

(No Model.)

G. CLARK.  
DUMPING SCOW.

No. 304,705.

Patented Sept. 9, 1884.

Fig. 1.

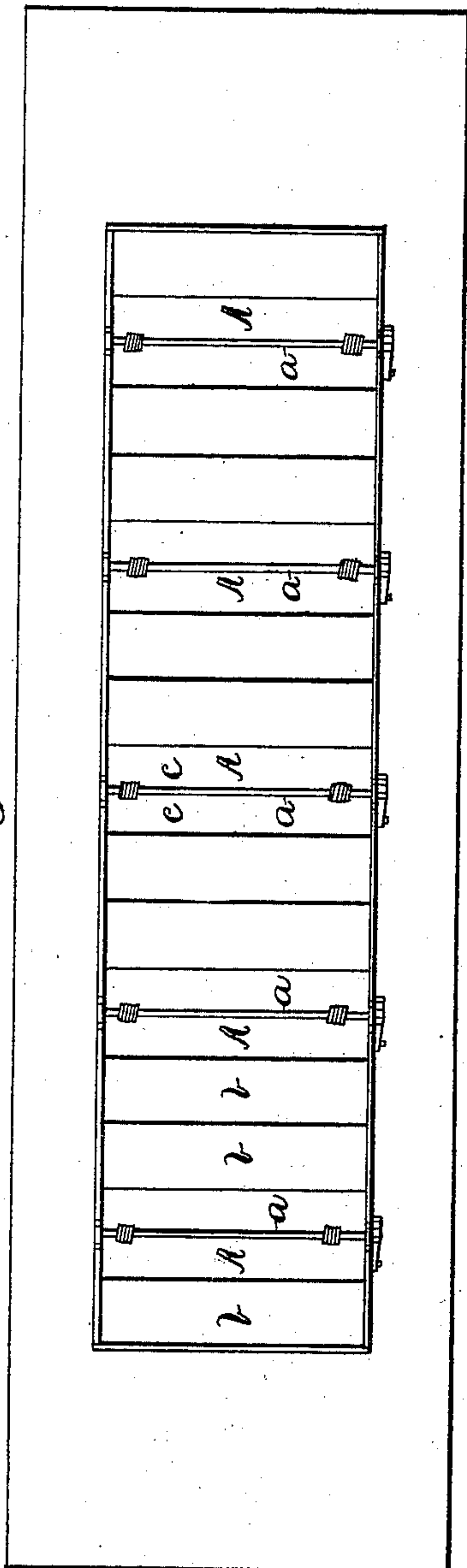


Fig. 2.

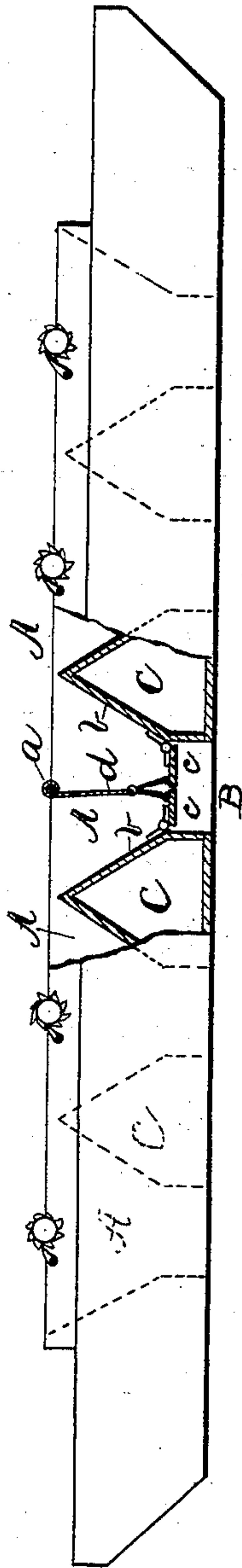
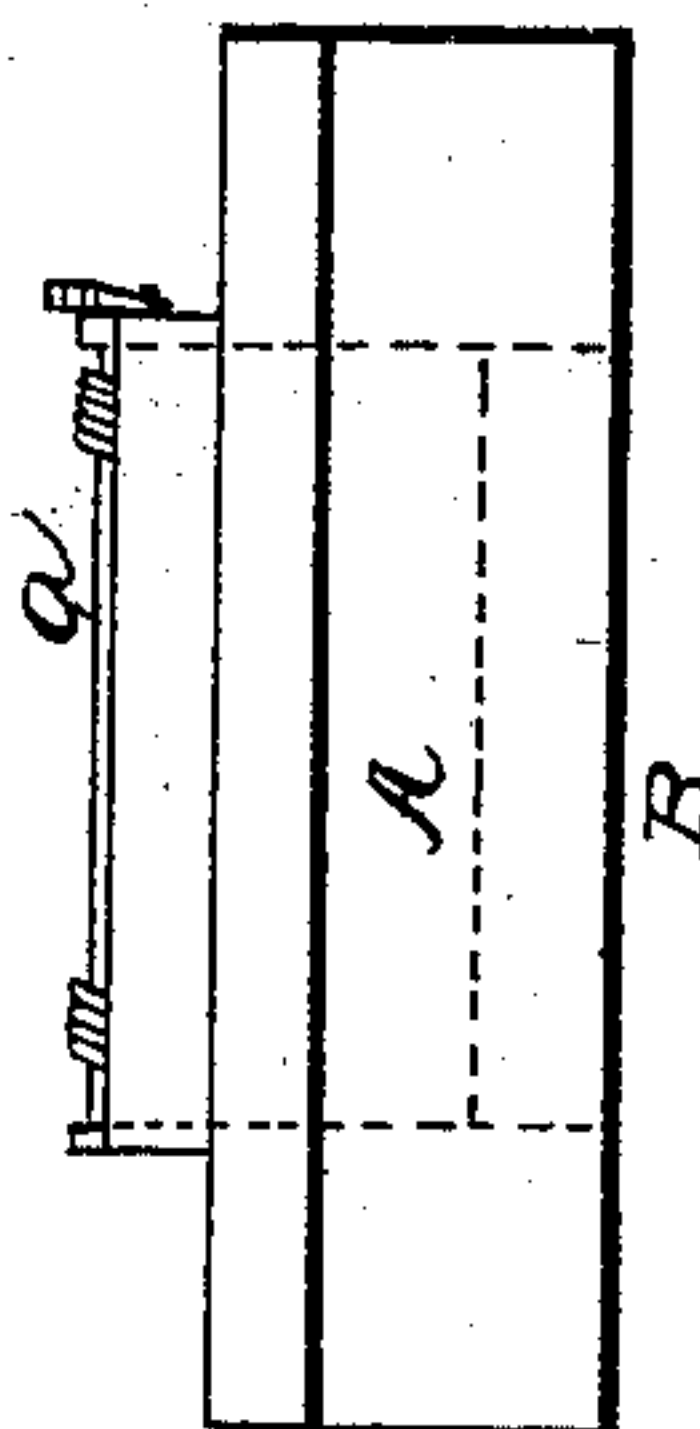


