May 28, 1935. C. M. JONES 2,002,818

TANK THEFT PREVENTION DEVICE

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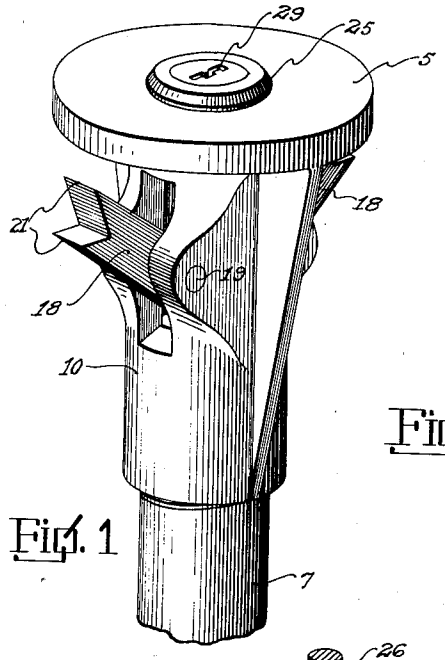


Fig. 1

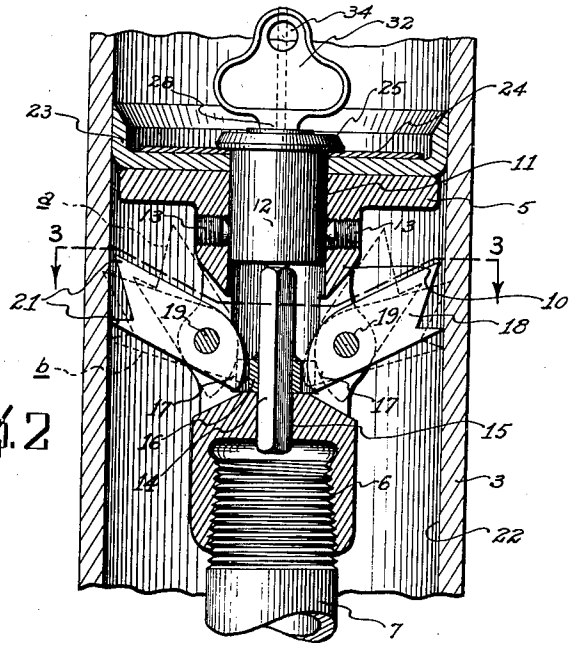


Fig. 2

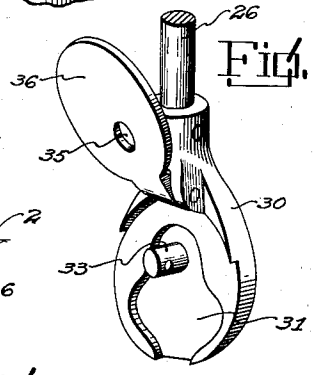


Fig. 4

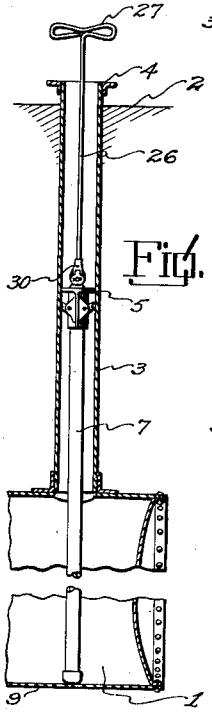


Fig. 6

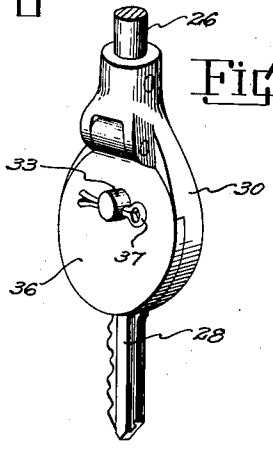


Fig. 5

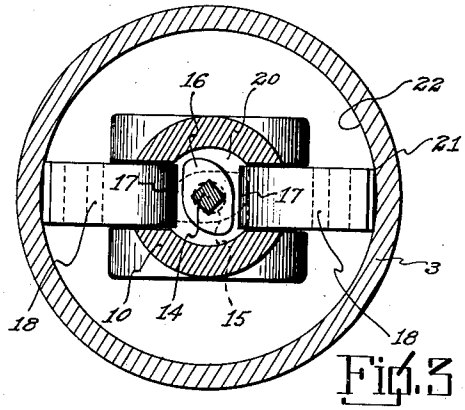


Fig. 3

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TANK THEFT PREVENTION DEVICE

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7 Claims. (Cl. 70—14)

The invention relates to removable abutments adapted to be placed in the fill pipe leading to a supply tank, for instance as used in gasoline vending stations, and has for its object to provide an abutment having locking means in connection therewith and controlled from outside the fill pipe and in turn controlling members carried by the abutment which cooperate with the inner periphery of the fill pipe for positively preventing removal of the abutment and unauthorized removal or replenishment of gasoline from or to the tank through the fill pipe.

