No. 679,630. Patented July 30, 1901.

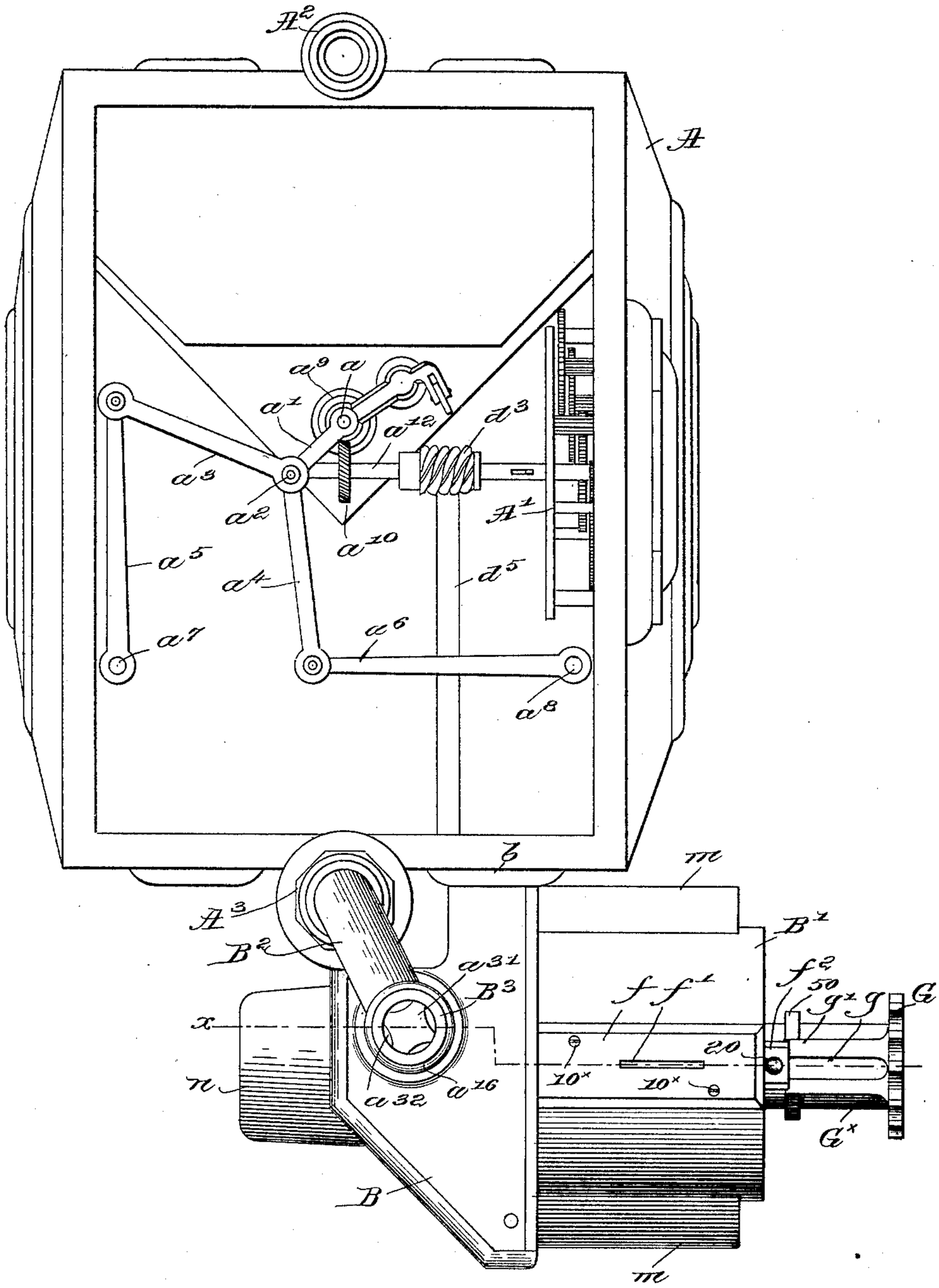
C. LUKE.

PREPAYMENT ATTACHMENT FOR METERS.

