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[54] **MUD SCRAPING DEVICE**

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[51] **Int. Cl.**[2] **C02B 1/20**

[58] **Field of Search** 210/170, 241, 524, 525, 210/527, 322; 61/2

[56] **References Cited**

UNITED STATES PATENTS

3,396,102	8/1968	Forrest	210/525
3,464,559	9/1969	Bernard	210/527
3,526,591	9/1970	Hampton	210/527
3,822,788	7/1974	Dunkers et al.	210/527

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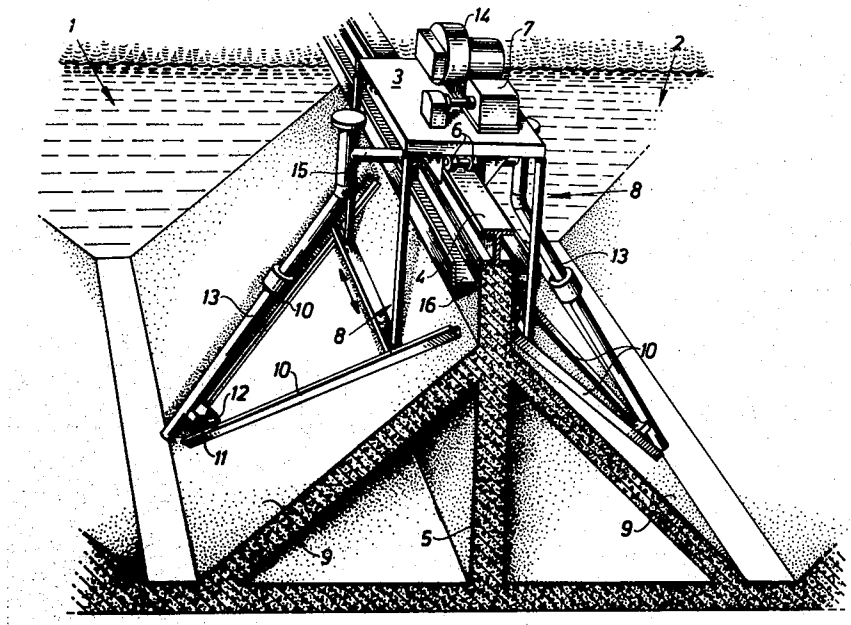
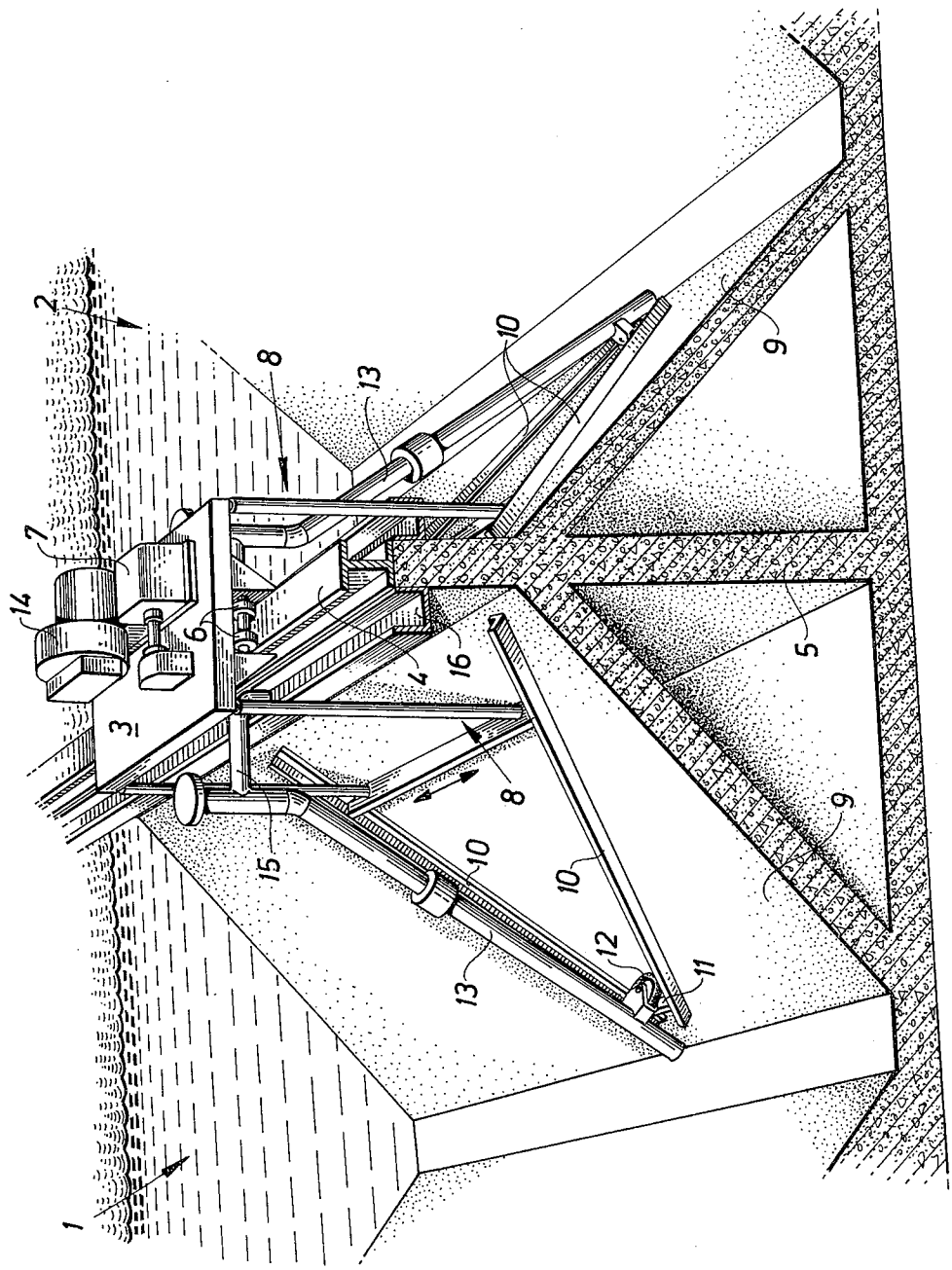
[57] **ABSTRACT**

