

(No Model.)

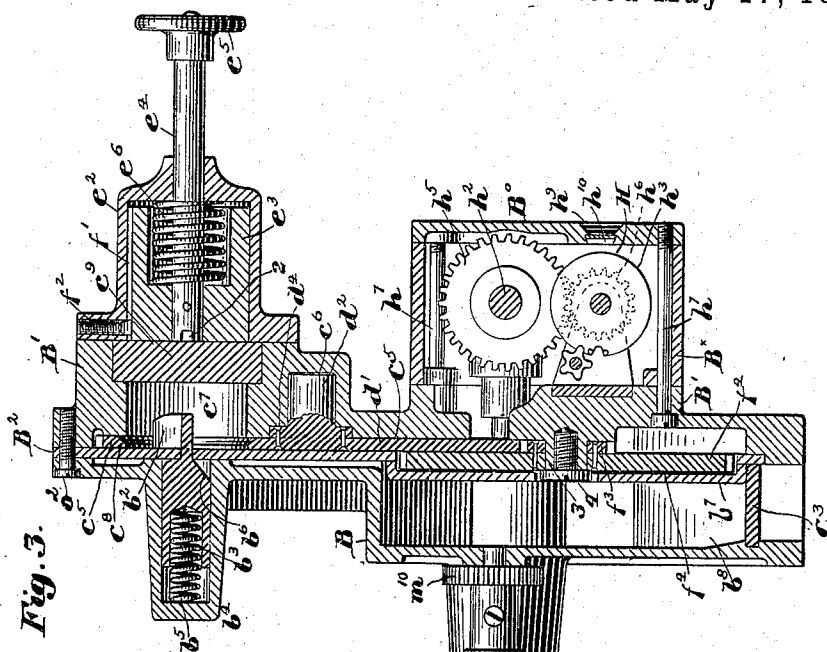
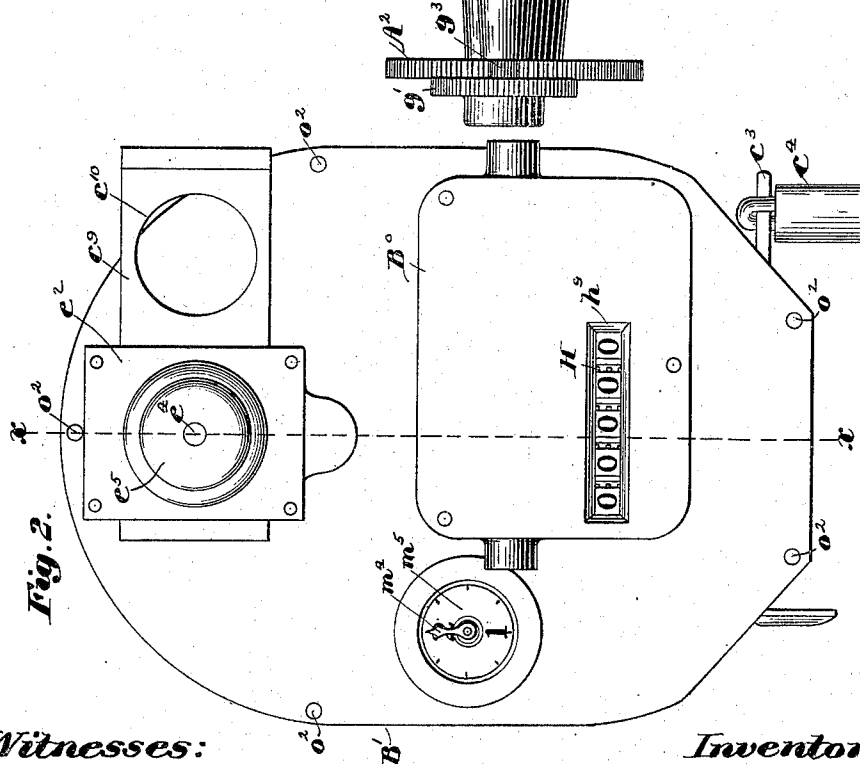
5 Sheets—Sheet 2.

S. E. MOWER.

PREPAYMENT ATTACHMENT FOR METERS.

No. 604,173.

Patented May 17, 1898.



Witnesses:

Walter C. Lombard
Fred S. Grunke, Jr.

Inventor:

Samuel E. Mower,
by Crosby Gregory,
Attys.

(No Model.)

