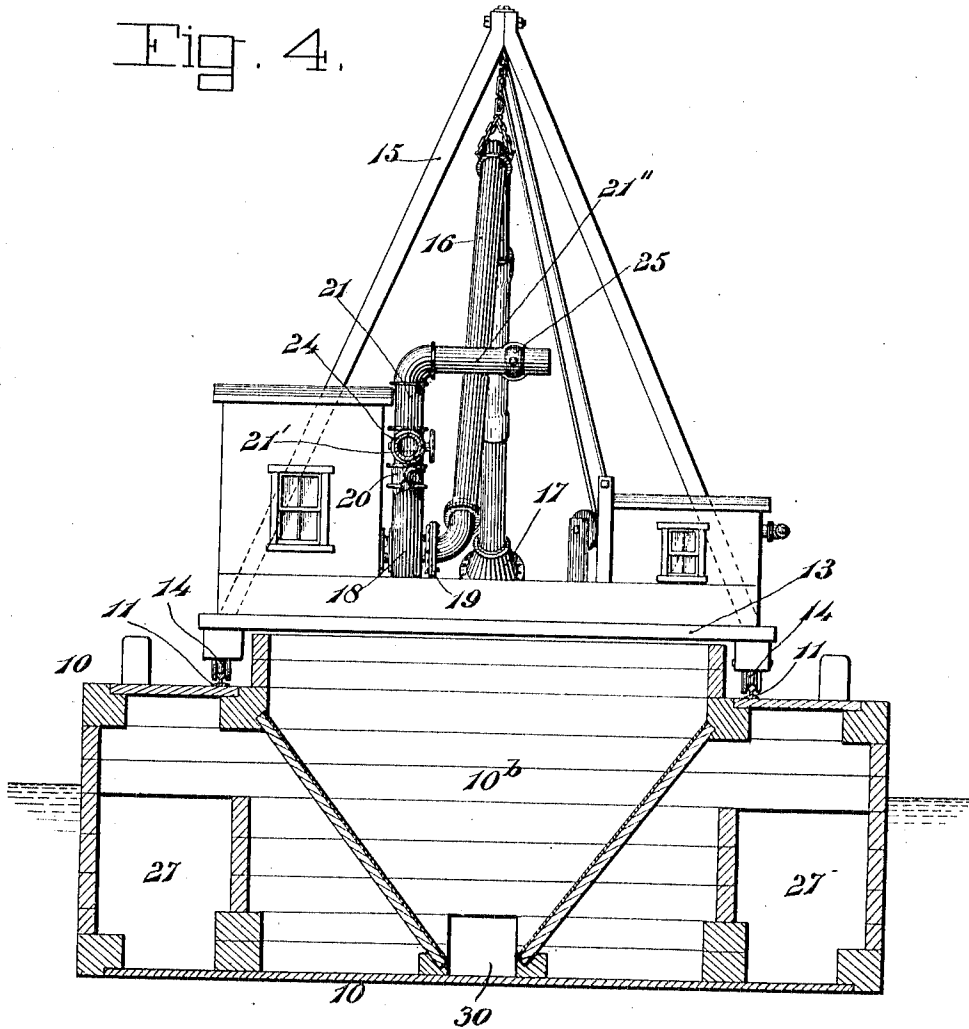
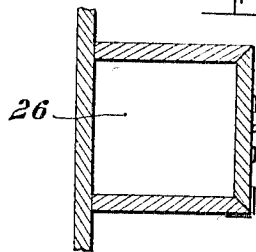


Fig. 5.



Witnesses

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UNITED STATES PATENT OFFICE.

WILLIAM GEORGE MACKIE, OF GREEN BAY, WISCONSIN.

UNLOADING SAND-SCOW.

1,084,889.

Specification of Letters Patent.

Patented Jan. 20, 1914.

Application filed November 10, 1911. Serial No. 659,658.

To all whom it may concern:

Be it known that I, WILLIAM G. MACKIE, a citizen of the United States, residing at Green Bay, in the county of Brown and State of Wisconsin, have invented certain new and useful Improvements in Unloading Sand-Scows; 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 appertains to make and use the same.

This invention relates to new and useful improvements in sand scows, wherein the same may be unloaded by the same mechanism which is used in drawing the sand from the bottom of the river and placing it in the scow.

Heretofore it has been the custom to shovel the sand from the hull of the scow to the receiving wagons, bins or other receptacles.

It is the object of the present invention to eliminate the unnecessary labor and disadvantages in unloading scows of this type, and to utilize the suction loading mechanism as an unloading mechanism, thereby greatly facilitating the operation. This construction also eliminates the use of derricks and other inconvenient, cumbersome mechanisms which have previously been necessary in unloading scows.

With the above objects in view, this invention consists in the construction, combination and arrangement of parts, all as herein after more fully described, claimed and illustrated in the accompanying drawings, wherein:—

Figure 1 is a side elevation of the scow, illustrating the same with the elements thereof in position for loading the scow with sand; Fig. 2 is a central, longitudinal section of the scow with the suction mechanism removed; Fig. 3 is a top, flat view thereof, illustrating the suction mechanism located for unloading the scow; Fig. 4 is a section taken along line 4—4 of Fig. 1; Fig. 5 is a section taken along line 5—5 of Fig. 2; Fig. 6 is an elevation of the suction mechanism parts thereof being broken away to illustrate the interior mechanism; and Fig. 7 is a section taken along line 7—7 of Fig. 2.

