

Sept. 29, 1942.

A. R. McKAY

2,297,360

COIN CONTROLLED PUMP.

Filed Aug. 14, 1941

2 Sheets-Sheet 1

Fig. 1.

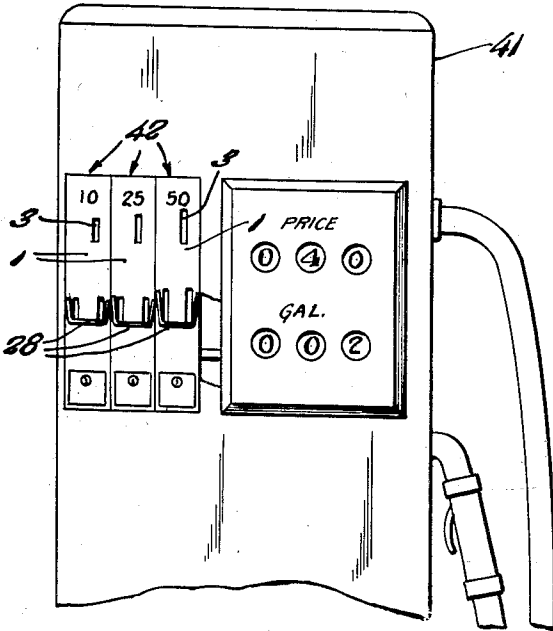


Fig. 5.

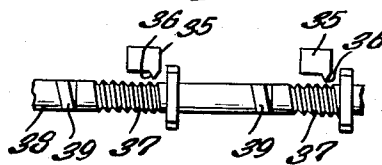


Fig. 6.

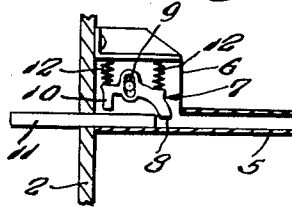


Fig. 7.

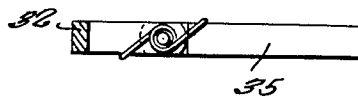


Fig. 4.

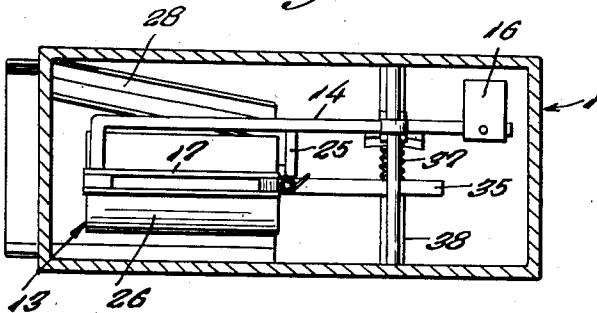


Fig. 8.

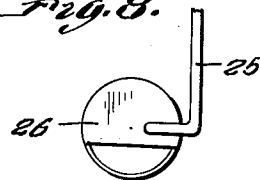
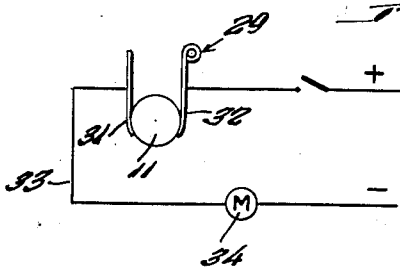


Fig. 9.