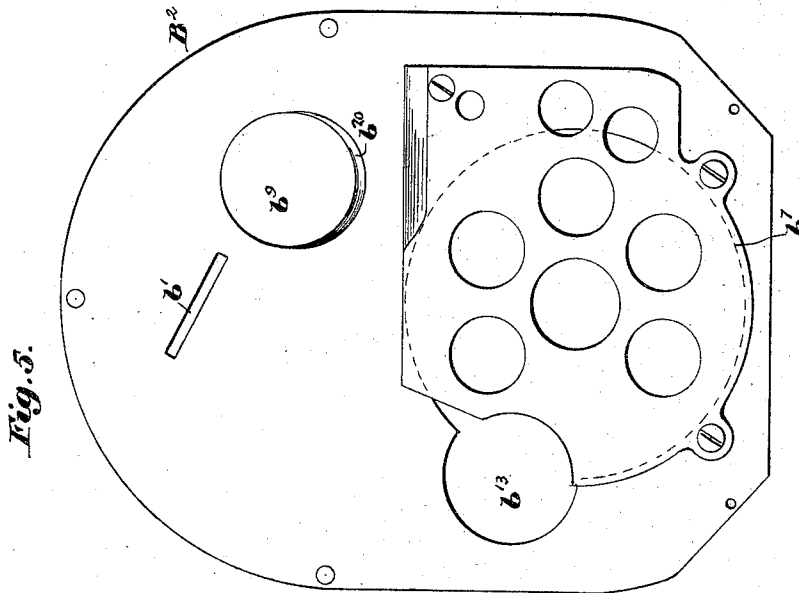
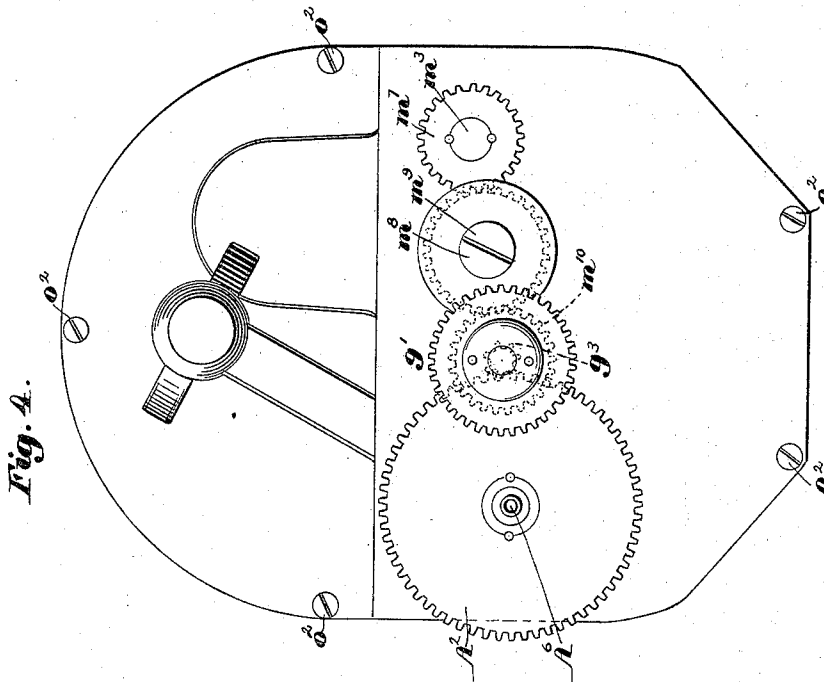
5 Sheets—Sheet 3.

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PREPAYMENT ATTACHMENT FOR METERS.

No. 604.173.

Patented May 17, 1898.



Witnesses:

Walter E. Lombard.
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Inventor:
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(No Model.)

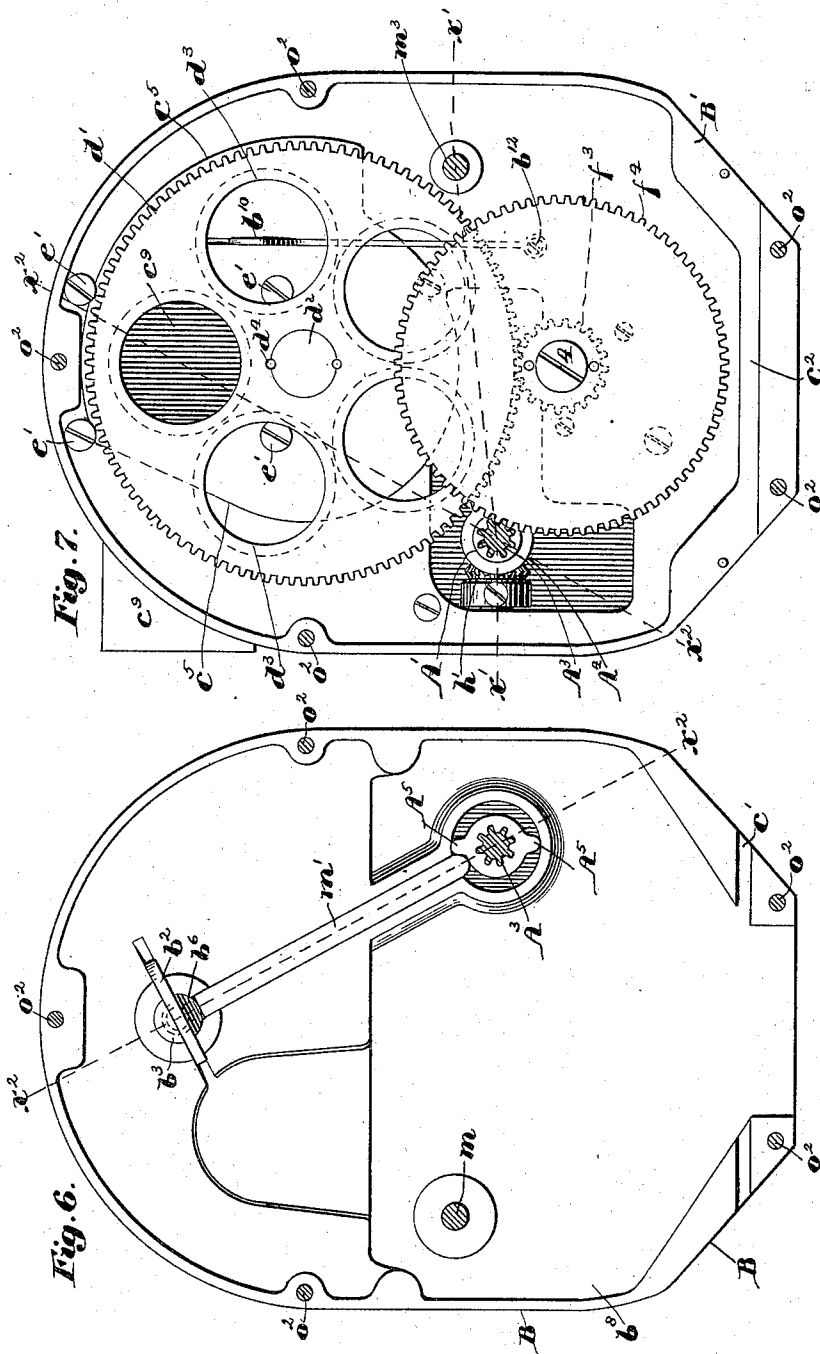
5 Sheets—Sheet 4.

