April 1, 1958 R. W. SWANK 2,828,762

PIT BOX ACCESS COVER AND TOOL FOR REMOVING SAME

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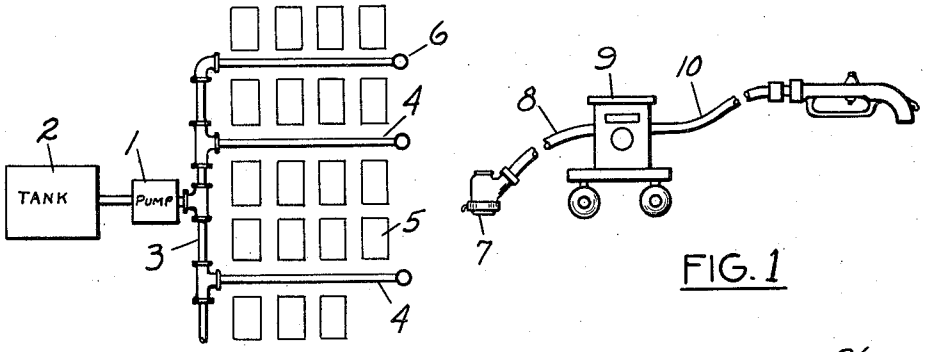
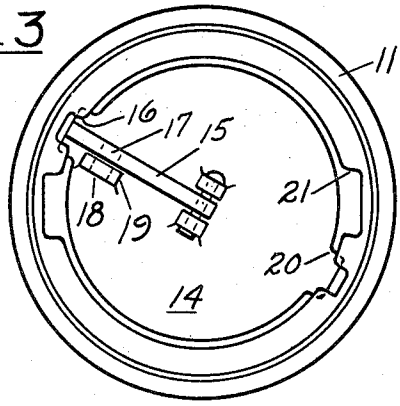


FIG. 1

FIG. 3



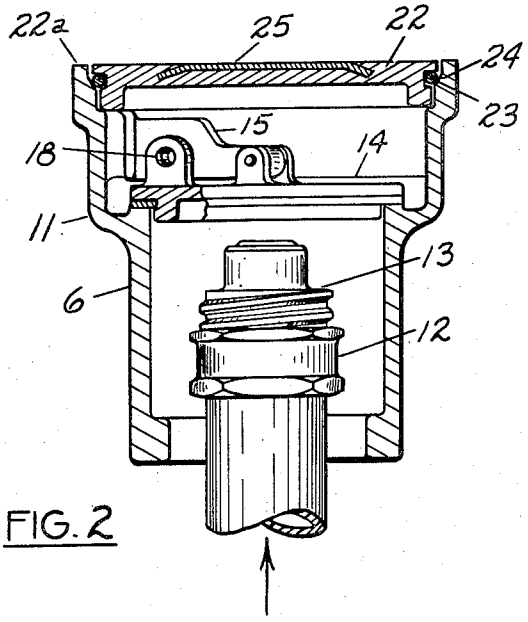


FIG. 2

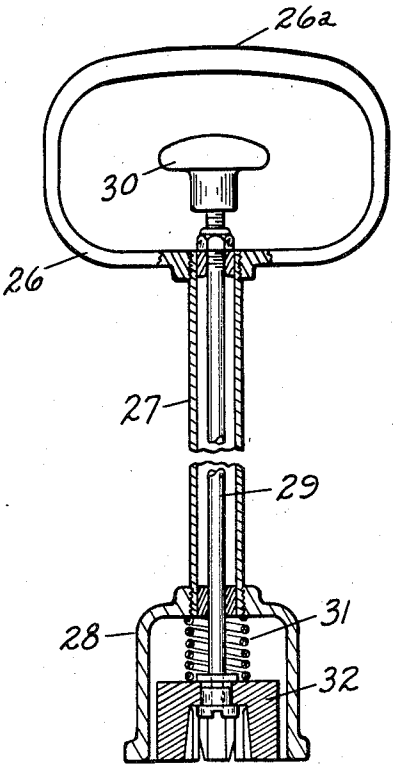


FIG. 4

INVENTOR.
Rehl W Swank
BY
Ralph Hamman
Attorney

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PIT BOX ACCESS COVER AND TOOL FOR REMOVING SAME

Rehl W. Swank, Edinboro, Pa., assignor to Erie Meter Systems, Inc., Erie, Pa., a corporation of Pennsylvania

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3 Claims. (Cl. 137—371)

This invention is intended to make possible the fueling of automobiles in parking lots. Sub-surface fuel lines from a central pump are run between rows of parked automobiles and at suitable intervals (e. g. every fourth automobile) take off pit boxes are provided housing fuel outlets to which an attendant can attach the inlet hose on a mobile metering unit which also has the usual delivery hose for filling the automobile fuel tanks. The boxes have outer covers substantially flush with the surface of the parking lot and can be driven over without injury. The covers are constructed so as to be readily removed and replaced by a special magnetic lifter and so the covers will not become permanently magnetized and pick up nails and other tramp iron.

In the drawing, Fig. 1 is a diagrammatic layout of a parking lot fueling system; Fig. 2 is a section through a pit box; Fig. 3 is a top view of the pit box with its outer cover removed; and Fig. 4 is a section through the magnetic lifter for the outer cover of the pit box.