(Application filed Jan. 14, 1901.)

(No Model.) 3 Sheets—Sheet 1.

Fig. 1.



Witnesses.
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Adolph B. Kaiser.

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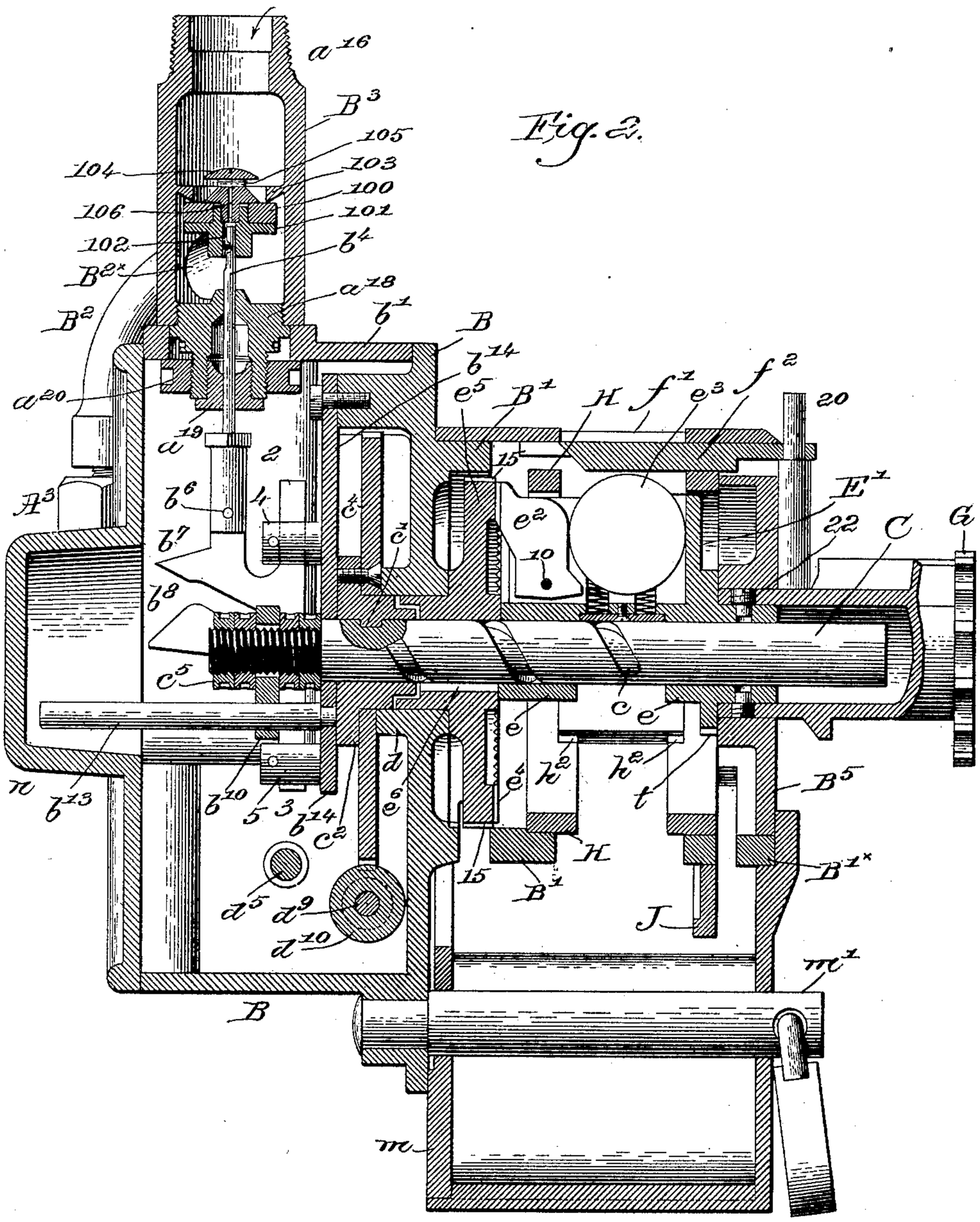
(No Model.) 3 Sheets—Sheet 2.

