A. F. WILEY.

RECORDING ATTACHMENT FOR A LIQUID DISPENSING APPARATUS.

APPLICATION FILED SEPT. 22, 1916.

1,222,502. Patented Apr. 10, 1917.

2 SHEETS—SHEET 1.

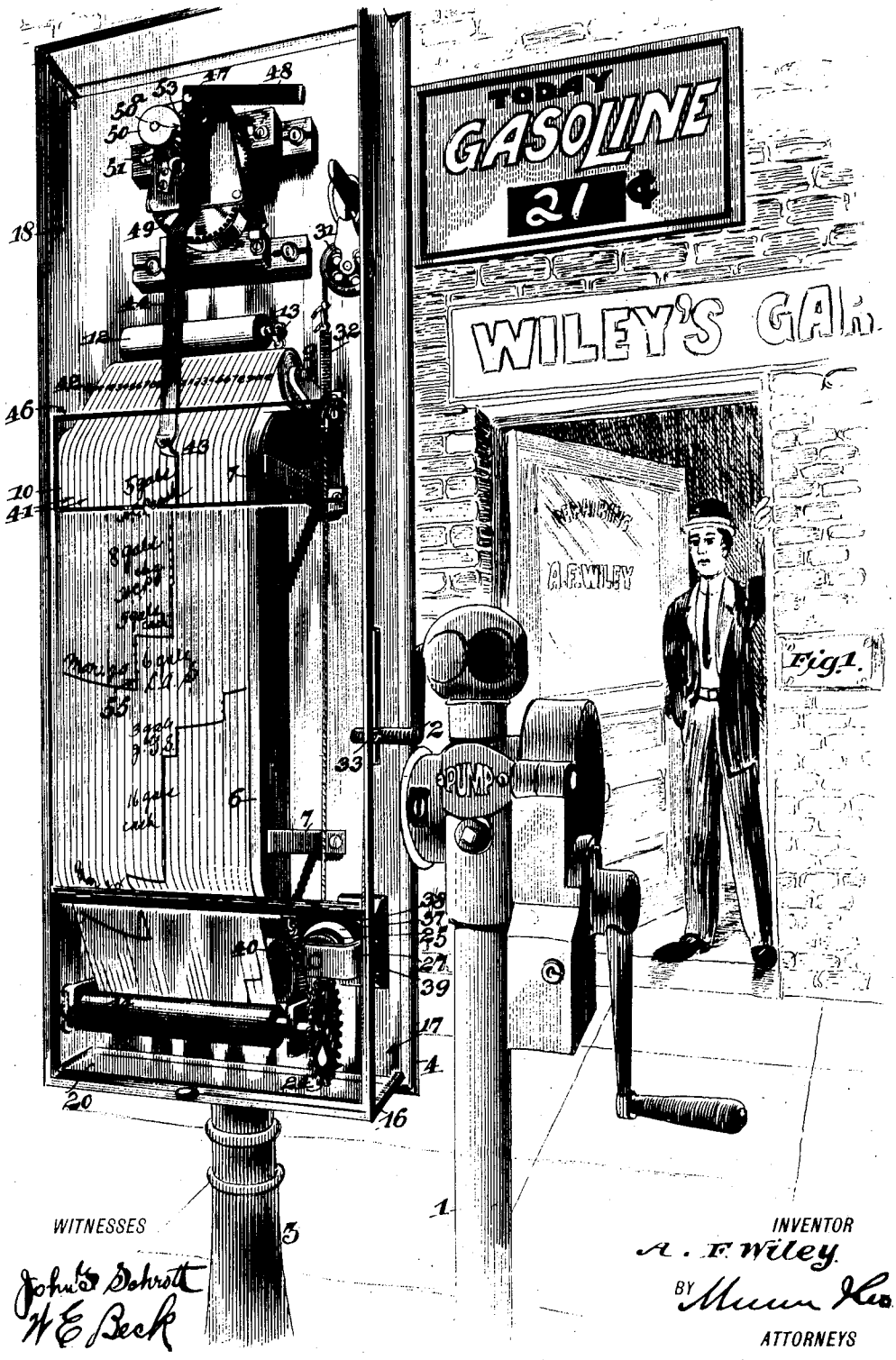


Fig. 1.

WITNESSES

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2 SHEETS—SHEET 2.

