SEA OIL RECOVERY NET AND BOOM

AND DEPLOYMENT SYSTEM

PROVISIONAL PATENT APPLICATION

Presented by:

MICHAEL C. CHRISTEN

PRESIDENT AND CEO, U. S. TECH

(O) Los Angeles, CA, USA
(E) info@mediaclubroyale.com

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BACKGROUND OF THE INVENTION

The massive oil spill in the Gulf of Mexico, caused by the April, 2010 explosion on the British Petroleum Horizon Deep Sea Drilling Rig, continues to date. If the typical flow rate of a pipe is 1-3 meters per second, the low-end estimate calculates to 10 cubic feet of crude spilled every second, or over 9 million barrels a day. The Sea Oil Recovery Net and Boom and Deployment System, described herein, is designed to help mitigate this environmental disaster, by recovering a large portion of the crude oil, leaked into the sea.

My company, U. S. Tech, has been in the consulting and engineering business for over 30 years. Although the news organizations, and the federal government have been critical of British Petroleum, Transocean, Horizon and Halliburton as builders and operators of the deep sea rig, an account by one of the workers, who experienced the explosion, fire and subsequent sinking of the rig, made the point in an interview, that 'mother nature' may have caused the accident, that kick-back from seabed gases is a common occurrence in deep-sea drilling operations, and may have been the cause of the loss of control. Although backup systems failed, and should have been in place, the reality of oil spills may require a more efficient cleanup operation.

So, I invented a sea oil recovery device and system, that in initial tests, can be proven to be highly reliable in recovering large amounts of crude oil spilled into the sea – possibly allowing a high percentage recovery rate. Our testing has also proven to return clean and

clear water back to the ocean, as the filtering system has proven highly effective.

Water and oil, of course, do not mix, and the filtering system described herein should be highly efficient and effective, because crude oil floats on the surface of sea water and salt water, and also of prime importance, the larger molecules and viscous nature of oil make the large sea oil recovery net able to do an excellent job of filtering the crude oil from the water. Although the project is in the prototype stage, the invention described herein is intended for use in a large scale operation of recovering previously lost oil from the spill.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to the Figures, the Sea Oil Recovery Net and Boom and Deployment System is meant to be deployed on a large oil tanker, as generally shown in 1 in Figure 1. The prototype described herein, and shown in the attached drawings, is of the size meant to be deployed on an Aframax Class Oil Tanker, with a capacity of 80,000 DWT and overall dimensions of approximately 245 meters in length, 34 meters beam and 20 meters draft, although the design can be modified to accommodate other size oil tankers.

The critical attribute of the Sea Oil Recovery Net 2 in Figure 1, is the filtering capability of the material. Our testing has found #12 canvas, has the best filtering quality, with a small enough mesh in the fabric to hold crude oil inside, while allowing sea water to flow through the fabric, and return to the sea, outside the net, thereby separating the two. Various meshes and weights of fabric that could be manufactured on an industrial basis were tested, by filling a 10 cubic feet container with water and measuring and pouring in 1 liter of oil. Then a bag, fabricated from the testing material, was used to skim the oil from the surface. After the canvas picked up the oil, it was pulled out the water, and in our test, perfectly clear water came pouring through the bottom of the bag, leaving all the oil inside.

The canvas performed exceedingly well as a filter, and as such, was able to recover over 90% of the oil used in the test.

The Sea Oil Recover Net 2 in Figure 1 has dimensions of 50 feet wide, which opens at the front to approximately 40 feet wide and 10 feet deep. The length varies from 300 feet to 500 feet, depending on the oil tanker, and the length of the lightering hose used to pump out the oil, after the net has been filled. The large net rolls up on the master spool 6 in figure 2, and can be delivered to the oil tanker via a standard 52-foot flatbed truck.

