

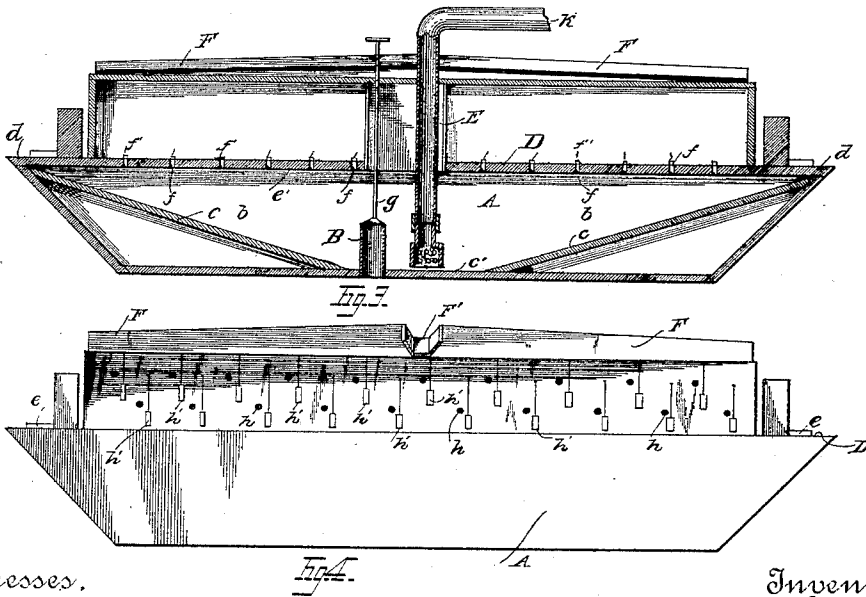
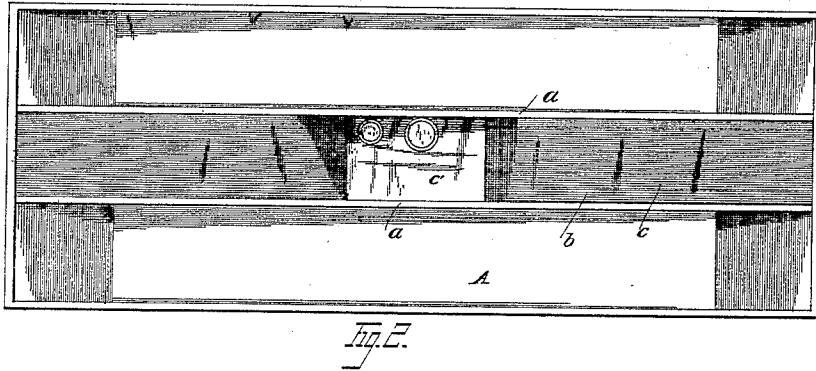
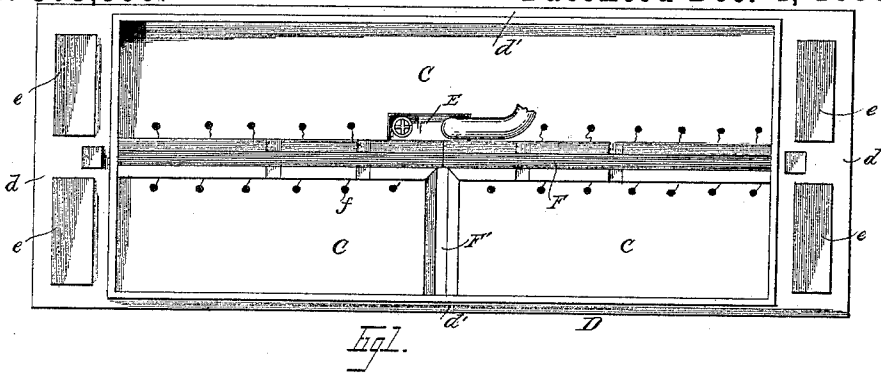
(No Model.)

A. McDOUGALL.

APPARATUS FOR MOVING EARTH, SAND, &c.

No. 393,996.

Patented Dec. 4, 1888.



Witnesses.

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APPARATUS FOR MOVING EARTH, SAND, &c.

SPECIFICATION forming part of Letters Patent No. 393,996, dated December 4, 1888.

Application filed April 28, 1888. Serial No. 272,185. (No model.)

To all whom it may concern:

Be it known that I, ALEXANDER McDOUGALL, a citizen of the United States, residing at Duluth, in the county of St. Louis and State of Minnesota, have invented certain new and useful Improvements in Apparatus for Moving Sand, Earth, &c.; and I do hereby declare the following to be a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to a new and improved device to be used particularly for the purpose of loading, transporting, and unloading sand, earth, &c.; and my invention consists of a scow, with some novelties in construction, which I will hereinafter point out and embody in the claims.

For the better understanding of this apparatus reference should be had to the drawings, in which—

Figure 1 is a plan view of the scow; Fig. 2, a similar view with the deck removed; Fig. 3, a central vertical elevation of the entire scow, and Fig. 4 a side elevation of the same.