In Fig. 1 of the drawing is diagrammatically shown a parking lot fueling system where a pump 1 draws fuel from a tank 2 and discharges it to sub-surface fuel lines 3 having feeder lines 4 extending between adjacent rows of parked automobiles 5. At suitable points along the feeder lines 4 are arranged pit boxes 6 containing fuel outlets to which an attendant may connect a coupling 7 on an inlet hose 8 on a mobile metering unit 9 which has the usual fuel delivery hose 10. For large parking lots, the mobile metering unit could be motor driven.

In the enlarged view of Fig. 2, the pit box 6 is shown as having a cast iron casing 11 surrounding the fuel outlet 12 which is provided with one part 13 of a quick detachable shut off coupling which mates with the corresponding coupling 7 on the intake hose 8. The coupling 13 is protected by a removable cover 14 having hinged at its center a latch member 15 which in the locked position fits in a recess 16 on the inner wall of the housing 11. The latch member 15 is locked by a suitable locking member passing through a hole 17 in the latch member 15 and a hole 18 in an ear 19 integral with the removable cover 14. Upon removal of the locking member, the latch member 15 can be swung upward after which the cover 14 may be easily removed by rotating it through a small angle so that projections 20 register with large notches 21 on the housing 11. The cover 14 permits only authorized use by the parking lot attendant.

The upper end or rim 22*a* of the pit box housing 11 is substantially flush with the surface of the parking lot and is closed by a removable non-magnetic cover 22 having a sealing gasket 23 which fits against a tapered surface 24 on the inside of the rim 22*a*. The cover 22, because it is flush with the upper end of the pit box housing 11, cannot be removed without special tools and cannot be injured if run over by automobiles. This is important in a parking lot fueling system. The cover 22 has an insert 25 of magnetic material so that the cover can be easily removed by the lifting tool shown in Fig. 4.

The lifting tool has a handle 26 from which depends a tubular stem 27 terminating in a bell housing 28 at the bottom having a diameter smaller than the cover 22 and larger than the insert 25. Within the stem 27 is a slidable rod 29 having a knob 30 at its upper end and biased downward by a coil spring 31 arranged between the bell housing 28 and a permanent magnet 32 fixed to the lower end of the rod. The spring 31 normally moves the magnet 32 downward so that it is flush with the lower end of the bell housing 28. When this tool is to be used to remove one of the covers 22, the bell housing is placed on the cover around the magnetic insert 25 and the cover is gripped by the permanent magnet 32. Since the cover 22 merely rests in the upper end of the pit box housing 11 by gravity, the cover can be easily removed. After the fueling, the cover which has remained attached to the lifting tool is replaced and the magnetic grip between the permanent magnet 32 and the magnetic insert 25 in the cover is broken by pulling upward on the knob 30 while the bell housing 28 is held down by pressure on the handle 26. This can be done easily with one hand with the palm of the hand resting on the section 26*a* of the handle and with two fingers straddling the knob 30. Since the pull of the permanent magnet 32 need only be enough to lift the relatively light cover 22, the release of the cover by an upward pull on the knob 30 is not difficult.

Because the covers 22 may be run over by an automobile, it is important that the covers do not become permanently magnetized so as to pick up nails and other tramp iron which might injure the tires. This is accomplished by making the magnetic insert 25 as a soft iron insert in a non-magnetic cover casting such as brass. The soft iron insert 25 does not become permanently magnetized. If the entire cover 22 were made of iron, it would become permanently magnetized because the cast iron pit box housing 11 would act as a keeper for the magnet. Then, the cover would be very hard to remove because of the necessary close clearance between the cover and the rim 22*a*. In the present construction, the close fit of the cover and rim does not make the cover hard to remove.

What is claimed as new is:

1. In a multiple outlet vehicle fueling system having a pit box for each fuel outlet and having an access rim of magnetic material substantially flush with the surface of the area, a substantially flush cover of non-magnetic material seated within the rim, an insert of magnetic material in the cover spaced a substantial distance from said rim, and a lifter for the cover having at its lower end a magnet for gripping the magnetic insert in the cover.

2. In a multiple outlet vehicle fueling system having a pit box for each fuel outlet and having an access rim of magnetic material substantially flush with the surface of the area, a substantially flush cover of non-magnetic material seated within the rim, a soft iron insert at the center of the cover spaced a substantial distance from said rim, a lifting tool having a frame provided at its upper end with a handle and having its lower end engaging the cover around the insert, a rod slidable in the frame having a magnet at its lower end for gripping the soft iron insert, and means for retracting the rod to break the grip of the magnet on the soft iron insert.

3. In a multiple outlet vehicle fueling system having an iron pit box for each fuel outlet and having a rim substantially flush with the surface of the area, a substantially flush cover of non-magnetic material seated within the rim, an insert of magnetic material in the cover spaced inward a substantial distance from the rim of the pit box whereby the insert will not become permanently magnetized when the cover is lifted from the pit box by a

magnetic lifting device, and a lifting device having a magnet for gripping the magnetic insert in the cover to lift the same.

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