Fig. 2.

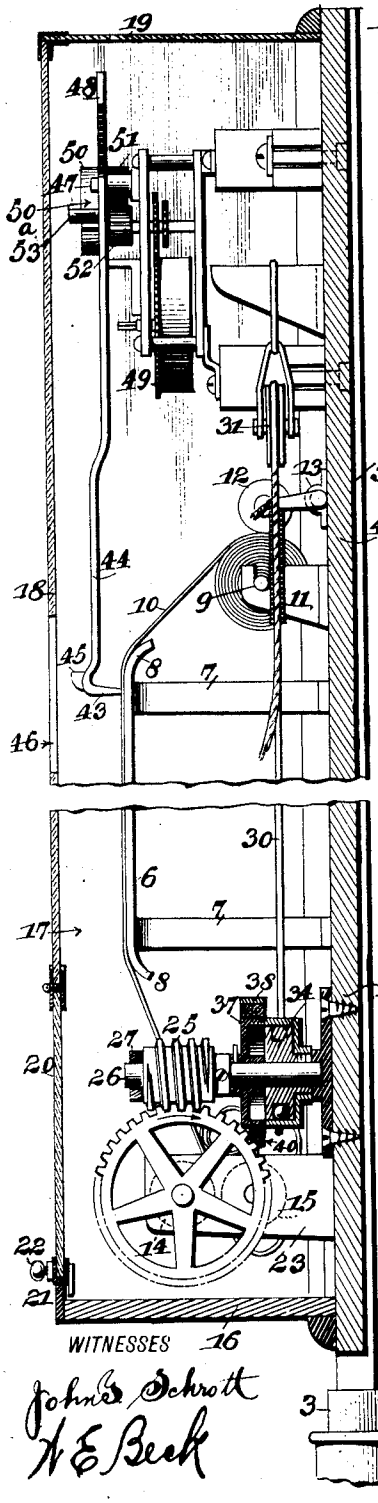


Fig. 3.

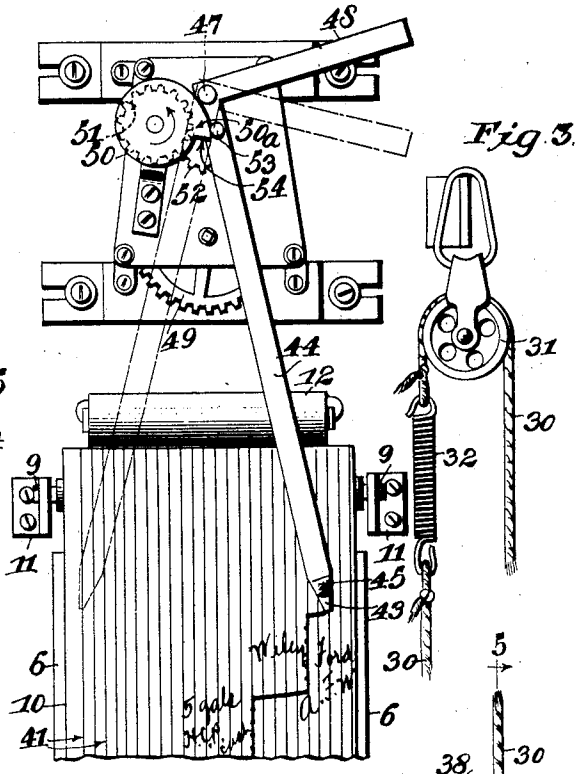


Fig. 4.

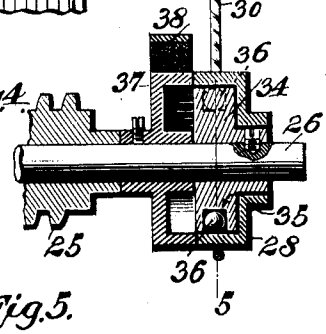


Fig. 5.

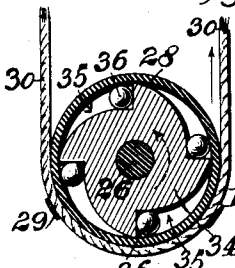
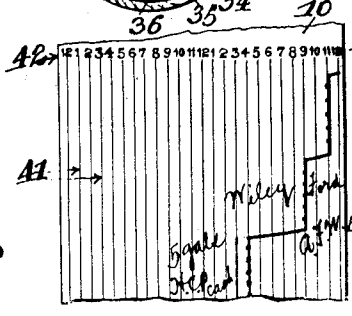


Fig. 6.



