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A. C. CAMPBELL

MACHINE FOR TREATING WASTE PORTIONS OF CRUDE OIL

Filed June 19, 1923

Fig. 1.

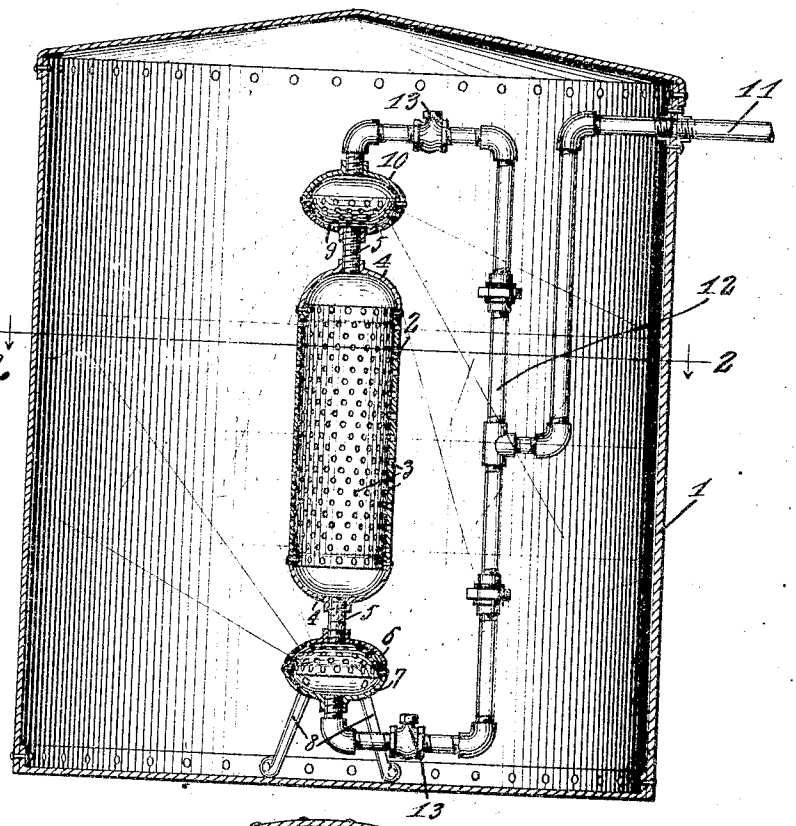
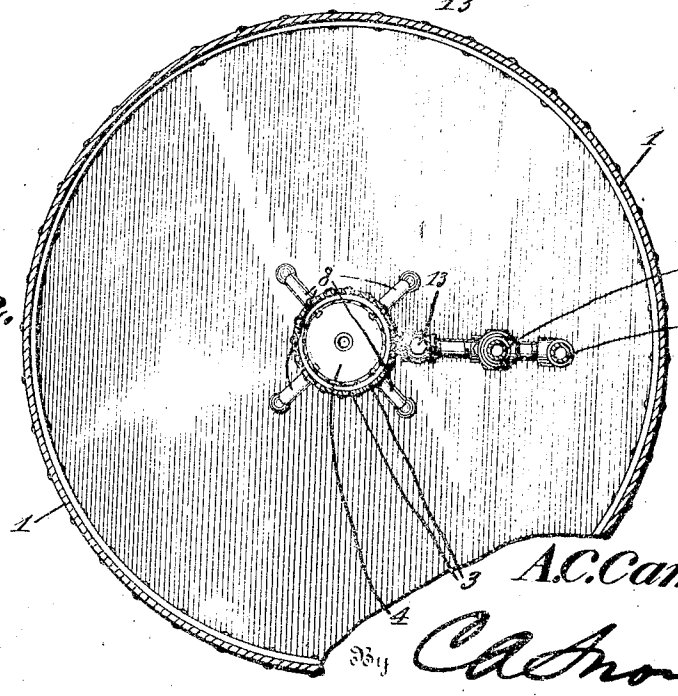



Fig. 2.




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# UNITED STATES PATENT OFFICE.

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## MACHINE FOR TREATING WASTE PORTIONS OF CRUDE OIL.

Application filed June 19, 1923. Serial No. 646,483.

*To all whom it may concern:*

Be it known that I, ARTIS C. CAMPBELL, a citizen of the United States, residing at Bristow, in the county of Creek and State of Oklahoma, have invented a new and useful Machine for the Treating of the Waste Portions of Crude Oil, Such as Waste Oil, Cut Oil, B. S. Oil, and Paraffine Oil, of which the following is a specification.

