PUBLISHED	**F. VAN DER PLAS**	**Serial No.**
MAY 25, 1943.	COIN-WATERMETER	**307,509**
BY A. P. C.	Filed Dec. 4, 1939	2 Sheets–Sheet 1

FIG. 1

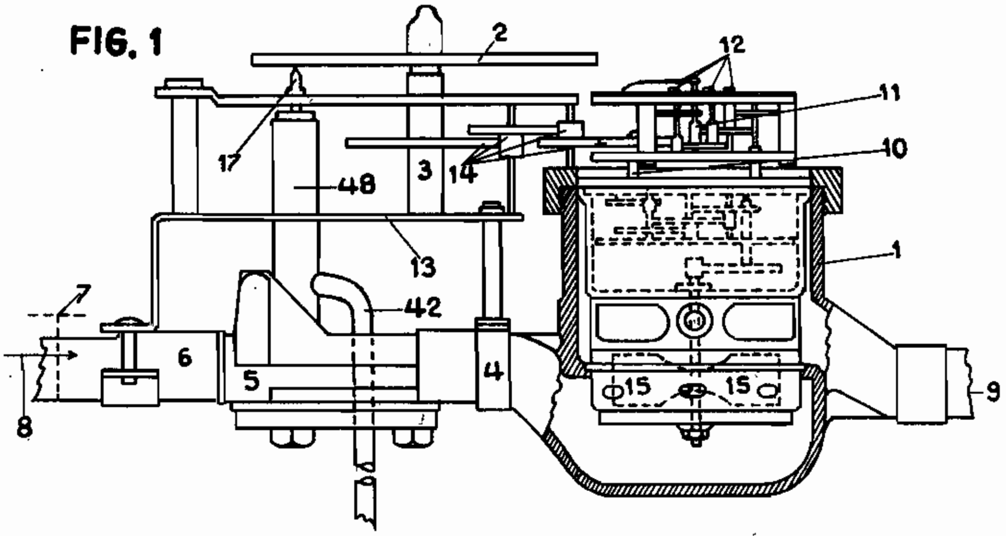


FIG. 2

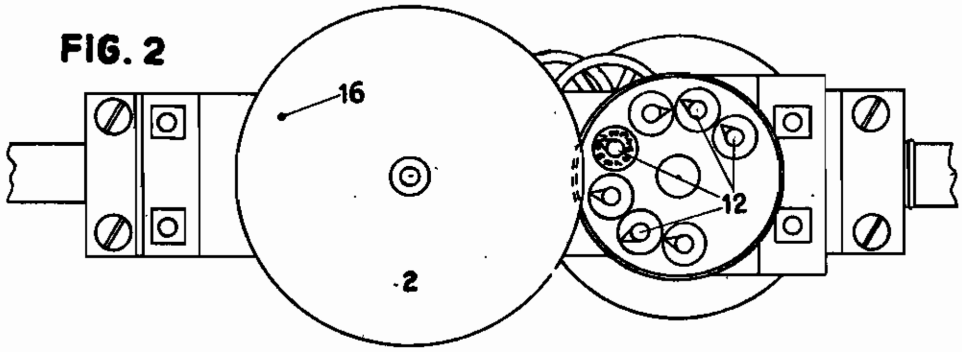


FIG. 4

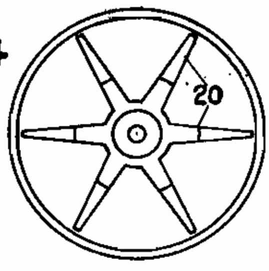
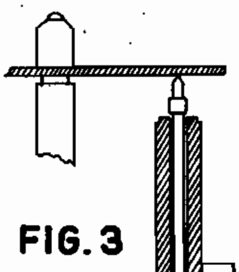
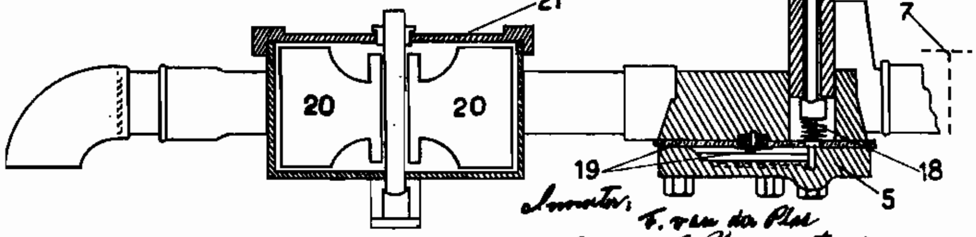