S. E. MOWER.

PREPAYMENT ATTACHMENT FOR METERS.

No. 604,173.

Patented May 17, 1898.



Witnesses:

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UNITED STATES PATENT OFFICE.

SAMUEL E. MOWER, OF NEW HAVEN, CONNECTICUT, ASSIGNOR TO HENRY G. THOMPSON & SON, OF SAME PLACE.

PREPAYMENT ATTACHMENT FOR METERS.

SPECIFICATION forming part of Letters Patent No. 604,173, dated May 17, 1898.

Application filed October 29, 1897. Serial No. 656,764. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL E. MOWER, of New Haven, county of New Haven, State of Connecticut, have invented an Improvement
5 in Prepayment Attachments for Meters, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

10 This invention has for its object the production of a novel prepayment attachment adapted to be applied to an ordinary meter used to measure gas and other fluids, said attachment containing in itself coin-carrying
15 mechanism and recording mechanism by which to indicate the amount of gas or other fluid passed through the meter, and the price of which has been prepaid before its delivery, the said coin-carrying mechanism and the re-
20 cording mechanism deriving their movement through one and the same shaft of the attachment, it deriving its movement from a shaft forming part of the meter mechanism and common to all meters.

25 In my invention the starting and stopping of the coin-carrier and the recording mechanism are simultaneous, and being driven by one and the same shaft there is no chance for lost motion of the parts, which would tend to
30 inaccuracy of measurement of the gas paid for by the coin inserted in the attachment.

In my attachment I have provided means whereby the coin-carrier is locked by a locking device when the coin-carrier is without
35 coin, the locking of the coin-carrier stopping the further rotation of the shaft of the attachment used to move the coin-carrier, and to insure that the said shaft may not move after the coin-carrier is without coin I have pro-
40 vided an auxiliary locking device located between the main locking device and a cam or projection carried by the shaft of the attachment, whereby when the main locking device becomes operative to lock the coin-carrier it
45 immediately causes the auxiliary locking device to meet the cam or projection of said shaft and, acting directly on said shaft, positively and abruptly lock it and restrain its
50 vice, coöperating with the coin-carrier, has

been displaced from its locking engagement by the presence of a coin in the coin-carrier.

In all prepayment gas-meters known to me prior to my invention the gas consumed has been indicated by a recording device showing
55 a series of hands, they being arranged to travel over separate disks, one indicating units, another tens, another hundreds, thousands, &c. All such recording mechanisms
60 are hard to read by unskilled persons, and errors of figuring may be easily made by a little carelessness.

In my experience with prepayment-meters I have found it quite essential that the quantity of gas delivered may be instantly read
65 by a glance at the attachment, so I have combined with the attachment a recording device composed of a series of disks numbered at their peripheries and free to be rotated step
70 by step about a common shaft, the figures of said disks being always presented in a straight line and exhibited through a slot in the cover-plate of that part of the attachment contain-
75 ing the recording device, said slot being sealed by a glass plate to prevent access to the disks, the screws holding the face-plate and the part
80 of the attachment inclosing the recording mechanism being put in from the interior of the apparatus, so that they are inaccessible from the outside of the attachment. That
85 the meter may show exactly the quantity of gas consumed or measured out I have combined with the recording mechanism referred to an auxiliary recording device located along-
side of the main recording device.

Other features in which my invention consists will be hereinafter described, and set forth in the claims at the end of this specification.