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RECORDING ATTACHMENT FOR A LIQUID-DISPENSING APPARATUS.

1,222,502. Specification of Letters Patent. Patented Apr. 10, 1917.

Application filed September 22, 1916. Serial No. 121,620.

To all whom it may concern:

Be it known that I, ALBERT F. WILEY, a citizen of the United States, and a resident of Humboldt, in the county of Allen and State of Kansas, have invented a certain new and useful Improvement in Recording Attachments for a Liquid-Dispensing Apparatus, of which the following is a specification.

My invention relates to improvements in recording mechanisms for liquid dispensing apparatus, and it consists in the combinations, constructions and arrangements hereinafter described and claimed.

An object of my invention is to provide a recording mechanism to be used in conjunction with a liquid dispensing pump, certain movable parts of the pump being utilized for actuating the recording mechanism to record the quantity of liquid dispensed.

Another object of the invention is to provide a recording sheet adapted to move continually when the pump is in operation, a clock actuated recording pen being disposed in contact with the sheet to mark the time that the sale was made on the sheet as well as the quantity of the liquid dispensed at the sale.

Another object of the invention is to provide a recording mechanism including an ordinately ruled recording sheet, the recording mechanism embodying facilities whereby the recording sheet may be removed at the end of a day, so that the sales of liquid and other data recorded on the sheet may be posted on the cashier's books.

Other objects and advantages of the device will appear in the following specification, reference being directed to the accompanying drawings, forming a part thereof, in which:—

Figure 1 is a perspective view of the recording mechanism as used in conjunction with a liquid dispensing pump;

Fig. 2 is a central vertical section of the device, parts being shown in elevation;

Fig. 3 is a detail front elevation of a portion of Fig. 2, showing more particularly the clock controlled pen arm;

Fig. 4 is a detail cross sectional view of the brake and ball-clutch shown in Fig. 2;

Fig. 5 is a cross section on the line 5—5 of Fig. 4; and

Fig. 6 is a detail view of a portion of the record sheet shown in Fig. 1, the sales recording line being shown completed for the day.

In the embodiment of my invention illustrated in the accompanying drawings, I have shown my recording device in conjunction with a liquid dispensing pump 1. The pump 1 forms no part of my invention and may be of any type of gasolene pump, having the required reciprocating parts whereby my recording device is actuated. By reference to Fig. 1, it will be observed that the pump 1 is provided with an arm 2, the arm being movable up and down as the pump is operated to dispense the gasolene.

Supported on a pedestal 3 adjacent to the pump 1, is a mounting board 4, a suitable reinforcing frame work 5 being secured to the pedestal 3 whereby the mounting board 4 is rigidly supported. Disposed in spaced relationship with the board 4 is a platen 6, suitable brackets 7 being provided to maintain the spaced relationship of the platen and hold it rigidly in position. A recording sheet 10 is adapted to move over the face of the platen 6 for a purpose and in a manner subsequently to be explained, and for the purpose of obviating the tearing of the sheet 10, the upper and lower ends of the platen are curved as at 8.

The recording sheet 10 is wound in a roll on a mandrel 9, which is supported in suitable brackets 11, which as shown in Fig. 2, are fastened to the mounting board 4. In order to impart sufficient tension to the recording sheet 10, a presser roller 12 is placed in contact with the roll. The presser roller 12 is supported on the ends of a suitable bracket which is fulcrumed in bearings 13 on the board 4, so that when the recording paper roll is exhausted from the mandrel 9, the presser roller 12 may be raised and a fresh roll of paper inserted between the brackets 11.