FIG. 3





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By G. F. [illegible] Atty

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Serial No.
307,509
2 Sheets-Sheet 2

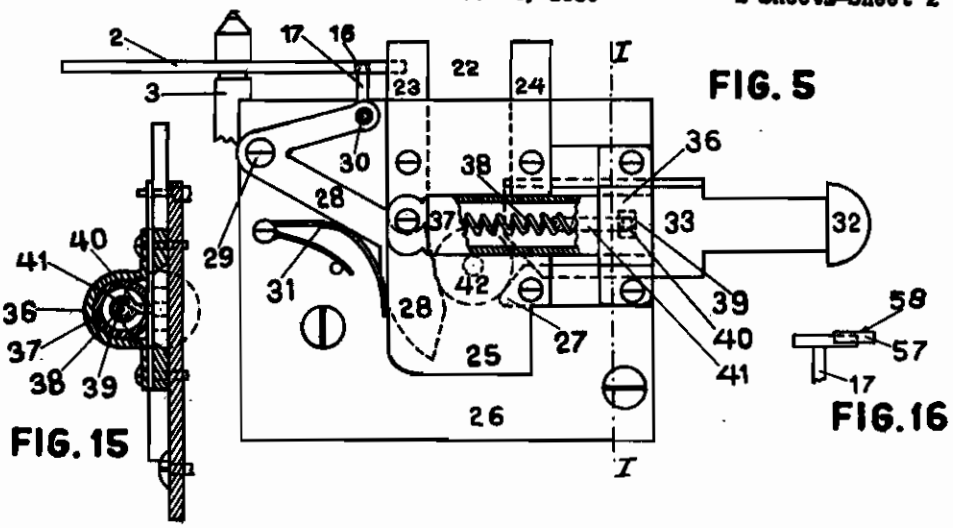

FIG. 5

FIG. 15

FIG. 16

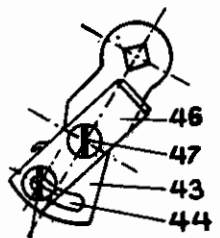

FIG. 6

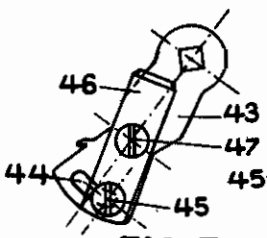

FIG. 7

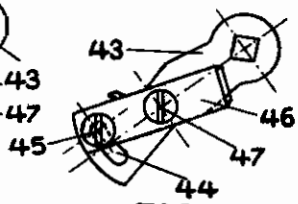

FIG. 8

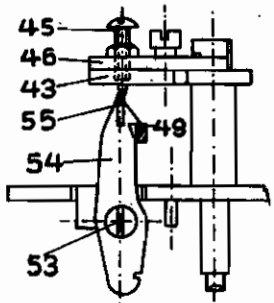

FIG. 9

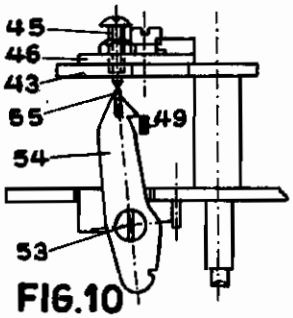

FIG. 10

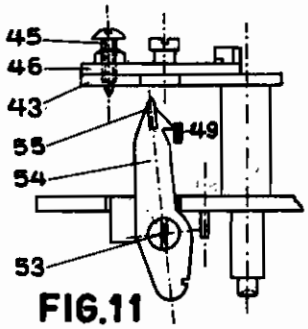

FIG. 11

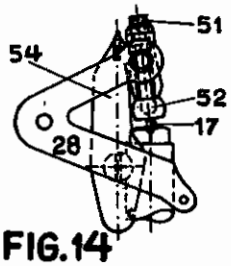

FIG. 14

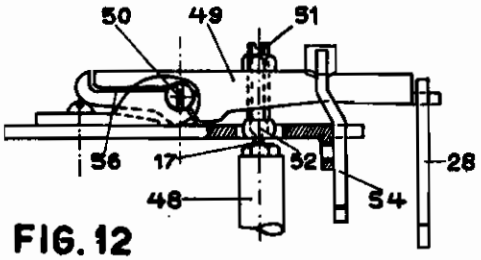

FIG. 12

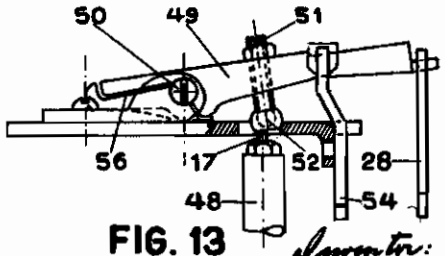

FIG. 13

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ALIEN PROPERTY CUSTODIAN

COIN-WATERMETER

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Application filed December 4, 1939

The invention relates to an apparatus, which can be fixed to every watermeter, so that the whole can act as a coin watermeter, whereby at the same time the consumed quantity of water can directly be read off from the watermeter.