Fig. 2.



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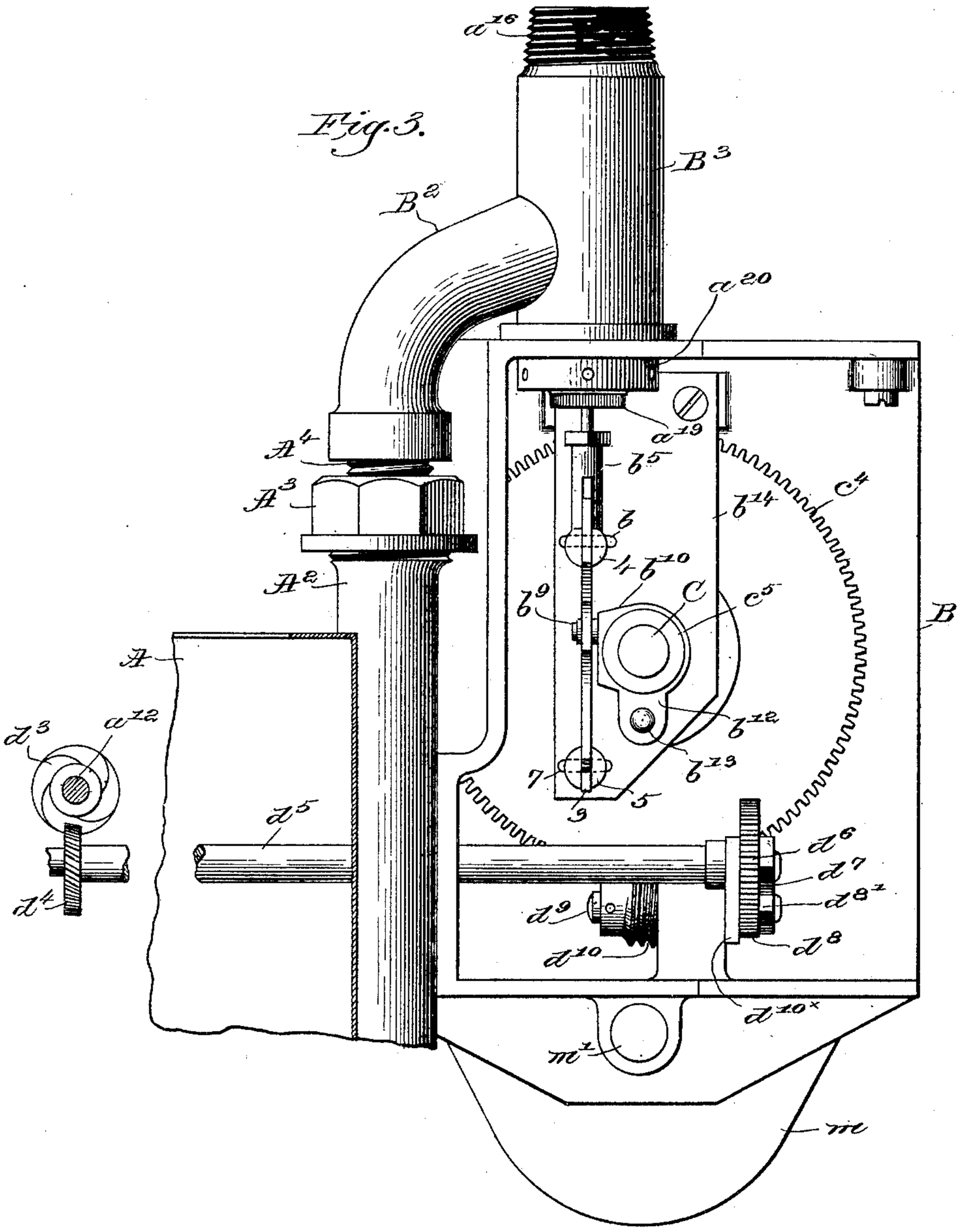
PREPAYMENT ATTACHMENT FOR METERS.

(Application filed Jan. 14, 1901.)

(No Model.) 3 Sheets—Sheet 3.