Fig. 3.



Witnesses.

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# UNITED STATES PATENT OFFICE.

GEORGE CLARK, OF WEST TROY, NEW YORK.

## DUMPING-SCOW.

SPECIFICATION forming part of Letters Patent No. 304,705, dated September 9, 1884.

Application filed December 10, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE CLARK, a resident of West Troy, in the county of Albany and State of New York, have invented certain new and useful Improvements in Dumping-Scows; and I do hereby declare that the following is a full, clear, and exact description of the invention, that will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

Similar letters refer to similar parts in the several figures therein.

My invention relates to improvements in dumping-scows; and it consists in providing a plurality of mud-pockets arranged side to side with intervening air-chambers, each pocket being provided with an elongated outlet gate or gates and operating windlass, said pockets, chambers, gates, and windlasses extending transversely of the scow.

The objects of my invention are, first, to provide a bottom-dumping scow adapted to have its load distributed over a large superficial area, to permit of carrying and dumping a large load in shallow water; second, by the peculiar arrangement of the pockets and air-chambers to lighten and strengthen the boat or scow.

Figure 1 of the drawings is a plan view of my improved scow. Fig. 2 is a side elevation of same with the middle portion broken away to show a vertical central section of one of the mud-pockets. Fig. 3 is an end elevation of same.

The mud-pockets A extend transversely of the boat, but not entirely across, and are provided with the inclined walls *bb*, and the hinged gates *cc* at the bottom. The latter are retained in a closed position, as shown, by the cables or chains *d*, which pass around the windlass *a*. When it is desired to dump the pockets, the windlass is released from its dog, when the gates open downward and the contents of the pockets slide out through opening B into the water below. The gates are then closed by the windlass and cable and held by the dog and toothed wheel upon the windlass. There is a windlass and gates for each pocket. The spaces C between the pockets are made water-tight, and serve to assist in buoying up the load.

The arrangement of pockets A and air-chambers C is shown partly in section and partly by dotted lines in Fig. 2, from which it is readily seen that the pockets and chambers are evenly distributed, and that the walls *bb* serve for both, and that their form and arrangement permit a strong and light truss-frame for the boat.

Dumping-scows are used in connection with dredging-machines when the latter are employed for excavating in the bed of a river or other body of water where it is necessary to convey the mud and soil removed by the dredge to some distant place for deposit.

It frequently happens in navigable rivers and harbors it is very difficult to find places suitable for dumping the mud and soil from the scows, and it becomes necessary to tow them long distances. The principal expense, therefore, in excavating is frequently the cost of towing. Some place must be found where the water is deep enough to permit of dumping, and where navigation will not be interfered with by the deposit. The object to be attained, therefore, is to provide a scow to carry the largest load and dump in the shallowest water.