A construction according to the invention consists in affixing a valve in the watermeter in the form of a membrane, which opens or closes the water supply, that is regulated by a bar or some similar arrangement that communicates with the liquid-meter by means of a revolving plate (dial) or a conformable device.

Explanation of the invention must be referred to the annexed drawings, whereupon for example and schematically, some execution forms according to the invention are given.

Fig. 1 shows partly a side view and partly a section of a coin-watermeter according to the invention.

Fig. 2 shows an upper view on the apparatus according to the invention of Fig. 1.

Fig. 3 shows the connection of the bar with the plate and the membrane in section, while in the conduit-pipe, a simple water wheel is affixed.

Fig. 4 shows a section of such a wheel.

Fig. 5 shows the coupling of the coin apparatus to the bar and the plate, according to the invention.

Fig. 6 to Fig. 14 show another device of the revolving plate given here below.

Fig. 15 shows a view along the line I—I of Fig. 5.

Fig. 16 is a modification which may be employed as a part coupling the bar to the plate according to the invention.

On Fig. 1, 1 shows a normal watermeter, while 2 shows the proper device according to the invention. This consists of a flat plate (2) which is fastened to the vertical axle 3. A valve (5) is connected to the coupling piece 4, to which valve on the other side is brought an iron-pipe 6, with stop cock 7, schematically mentioned. The arrow 8 shows the water direction, coming from the main net through valve 5, and watermeter 1 and leaving the instrument by 9. Axle 10 is brought outside with a packing-gland, such as is used by ordinary watermeters, through the closing-plate of the upper piece of the watermeter and drives through a transmission of motion 11, the counting mechanism 12, above on the watermeter.

On coupling piece 4 and iron tube 6, bridge 13 is fastened. On this bridge, the axle 3 is joined to axle 10 through a transmission of motion. As plate 2 is fixed to axle 3, this axle and also plate 2, will also assume a revolving movement through the transmission of 10 and 14, when the wing of watermeter 15 assumes such a movement. In plate 2 a small opening 16 is made, see Fig. 2, allowing an upper aspect on plate 2 and the counting-mechanism 12. This opening 16 corresponds with needle (bar) 17, which fits exactly in this opening. This needle 17 is connected to valve 5 which regulates the supply of the water. When needle 17 shoots upwards to hole 16 through a spring action 18 (see Fig. 3) the supply is shut off. If the needle 17 is again pressed down through the coin-management, then the water supply is opened; the flowing water brings the impeller 15, and through that also plate 2 in a revolving motion, the opening 16 is displaced and needle 17 is thus pressed only under plate 2, whether or not running in a groove. By this means the water supply is let open until opening 16 again appears above the needle 17, and through shooting of this needle 17 into this opening 16 the water supply is shut off. The quantity of water supplied for a coin-piece is thus fixed through one revolution of plate 2. This quantity can be read off from the watermeter. Conversely only one revolution of plate 2 can be adjusted to yield a certain quantity of water by the application of an adapted transmission. The valve 5 is a very old well-known device provided with a membrane, so that it does not need further discussion, especially as this device is nowadays applied to nearly all kinds of coin watermeters.

Fig. 3 shows a section of a case 21, of a water-impeller 20, valve 5 and needle 17 with plate 2 whilst Fig. 4 shows a section over the impeller 20 with the case 21. This is a simple watermeter meant for little water consumers. 18 is a membrane with which the water supply is opened or shut off.

Fig. 5 shows a coin apparatus. Fig. 5 is supposed to be a side-view on the coin apparatus with a connection to plate 2 by means of needle 17. 22 is supposed to be the canal placed between two ledgers 23 and 24 and between front-(25) and back-plate (26) into which the coin is dropped. After dropping the coin in the apparatus, it falls in the canal below and rests on the ridge 27 and a pawl 28. This pawl is revolvable on spindle 29 and is connected on its upper edge revolvably by a pin and hole 30 with needle 17. The lower edge of the pawl is bent in such a manner that the coin can be held. Through the spring 31 pawl 28 continually experiences an upward pressure, through which needle 17 remains on plate 2. Fig. 5 shows the manner in

which coin 42 is thrown into the coin apparatus and how it rests on ridge 27 and pawl 26, whereby the water supply is shut off, because needle 17 is pressed into hole 16.