Similar letters denote corresponding parts in each figure.

The hull A of the scow is made in any usual or well-known manner, it being only essential that there should be two or more longitudinal, preferably water-tight, bulk-heads, *aa*, extending from end to end, and so arranged that two of such bulk-heads shall have between them a compartment or space, *b*, which shall be nearly or quite central in the hull. The floors *cc* of this space are inclined toward the center of the scow, preferably stopping a little distance apart and having a flat recess, *c'*, at the bottom, which may be the surface of the bottom of the scow. In this recess *c'*, and preferably near the end of it, is placed a pipe, B, the interior of which communicates with the water below the scow and rises to a point preferably about half as high as one of the central bulk-heads. This pipe constitutes or serves to support a valve which can be opened or closed from the top of the sand-box. The sand-box C is secured to the deck D of the scow in any strong and suitable manner and is shorter than such deck, so as to leave sufficient clear space *d d* at each end for managing the scow, and a

small space, *d' d'*, on either side for the same purpose. At either end space, *d*, also are hatches *e*, opening into the hull at points other than the central space, *b*, for the purpose of entrance and for ventilation. This sand-box C is divided by a bulk-head, *e'*, extending from end to end of the box, and preferably inclined so as to be a little lower in the center than the sides of the box, and which is made water-tight.

Near each side of such bulk-head are a series of holes, *f*, passing through the deck and communicating with the space *b*. These holes are conveniently closed by wooden plugs *f'*, which may be attached to the sides of such bulk-head by cords. On one side of the same bulk-head and near the center of the same a water-tight box, E, is placed, which extends about as high as the bulk-head and opens into the space *b* in the hull, and this box is preferably not larger in internal diameter than two feet in width by four in length. A rod, *g*, passes through this box for opening and closing the valve of the pipe B.

A trough, F, is preferably placed upon the top of the bulk-head *e'*, inclining toward the communicating cross-troughs *F'*, each with suitable gates or openings; but these troughs can be dispensed with without serious inconvenience. Numerous holes, *h*, pierce the sides of the sand-box and are closed by wooden plugs *h'*, secured as above described. A piece of the inlet-pipe of a sand-pump provided with a bent arm, *k*, is shown in position in the box E.

It is evident that the central bulk-head, *e'*, may be dispensed with; but it is believed that such a change would not be advantageous, and that many changes might be made in the apparatus above described by me as preferable without departing from the spirit of my invention.

The manner of operation is as follows: The holes *f* in the deck and the valve B being closed, the scow is moved to that part of the river or harbor from the bottom of which the sand is to be removed. A sand-pump of any suitable construction—one of the centrifugal ones being preferred—carried on board of a suitable vessel, by preference being placed in proper position near the scow, sand is drawn up from the bottom and pumped into the sand-

box C either by placing the end of the delivery-pipe of the pump in relation to some convenient part of the troughs F F or by placing such delivery-pipe so as to discharge pretty nearly equally on each side of the central bulk-head, *e'*. The sand and water thus pumped into the sand-box, usually in proportions about three-fourths of water to one-fourth of sand, is relieved and drained of water by the removal of a sufficient number of plugs from the holes *h*. This work of filling and draining is carried on until the sand-box is sufficiently full, and the scow is then moved as nearly as convenient to the place of deposit. The holes *h* are then closed, and the holes *f* in the deck are opened, and the bent end of the sand-pump pipe is passed down through the box E to the recess *c'*. Water is then discharged on the sand in the sand-box, preferably by force-pumps or pumps mounted on the scow, until it is sufficiently fluid to run down through the holes *f* into the compartment or space *b*, and by means of the inclines in the same is diverted toward the center of the compartment and near the valve-pipe B. The sand thus deposited is not sufficiently fluid to be raised by the sand-pump, and therefore the valve-pipe B is opened, and sufficient water is mingled with the sand in the vicinity of the pipe of the sand-pump and the pump is put in operation, raising the sand and water out of the compartment or space *b*, and discharging it through the discharge-pipe of the pump or through additional pipes to the place desired. After the

sand begins to flow freely down the compartment *b* the sand-pump can begin to work and both operations of filling and discharging said compartment go on at once.

I have found by trial that the cost of discharging sand by this mode from a scow as above described is very much less than the usual way.

A scow as above described is equally well fitted for the handling of earth, gravel, or even clay, provided the same is not too tough to be broken into fragments by the suction of the inlet-pipe of the sand-pump.

It should be understood that two, or even more, inclined chambers for the reception of the sand may be used, if necessary, and it should be further understood that the shape of the scow is immaterial, and, further, that the scow may be replaced by a barge or an old hull.

Having thus described my invention, what I claim as new therein is—

The apparatus, substantially as described, consisting of a scow with a compartment in the hull communicating with the water below, and a sand-box mounted on said scow and communicating with the compartment in the hull.

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

ALEXANDER McDOUGALL.

Witnesses:

E. R. BRACE,
 E. H. BERRY.