This invention relates to apparatus for treating the waste portions of crude oil such as cut oil, B. S., and paraffine oil.

One of the objects of the invention is to provide a simple form of apparatus adapted to be set up in an oil tank containing the waste oil and which may be operated by the use of hot water, steam or cold water, to effect the desired treatment.

Another object is to provide an apparatus of this kind which will set up a thorough mixing of the injected fluid with the contents of the tank.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed may be made within the scope of what is claimed without departing from the spirit of the invention.

In the accompanying drawings the preferred form of the invention has been shown.

In said drawings—

Figure 1 is a vertical section through a tank having the apparatus set up for use therein.

Fig. 2 is a horizontal section on line 2—2, Fig. 1.

Referring to the figures by reference characters 1 designates an ordinary tank or other suitable container for crude oil. Arranged within the tank is a cylindrical drum 2 provided, in its circumferential portion, with numerous small apertures 3. The drum has dome-shaped heads 4 in which are mounted threaded nipples 5. The lower nipple is seated in the dome-shaped top 6 of a hollow base 7 and from this base are extended supporting legs 8 resting on the bottom of the tank 1. The top 6 of the base is provided with minute apertures, the longitudinal axes of which diverge upwardly.

The upper nipple 5 engages the dome-shaped bottom portion 9 of the head 10 of the apparatus, this head being hollow and provided with minute apertures in the bottom portion 9. The longitudinal axes of these apertures diverge downwardly.

A supply pipe 11 opens through the tank into a distributing pipe 12 and this distributing pipe has its end discharging into the base 7 and the head 10 respectively. Check valves 13 may be provided in the branches or in portions of the distributing pipes to prevent backflow within the pipes.

It is to be understood that this apparatus can be set up readily in a tank or other container holding waste products such as cut oil, B. S., paraffine and the like. Fluid used in the treatment of the product depends upon the nature of the materials being treated. Under some circumstances it is desirable to inject steam into the contents of the tank. The steam will be supplied through the pipe 11 and its branches 12 to the base 7 and head 10 respectively. Some of the steam will escape through the apertures in the head and base while the remainder of the steam will enter the drum 2 and escape through the apertures 3 therein. This will result in jets of steam being projected radially from the drum into the contents of the tank while at the same time other jets of steam will be directed downwardly along diverging lines from the bottom of the head 10 and upwardly along diverging lines from the top of the base 7. As the different jets travel along intersecting lines, they will be broken up and will correspondingly break up the contents of the tank, thereby quickly reducing the same. The same action takes place whether cold or hot water is used in lieu of steam.

Although only one separating unit has been shown set up in the tank, this being located adjacent the center thereof, it is to be understood that if desired, two or more of these unites may be used at points in the tank where they will be most effective in operation.

What is claimed is:—

1. Apparatus for treatment of waste products of crude oil including a drum having an apertured periphery, a head communicating with the top of the drum, a base communicating with the bottom of the drum, said head having apertures in the bottom portion thereof and said base having apertures in the top portion thereof, the apertures in the head constituting means for di-

recting jets of fluid downwardly along diverging lines and the apertures in the base constituting means for directing jets of fluid upwardly along diverging lines, and means for supplying fluid under pressure to the head and base.

2. Apparatus for treating the waste products of crude oil including a drum having apertures in the periphery thereof for directing jets of fluid radially from the drum, a head communicating with the top of the drum and having apertures in the bottom thereof for directing jets of fluid downwardly and outwardly along diverging lines, a base communicating with the bottom of the drum and having apertures in the top thereof for directing jets of fluid upwardly and outwardly along diverging lines, and means for directing fluid to the head and base simultaneously.

3. Apparatus for treating the waste products of crude oil including a drum having apertures in the periphery thereof for directing jets of fluid radially from the drum, a head communicating with the top of the drum and having apertures in the bottom thereof for directing jets of fluid downwardly and outwardly along diverging lines, a base communicating with the bottom of the drum and having apertures in the top thereof for directing jets of fluid upwardly and outwardly along diverging lines, means for directing fluid to the head and base simultaneously, and means for preventing return flow of fluid away from the head and base, and supporting means connected to the base.

4. The combination with a tank for holding waste products of crude oil and the like, of means adapted to be submerged in the contents of the tank for treating said contents, said means including a drum having an apertured periphery, a head and a base connected to the top and bottom respectively of the drum and opening thereinto, said head having apertures in the base thereof for directing jets of fluid downwardly along diverging lines and said base having apertures in the top thereof for directing jets of fluid upwardly along diverging lines, and valved means for directing fluid into the head and base respectively.

ARTIS C. CAMPBELL.