When now button 32 is pressed, which button forms a whole with a slide valve 33, this slide valve 33 pushes the coin against pawl 28, with its left lower edge which is bevel-edged, this pawl gives way thus revolving round axle 29; when the space between pawl 28 and ridge 27 is wide enough, the coin drops down and is caught in a coin-box. In this position the needle 17 is just drawn so far downward that plate 2 gets free and membrane 19 in valve 5 is opened, so that the water flows through the meter thus revolving also the wingwheel 15 and consequently plate 2. When button 32 is loosened, plate 2 has revolved so far that needle 17 cannot again be pressed into hole 19 but remains pressed against the plate, leaving the membrane open through which the water remains flowing.

The construction of the slide-valve together with the appertaining spring device that serves to press button 32 back again, is elucidated in Fig. 15, which shows a section I—I in Fig. 5. Bow 36 keeps enclosed pipe 37, in which spring 38 is invested. A cam 39 is applied to the slide-valve 33 by means of a shaft 40. This shaft finds in groove 41, left open in pipe 37 and plate 25 an opportunity together with the slide (valve) to move to both ways. When button 32 is pushed to the left, through which valve 33, together with handle (shaft) 41 glides through the groove, the spring 39 is stretched through cam 39. When button 32 is released then spring 38 presses the cam, and with it slide (valve) 33 and button 32, back again to its former position.

Through the arrangement according to the invention, every grievance that until now adhered to the coin-watermeters, is eliminated. One advantage of this arrangement is, that it can be fixed to all common water supply net, and each consumer at his request can receive a coinmeter instead of an ordinary meter. When this is the case an arrangement according to Fig. 1 must be applied. At the end 9 (see Fig. 1) the house water pipe is connected, so that valve 5 and watermeter 1 are under pressure as cock 7 remains open and the taps in the house are closed. When now a coin is dropped into the apparatus, then the eventual leaking water will remain flowing through the valve along needle 17. This water must be exhausted for which pipe 42 is used, see Fig. 1.

This water is much less than each ordinary watermeter requires to start working. When we consider the fact that each water consumer has the opportunity to drain off a certain amount of water from under the wing by the usual well-known watermeter, by which the quantity is more than what passes the valve, then this leaky water does not play any important part, as this is only a trifling part of the water that is or can be usually consumed by the public by every watermeter. A second advantage is, that the quantity to be supplied is always the same, because there are no parts that can change the quantity. There is a pipe 8 (see Fig. 1) that supplies the water and a plate 2 that fixes the duration of the water supply. This is connected to a watermeter of a well-known sort, which is practically without defects by means of a motion 14, so that the faultless operating of the device according to the invention can be taken for granted, as was proved by experiments. The membrane closes accurately exactly on the liter. For this it is necessary that needle 17 and opening 16 be constructed without or with as slightly possible clearance.

To summarize, the following applications are possible with this coin watermeter:

a. The coin-meter is used by the public with sealed opened switch and a bendpiece to be able to receive water in buckets (see Fig. 3). Through this application the instrument remains practically without pressure. After each coin-dropping the supply of water takes place without any interruption. For this it is not necessary to use too expensive and accurate watermeters, and is the construction, that is given in this figure, sufficient.

b. The switch 7 (see Fig. 1) is sometimes used to drain off as much as may be required. In that case it is not sealed and is a construction with a good watermeter necessary as shown in Fig. 1.

c. The coin-meter is affixed in the stead of the usual common watermeter. In that case a construction as given in Fig. 1 is necessary.

The invention does not confine itself to this construction. Many variations are possible, by which needle 17 is pushed back to its original position after a certain number of revolutions from the wingwheel of a watermeter or another wheel. Some examples may serve as illustration:

The horizontally revolving plate 2 can be replaced by a revolving in vertical position or by a vertical ring with a hole in it, corresponding with needle 17. Also the supply of water can be stopped by the removing of a revolving pawl which holds down needle 17. This removing may be brought into effect by a cam fixed to an axle or a tooth-wheel which after one revolution, knocks off the pawl over the needle. By the pressing of button 32 the pawl can again be readjusted, for instance through a spring work, after the needle has been pulled down, as is shown above (see Figs. 6 to 14). The round plate 2 with the opening can in this way replaced by an arm 43 (Fig. 6) with opening 44. Pin 45 is affixed to a jaw 46, movable round axle 47, by which the pin 45 in the opening 44 of arm 45 can move in either direction. Pin 45 cuts through the opening 44 so that this pin protrudes from the bottom of the arm. By fixing a weak spring between arm 43 and jaw 46, pin 45 is normally held in place in the opening 44 as is shown on Fig. 6.