Fig. 3.



Witnesses.
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UNITED STATES PATENT OFFICE.

CHARLES LUKE, OF MILFORD, CONNECTICUT, ASSIGNOR TO THE NEW HAVEN NOVELTY MACHINE COMPANY, OF NEW HAVEN, CONNECTICUT.

PREPAYMENT ATTACHMENT FOR METERS.

SPECIFICATION forming part of Letters Patent No. 679,630, dated July 30, 1901.

Application filed January 14, 1901. Serial No. 43,100. (No model.)

To all whom it may concern:

Be it known that I, CHARLES LUKE, a citizen of the United States, residing at Milford, in the county of New Haven and State of Connecticut, have invented an Improvement in Prepayment Attachments for Meters, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

As prepayment attachments for gas-meters are now built provision is made for stopping the gas-supply when an amount of gas paid for has been delivered, and it is customary to connect several rooms with one meter, and sometimes life is sacrificed by the escape of gas—as, for instance, suppose several rooms occupied by different people are supplied with gas from one meter and that a person should neglect to turn off the gas when retiring, leaving the light burning, or should neglect turning the stop-cock of the fixture to cut off the gas after the supply of gas had been stopped at the meter. Then should some other person who desires a light in his room supply the meter with a coin to again secure a supply of gas it will be seen that gas could escape from the burner into the room occupied by the person where the gas was left burning or where the stop-cock was not cut off. This fact precludes the general adoption of prepayment gas-meters, as accidents such as above noted are liable to happen if the one whose duty it is to keep coin in the meter fails in the discharge of his or her trust. I have aimed to obviate the liability of the escape of gas to cause suffocation and loss of life due to closing the attachment-valve and its subsequent reopening, and I have effected my object by providing means whereby the gas supplying the burner will not be cut fully off by closing the valve, but sufficient gas will be delivered at each burner to maintain the combustion of the gas at the tip of the burner, so that in case a quantity of gas paid for has been delivered the meter will continue to supply a small amount of gas, not sufficient, however, to use as a light, but simply to maintain the combustion at the tip of all burners in use when the gas-valve was closed. I have effected this object by providing the prepayment attachment with a leak device, which will permit a small amount of gas to pass continually to the burners open when the gas-valve is closed until the attachment has been provided with coin to open the valve, and this may be done without loss to the gas company, as the gas so admitted will be indicated on the usual register and the amount due for it may be collected of the user of the meter.

Figure 1 is a top or plan view of a meter, showing a prepayment attachment applied thereto with which my present invention is embodied. Fig. 2 is a section of Fig. 1 in the line x, and Fig. 3 is a detail looking at the left-hand side of Fig. 2 with some of the parts removed.

Referring to the drawings, the meter-case A, the shaft a, the connected lever a', provided with a pin a^2, receiving upon it the links a^3 and a^4, connected, respectively, with the arms a^5 and a^6, attached, respectively, to shafts a^7 and a^8, by which said arms and links are made to rotate the shaft a, the worm a^9 on the shaft a, it engaging a worm-toothed gear a^{10} on a shaft a^{12}, said shaft driving the usual recording mechanism a' to designate the amount of gas consumed by the meter, are and may be all as usual in meters now in common use or as fully disclosed in United States Patent No. 635,730.

The prepayment attachment, consisting, essentially, of a frame B, having a tubular extension B′ to sustain the delivery-regulator to be described and having a foot b, (see Fig. 1,) which may be fixed to the meter-case A, the gas-inlet pipe of the meter provided at its upper end with a thread to receive a loose nut A^3, rotatable about a threaded part A^4, screwed into the threaded end of an extension B^2 from the valve-case B^3, the outer end of said valve-case being threaded at a^{16}, that it may be connected in usual or suitable manner with the street service-pipe, (not shown,) said valve-case also being threaded to receive the valve-stem guide a^{18}, provided at its lower end with a stuffing-box a^{19}, the clamping-nut a^{20}, applied to the screw-threaded end of the valve-stem guide to thereby confine said guide to the case A, the valve-stem b^4, connected at b^6 to a cam-slide b^7, having a slot

