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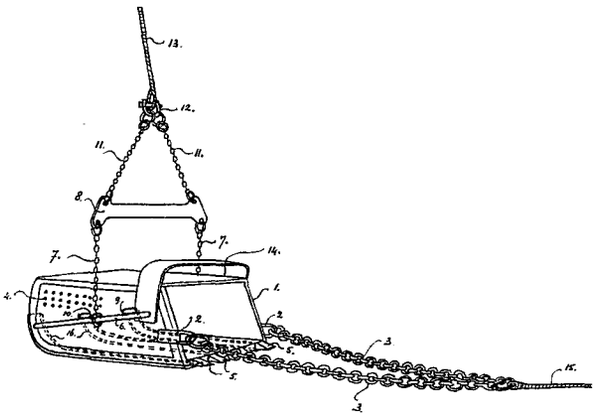
(54) **Bottom sampler.**

(57) Bottom sampler characterized in that it features a bucket (1) provided with two slide rods (6) mounted on both sides of the bucket, a number of holes (4) drilled through the sides of the bucket, a construction comprising a tongue (8) with suspension chains (7, 11), and a pair of drag chains (3) with a tow rope (15).



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Bovens

Title: Bottom Sampler

The invention relates to a bottom sampler for the underwater collection of bottom material in a water course and for raising this material subsequently above the surface.

The bottom material so collected is used for morphological analysis in connection with the water course to be studied where the composition of the bottom material has to be known. In additon, the sample can be used for an evaluation of environmental aspects associated with the composition of the bottom material.

When fine-grained bottom material is present in the water course, it will as a rule suffice to take relatively small bottom samples which are easily obtained. But when coarse-grained bottom material is present, larger samples will have to be taken in order to gain as complete an reliable knowledge of its composition as is practicable. In water courses with a bottom material whose composition includes both fine-grained and coarse-grained constituents, it also proves necessary to take large samples. Moreover, when the topmost bottom layer in such a water course has assumed a closely knit structure under the influence of running water, it becomes particularly difficult to take large samples. With the bottom samplers known in the art it has been found impossible to obtain samples of sufficient size whose composition is at once fine-grained and coarse-grained. It is the object of the present invention to provide a bottom sampler which makes this possible.

According to the invention, the bottom sampler comprises a shovelling bucket, made of an impact-resistant material such as sheet steel and provided with two slide rods mounted on both sides of the bucket, a number of holes in the sides of the bucket, a cover plate for sealing

these holes, a construction made up of a tongue with chains or cables by which the bucket has been suspended with the aid of the slide rods, and a drag chain or cable.

One embodiment of the invention will now be elucidated by reference to the drawing.

According to the figure, the bottom sampler comprises a shovelling bucket 1 made of sheet steel, provided on both sides with iron strips 2 which the drag chains 3 are attached. A number of holes 4 have been drilled through the sides; these holes can be sealed by means of cover plates not shown in the drawing. At the open end of the bucket 1, its bottom is provided with steel teeth 5. The slide rods 6 along which the suspension chains 7 can move between points 9 and 10 have been mounted on both sides, a small distance away from them and parallel to them. The slide rods slope up from the rear to the front of the bucket 1. The suspension chains 7 are attached to the tongue 8, as are the suspension chains 11, both of which are connected by means of a shackle 12 to a hoisting cable 13. The bucket 1 is provided with a carrying bracket (14) which also acts as protective bracket. The drag chains 3 can be attached to a tow rope 15.

In order to prevent excessive wear, the bottom of the bucket may, if desired, be reinforced on the underside with a number of ski-type strips 16.

The bottom sampler according to the invention is operated in the following manner. Through the hoisting cable 13, the bottom sampler is connected to the winch of a ship's deck crane or davit. Then, the bucket 1 is lowered horizontally to the water surface by releasing the drum of the winch and allowing the tow rope 15 to unwind slowly. When the bucket 1 has reached the bottom of the water course, the tow rope 15 is paid out over a distance of about 25 metres. The end of the tow rope 15 is then secured to one of the ship's bollards, whereupon the ship starts moving slowly upstream. The combined weight of the bucket

1 and the drag chain 3 causes the bucket to eat its way into the bottom with its teeth 5, so that it becomes completely filled. During the filling up, the chains 7 hold the bucket at the points 10. When the bucket has been filled with bottom material, the hoisting cable 13 is tensioned. The ship must now lie still on the water. During tensioning of the hoisting cable 13, the chains 7 move along the slide rods 6 from points 10 to points 9, whereby the centre of gravity of bucket 1 is displaced, so that the bucket can consequently be raised with its open and facing up.

CLAIMS

1. A bottom sampler for the underwater collection of bottom material in a water course and for raising this material subsequently above the surface, characterized in that it comprises a shovelling bucket, made of an impact-resistant material such as sheet steel and provided with two slide rods mounted on both sides of the bucket, a cover plate for sealing these holes, a construction made up of a tongue with chains of cables by which the bucket has been suspended with the aid of the slide rods, and a drag chain or cable.

2. A bottom sampler according to claim 1, characterized in that, the slide rods have been mounted on both sides, at a small distance from and parallel to these sides.

3. A bottom sampler according to either one of claims 1 and 2, characterized in that the slide rods slope up from the rear to the front of the bucket.

4. A bottom sampler according to claim 1, characterized in that the bucket is provided with a carrying bracket which also acts as a protective bracket.

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