The pin 17 in case 48 (see Fig. 12 and 13) does not press any more by open membrane, against the revolving plate 2 but is held in the downward position through an arm 49 revolvable round 50 (see Fig. 12) to which is fixed a spherically spindle 51, on which at the bottom a movable hood 52 also spherically is affixed, that presses on pin 17, so that each friction by the movement is eliminated, whilst the arm 49 is held in downward position through a pawl 54 revolvable round 53 (see Figs. 9, 10 and 11). The connection of the coin arrangement with the liquid arrangement the arm 28 (see Fig. 14) does not work directly on pin 17 but on arm 49. When thus simultaneously with the pressure of the coin the liquid automatic device is brought in use, the downward pressure of the arm 28 (see Fig. 14) will also press downward arm 49 revolvable round 50 together with pin 17, by means of 51 and 52, so that the membrane is opened (see Fig. 12) while the arm 49 is held in downward position by pawl 54 (see Fig. 9).

By means of a weak spring pawl 54 is pressed against arm 49. When the water flows, arm 43 will start turning until pin 45 reaches knife 55 of pawl 54 (see Fig. 9). By this revolving arm 43

does not meet with any resistance. By continued turning of arm **43**, pin **45** will be pressed against the knife and remain there so that pin **45** passes through the opening **44** and that so long, until the opening **44** has entirely been passed through (see Fig. 7); at this moment pin **45** again will turn together with arm **43** and force aside knife **55** (see Fig. 10) till pin **45** has passed over the knife **55**. Already before this has happened pawl **54** is pulled away from arm **49**, so that **49** is pressed upward through **56** acting at the other end of **49** (see Fig. 11) thus releasing pin **17**, that bounds upward and stops the water supply (see Fig. 13). Pin **45** is then again brought back to its normal position in opening **44** by the weak spring (see Fig. 8) so that by the bringing into action of the automatic device, pin **45** can never prevent the fastening of arm **49** when this is pulled downward, because groove **44** has been extended far enough to enable pin **45** to come to rest sufficiently far from arm **49**. In this way little quantities of water can be drawn at all times, while arm **43** can turn with any degree of slowness because it does not experience any resistance. Only when the pin leans against the knife, a little resistance is experienced that will force pawl **54** from arm **49**. This friction can be limited to a very small degree. When the coin-watermeter is used for coins, through which a great quantity of water can be drawn, plate **2** must revolve very slowly. It might happen in that case that, after the pressure of the coin on button **32**, the plate has revolved so little that needle **17** still fits in opening **16**. A second plate of smaller size to be fixed to the Liter's wheel or a part of it, is in this case necessary, beneath which is also placed a needle, which however must be joined to the original needle **17**; this one will after the pressing of button **32**, quickly thus far be displaced that through the rebounding of button **32** the second needle will be pressed under against the plate by which also the principal needle **17** is held in the position "press down" for holding open the valve.

Another variation of construction of the plate consists in affixing a spiral-groove under in the plate, in which fits a pen or some similar device. The groove runs spiral by from the edge to the centre of the plate. When the plate revolves, the pen is drawn with it to the centre. This can happen for instance by fixing a simple slide **57** with pin **58** (see Fig. 16) to the vertical bar of pin **17** that can be moved to or from the centre of the plate in a radical direction, and that is drawn to its original position by a spring, as soon as pen **58** and together with it, the slide, is pressed or pulled downward out of the groove. The track of the slide is thus connected to pen **17**. At certain distance from the centre of plate **2**, pen **58** can bound into an opening exisiting there, through which the slide bounds together with needle **17** upward thus stopping the water supply.

For coinwatermeters from which per coin, a great quantity of water can be drawn, such a construction could be suitable. It is however recommendable to use coinwatermeters only for the supplying of such quantities of water supply, which are dependent on only one revolution of plate **2**.

Applicants construction preferably a membrane is used for the stopping of the liquid in the lead, while further more exclusively axle **17**, which acts on it, is used for the coupling of plate **2** and the membrane. In this way the instrument has become so much simpler and safer in use than other known systems.

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