Heretofore all dumping-scows used in dredging have been made with the mud-pockets extending longitudinally of the scow, most of them with two pockets only, and some with three, but in all cases arranged end to end. Such a form of construction practically limits the width of the boat, as will be hereinafter more fully explained. The gates *cc* are necessarily made narrow, so that they will not project too far downward when open, and it has been practically demonstrated that the walls *bb* cannot be inclined beyond a certain degree—about that shown in Fig. 2. If this inclination is increased, the contents of the pockets cling to the walls and will not dump. Consequently, the only way to increase the capacity of a pocket of a given length is to extend its walls upward. It cannot be done by making the pockets wider without increasing the width of the gates *cc*, which would make it necessary to increase the depth of the water into which the contents are dumped; but to increase the height of the pocket-walls necessitates raising the dipper of the dredging-machine to a greater height, which would increase the expense of excavating, and when dredging in shallow water would be impossi-



ble, from which it appears that when a scow is constructed with pockets running end to end and longitudinally of the boat its carrying capacity is limited to a certain quantity, which cannot be increased by increasing the width of the boat without increasing the height of the pockets, which is objectionable, as hereinbefore explained; and if the scow is increased beyond a certain length the dipper of the dredge will not reach its ends.

By arranging the pockets transversely of the boat, as I have shown, they may be made shallow and of any desired length, and the width of the boat increased to insure buoyancy. I am thus enabled to carry and dump a large load in very shallow water.

As dumping-scows are now constructed the pockets, generally two, running longitudinally of the boat, require a strong and heavy bulkhead at each end of the pockets to sustain the windlass *a*, while my improved method distributes the weight along the whole length of the boat and the boat-frame, which permits of a lighter and stronger form of construction, and the utilization of the spaces *C* between the pockets for air-chambers to assist in buoying up the boat, instead of heavy bulkheads. By extending the windlass transversely of the boat their bearings may rest upon the top of truss-frames extending past and supporting the ends of the pockets, thereby dispensing with any central frame and transferring the load supported by the pocket-gates to the sides of the boat.

Among the advantages to be derived from my improved form of construction there are none more beneficial in a dredging-scow than the arrangement of the pocket outlets or gates transversely of the boat. So difficult it is to find a suitable dumping-ground the requisites of which I have before explained, it has become the practice to stake out such grounds and dump the scows thereon systematically, in such a manner as to utilize every part. For this reason all attempts to use side-dumping scows have been abandoned. The load is distributed over too great an area and left in high ridges, which precludes the second approach of a loaded boat to the unoccupied space between them, and when the load is dumped from a central longitudinal opening the water must be deep enough to float the boat clear of the deposited load, or it cannot be drawn off, as it must be drawn lengthwise of the whole load; but when the load is dumped from many narrow openings extending transversely of the boat, the load runs together to form a solid mass at the bottom, and at its top there are thin ridges, like saw-teeth, opposite the openings, these ridges extending transversely instead of longitudinally of the boat. With such an arrangement of the pocket-outlets the load may be dumped in water so shallow that the tops of the deposited ridges will still project up through the outlets after the load has been dumped, for the tops of thin ridges are easily forced along

by the boat into the bottoms of the depressions between the ridges, so that the surface of the deposited load is left nearly smooth and level with the bottom of the lighted boat, thus utilizing every foot of the dumping-ground by dumping successive loads contiguous to each other. It is very desirable, therefore, to have the outlet-gates narrow and of equal length with the pockets—narrow that they may not project too far below the load when opened to dump the scow, and long to distribute the load evenly over that surface covered by the boat. When the deposit has become so high that a loaded boat cannot pass over it, the boat must go alongside it for a contiguous deposit, and the longer the transverse openings in the bottom of the boat the nearer will the load be deposited to previous deposits, and the more completely will the space occupied by the boat be utilized.

I am aware that dumping-scows have been constructed with a double series of square pockets extending along both sides of the scow, with intervening air-spaces between the pockets; but such boats, though adapted for dumping garbage and the like in deep water, are altogether unfitted for dumping in shallow water, for the reasons above stated. The walls of the pockets are inclined on each of the four sides, and converge to a small central opening, requiring very deep water to dump the contents, and leaving the same in widely-separated cones or pyramids, thus utilizing only a small part of the capacity of the dumping-ground.

The windlass used in operating the gates extends longitudinally along the center of the boat, which necessitates a much stronger and heavier form of construction than is required when each pocket is provided with an independent windlass extending transversely of the boat. When elongated gates are employed, their operating-windlass must extend parallel with them, otherwise two windlasses would be required for each pocket, one over each end of the gates, and even then it would be impossible to operate them in unison—the gates would be twisted from their hinges and destroyed.

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

A boat or scow provided with a central series of dumping-pockets and intervening air-chambers, each pocket having an elongated valved outlet adapted to discharge its contents, and a suitably-connected windlass for operating said valved outlets, said pockets, outlet-chambers, and windlasses extending transversely of the scow, and arranged substantially as described, and for the purposes set forth.

In testimony whereof I have hereunto set my hand this 8th day of December, 1883.

GEORGE CLARK.

Witnesses:

GEO. A. MOSHER,  
W. H. HOLLISTER, Jr.