The net rolled up on the master spool is lifted via crane and dropped into place on the oil tanker, mounted on the deployment assembly 5 in Figure 2. After the oil tanker sails to the deployment location, the net is deployed into the ocean by motors 7 and 8 in Figure 2, as the tanker moves forward, buoys are attached around the perimeter, and the recovery net is rolled out into the ocean surface, behind the oil tanker.

A proprietary manufacturing process is used to fabricate the net, using heavy gauge nylon fishing line to sew the seams and close the end. The front or mouth of the net has a length of rebar, running along the top 12 in Figure 2 and bottom 13 in Figure 2, which holds the shape when the net is in the water. Boat fender-style buoys 11 in Figure 2 are attached to the top by rope, and ropes 16 in Figure 2 attach the bottom of each fender to the bottom rebar. The top of the front of the large net should be held above the water line by the fenders, and the bottom of the net and bottom rebar should float approximately 10 feet below the water line. This should provide the optimum condition for skimming the oil off the surface of the sea. The Sea Oil Recovery Net is towed by the oil tanker via steel cables 9 and 10 in Figure 2. The length of the net is reinforced with steel cables 17 in Figure 2, as the overall weight is over one ton.

Floating booms 3 and 4 in Figure 1 and held in place by ropes 14 and 15 in Figure 2, direct the floating oil from the sides of the tanker into the net as the tanker sails through the ocean, sailing on a path back and forth through the miles of spilled oil. During the operation, the sea water will flow out the top, bottom, sides and end of the net, but the crude oil will be trapped inside. The goal is to recover up to 35,000 barrels an hour; if running round-the-clock, filling the tanker in approximately one day. Once the net is filled to capacity with crude oil recovered from the sea, motors 7 and 8 in Figure 2 pull the mouth of the net out of the water, and the oil is pumped into the tanker via its lightering hose. When the tanker is filled to capacity, the oil is transported to port by the

oil tanker, and the bulk crude oil cargo of the tanker is pumped out, making it ready to return to sea and repeat the process. A rear view of the large oil spill recovery floating net, deployed and towed behind the oil tanker, is shown in Figure 3.

The Sea Oil Recovery Net described herein should do a better job of recovering large amounts of spilled crude oil, than other skimming systems because:

1. The unique quality of the canvas material is more efficient at separating crude oil from water
2. The large capacity of the net and oil tanker make it more capable of recovering large amounts of spilled oil
3. It makes highly efficient use of existing technology, provided by the oil tanker
4. Tanker operators, sailors and workers will find the equipment familiar to operate.

If the prototype deployment is successful, a second sea net could be operated on the tanker, allowing pumping of the crude from the filled net, while towing the second net and recovering more oil.

Depending on its success, if several such operations are deployed, the Sea Oil Recovery Net could be able to recover oil at a rate that matches the amount of crude oil actually leaking at the bottom of the Gulf of Mexico, and therefore mitigate a large portion of the environmental disaster from the large oil spill.