The recording sheet 10 is directed over the platen 6 and down between a pair of feeder rollers 14 and 15. It should be observed that the feeder rollers 14 and 15 are disposed closely enough together to obtain a firm grip on the recording sheet 10, the rollers 14 and 15 being provided with rubber faces to assist the function of drawing the recording sheet down between them. Instead of locating the rollers 14 and 15 in a fixed relationship with each other, as indicated in Fig. 2 of the drawings and depending on the re

siliency of the rubber covering of the rollers to maintain a tight grip on the recording sheet 10, it may be found advisable or desirable to introduce suitable spring tension devices between the shafts of the rollers for obvious purposes. This construction, however, is a mechanical detail which may be left in construction to the discretion of the manufacturer. After the sheet is once fed between the rollers 14 and 15, the ends of the sheet may simply be permitted to form a coil on the bottom 16 of the device, or the end may be directed above the roll 15, as shown in Fig. 2, where the natural rotational movement of the roller 15 will assist in forming the coil.

It should be explained at this time that the working mechanism of the device is incased in a housing which includes a bottom 16, as just stated. The sides 17, the front 18, and the top 19 may be of any material, but are preferably made of glass, as shown in the drawings so as to render the working parts of the mechanism visible. While the nature of the material forming the sides and top of the housing is optional, it is desirable that the front of the housing be transparent principally for the convenience of observing the working of the mechanism and of referring to the record being made by the pen-arm, hereinafter to be referred to.

The front 18 of the housing of the device, is provided at the bottom thereof with a door 20, which is also illustrated as being made of glass. The door 20 is provided with a metallic binding 21 which provides a mounting for suitable hinges and a fastener 22, as clearly shown in Fig. 2. The door permits access to the feeder rollers 14 and 15 previously described, the adjustment of the recording sheet 10 being made through the door opening.

The function of the rollers 14 and 15 has been explained, and in this connection it should be stated that the shafts of the rollers have bearings in brackets 23, which are mounted on the board 4. It will be observed that the roller 15 is practically an idler in that there is no directly connected means for rotating it, the shaft of the roller 14 being provided with a worm gear 24, which meshes with a worm pinion 25 on a transversely disposed shaft 26. A bracket bearing 27 provides the necessary support for the shaft 26. By reference to Fig. 2 of the drawings, it will be observed that the worm pinion 25 is fixedly secured to the shaft 26, so that as the shaft 26 is rotated, the rotational movement of the worm pinion 25 will be imparted to the roller 14 through the medium of the worm gear 24, and thus draw the record sheet 10 down between the rollers 14 and 15.

The shaft 26 rotates only when the pump 1 is in operation and in the act of dispensing the gasolene. Furthermore, the rotation of the shaft 26 is not continuous but intermittent and in one direction, for the obvious reason that the roller 14 must rotate in such a direction as to draw the record sheet 10 downwardly between the rollers. As just stated this operation of the parts occurs only when gasolene is being dispensed, and in the following manner:—A cable drum 28 is disposed about the shaft 26 adjacent to the board 4. A cable 30 is applied to the drum 28 and secured thereto by suitable fasteners 29 as clearly shown in Fig. 5.

The cable 30 is endless and the other end of the cable loop is supported by a sheave 31, as is plainly shown in the drawing, a tension spring 32 being interposed in the cable 30 to compensate for any expansion of the cable 30. One side of the cable 30 is passed between the suitably bifurcated end of the pump arm 2, a clamp nut 33 being provided to clamp the cable in position. It will thus readily be seen that as the arm 2 of the pump 1 moves up and down as the pump is operated to dispense the gasolene, the cable 30 will be correspondingly moved up and down. In order that only the upstroke of the arm 2 and that side of the cable 30 connected thereto may be utilized to effect the turning of the shaft 26 and its associated part, I provide a ball-clutch 34, which is provided with pockets or recesses 35 in which balls 36 are located. The clutch 34 is disposed within the cable drum 28 and constitutes the support or bearing over which the drum 28 moves when it is actuated by the cable 30 as previously explained.

When the balls 36 are located in the bases of their respective recesses 35, they are in loose frictional contact with the inner surface of the cable drum 28 as shown in Fig. 5. By means of this provision the cable drum 28 may be rotated in a clockwise direction with a minimum frictional resistance. When the drum 28 is now rotated in a counter clockwise direction as when the arm 2 and that side of the cable 30 attached thereto forms an up-stroke, the balls 36 become wedged between the walls of the recesses 35 in the clutch 34 and the inner surface of the drum 28 and thus cause the rotation of the clutch 34 and the shaft 26 to which the clutch is attached in a counter clockwise position as indicated by the dotted arrow in Fig. 5. It will be apparent that the wedging of the balls 36 between the clutch member 34 and the drum 28 is accomplished by the sloping formation of the walls of the ball recesses 35. Secured to the shaft 26 adjacent to the clutch member 34, is a brake disk 37, which is engaged by a suitable brake member 38. The brake 38 is pivoted to a suitable standard 39 erected upon the bearing bracket 27, a suitable tension spring 40 being connected between the free end of the brake lever 38 and one of the

supporting brackets 23 as clearly shown in Fig. 1 of the drawings. The purpose of the brake 38 is to hold the shaft 26 and the worm pinion 35 securely in position when the arm 2 is performing a down stroke and the cable drum 28 is being rotated in a clockwise direction.

