

5 UNLOADING EQUIPMENT FOR A FLAT TOP BARGE AND A METHOD FOR
 UNLOADING SAME

There is provided unloading equipment for a flat top barge.
More precisely there is provided unloading equipment for a
flat top barge having a deck. The invention also includes a
10 method for unloading of the barge.

A "flat top barge" is in this context defined to be a barge
that has its loading deck close to or above the sea line.

So called "flat top barges" having a generally flat deck
acting as a load space, are widely used and readily
15 available. It is known to equip such barges with a retaining
wall that extends upwardly from the deck. The retaining wall
is normally positioned close to the edge of the deck.

When used for transport of sand, for instance for recouping
land from the sea, the barge may be loaded by pumping
20 fluidized sand on to the deck while draining surplus water
from the sand as the sand sets on the deck.

According to prior art the sand is unloaded from the barge by use of earth moving equipment such as an excavator or a loading shovel. The unloading method has proved to be relatively time consuming and costly.

- 5 The purpose of the invention is to overcome or reduce at least one of the disadvantages of the prior art.

The purpose is achieved according to the invention by the features as disclosed in the description below and in the following patent claims.

- 10 There is provided unloading equipment for a flat top barge having a deck, wherein a plurality of water supply outlets for slurryfication of sand that is present on the barge, are positioned in or near the deck.

- By position water supply outlets in or near the deck, water
15 supplied through the water supply outlets will flow into the sand close to the deck and slurryfy the sand on the deck from a low position in the sand. The water supply outlets may include flow regulating items such as orifices or valves.

- The water supply outlets may communicate with a pipe that is
20 positioned on the deck. In this way a pipe having a plurality of water supply outlets may be positioned on the deck, thus providing a low cost option for unloading equipment. More than one pipe may be advantageous, particularly on larger barges. The pipe may also be positioned in other positions,
25 for instance under deck.

The pipe is connectable to a water pump that may be positioned outside the barge. The water pump may thus serve more than one barge as the water pump is only connected to the barge during the unloading operation.

- 5 The flat top barge may have a retaining wall for keeping the sand in position on the barge during loading and transport. At least part of the retaining wall may be tiltable or removable in order to facilitate unloading by fluidizing the sand.
- 10 The retaining wall or the deck may have an opening for discharge of fluidized sand leading to the outside of the barge. For loading purposes, particularly when fluidized loading is utilized the opening should be closable. The opening does not need to be closable for unloading purposes.
- 15 The closable opening may be equipped with a valve. The valve may be remotely controlled for instance by a hydraulic ram.

There is provided a method for unloading sand from a flat top barge having a deck, wherein the method includes:

- 20 - providing a plurality of water supply outlets in or near the deck;
- connecting the water supply outlets to a water pump;
- pumping water into the sand through water supply outlets for slurryfication of the sand; and
- letting the slurryfied sand flow off the barge.

- 25 The barge may have a retaining wall and the method may include:
 - providing an opening in the deck or the retaining wall; and
 - letting the fluidized sand flow through the opening.

The unloading equipment and the method according to the invention, where the use of relatively simple equipment is proposed, provide a substantial reduction in time and cost for unloading sand from a flat top barge.

5 Below, an example of preferred equipment and method is explained under reference to the enclosed drawings, where:

Fig. 1 shows a perspective view of a flat top barge with equipment according to the invention;

Fig. 2 shows to a larger scale a pipe with water supply
10 outlets; and

Fig. 3 shows an opening in a retaining wall of the barge, where a valve is positioned at the opening.

On the drawings the reference numeral 1 denotes a flat top barge having a deck 2. A retaining wall 4 that extends
15 upwardly from the deck 2 encloses the deck 2 and serves to keep sand in position on the deck 2 during loading and transport.

A pipe 6 is positioned centrally on the deck 2. The pipe 6 is equipped with a plurality of water supply outlets 8 along its
20 length. In fig. 2 the water supply outlets 8 are shown in the form of flanged stud pipes 10.

The pipe 6 is during unloading connected by a tubular 12, preferably in the form of a tube, to a not shown water pump.

The retaining wall 4 is provided with a number of openings 14

for discharge of slurryfied sand. In this preferred
embodiment each opening 14 is provided with a valve 16 and
are thus closable. The valve 16 is pivotable about a hinge 18
and operated by a hydraulic ram 20. In fig. 3, the valve 16
5 is shown in an open position.

When unloading the barge, the pipe 6 is connected to the not
shown water pump. Water is pumped into the sand through the
water supply outlets 8 fluidizing the sand. The valves 16 are
opened, letting the fluidized sand flow out of the barge 1
10 via the openings 14.

In fig. 1 an end party of the retaining wall 4 is shown in a
tilted position to provide an opening 14a for discharge of
fluidized sand.

C l a i m s

1. Unloading equipment for a flat top barge (1) having a deck (2), c h a r a c t e r i z e d b y that a plurality of water supply outlets (8) for slurryfication
5 of sand that is present on the barge (1), is positioned in or near the deck (2).
2. Unloading equipment according to claim 1,
c h a r a c t e r i z e d b y that the water supply outlets (8) communicates with a pipe (6) that is
10 positioned on the deck (2).
3. Unloading equipment according to claim 2,
c h a r a c t e r i z e d b y that the pipe (6) is connectable to a water pump outside the barge (1).
4. Unloading equipment according to claim 1 where a
15 retaining wall (4) extends upwardly from the deck (2),
c h a r a c t e r i z e d b y that at least a part of the retaining wall (4) is tiltable or removable.
5. Unloading equipment according to claim 1 where a retaining wall (4) extends upwardly from the deck (2),
20 c h a r a c t e r i z e d b y that at least the retaining wall (4) or the deck (2) has an opening (14, 14a) leading to the outside of the barge (1).
6. Unloading equipment according to claim 5,
c h a r a c t e r i z e d b y that the opening (14,
25 14a) is closable.

7. Unloading equipment according to claim 6,
c h a r a c t e r i z e d b y that closable opening
(14) is equipped with a valve (16).
8. A method for unloading sand from a flat top barge (1)
5 h a v i n g a d e c k (2), c h a r a c t e r i z e d b y that
the method includes:
- providing a plurality of water supply outlets (8) in or
near the deck (2);
- connecting the water supply outlets (8) to a water
10 p u m p;
- pumping water into the sand through water supply
outlets (8) for slurryfication of the sand; and
- letting the slurryfied sand flow off the deck (2).
9. A method according to claim 8 where a retaining wall (4)
15 e x t e n d s u p w a r d l y f r o m t h e d e c k (2),
c h a r a c t e r i z e d b y that the method further
includes:
- providing an opening (14, 14a) in the retaining wall
(4) or deck (2); and
20 - letting the slurryfied sand flow through the opening
(14, 14a) in the deck (2) or the retaining wall (4).