Figure 1 represents in top or plan view a
90 meter of ordinary construction with my prepayment attachment applied thereto, the top of the meter being represented as removed to show some of its common actuating parts. Fig. 2 is an enlarged front view of the at-
95 tachment removed from the meter. Fig. 3 is a section through the attachment on the line *x*, Fig. 2. Fig. 4 is a rear elevation of the attachment removed from the meter. Fig. 5 shows detached the central or division 100

wall between the front and back plates of the attachment. Fig. 6 is an inner side view of the back plate of the attachment, with the coin-carrier-locking device and the auxiliary locking device controlled by it, the main shaft of the attachment being in section, its cam in elevation. Fig. 7 is an inner side view of the front plate of the attachment, with the coin-carrier and its actuating-train, the main shaft of the attachment being in section. Fig. 8 is a partial section in substantially the line x' , Fig. 7. Fig. 9 shows the locking device for the coin-carrier detached. Fig. 10 shows a view of that part of the attachment which surrounds and incloses the recording device and devices for operating it. Fig. 11 is a sectional detail in the line x^2 of Figs. 6 and 7, and Fig. 12 is a face view of the plunger cooperating with the feeder.

The meter A herein shown is one of the class called a "dry" meter, and the bellows of the meter actuates the usual set of links $a\ b\ c\ d$ and rotates slowly the shaft e , having an attached worm f , the worm engaging a worm-gear g on and rotating a shaft h . The parts so far described are old and common to all meters, and in this my invention I utilize this usual shaft h to drive the shaft A' , which constitutes the motor-shaft for my attachment, to be described. I desire to and have made an attachment which may be readily applied to the meter to be driven by this usual meter-shaft. This attachment consists, essentially, of a frame or shell composed of a back plate B and a front plate B', the front and back plates being separated, as herein represented, by a removable wall or division-plate B², (represented separately in Fig. 5,) said wall having a slot b' , in which stands and plays back and forth the acting end of an independent spring-actuated locking device b^2 , said locking device being the main locking device for the coin-carrier, and by the term "independent spring-actuated," as applied to said locking device, I mean to say that said locking device is divorced from and is in no way under the control of any valve mechanism controlling the flow of gas in the meter. The shank b^3 of this locking device fits a round hole in a sleeve-like extension b^4 from the back plate B of the attachment, a suitable spring b^5 normally acting to keep the front part of the locking device pressed toward the front of the attachment, so that when a coin is absent from the coin-carrier, to be described, the said locking device may enter a coin-space in the coin-carrier and prevent further rotation of the coin-carrier, the presence of coin in the coin-carrier forcing the locking device backwardly against the spring, and thus releasing the coin-carrier, that it may be moved by or through the gas in the meter. This main coin-carrier-locking device is provided, as herein represented, with a cam-face or recess b^6 , to be described.

The division-wall B² has, as herein shown, secured to its rear side, or the side next the

back plate of the attachment, a guard b^7 , the chief purpose of which is to guard the train of gears for actuating the coin-carrier, the said guard and wall B² separating the front and back plates of the attachment and forming a wall for one side of the chamber b^8 made in the back plate to receive the coins after they shall have been used in the attachment and discharged from the coin-carrier through the opening b^9 in said wall, said coin being discharged by the action against one side thereof of a discharging device b^{10} , shown as a spring, (see Fig. 7,) having a lump or projection against which a coin in a coin-carrier is brought by the movement of the coin-carrier, said discharging device acting on the coin and removing it from the coin-carrier exactly opposite the opening b^9 in the wall B², and to insure the escape readily of the coin through the said opening b^9 its under side has been beveled or cut away, as at b^{20} . The discharging device is supported at the inner side of the front plate B' by means of a screw b^{12} . (See Fig. 7.) This wall B² also has a passage-way b^{13} , through which is extended the shaft A'.

The lower end of the back plate as well as the front plate are provided, respectively, with grooves c' c^2 , in which is placed a lock plate or slide c^3 , which when in position to close the chamber b^8 , which is to receive the coin, may be locked by any suitable lock c^4 , the removal of the lock and the withdrawal of the plate c^3 permitting the coins deposited in the chamber b^8 to be removed.

The inner side of the front plate B' is provided with a plane raised surface c^5 , the shape of which is shown best by full lines and dotted lines, Fig. 7, and in section in Figs. 3 and 11, said surface being of sufficient area to constitute a table or face against which a coin taken from the coin-feeder, to be described, will bear until the coin arrives in contact with the discharging device b^{10} , to be removed from the coin-carrier through the opening b^9 of the division-wall, and the opposite side of the coin so carried by the coin-carrier from the coin-feeder into position to be discharged, as stated, is acted upon by that face of the division-wall B² nearest the front plate, the space between said division-wall and the surface c^5 corresponding exactly with the thickness of the coin-carrier d' , the said carrier corresponding in thickness with the thickness of the coin to be acted upon, substantially such proportions being desirable to insure the proper and correct operation of the machine.

The face of the surface c^5 is provided with an opening c^6 , (shown in Fig. 3,) which receives the hub d^2 of the coin-carrier d' , said coin-carrier being represented herein as a circular plate toothed at its periphery and provided with a series of coin-receiving holes d^3 , the hub being represented as connected with the said coin-carrier by means of suitable bolts d^4 .

The front plate has made through it a large hole or chamber c^7 , the diameter of which is but slightly in excess of the diameter of the coin used.