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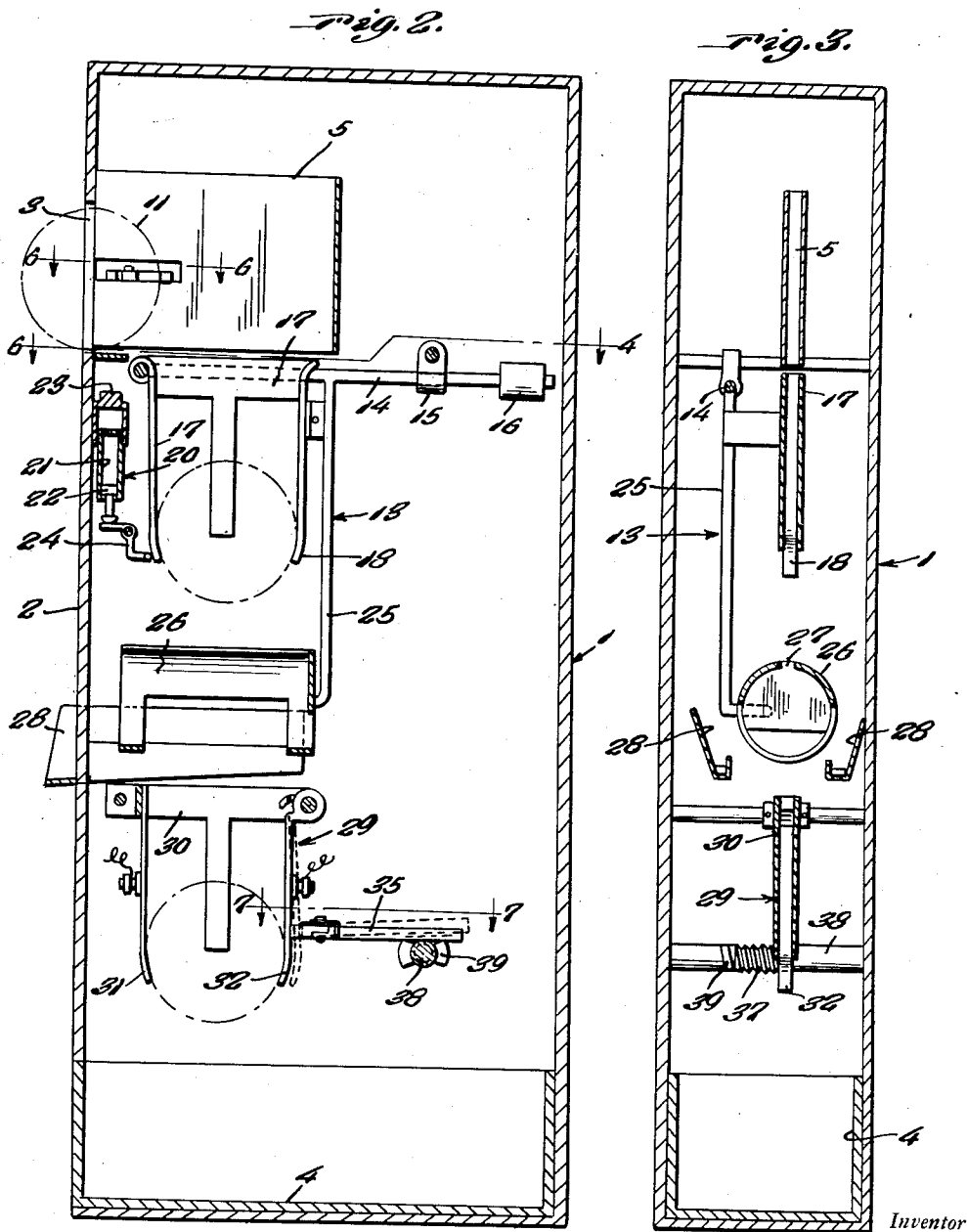
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COIN CONTROLLED PUMP

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2 Sheets-Sheet 2



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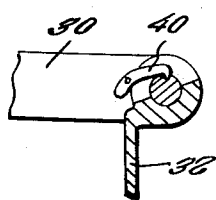


Fig. 10.

UNITED STATES PATENT OFFICE

2,297,360

COIN CONTROLLED PUMP

Albert R. McKay, Portland, Oreg.

Application August 14, 1941, Serial No. 406,887

1 Claim. (Cl. 194—6)

The present invention relates to new and useful improvements in pumps particularly for dispensing motor fuel and has for its primary object to provide, in a manner as hereinafter set forth, an apparatus of this character wherein a predetermined quantity of fuel will be dispensed upon the insertion of a coin of a given denomination.

Another very important object of the invention is to provide a coin controlled liquid dispensing pump of the aforementioned character which comprises novel fraud preventing means.