The floors of a multi-compartment settling basin are freed of settled solids by a carriage traveling on a track extending along the top of a common wall separating two adjacent compartments, a scraper and associated suction duct being suspended from each of the two opposite sides of the carriage in proximity to the corresponding floor.

3 Claims, 1 Drawing Figure

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MUD SCRAPING DEVICE

The present invention refers to a device for scraping off and discharging mud from settling basins or the like. The device includes at least one scraper which is movable along the bottom of the basin to release mud therefrom and at least one discharging device for the released mud.

In settling basins it is known to use scrapers which are moved along the bottom of the basin in order to collect the mud deposited thereon. These scrapers have been driven by means of chains or wires connected to motors which are stationary at one end of the basin. Separately arranged mud discharging or drawing devices of different design have also been used for discharging the mud.

The above mentioned, previously known system has some disadvantages which make the practical usage thereof ineffective. For instance, the initial expenses are high because separate units are necessary for each settling basin. Of course, the space required is also large. Moreover, the scraping devices are bulky and difficult to handle and they require service inspections in order to function satisfactorily.

The purpose of the present invention is to remove the above indicated disadvantages and to provide a device of the kind described above which is simple and inexpensive to produce and maintain and which functions satisfactorily even when the operation conditions are hard. This is accomplished by giving the device the characteristics which appear from the following claims.

The invention will be described further below in connection with the enclosed drawing the single FIGURE of which shows a perspective view of a mud scraping device according to one embodiment of the invention.

The FIGURE shows a mud scraping device which is intended to be used for simultaneous scraping of the bottom of two adjacent settling basins **1** and **2.** For this purpose the mud scraping device according to the present invention is arranged on a carriage **3** which can be driven to and fro along a track **4** on the upper part of a wall **5** which separates the two settling basins **1** and **2.** The carriage is provided with supporting wheels **6** and guiding wheels (not shown) for its guiding along track **4.** The movement of carriage **3** is performed by means of a motor **7** mounted on the carriage, said motor being coupled to driving wheels or the like (not shown).

At each long side of carriage **3** there is a supporting frame **8** which is fastened to the carriage and extends downwards therefrom. The lower part of supporting frame **8** is adjacent to the bottom **9** of each settling basin **1** and **2,** said bottom inclining outwards and downwards from wall **5.** A scraping device is arranged at the lower part of supporting frame **8.** In the embodiment shown on the drawing said scraping device consists of two scrapers **10** which are arranged in V-form with the apex thereof being near the lower part of the inclined bottom **9.** The upper parts of scrapers **10** are secured to supporting frame **8** and the lower parts of

scrapers **10** are coupled to each other by means of a coupling means **11** which also supports a supporting wheel **12** which is intended to engage bottom **9** and to support scrapers **10** immediately above said bottom. When carriage **3** is moved to and fro along track **4** scrapers **10** will release mud deposited on bottom **9.** Due to the inclination of the bottom and the obliqueness of scrapers **10** mud will be collected below the lower ends of scrapers **10.**

Coupling means **11** also supports the lower part of a discharging or drawing device for mud released by scrapers **10.** In the embodiment shown the mud drawing device consists of a mammoth or air lift pump **13** the intake port of which being located adjacent the lower ends of scrapers **10.** Both mammoth pumps **13** for the suction of mud from settling basins **1** and **2** are driven by a common compressor **14** mounted on carriage **3.** The outlet ports of pumps **13** are located above two mud grooves **16** which are mounted on the upper part of wall **5** above the highest water level in settling basins **1** and **2** and which convey the mud to devices not shown for further treatment.

The invention is, of course, not limited to the embodiment described above, and changes and modifications are possible within the scope of the following claims. For instance, scrapers **10** do not need to be arranged in V-form but one single scraper can be used which is perpendicular to the moving direction of carriage **3,** or a turnable scraper can be used which is inclined in different directions depending on the moving direction of the carriage.

We claim:

1. A combined solids scraper and aspirator for a multicompartment settling basin having at least two adjacent compartments (**1,2**) separated by a common wall (**5**) projecting above the level of said basin, which comprises track means (**4**) disposed along the top of said common wall (**5**), a carriage (**3**) traveling on said track (**4**), means (**7**) for driving said carriage, separate scraping means (**10**) in each such compartment (**1,2**) suspended from opposite sides of said carriage (**3**) in proximity to the respective compartment floors (**9**), suction duct means (**13**) carried by said carriage in association with each such scraping means (**10**) for removing the solids scraped thereby, pump means (**13**) coupled to said suction duct means for pumping said solids through said duct means, and at least one collector channel extending along said common wall for receiving said solids from said duct means away from said compartments.

2. Device according to claim **1** characterized in said pump means is an air lift pump (**13**) to which compression air is fed by means of a common compressor (**14**) mounted on the carriage (**3**).

3. Device according to claim **1** characterized in that each scraping device consists of two scrapers (**10**) which are arranged in V-form with the apex extending away from the carriage (**3**).

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