5 That side of the coin-carrier which is located next the front plate B' of the attachment has the edges of the holes or openings d^3 beveled or cut away, as at c^3 , (see Fig. 3 and dotted lines, Fig. 7,) to facilitate the easy
10 entrance of the coins singly from the coin-chamber c^7 .

At the outer end of the hole or chamber c^7 the front plate is cut away and has cooperating with it a coin-feeder c^9 , shown as a sliding bar having a passage c^{10} , said passage being represented in Fig. 2, it being exposed to view when the coin-feeder is moved to the right to receive coin to be put into the attachment.

20 The front plate B' has secured to it by suitable screws, as e' , (see Figs. 5 and 7,) inserted from the inner side of the front plate, a plunger-holding sleeve e^2 , said sleeve receiving a plunger e^3 , fast on a plunger-rod e^4 , having a
25 suitable head e^5 , by which to engage and operate the plunger, the plunger being chambered to receive a spring- e^6 , which normally acts to force the plunger toward the face of the coin-carrier.

30 The coin-feeder having been filled with coin is pushed to the left, viewing Fig. 2, until the coin in the opening c^{10} comes directly under the plunger e^3 , and then the plunger, acting on the coin in it, removes the coin from
35 the coin-feeder into the chamber c^7 of the front plate, the innermost coin of the series of coins, more or less in number, entering the opening of the coin-carrier, then in place to receive it, and, acting upon the inner end of the independent spring-actuated locking device b^2 ,
40 pushes it back out from the recess d^3 , in which it stands when the coin is absent, such removal of the locking device permitting the coin-carrier to start, and the coin-carrier will continue to move so long as the openings d^3
45 in the coin-carrier are supplied, one after the other, with coins from the chamber c^7 ; but an opening d^3 of the coin-carrier passing the chamber c^7 and not receiving a coin the locking device b^2 will immediately pop into said chamber and will thereafter restrain the further rotation of the coin-carrier until coin has again been supplied to the feeder and by the plunger put into the chamber c^7 .

55 The inner end of the plunger and the rod e^4 , to which it is suitably pinned or attached, is provided with a transverse slot 2, (see Figs. 3 and 12,) which slot in this present instance of my invention embraces the acting front
60 end of the main locking device b^2 when the same is thrust into an opening d^3 of the coin-carrier, and to always insure that the said opening 2 stands in the same line with the end of the locking device I have provided the plunger with a groove f' , (see Fig. 3,) in which
65 is entered one end of a screw or guide f^2 . As

herein shown, the said plunger also acts when the coins are exhausted to supplement the holding force of the locking device b^2 in restraining the rotation of the coin-carrier. 70

The toothed periphery of the coin-carrier is engaged by a pinion f^3 , (see Figs. 3 and 7,) suitably connected with a toothed gear f^4 , the said gear and pinion being free to turn about a hub 3, extended backwardly from the inner
75 side of the front plate B' , the said gears being kept on the said hub by a suitable screw 4, which is inserted in a threaded part of said hub.

The main shaft A' of the attachment has 80 fast upon it a toothed gear A^2 , and said shaft is further provided with a pinion A^3 , a small gear A^4 , and a cam or projection A^5 . The shaft A' also has, as shown, a reduced inner end A^6 , it entering a hole in a gear j , fast on
85 the usual meter-shaft h , said reduced portion entering, preferably, the hub of said gear j , it being fast on the shaft h . The gear j engages a pinion g' , fast on a short supplemental shaft g^2 , said shaft having a pinion g^3 , which be-
90 comes the driver for the gear A^2 , fast on the shaft A' . As the shaft A' is rotated the pinion A^3 thereon, in engagement with the toothed gear f^4 , rotates it, so that said toothed gear and pinion f^3 , constituting actuating-gearing
95 for the coin-carrier, rotate said coin-carrier. This shaft A' also by its attached gear a^4 engages and rotates a gear h' , fast on the actuating-shaft h^2 of the recording device H, the same being composed, as herein represented,
100 of a series of disks h^3 h^4 , &c., each of said disks being provided at its periphery with a series of numbers from "0" to "9," all of said disks being arranged on one common shaft and being actuated through the gear h^5 on the shaft
105 h^2 , in engagement with the gear h^6 on the shaft surrounded by the disks in such manner that when the disk h^3 is rotated once the disk h^4 will have imparted to it a movement of one step, and when the disk h^4 is rotated once the
110 disk next to the left of it will be turned a distance of one step, and so on. The shaft h^2 of this recording device is located in a portion b^x of the attachment-frame, it being a box-like portion with a cap or cover B^0 , the portion b^x and the cover being secured to the front plate by suitable bolts h^7 , inserted from the inner side of the front plate through ears in the portion b^x and screwed into the cover
115 B^0 , such method of attaching the casing for the recording device preventing access to the recording device except only by completely dismembering the attachment-frame. The front side of this portion of the front frame inclosing the recording device is provided
125 with a slot, as h^9 , which is filled in with a glass or other transparent cover h^{10} , so as to prevent access to the disks, and said disks as they are moved by the passage of the gas through the meter are actuated step by step,
130 and they always show the amount of gas consumed through the said slot h^9 , the figures

designating the quantity of gas consumed standing in a straight line, so that they may be easily read.