A further object is to provide the abutment with pivoted dogs controlled by the lock and cooperating with the inner periphery of the fill pipe for preventing upward movement of the abutment. Also to incline said dogs upwardly and outwardly so that their sharp outer ends will dig into the inner periphery of the fill pipe upon forced upward movement of the abutment thereby preventing removal of the abutment.

A further object is to provide the lock with a rotatable stem between the inner adjacent ends of the locking dogs and provided with a cam member adapted to move the dogs into or out of engagement with the inner periphery of the fill pipe when the stem and cam are rotated through the medium of the lock.

A further object is to provide the upper end of the abutment with an inverted cup engaging the inner periphery of the fill pipe for preventing any seepage into the tank or insertion of a tool around the abutment.

A further object is to provide an operating handle having means at one end thereof for receiving a key to be inserted in the lock of the abutment while in the fill pipe for disengaging the locking dogs from the fill pipe, permitting removal of the abutment, by said handle, means and key.

With the above and other objects in view, the invention resides in the combination and arrangement of parts as hereinafter set forth, shown in the drawing, described and claimed, it being understood that changes in the precise embodiment of the invention may be made within the scope of what is claimed without departing from the spirit of the invention.

In the drawing:

Figure 1 is a perspective view of the abutment without the inverted cup.

Figure 2 is a vertical transverse sectional view through the abutment, with inverted cup in position and a portion of the fill pipe.

Figure 3 is a horizontal sectional view taken on line 3—3 of Figure 2.

Figure 4 is a perspective view of the key retaining device showing the same open.

Figure 5 is a view similar to Figure 4, showing the device closed, with the key in place.

Figure 6 is a vertical transverse sectional view through the fill pipe and a portion of the storage tank, showing the complete device therein ready for removal.

Referring to the drawing the numeral 1 designates a storage tank for gasoline, which is adapted to be buried in the ground a substantial distance from the ground level 2, reference being made to Figure 6. Extending upwardly from the storage tank is a fill pipe 3, the upper end 4 terminates above the ground level 2 in the usual manner so that the tank can be filled from time to time. The device is particularly designed for use in connection with automobile filling stations and to prevent unauthorized persons from inserting a filling hose for replenishing or other instruments for removing gasoline from the tank 1, via the fill pipe.

Disposed within the fill pipe 3 is an abutment head 5 of sufficient diameter to substantially obstruct the fill pipe, and which abutment head is disposed at a substantial distance down in the fill pipe 3 where the lock cannot be picked or reached by unauthorized persons with ordinary tools. Threaded in at 6 in the lower end of the head is a downwardly extending supporting pipe 7, the lower end of which engages the bottom 9 of the supply tank to position the abutment head in the fill pipe.

The abutment head 5 is provided with a downwardly extended portion 10, in the lower end of which the limiting pipe 7 is threaded. Reduced portion 10 is provided with a central bore 11, in which is disposed a conventional form of lock barrel 12, which is held in place by set screws 13. Extending downwardly from the lock barrel 10 is a squared shaft 14, which is keyed to the barrel, and has its lower end rotatably mounted at 15 in a bearing of the reduced portion 10. The squared shaft has mounted thereon a double ended cam 16, the ends of which are positioned whereby when the shaft 14 is rotated, they will engage the inner ends 17 of the locking dogs 18 which are pivotally mounted at 19 in opposite sides of the chamber 20 of the abutment extension 10. It will be noted that the latching members 18 have their lower ends 17 below the pivotal points 19 and consequently when the double ended cam is rotated the toothed ends 21 of the latching dogs 18 will be raised out of engagement with the inner periphery 22 of the fill pipe 3, thereby allowing the abutment as a whole to be removed from the fill pipe. When the double ended cam 16 is in an inoperative position as shown in Figure 3, the latching members or dogs 18 will move downwardly at their outer ends by gravity from the dotted line position *a* to the full line position as shown in Figure 2. Upon an attempted upward forcing of the device by an unauthorized person, the upward forcing of the abutment will

cause the dogs 18 to dig or cut into the inner periphery 22 of the fill pipe and positively prevent the removal of the abutment. This extreme upward force will cause the dogs to assume dotted line position b.

The abutment 5 at its upper end is of a sufficient diameter whereby there is a working clearance within the fill pipe 3 without a binding engagement, hence it will be seen that it will be impossible to insert a tool or hose between the abutment and the inner periphery 22 for reaching liquid in the tank 1. If so desired an inverted cup 23 may be placed on the upper end of the abutment 5 as shown in Figure 2 and be held thereon by a plate 24 on the upper side of the cup and interposed between the cup and the flange 25 of the lock barrel 12, thereby preventing seepage past the abutment, if a filling operation is attempted. It is to be understood this inverted cup may be eliminated if desired, as shown in Figures 1 and 6, and in which figures the lock barrel flange 25 rests on the upper side of the abutment 5.