The scow forming the subject matter of the present invention comprises a hull having a plurality of bins or compartments formed therein and longitudinally extending tracks on each side of said compartments

or bins. A car or platform is adapted to operate on said tracks, and carries a suction pump, the said suction pump having an inlet pipe connected to a suction device operated by a derrick mounted on said car. The outlet pipe of the suction pump is provided with a double outlet, said outlets being at right angles to each other, being adapted for unloading and loading said scow.

Referring now more particularly to the drawings, 10 indicates the hull of a scow, having formed therein a plurality of bins or compartments, 10^a, 10^b, and 10^c, etc., it being possible to have any number of bins or compartments as desired. By the provision of these compartments, it is possible for the suction apparatus to readily operate upon the sand for the removal thereof from the scow, without scattering the same, as would be the case if said compartments or bins were eliminated. Mounted on the scow 10, and extending longitudinally on each side of the bins or compartments 10^a, 10^b, and 10^c, are the tracks 11, which are provided at their terminals with bumpers 12. A car or platform 13 operates on the tracks 11, through the instrumentality of the trucks 14. A derrick or hoist 15 is mounted along one side of the car 13, and supports a pipe 16, which carries a suction nozzle 17 at its lower terminal, said derrick adapted to lower or raise said suction nozzle 17, as desired.

In order to provide a means whereby the sand may be removed from the bottom of the river, or other suitable place, a suction pump 18 is mounted on the car 13, and has an inlet port 19 thereof, connected to the pipe 16. The outlet port 20 of the pump 18 is connected to a double outlet pipe 21, one arm of which 21' extends rearwardly over the scow, and is adapted to deliver the sand to the compartments 10^a, 10^b, 10^c, etc., through the instrumentality of the trough 22 which co-operates with it. The pipe 21 is provided with a valve 24 to close said pipe when it is desired to remove the sand from the said compartments, as will hereinafter be more fully described. A transversely arranged outlet pipe 21'' is mounted on the outlet port 21 of the pump 18 and is adapted to act as a conductor for the sand to be unloaded from the scow. This pipe is likewise provided with a valve 25, which is adapted to be closed when the pipe 21' is in use and the scow is being loaded.

A manhole 26 is provided at the terminal

of the scow additional to the compartment 10^a and is connected to the passage 30, which extends under the compartments 10^a, 10^b and 10^c, by a gate 31 which is operable vertically by the rod 32 extending adjacent to said manhole. A flood pipe 28 likewise connects with the manhole 26 and provides a connection between the water under the scow and said manhole. In operation, when it is desired to remove the sand from the scow, the platform 13 is moved until it rests against the bumpers 12 which bring the suction pipe directly over the manhole or well 26. After the suction pipe 17 has been lowered into the well, the gate 31 is then opened, permitting the sand within the compartments 10^a, 10^b and 10^c to mix with the water which enters through the flood pipe 28. To prevent the scow from sinking when fully opened up to the sea, water tight compartments, or bulk heads 27 are arranged longitudinally of the scow of sufficient size to maintain the scow at a desired depth, during the process of flooding. Access to the lower compartments is afforded by means of hatches 29 in forward and after parts of the scow through which access may be had to passages 30 beneath the compartments to provide ready inlets beneath the compartments for water admitted through the flood pipe 28. When about one-third of the sand has been pumped from the compartment 10^a a partition 33, separating the compartment 10^a from the well 26, may be swung open, thus permitting the sand to be entirely removed from the scow. As the sand has been partially removed from the compartment 10^a and the sand remaining therein is well moistened, the partition 33 may be readily swung open as above stated. From the foregoing it will be readily understood that when the elements of the present invention are placed, as indicated in Fig. 1, the valve 25 of the outlet pipe 21⁷ is closed, thereby causing the sand taken in by the nozzle 17 and the pipe 16 to be conducted as desired to the outlet port 21, or to any of the various bins, through the instrumentality of the trough 22, but when it is desired to unload the scow the trough 22 is removed, the valve 25 opened and the valve 24 closed. The car 13 is then moved along the tracks 11 until the nozzle 17 ex-

tends into one of the bins 10^a, 10^b and 10^c, and etc., at which time the sand passes through the nozzle 17, the pipe 16, the pump 18, outlet port 21, and the outlet pipe 21⁷, to any suitable receiving receptacle at the wharf or dock.

In reduction to practice, I have found that the form of my invention, illustrated in the drawings, and referred to in the above description, as the preferred embodiment is the most efficient and practical; yet realizing that the conditions concurrent with the adoption of my device will necessarily vary, I desire to emphasize the fact that various minor changes in details of construction, proportion and arrangement of parts may be resorted to, when required, without sacrificing any of the advantages of the invention, as defined in the appended claims.

Having thus fully described my invention, what I claim as new, and desire to secure by U. S. Letters Patent, is:—

1. In an apparatus for loading and unloading loose material from a boat, a suction pump provided with inlet and outlet ports, portably mounted on a boat, a double outlet pipe connected to the outlet port, a tubular arm extending from said outlet pipe longitudinally of the boat, a transverse tubular arm mounted on the outlet pipe, valves in said pipes to be alternately closed and opened when the boat is being loaded and unloaded.

2. In an apparatus for loading and unloading material from a scow, track mounted on a scow, a car mounted on the track, a pump mounted on the car provided with inlet and outlet ports, an inlet pipe connected to the inlet port, a double outlet pipe connected to the outlet port, a rearwardly extending arm connected to one of the openings of said outlet pipe and opening into the scow, a transversely extending arm connected to the other outlet and opening away from the scow, valves in the outlet pipes to regulate the delivery of the contents of the inlet pipe to the scow and away from it.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM GEORGE MACKIE.

Witnesses:

W. J. COLBURN,
H. R. RICE.