By mounting the coin-carrier and the recording device in one and the same attachment-frame and actuating both of them from one and the same shaft carried in said frame it becomes possible to construct an attachment which may be readily and quickly applied to any meter, and the said shaft A' by the gearing carried by it and between it and the said coin-carrier and recorder so actuates the said coin-carrier and recorder that there is no lost motion, and when the coin-carrier is started by the presence of a coin the recording mechanism immediately starts and when the coin-carrier is stopped by the absence of a coin the recording device is immediately stopped. However, to further provide for positively locking the shaft A' on the failure of the coin in the coin-carrier I have located in a groove at the inner side of the back plate B an auxiliary locking device m', shown as a slide-bar, the lower end of which when the main locking device b² is pressed back by the presence of a coin in the coin-carrier is acted upon in this instance of my invention twice during each rotation of the shaft A' by suitable projections A⁵ on said shaft, the upper end of said bar rising and falling in the space formed in the shank of the locking device back of its acting end b²; but as soon as an opening d³ of the coin-carrier (it not having a coin) comes opposite the end of the locking device b² the said locking device immediately pops into said hole, and in so doing causes the beveled portion thereof to pass onto or across the path of reciprocation of the auxiliary locking device m', so that said locking device can no longer slide in its groove, and consequently when a projection A⁵ from the shaft A' again meets said auxiliary locking device the further rotation of the shaft A' is absolutely restrained, this being done exactly at the shaft rather than solely at the coin-carrier opening, which is somewhat removed from that point. The use of this main and auxiliary locking device is of very material advantage in accurately and quickly locking the shaft of the attachment and reducing the strain on the gearing intermediate the said shaft and the coin-carrier and the recording device.

The recording device H does not show the fraction of a foot definitely, and to provide for showing exactly the quantity of gas measured by the meter I have in this instance provided the attachment with an auxiliary recorder, which is represented at the left of the main recorder. (See Figs. 2 and 8.) This auxiliary recorder consists of a shaft m³, having at its front end a pointer m⁴, which traverses a dial m⁵, suitably covered by a glass cover m⁶. This dial has, as indicated, two numbers, "2" and "1," and the starting position for the pointer would be at "2," it indicating the consumption of one foot of gas as

it moves from the top numbered "2" to "1" and two feet of gas when it completely traverses the dial, the intermediate marks between "1" and "2" representing fractions of feet. The shaft m³ is supported in both the back and front parts of the attachment and has at its rear end a pinion m⁷, which is engaged by an intermediate m⁸ on a stud m⁹, the said intermediate being engaged and driven by a pinion m¹⁰, fast on the shaft g². This auxiliary recording device is also useful, inasmuch as it acts as a tally when set accurately, and the main recording device must record a foot when the auxiliary device records a foot of gas.

In Fig. 11 the plunger is shown as having passed through the opening c¹⁰ in the coin-feeder c⁹ and as acting upon a series of coins n², four coins being shown in the chamber c⁷, the innermost coin being represented as crowded into the opening d³ of the coin-carrier d.

This invention is not limited to making the coin-feeder of any particular thickness or the chamber c⁷ of any particular depth so long as they are of sufficient depth to take one or more coins, as may be desired, and the diameter of the coin-receiving openings in the coin-feeder and the coin-carrier will be proportioned to the coin to be used in the prepaying attachment, and the speed of movement of the coin-carrier will and may be varied by the substitution of proper gearing between it and the main shaft A' of the attachment, according to the price of gas.

The front and back plates or portions of the attachment-frame and the division-wall B² are bolted together by means of suitable bolts o².

I have herein shown, as I prefer to use, the coin-carrier as made as a toothed wheel with a number of pockets; but this invention is not in all instances limited to the exact shape of the coin-carrier so long as it is adapted to take a coin at one place from the coin-feeder and coöperates with a dividing-wall having an opening through which the coin is discharged from the coin-carrier into a locked receptacle to be held until taken by the owner of the meter.

I have herein shown a specific form of recording device H which I prefer to use, as it possesses many advantages and great utility over any other form of recording device known to me; but this invention is not limited in all instances to the use of the exact form of recording device herein shown.

In prepayment-meters as now made, wherein a valve controls the supply of gas, several different sizes of prepayment attachments have to be made to adapt them to meters of greater or less consumption; but in this my invention the prepayment mechanism is applicable to any dry meter, whether the same be arranged to supply three or a hundred lights, and without any variation.

Having described my invention, what I

claim, and desire to secure by Letters Patent, is—

1. A prepayment attachment consisting of a frame, a shaft therein rotated by the actuating parts of a meter; a coin-carrier made as a wheel having pockets and means between said shaft and coin-carrier to rotate it positively, combined with a movable coin-feeder arranged at the side of said wheel and having a coin-receiving opening, means to act on the coin in said feeder and force it into the openings of the coin-carrier, and a locking device cooperating with the openings of the coin-carrier to arrest the motion of said carrier when a coin is absent from the carrier, substantially as described.