To operate the device an enlongated handle member 26 is provided having a hand grip 27 at its upper end and a key retainer 30 at its lower end and which handle member is adapted to be inserted in the upper end of the fill pipe 3 to a point where the removal key 28, carried by the retainer thereof, will be received within the key receiving aperture 29 of the barrel lock 12, at which time the operator imparts a rotation to the handle member which will rotate the key in the barrel lock 12 in the usual manner, for rotating the shaft 14 which carries the double ended cam 16. As the double ended cam 16 rotates it will engage the lower inner end 17 of the pivoted dogs 18 and cause their upper ends to move upwardly and inwardly out of biting engagement with the inner periphery of the fill pipe, thereby allowing the abutment unit as a whole to be removed from the fill pipe so that the supply of gasoline in the tank 1 may be replenished.

The handle member 26 at its lower end terminates in a key retainer 30 having a recess 31 in one side thereof in which is received the finger engaging portion 32 of the key 28. Key 28 is held in the recess 31 by means of a lug 33, which extends through the aperture 34 in the key and an aperture 35 in the hinged plate 36 carried by one side of the key retainer. When the hinged plate 36 is in closed position, as shown in Figure 5, with the lug extending therethrough, it will be seen that a cotter key 37 may be passed through the lug 33 for positively holding the hinged plate 36 in closed position, and for gripping and holding the key during the operation of the device.

From the above it will be seen that a theft prevention and unauthorized replenishing device is provided for fill pipes of underground tanks in service stations, which will positively prevent unauthorized persons from access to or from the tank. It will also be seen that the abutment is positively locked in position in gripping engagement with the inner periphery of the fill pipe and if the abutment is forced upwardly without unlocking, the greater the pressure, the further the teeth 21 of the pivoted members 18 will bite into the fill pipe.

The lock 12 is of a conventional form wherein when the key 28 when rotated to unlocked position is held against removal from the lock, hence it will be seen that the operator manipulating the device may raise the abutment from the fill pipe 3 by pulling upwardly on the handle member 26.

The invention having been set forth, what is claimed as new and useful is:

1. The combination with a fill pipe leading to a storage tank, of means for preventing access to or from the tank through the fill pipe at a point spaced remote in relation to its upper end, said means comprising a removable abutment in the fill pipe, means for limiting the downward movement of the abutment in the fill pipe and key controlled dogs carried by said abutment and cooperating with the inner periphery of the fill pipe for positively holding said abutment in adjusted position.

2. A fill pipe abutment comprising a body member adapted to be disposed within a fill pipe at a point remote in relation to its filling end, a key controlled mechanism carried entirely by said abutment, oppositely spaced inwardly and outwardly movable gripping dogs carried by said abutment and adapted to grip the inner periphery of the fill pipe, said key controlling mechanism being disposed between the dogs and cooperating with said gripping dogs whereby said dogs may be moved into or out of engagement with the inner periphery of the fill pipe.

3. The combination with a fill pipe abutment, said abutment being disposed in a fill pipe, of pivoted oppositely disposed spaced upwardly and outwardly inclined gripping dogs carried by said abutment and adapted to grip the inner periphery of the pipe upon upward movement of the abutment and key controlled mechanism between the dogs and cooperating with said gripping dogs for moving said dogs out of engagement with the inner periphery of the pipe.

4. The combination with an abutment disposed in a fill pipe for preventing access to or from a tank to which the pipe leads, of upwardly and outwardly inclined pipe gripping dogs carried by the abutment, said dogs having inner lower ends below the pivotal points of the dogs, a lock control mechanism above the dogs and adapted to be controlled from a distance, a shaft carried by said lock control mechanism and rotated thereby and cam means carried by the shaft and cooperating with the lower inner ends of the dogs whereby said dogs may be simultaneously released from engagement with the inner periphery of the fill pipe or allowed to grip the fill pipe.

5. The combination with a fill pipe abutment, of spaced radially disposed dogs carried thereby and adapted to grip the inner periphery of a fill pipe for preventing upward movement of the abutment in the fill pipe and control means between the spaced dogs and cooperating with said dogs whereby they can be moved into operative or inoperative position in relation to the inner periphery of the fill pipe.

6. A device as set forth in claim 5 including a member carried by the abutment and extending into the supply tank and forming means for limiting movement of the abutment towards the supply tank.

7. A device as set forth in claim 5 including a key controlled mechanism, a double ended cam carried thereby, said cam forming the means to control the gripping dogs.

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