Attention is now directed to the peculiar arrangement of the record sheet 10. By reference to Figs. 1, 3 and 6 of the drawings, it will be observed that the sheet 10 is provided with an ordinately ruled surface 41, the ruling extending lengthwise of the sheet. Extending cross-wise of the record sheet as at 42, in Fig. 6, is a row of numerals beginning with "12" at the left hand side and ending with "12" at the right hand side, these numerals representing the hours of a whole day. The numeral "12" at the extreme end of the row 42, represents the hour of midnight, while the numeral "12" in the middle of the row 42 represents the hour of noon, the other numerals reading from left to right, representing the hours of the forenoon and afternoon, respectively. The numerals 42 serve as an index to the inscribed record on the face of the sheet 10, which is formed in a manner presently to be explained, it being clearly seen in Fig. 6 that there is a line 41 for each of the numerals in the row 42. It may be desirable, and in actual practice will probably be necessary to provide a row of numerals 42 at regular intervals along the length of the record sheet 10, so that a row of numerals 42 may come into appearance from time to time as the record sheet 10 travels downwardly and is disposed of in a manner also presently to appear.

A record of the sales of gasolene dispensed by the pump 1 is inscribed across the ordinately ruled surface of the record sheet 10, by a pen, which is supported or arranged on the lower end of a pendulum or pen-arm 44. The point of the pen 43 is supplied with a suitable recording ink from a fountain 45, which may be refilled through an opening 46 in the front 18 of the mechanism housing. The opening 46 is also utilized by the operator of the pump 1, to make certain memoranda across the face of the record sheet 10 at the completion of a sale.

The pen arm 44 is supported on a fulcrum pin 47 at that end opposite to the pen 43, the arm 44 being provided with a laterally extending portion 48 which acts as a counter-balance for the arm 44. The fulcrum 47 is supported on the casing of a clockwork mechanism 49 which is suitably geared to rotate the pen-arm 44 on its fulcrum 47 to carry the pen 43 across the face of the record sheet 10. The pen arm 44 is moved or rotated by a cam 50 which is driven by the clockwork, suitable reducing gears 51 being introduced between the clockwork and the shaft of the cam 50 so that the cam 50 will perform one revolution every 24 hours. By reference to Figs. 1 and 3 of the drawings, it will be seen that the lobe 50^a of the cam 50 engages a pin 53 arranged on the pen-arm 44, the pin 53 being rotated just below the fulcrum 47. The lobe 50^a of the cam 50 terminates abruptly as at 54, the depth of the portion 54 between the highest and lowest portion of the cam 50 representing proportionately the sweep of the pen point 43 across the face of the record sheet 10. At that time when the clockwork 49 has rotated the cam 50 in a counter clockwise direction, (see arrow in Fig. 3) to the place or position where the pin 53 on the arm 44 is engaged by the highest portion of the lobe 50^a of the cam 50, the pen 43 of the arm 44 will have been carried completely across the record sheet 10 and the point of the pen 43 moved into co-incidence with the last line bearing the numeral 12 and representing the hour of midnight. Further rotation of the cam 50 will now cause the pin 53 to drop to the lowest portion of the cam 50 in the region 54 and thus carry the pen 43 back to the beginning of the record so that the pen 43 will then coincide with the line at the left hand side of the sheet also bearing the numeral 12. This position is indicated in dot and dash lines in Fig. 3, the pen point 43 then resting on the line bearing the numeral 12, which also represents the hour of midnight, from which the records of the interval of time are commenced to be traced by the pen point 43 over the surface of the sheet 10.