2. In a prepayment attachment for a meter, a frame containing a shaft adapted to be rotated by the actuating parts of a meter, a coin-carrier having openings to receive coin, means between said shaft and said coin-carrier to move the latter positively, and a coin-feeder having an opening to receive coin, combined with a spring-pressed plunger adapted to act on the coin in the said coin-feeder and force said coin into the openings of the coin-carrier, and a locking device cooperating with the opening of the coin-carrier when coin is absent therefrom, substantially as described.

3. In a prepayment attachment for a meter, a frame containing a shaft adapted to be rotated by the actuating parts of a meter, a coin-carrier having openings to receive coin, means between said shaft and said coin-carrier to move the latter positively, and a coin-feeder having an opening to receive coin, combined with a spring-pressed plunger adapted to act on the coin in the said coin-feeder and force said coin into the openings of the coin-carrier, said plunger being grooved at its end and being of a diameter to enter the opening of the coin-carrier when the coin is exhausted therefrom, and a locking device also entering an opening of the said coin-carrier, and the groove of the said plunger, substantially as described.

4. In a prepayment attachment for a meter, a frame containing a shaft adapted to be rotated by the usual actuating parts of a meter, a coin-carrying wheel in said frame and provided with openings for coin, gearing between said shaft and coin-carrier to rotate it positively, a coin-feeder to feed coin into the openings of said coin-carrier, a locking device to restrain the rotation of said coin-carrier until rendered inoperative by the presence of coin in the carrier, combined with a coin-discharging device arranged to act against each coin in succession after said coin has rendered the said locking device inoperative, said coin-discharging device discharging the coin from the said coin-carrier, and a casing having a receptacle to receive the said discharged coin, substantially as described.

5. In a prepayment attachment for a meter, an attachment-frame, a shaft adapted to be rotated by the actuating parts of a meter,

a toothed coin-carrying wheel having openings to receive coin; gearing between said shaft and coin-carrier by which to rotate it positively; a coin-feeder to receive coin and supply it to the openings of said coin-carrier, a plunger to act upon the coin in the coin-feeder and discharge it therefrom into a chamber of the attachment-frame and thence into the openings of the coin-carrier, combined with a spring-actuated locking device arranged at one side of said coin-carrier, a coin-discharging device arranged at the opposite side of said carrier, and a receptacle to receive the discharged coin, substantially as described.

6. In a prepayment attachment for a meter, an attachment-frame, a shaft mounted therein and adapted to be rotated by the actuating parts of a meter, a coin-carrier having a plurality of coin-openings and mounted in said frame and actuated by said shaft, an independent spring-actuated locking device normally acting to enter and restrain the movement of said coin-carrier when coin is absent therefrom, means to act on one or a series of coin held in a pile at the side of said coin-carrier opposite the opening entered by said locking device and put the endmost coin of the series into the opening of the coin-carrier, the entrance of said coin into the coin-carrier displacing the said spring-actuated locking device, thus releasing the coin-carrier and permitting the meter to start, substantially as described.

7. In a prepayment attachment for a meter, a frame adapted to be attached to a meter and composed of a back plate having a passage for the used coin, a front plate having a chamber to receive and hold a supply of coin to be used, and a dividing-wall separating said two plates, said wall having a passage through which the coin from the coin-carrier escapes, a coin-carrier having openings for the reception of the coin, means to move said coin-carrier between the said front plate and said dividing-wall from the position where the coin-carrier receives coin into a position opposite the discharge opening of said dividing-wall, said front plate and dividing-wall by contact with said coin keeping it in the coin-opening of said carrier, and means to put the coins lying in said front plate into an exposed opening of said coin-carrier, and an independent locking device located at the opposite side of said coin-carrier in line with the path of movement of the means employed to put the said coins into said coin-carrier, an incoming coin acting on and displacing said locking device to release the coin-carrier, substantially as described.

8. In a prepayment attachment for a meter, a frame provided with a shaft adapted to be rotated by the actuating parts of a meter, a coin-carrier having openings to receive coin, a coin-feeder to supply said openings with coin, a locking device to enter a coin-receiving opening of said coin-carrier and restrain

the rotation of the same in the absence of coin, coin-discharging device to discharge a coin from said opening, it having performed its function of releasing the locking device; 5 a recording device to indicate the quantity of gas delivered, and means between said shaft and said coin-carrier and recording device whereby one and the same shaft becomes the mover for both the coin-carrier and the 10 recording device to operate, substantially as described.

9. In a prepayment attachment for a meter, a frame adapted to be secured to the meter; a movable coin-carrier having openings 15 to receive, carry and deliver coins; a recording device composed of disks figured at their peripheries to enable the amount of gas consumed to be readily read at the face of said attachment-frame in a straight line, a toothed 20 wheel connected with the disk-shaft of said recording device; a driving-shaft mounted in said attachment and adapted to be moved from the actuating parts of a meter; a gear on said driving-shaft to engage a gear on said 25 disk-shaft; means actuated by said driving-shaft to move said coin-carrier; a cam on said driving-shaft, a main locking device cooperating with the openings of the coin-carrier, an auxiliary locking device intermediate said 30 main locking device and the said cam to positively restrain the rotation of the said shaft when the main locking device stands in an opening of the coin-carrier, said parts being constructed and combined, substantially as 35 described, whereby one and the same shaft moves simultaneously the coin-carrier and recording device, to stop and start the coin-carrier and recording device simultaneously, the auxiliary locking device checking the rotation of the said shaft on the absence of coin 40 in the coin-carrier, substantially as described.