Other objects of the invention are to provide a coin controlled liquid dispensing pump of the character described which will be comparatively simple in construction, strong, durable, highly efficient and reliable in operation, compact and which may be manufactured at low cost.

All of the foregoing and still further objects and advantages of the invention will become apparent from a study of the following specification, taken in connection with the accompanying drawings wherein like characters of reference designate corresponding parts throughout the several views, and wherein:

Figure 1 is a view in front elevation of a portion of a pump which embodies the present invention.

Figure 2 is a view in vertical section through the coin mechanism.

Figure 3 is a vertical sectional view, taken at right angles to Figure 2.

Figure 4 is a view in horizontal section taken substantially on the line 4—4 of Figure 2.

Figure 5 is a detail view in elevation of the circuit opening means.

Figure 6 is a detail view in horizontal section, taken substantially on the line 6—6 of Figure 2.

Figure 7 is a view in horizontal section, taken substantially on the line 7—7 of Figure 2.

Figure 8 is a detail view in end elevation of the swinging coin rejector.

Figure 9 is a diagrammatic view of the electric circuit.

Figure 10 is a detail view in vertical section, showing the coin controlled means for releasably securing the switch in open position.

Referring now to the drawings in detail, it will be seen that the embodiment of the invention which has been illustrated comprises a casing 1 of suitable material. The upper portion of the front 2 of the casing 1 has formed therein a vertical coin slot 3. Mounted in the lower

portion of the casing 1 is a removable tray or receptacle 4 for the reception of coins.

Mounted on the front 2 in the upper portion of the casing 1 and aligned with the slot 3 is a substantially U-shaped guide 5. On one side of the guide 5 is a bracket 6. Mounted on the bracket 6 is a slug detector 7. The detector 7 includes a dog 8 which is pivotally and movably mounted on the bracket 6 through the medium of a pin and slot connection 9. The pivoted end of the dog 8 is provided with a tail 10. In Figure 6 of the drawings a coin entering the machine through the slot 3 is indicated at 11. Coil springs 12 yieldingly resist actuation of the dog 8 by the coin 11.

Mounted beneath the guide 5 in the casing 1 and adapted to receive from said guide the coins which clear the rejector 7 is a fraud preventing device which is designated generally by reference numeral 13. The device 13 includes a rockable shaft 14 which is journaled, at an intermediate point, in a bearing 15 in the casing 1. Fixed on one end portion of the shaft 14 is a laterally projecting balance weight or arm 16. Mounted on the opposite side of the other end portion of the shaft 14 and depending therefrom is a coin guide 17. The guide 17 is adapted to receive coins from the guide 5.

The guide 17 includes depending stationary and pivoted coin retaining fingers 18 and 19, respectively. Mounted adjacent the pivoted coin retaining finger 19 is a dash pot 20. The dash pot 20 comprises a cylinder 21 for reception of a suitable fluid, together with a piston 22 operable in said cylinder. The upper end of the cylinder 21 is apertured for communication with a chamber 23 on said cylinder. The piston 22 is operatively connected to the pivoted finger 19 through the medium of a bell crank lever 24.

The device 13 further includes a hanger 25 which depends from the shaft 14 adjacent the guide 17. Mounted horizontally on the lower end of the hanger 25 is a rejector 26 of substantially segmental cross-section. The rejector 26 has formed therein a slot 27 for receiving coins which are released from the guide 17. Rejected coins are returned to the outside of the machine through troughs 28.

Mounted in the casing 1 for receiving coins which clear the device 13 is a motor control switch 29. The switch 29 includes a guide 30 for receiving coins from the rejector 26. Depending from the guide 30 are stationary and pivoted coin retaining contact fingers 31 and 32, respectively. As best seen in Figure 9 of the

drawings, the contact fingers 31 and 32 are in an electric circuit 33 to the motor 34 of the pump.

Pivotally mounted for swinging movement in a horizontal plane only on the contact finger 32 is a spring returned arm 35. The free end portion of the arm 35 is provided with a thread 36 (see Fig. 5) which is engageable with an adjacent threaded portion 37 of the pump shaft 38. Adjacent one end of the threaded portion 37 of the pump shaft 38 is a cam 39.