While the construction and operation of the device may be readily understood from the foregoing description, a more explicit statement of the operation is thought advisable and is as follows: In setting up the device for use in conjunction with the gasolene pump as shown in Fig. 1, the recording mechanism is arranged adjacent to the pump and the arm 2 is secured to one side of the cable 30 as previously explained and shown in the drawing, a suitable opening being provided in the side of the mechanism housing to permit of the reciprocation of the pump arm 2. The recording sheet 10 is now partly unrolled and carried by the operator over to the platen 6. The end of the recording sheet 10 is now inserted between the feeder rollers 14 and 15, access being had thereto through the opening of the door 20. The pin 53 of the pen-arm is seated at the lowest portion of the cam 50, or adjacent to the abrupt descent 54. Such being the adjustment, the pen-arm 44 will be in the position indicated in dot and dash line in Fig. 3 when the pin 43 will be in coincidence with the line bearing the numeral 12 at the extreme left hand side of the record sheet 10. Upon commencement of the mo-

tion of the clock mechanism 49, the cam 50 will be rotated in a counter clockwise direction and the pen-arm gradually moved across the surface of the record sheet 10 and will mark an inked line across the ordinates 41. The shape of the cam 50 is such that the actual interval of time measured by the clock mechanism will harmonize or correspond with the time interval represented by the ordinates 41. Referring now to Fig. 1. Here it will be observed that the record dated March 29, was commenced at the twelve o'clock midnight line in the manner just explained, a line being inscribed by the pen 43 across the ordinates 41 by the action of the cam 50 until the hour of 9.30 a. m. was reached. Here a sale of six gallons of gasolene was made and the resultant record of the sale was inscribed on the sheet 10 in this manner; the pump 1 in its operation moved the arm 2 up and down which moved the cable correspondingly, and an up and a down stroke of the arm 2, represents the dispensation of one gallon of gasolene. It should be remembered that only the up-stroke of the arm 2 is effective in rotating the shaft 26 and its associated parts. The performance of the first upstroke of the arm 2 at the beginning of the sale at 9.30 a. m., the shaft 26 was rotated through the medium of the clutch 34 and the rotation of the shaft 26 was imparted to the rollers 14 and 15 through the medium of the worm gear 24. This rotation of the rollers 14 and 15 drew the record sheet 10 downwardly a short distance, in actual practice, about one-fourth of an inch. The pen point 43 momentarily rested in this new position presented by the now downwardly advanced record sheet 10, while the arm 2 performed its downstroke which was ineffective in moving the record sheet farther. The result of the resting of the pen point 43, was to leave an enlargement in the inscribed line which appears as a dot 55, (see Fig. 1). Upon the performance of the second up-stroke of the arm 2, the record sheet was again moved downwardly by the action of the clutch 34 and the feeder rollers 14 and 15, thus presenting a fresh surface of the record sheet 10 to the pen point 43. Since the pen point 43 rests in this position momentarily in the manner previously explained another dot 55 is formed indicating the sale of a second gallon of gasolene.

The same cycle of operation occurs during each operation of the pump, a clear record of the total quantity dispensed being inscribed on the surface of the sheet 10. By referring again to Fig. 1, it will be observed that no further sale of gasolene was made until about the hour of 3 p. m., when five gallons were sold. The inscribed line continuing almost directly from the end of the recorded sale of five gallons, indicates that another sale was made, (this time of 8 gallons) within the same hour. The next sale being of five gallons was made at about 4 o'clock p. m.

By reference to Fig. 6 the record of the balance of sales effected under date of March 29, is shown completed. The record of the sales being completed, the record sheet 10 may be torn off and used in posting the books of the cashier. The memoranda appearing on the record sheet adjacent to the record of sales of gasolene is made by the operator or attendant at the completion of the sale, and is written across the record sheet through the opening 46 in the front 18 of the housing. Should the attendant inadvertently fail to record the circumstances of a sale, as will be seen was done at the 11 o'clock p. m. (see Fig. 6), the fact will instantly be apparent to the cashier and the attendant in charge at that hour be brought to an accounting.

When the pen point 43 on the pen arm 44 has completely traversed the breadth of the record sheet 10 and has reached the last line designated 12 on the right side of the sheet, the cam 50 will have reached its extreme position with relationship to the pin 53 and the continued movement of the cam will cause the pin 53 to drop to the lowest portion of the cam and thus automatically reset the pen 43 to the position of the beginning of a new record, this action being assisted by the counter balance 48.

