May 12, 1953 C. D. ROACH 2,638,222

ADJUSTABLE TANK STRIPPER

Filed June 19, 1950

Fig. 1.

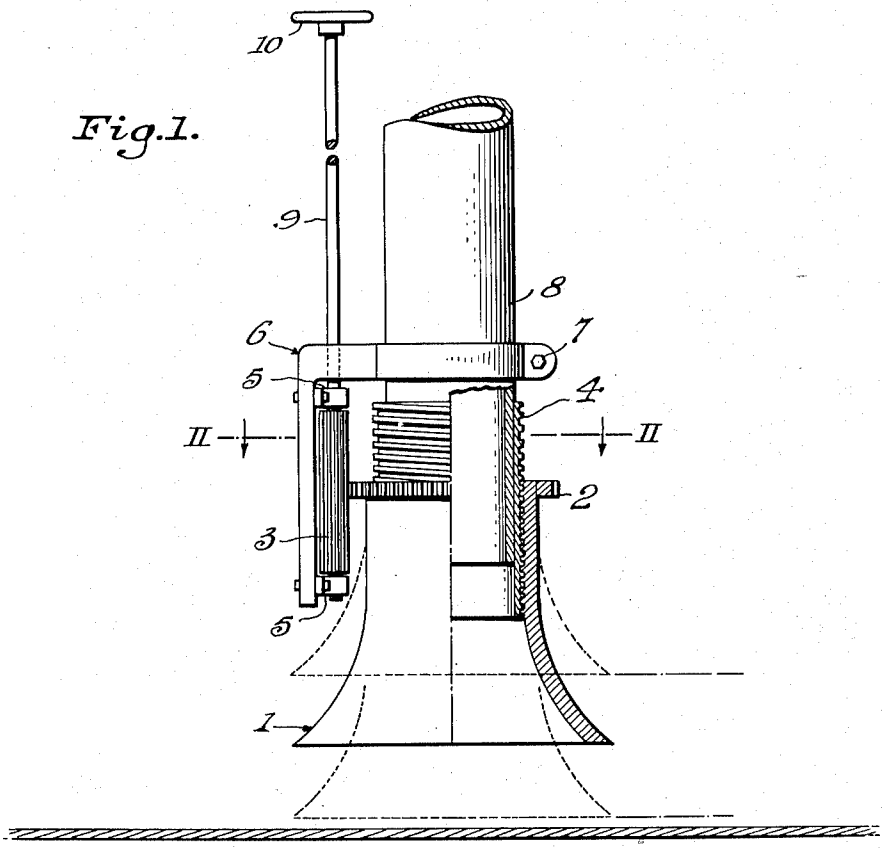
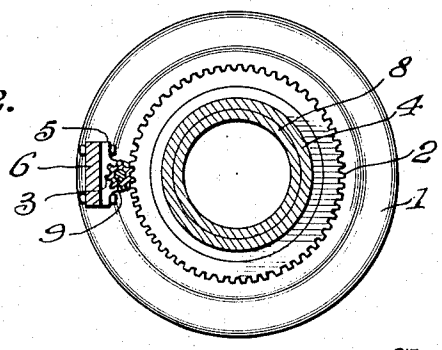


Fig. 2.



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ADJUSTABLE TANK STRIPPER

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1 Claim. (Cl. 210—51)

(Granted under Title 35, U. S. Code (1952), sec. 266)

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The invention described herein may be manufactured and used by or for the Government for governmental purposes, without payment to me of any royalty thereon.

The present invention relates to a tank stripping apparatus to be used in conjunction with tank cars, tankers, tanks and drums for storage or shipment of gasoline, kerosene, lubricating oils or similar commodities.

One of the objects of the invention is to provide an improved method and means of stripping a selected component from a mixture within a container while allowing the other components thereof such as sediments, water and the like, to remain in the container.

Another object of this invention is to provide a remotely controlled tank stripping device incorporating an adjustable bell mouth on the pick-up end of a discharge pipe, said bell mouth being controlled by a shaft connected thereto by suitable gear means operable by adjustable means operatively connected with said shaft for adjusting the bell mouth to any desired distance from the bottom of the container.

The necessity for this device arises due to the well known fact that gasoline and related oils collect moisture and other impurities in handling and storage. In order to insure acceptable purity of these items, frequently the desirable components must be stripped from the top of the container or on the other hand the water and sediment must be drained off through drain cocks or other means. This problem applies importantly to the storage and handling of high octane aviation fuels where the contemplated use thereof demands the highest quality of fuels and substantially absolute freedom from impurities.