* The End *

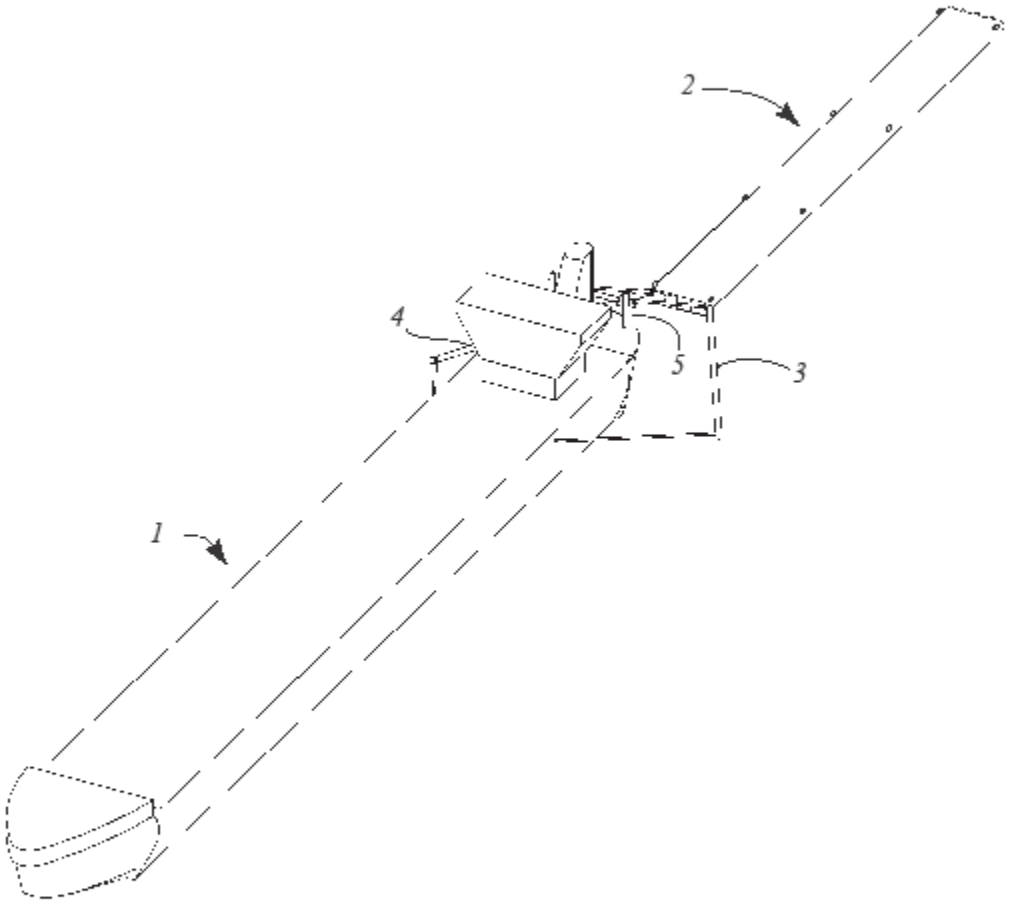

FIG. 1