It is thought that the operation of the invention will be readily apparent from a consideration of the foregoing. Briefly, a coin of the correct denomination is inserted through the slot 3 and enters the guide 5. When the coin is thus inserted it engages the inner end of the dog 8 and swings the outer end of said dog toward the coin. Thus, if a slug having a hole in it is inserted the tail 10 of the dog 8 will enter said hole and prevent the further insertion of the slug. When the coin passes the rejector 7 it drops by gravity from the guide 5 into the guide 17 of the device 13. The construction, arrangement and balance of the device 13 is such that the rejector 26 is normally swung laterally out of vertical alignment with the guide 5. The coin passes from the guide 5 through the guide 17 and is arrested by the fingers 18 and 19. If the coin is of the correct weight the device 13 is swung by said coin to a true vertical position, as seen in Figure 3 of the drawings. Under the control of the dash pot 20 the pivoted finger 19 slowly releases the coin which passes through the slot 27 of the rejector 26 and continues on to the switch 29. If the coin is light the weight thereof will not be sufficient to swing the device 13 to a true vertical position. If the coin is too heavy the device 13 is swung thereby beyond a true vertical position. Thus, in either case the coin, when released by the fingers 18 and 19, will drop to either side of the slot 27 and be deflected by the rejector 26 into one of the troughs 28.

A coin actuated latch 40 (see Fig. 10) releasably secures the contact finger 32 of the switch 29 in open position, as suggested by the dotted lines in Figure 2 of the drawings. When a coin clears the rejector 26 of the device 13 it drops by gravity into the guide 30 of the control switch 29. When this coin enters the guide 30 it swings the latch 40 in a direction to release the contact finger 32. When thus released the finger 32 swings downwardly to the full line position in Figure 2 where it coacts with the finger 31 for arresting and retaining the coin. The coin electrically connects the contact fingers 31 and 32 thereby closing the circuit to the pump motor 34.

When the contact finger 32 is released and

swings to the full line position shown in Figure 2 of the drawings, the arm 35 is swung downwardly into engagement with the threaded portion 37 of the pump shaft 38. With the electric circuit to the motor 34 closed, it will be understood that the pump is now in operation, driving the shaft 38. The arm 35 is swung laterally by reason of its threaded connection with the shaft 38 until said arm engages the cam 39. When this occurs the arm 35 is swung upwardly out of engagement with the shaft 38 thereby returning the pivoted contact finger 32 to open position as seen in dotted lines in Figure 2 of the drawings. This opens the circuit 33 for de-energizing the electric motor 34 and releases the coin which drops into the tray 4. It will thus be seen that the pump has been actuated for a predetermined length of time for dispensing the desired quantity of liquid. This length of time is governed by the length of the threaded portion 37 of the shaft 38. In Figure 1 of the drawings, reference numeral 41 designates the upper portion of a pump housing. This housing is provided with a plurality of the coin control units for coins of different denominations. It will accordingly be seen that the pump is capable of dispensing different quantities of liquid. The several units are indicated at 42. As seen in Figure 5 of the drawings, the pump shaft 38 is provided with a plurality of threaded portions 37, one for each of the units 42.

It is believed that the many advantages of a coin controlled liquid dispensing pump constructed in accordance with the present invention will be readily understood and although a preferred embodiment of the apparatus is as illustrated and described, it is to be understood that changes in the details of construction and in the combination and arrangement of parts may be resorted to which will fall within the scope of the invention as claimed.

What is claimed is:

In an electric motor driven liquid dispensing pump including a threaded shaft, a switch for controlling the motor comprising a pair of contact fingers for receiving and retaining a coin therebetween for closing an electric circuit to the motor, one of said contact fingers being pivoted for swinging movement, an arm pivotally mounted on the swinging contact finger and engageable with the threaded shaft for swinging movement thereby, a cam on the shaft for disengaging the arm from said shaft and for actuating the pivoted contact for releasing the coin, and coin controlled means for releasably securing the pivoted contact finger in operative position.

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