Another object of this invention is to facilitate the clean separation of liquids present in multiple layer systems in a tank or other container or the separation of desired liquids from collected sludges or other undesirable constituents that may be present in the containing environment.

In pumping liquids from a container, if the pick-up end of the discharge pipe is placed close enough to the bottom of the container for maximum stripping, the proximity of the bottom of the container and the edges of the discharge pipe will restrict the free flow of the liquids and reduce the pumping efficiency of discharge pumps or other equipment; and one of the objects of this device is to provide adjustable means for adjusting the position of the pick-up end of the discharge pipe to a height suitable for maximum

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pumping efficiency and later when the contents of the container are low the pick-up level may be adjusted to a position near the bottom for maximum stripping efficiency.

Other objects and advantages of the invention will be apparent from the following description and the accompanying drawings, in which similar characters of reference indicate similar parts throughout the several views.

Reference is made to the drawings in which:

Fig. 1 is an elevation, partly in vertical section of the device;

Fig. 2 is a horizontal sectional view of the improved equipment, taken on the line II—II of Fig. 1, illustrating certain structural details of the construction.

Reference is made to Figs. 1 and 2 as an embodiment of the invention. The operating force for adjusting the pick-up level of the bell mouth 1 is applied to the control shaft 9 by means of a hand wheel 10 or other suitable means. The rotation of shaft 9 imparts a rotary motion to the elongated pinion gear 3, which is a part of, or securely attached to, the control shaft 9. Pinion 3 is retained in operating engagement with the spur gear or ring gear 2 by means of bracket 6. Shaft 9 and pinion 3 are attached to bracket 6 by means of retaining bearing members 5. These bearing members which encircle the control shaft 9 are positioned below and above pinion 3, are secured to the bracket 6 by any suitable retaining means. The upper portion of the bracket 6 includes a construction that encircles the discharge pipe 8 and is secured thereto by means of a bolt or screw 7. By means of the bracket 6 the elongated pinion 3 is supported in operative relation with spur gear or ring gear 2. With this arrangement operation of the control shaft 9 and pinion 3 effect rotation of spur gear or ring gear 2 which is a part of or securely attached to the bell mouth 1. This rotation of the bell mouth 1 which is threadably mounted on the discharge pipe 8 will impart longitudinal movement of the bell mouth 1 along the longitudinal axis of the discharge pipe 8.

The threaded mounting of the bell mouth 1 on the discharge pipe 8 may be accomplished by cutting complementary threads in the bell mouth 1 and the discharge pipe 8 or by the use of a suitable threaded sleeve 4 mounted on the outer surface of the discharge pipe 8 and the securing of a second complementary threaded sleeve (not illustrated) to the engaging inner surface of the bell mouth 1. The use of a threaded sleeve of a non-corrosive material having a

low coefficient of friction may be desirable under many conditions of contemplated use.

The pick-up level of the bell mouth extension 1 of the discharge pipe 8 may be predeterminately selected or experimentally adjusted to any desired level by rotation of the control shaft 9.

It will be apparent that various means other than the specifically illustrated construction may be employed for adjusting the discharge pipe 8. While this has been illustrated and described as a preferred embodiment of the present invention, it will be clear that the invention contemplates various structural modifications without departing from the concept thereof, and, therefore, it is not desired to be limited to the precise details of construction set forth above, but it will be evident that it is intended and desired to embrace within the scope of the invention such modifications and changes as may be necessary to adapt it to varying conditions and uses, as defined by the appended claim.

Having thus described my invention, what I claim as new and wish to secure by Letters Patent is:

A tank stripping device comprising a discharge pipe; an externally threaded sleeve secured on said discharge pipe adjacent one end thereof; an internally threaded bell mouth extension threaded on said sleeve for adjustable extension of said pipe, said bell mouth extension having a ring gear affixed thereto externally thereof; a bracket secured to said pipe adjacent said sueeve and having a portion extending substantially parallel and adjacent to said pipe, sleeve and extension; bearings on said portion of said bracket; a control shaft journalled in said bearings; and an elongated pinion secured on said control shaft for rotation therewith, extending substantially parallel to and coextensive with said sleeve and meshed with said ring gear whereby rotation of the control shaft will rotate the bell mouth extension about the sleeve and move the extension longitudinally of the discharge pipe.

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