10. In a prepayment attachment for a meter, a frame containing a movable coin-carrier having openings to receive coins and deliver them after having effected the starting 45 of the coin-carrier; a shaft rotated by the mechanism of any usual meter, means between said shaft and coin-carrier to move it, a cam fixed to and carried by the said shaft, 50 combined with a locking device adapted to engage the cam on said shaft and by abutting against it stop the rotation of said shaft after the coins in the coin-carrier have been exhausted therefrom, substantially as described.

11. In a prepayment attachment for a meter, a frame adapted to be attached to a meter; a movable coin-carrier having openings 55 to receive and carry coins to point of delivery; a shaft rotated by the mechanism of any usual meter, and means between it and said 60 coin-carrier to actuate the latter, a cam carried by said shaft, a main locking device to enter an opening of the coin-carrier when a coin is absent therefrom, combined with an 65 auxiliary locking device under the control of said main locking device and adapted to cause the auxiliary locking device to engage said

cam and prevent the rotation of said shaft when the main locking device stands in an opening of the coin-carrier, substantially as 70 described.

12. In a prepayment attachment for a meter, a frame composed of front and back plates separated by a dividing-wall having a slot; a coin-carrier having openings for the reception 75 of coins, said front plate and dividing-wall lying close to the opposite sides of said coin-carrier and serving to keep the said coin in said carrier; combined with a locking device 80 located in said slot and adapted to enter an opening in said coin-carrier when said opening arrives opposite said locking device and is without coin, substantially as described.

13. In a prepayment attachment for a meter, a frame composed of front and back plates, 85 and an intermediate dividing-wall having a discharging-opening b^9 , the back plate having a receptacle for the discharged coin, the edges of said opening being beveled, as at b^{20} , to effect the ready passage of coin through said 90 opening b^9 , combined with a coin-carrier having openings to receive coin, and a discharging device to discharge coin from said coin-carrier through the opening b^9 of the dividing-wall, substantially as described. 95

14. In a prepayment attachment for a meter, a frame adapted to be attached to a meter, a coin-carrier located and made movable 100 in said frame, and provided with openings to receive coin, said openings being beveled at one side for the easy entrance of coin therein, combined with a coin-feeder and means to transfer coin from said feeder into said coin-carrier, substantially as described.

15. In a prepayment attachment for a meter, a frame adapted to be attached to a meter, said frame consisting of a back plate having a chamber for the reception of used coin, a front plate having a chamber for the reception of coin, and having a smooth bearing-face c^5 , a dividing-wall having a discharge-opening b^9 for the coin, a coin-carrier having 110 openings for the reception of coin from the coin-receiving opening of the front plate, said coin-carrier being of the same thickness as the coin to be handled in the attachment, the space between said smooth bearing-face and the adjacent face of the said dividing-wall being also equal in thickness to that of the said coin-carrier and the coin therein, where- 120 by said coin is kept upright and is guided positively at both sides while being carried by the coin-carrier from the place where it is supplied with coin to the point where the coin is discharged therefrom, substantially as described. 125

16. In a prepayment attachment for a meter, a frame presenting a back plate provided with a passage for the used coin, a front plate presenting a chamber to receive one or more 130 coins, a movable coin-feeder having an opening to be supplied with coin in one position and to place the coin in said opening opposite the chamber in said front plate in its other

position, a coin-carrier, and an independent locking device combined with a plunger to act on the coin in said feeder and put it in the chamber of the front plate from which chamber said coins are taken in succession by the coin-feeder, said plunger continuing to act on said coin until the last coin has been put into the coin-carrier, substantially as described.

17. In a prepayment attachment for a meter, a frame, a coin-carrier having a plurality of openings to receive coin; a locking device entering one of said openings to hold said coin-carrier at rest when the coin is exhausted therefrom; and a discharging device cooperating with said coin-carrier to discharge a coin from said carrier after the same has been started in motion by the reception of a coin; and means to supply coin into an opening of said coin-carrier, the incoming coin removing the locking device from the opening of the coin-carrier and permitting the latter to start, substantially as described.

18. In a prepayment attachment for a meter, a frame composed of a front plate, a back plate, and a dividing-wall, the latter having a slot for the passage therethrough of a locking

device; a locking device movable in said slot, a coin-carrier having coin-openings and contained in said frame and substantially filling the space between said front plate and dividing-wall, said locking device entering an opening in said coin-carrier when a coin is absent therefrom; combined with means carried by said frame and located directly in line with the slot in said dividing-wall through which said locking device works, said means acting to put a coin into an opening in said coin-carrier and force said coin firmly in contact with said dividing-wall, and at the same time displace said locking device to enable the coin-carrier to be started; and a recording device also carried by said frame and moved in unison with said coin-carrier, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

SAMUEL E. MOWER.

Witnesses:

HENRY G. THOMPSON,
H. GRANT THOMPSON.