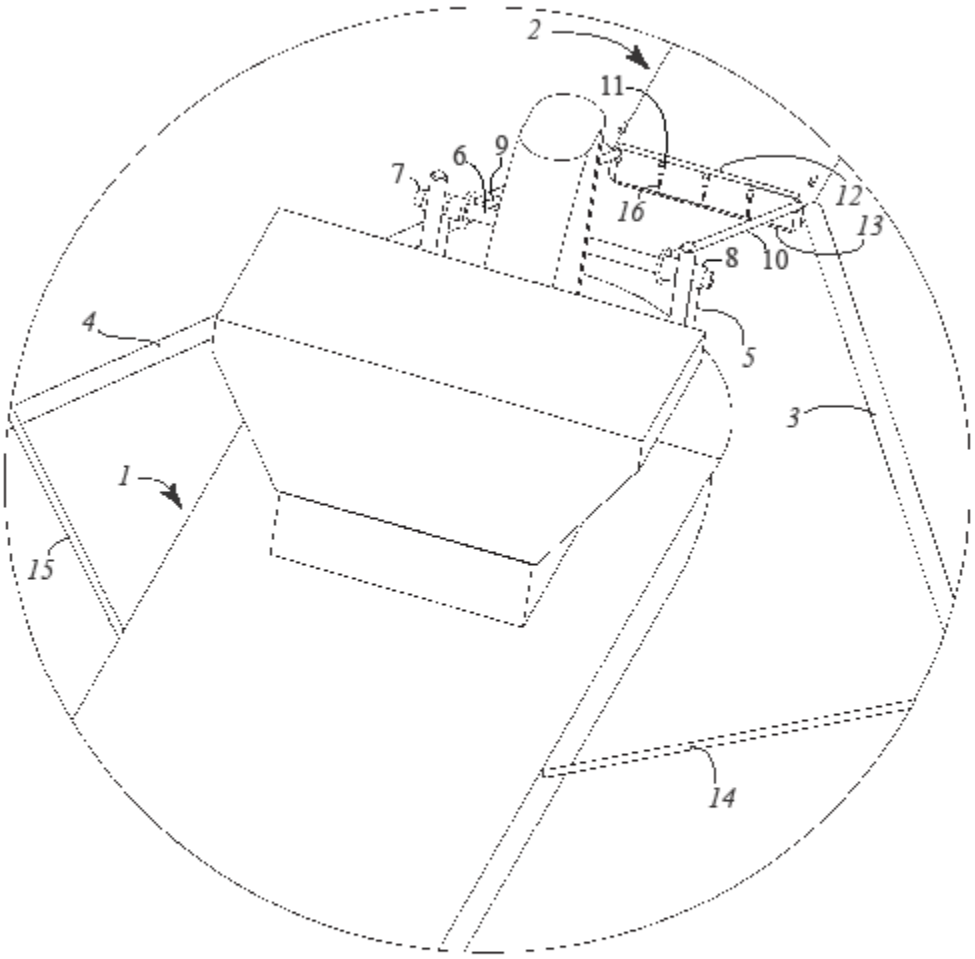

FIG. 2

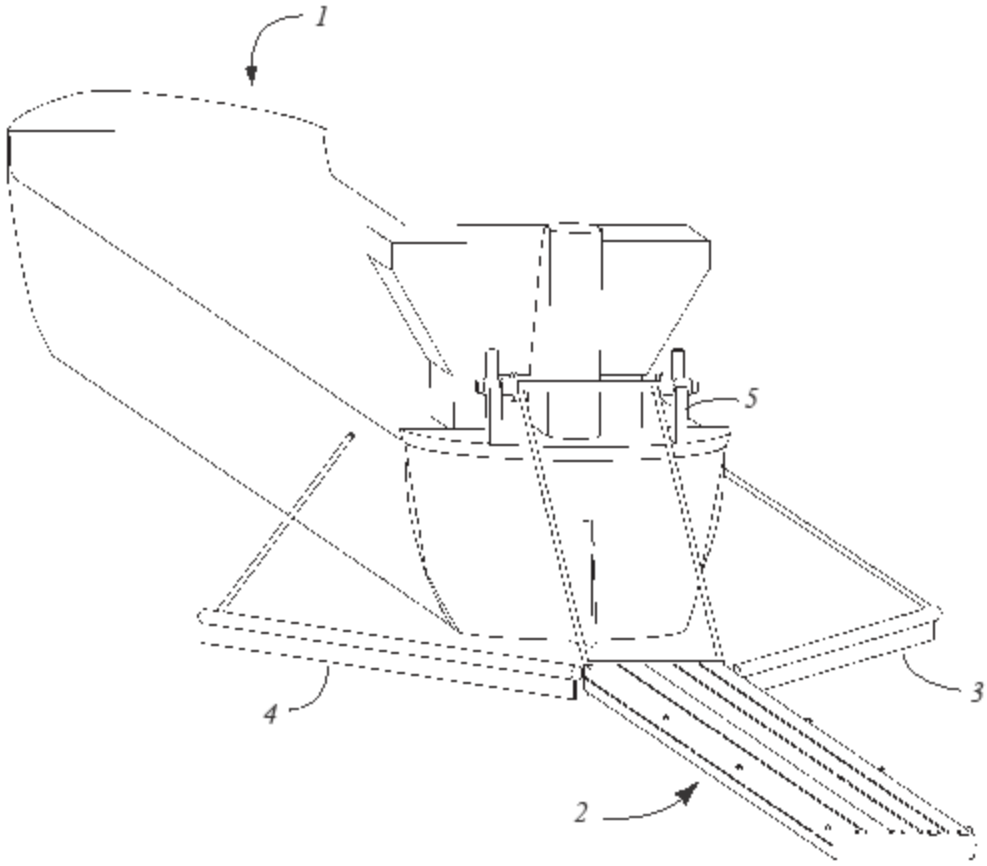

FIG. 3