While the construction and arrangement of the device, as described in the foregoing specification, is that of a preferred form, obviously various modifications may be made without departing from the spirit of the invention or the scope of the claims.

I claim:

1. The combination of a pump, a movable record sheet having ordinate rulings disposed lengthwise of the sheet and corresponding to intervals of time, a continuously moving pen arranged to traverse the ordinate rulings and inscribe a record corresponding to actual time intervals, and means actuated by the operation of the pump in one direction for advancing the sheet from beneath the pen to inscribe a record parallel to the ordinate rulings, the length of the record corresponding to the extent of the operation of the pump.

2. The combination of a pump, having a reciprocating part, a continuously moving pendulously supported clock-controlled pen, a record sheet arranged in contact with the pen to receive an inscribed record of time intervals, the record sheet having ordinate rulings arranged lengthwise thereof, and means joined with the moving parts of the pump for imparting the movement of said part in one direction to the record sheet whereby the record sheet is moved relatively to the

pen to inscribe a record parallel to the ordinate rulings.

3. The combination of a pump having a reciprocating part, a record sheet adapted to be moved and having ordinate rulings corresponding to time intervals arranged lengthwise thereof, a pen arranged to traverse the ruling and inscribe a record corresponding to actual intervals of time, feeder rollers for the sheet, means for rotating the rollers, and clutch mechanism joined with the moving part of the pump whereby the last named means becomes susceptible to rotational movement during a portion of a complete operation of the moving part of the pump to advance the sheet relatively to the pen and inscribe a record.

4. The combination of a pump, a record sheet having ordinate rulings arranged lengthwise thereof, a pen arranged to traverse the rulings and mark time intervals, gear mechanism adapted to advance the sheet lengthwise, a clutch for rotating the gearing, a cable connected to the clutch, and an arm connected to the pump and joined to the cable to impart rotational movement to the clutch and gearing in one direction, when the arm performs an up-stroke thereby advancing the sheet relatively to the pen, said pen inscribing a record parallel to the ruling then resting to leave a dot, while the arm performs its down-stroke.

5. The combination of a pump, a record sheet having ordinate rulings arranged lengthwise thereof and corresponding to time intervals, a tension device for the sheet, feeder rollers for the sheet, gearing for the rollers, a clutch adapted to rotate the gearing and feed rollers in one direction, an arm connected to the pump and joined to the cable, and a cable drum receiving one bight of the cable, the drum surrounding the clutch to impart rotational movement to the feed rollers in one direction when the arm performs an up-stroke, the clutch and gear mechanisms being inoperative on the down-stroke.

6. The combination of a pump, a record sheet having ordinate ruling arranged lengthwise thereof, corresponding to time intervals, a platen for supporting the sheet, a tension device for the sheet, feeder rollers for the sheet, a pen disposed over the sheet, a pendulously mounted arm supporting the pen, the arm having a counterweight, clock-controlled means for continuously moving the arm and pen to inscribe a record of time intervals over the rulings, and means for automatically returning the pen-arm.

7. The combination of a pump, a record sheet having ordinate rulings arranged lengthwise thereof, corresponding to time intervals, a platen for supporting the sheet, a tension device for the sheet, feeder rollers for the sheet, a pen disposed over the sheet, a pendulously mounted arm supporting the pen, the arm having a counterweight, clock-controlled means for continuously moving the arm and pen to inscribe a record of time intervals over the rulings, gearing for the feed rollers, a clutch for rotating the gearing, a cable drum operative in rotating the gearing in one direction and inoperative in rotating the gearing in the opposite direction, a cable secured to the drum, and an arm connected to the pump and joined with the cable, said arm imparting reciprocatory movement to the cable when the pump is in operation.

8. In a recording mechanism; the combination of a record sheet, a platen for supporting the sheet, a tension device for the sheet, feed rollers adapted to move the sheet across the platen, gearing for rotating the rollers, a clutch adapted to rotate the gearing in one direction, a cable drum operative in moving the clutch in one direction and inoperative in moving the clutch in the other direction, an endless cable having one bight connected to the drum, said cable being susceptible to reciprocatory motion from an exterior force, and a brake for the gearing when the cable drum performs an inoperative rotational movement.

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