b^8, said cam-slide being guided by suitable guides 4 and 5, the lever-like finger b^{10}, (shown separately in Fig. 3,) having a roller or other stud b^9 to enter the slot b^8, the shaft C, surrounded by said finger, suitable nuts, as c^5, to confine said finger in adjusted position on said shaft, the guide b^{13} to guide said finger in its movements with said shaft C, the plate b^{14}, holding the said guide, the spiral groove c in the shaft C, said shaft being surrounded by a toothed gear c^4, having within its hub a projection, as c', to enter said spiral groove, so that said gear as it is rotated by the action of the meter as the gas is being delivered will cause the shaft to be slid backwardly or to the right, viewing Fig. 2, said shaft being moved forwardly to a greater or less extent by or through a greater or less number of coins deposited in the coin-throat f', the worm d^{10} for rotating the pinion c^4 on a short shaft d^9, held in a stand $d^{10\times}$ of the case B', the pinion d^8 at one end of said shaft, which is engaged and rotated by the toothed wheel d^6, clamped frictionally on the end of the shaft d^5, moved positively by the meter mechanism as the gas is being delivered, the worm-gear d^4, fast on said shaft d^5 and actuated by the worm d^3 on the usual shaft a^{12} of the meter mechanism, the money-carrier E, composed of a casting surrounding loosely the shaft C and provided with arms grooved to receive the edge of a piece of money, as e^3, the pawl e^2, pivoted in the money-carrier and adapted to be turned by the introduction of a piece of money held in the money-carrier, so that said pawl will engage the teeth e^4 of a wheel e^5, splined upon the shaft C, so as to be rotated in unison with it, causing the money-carrier to be rotated until the money arrives in its discharging position opposite the slot h^2, the peripheral teeth e^{15} of the wheel e^5, with which coöperates a suitable detent (not shown) to prevent any backward movement of the said wheel, the slide f^3 to close the money-slot f', the hand-wheel G, the delivery-regulator H, having the slot h^2, adjustable according to variations in price of the gas used, are and may be all as common to United States Patent No. 635,730, and the devices herein shown will be actuated as fully provided for in said patent and to operate in accordance with the specification thereof, so said old parts need not be herein more fully described.

I will now briefly describe my present invention. I have provided the upper end of the valve-shaft b^4 with a closing-valve, represented as composed, it may be, of a piece of leather, as 100, sustained upon a collar 101, fitted to the upper end of the valve-stem b^4, said valve or collar being so shaped as to afford at all times a passage-way 102 between it and the bore of the collar. The valve is adapted to be lifted against a valve-seat 103 within the valve-case B^3, and the collar receives within it a leak device 104, having a groove 105, preferably so shielded by a cap that any distillation or gummy matter coming from the gas cannot clog the passage 105. The passage 105 is intersected by a passage 106, in communication with the passage-way in the collar 101. The lower end of the leak device enters a recess of the collar, and the leak device may be changed whenever necessary and another one inserted having a different-sized passage 106 to adapt the attachment for use in connection with a greater or less number of burners.

Whenever in the operation of the prepayment attachment herein shown the coin put into the meter to prepay the gas has been discharged and the shaft C has been moved by the wheel e^4 until the quantity of gas prepaid has been delivered, then the valve is forced upwardly against the seat 103, and were it not for the leak device the gas would be immediately cut off, and this might happen while a person was sleeping, or it might happen and the occupant of the room might neglect to turn off the stop-cock connected with each burner. In either case whenever the attachment should be again provided with money the valve would be moved to admit gas and the gas would flow immediately through all the burners in use when the gas was shut off, and if the stop-cocks leading to the burners which were so in use were not shut off the gas would enter the room and would suffocate its occupant.

The leak device provides a remedy against the complete extinguishment of the gas, and whenever the valve is closed, because of the delivery of the gas prepaid, there will always pass into the inlet $b^{2\times}$ (see Fig. 2) of the pipe leading gas into the meter a sufficient quantity of gas to maintain the slightest safe possible flame at the tip of each burner in use, so that whenever the coin should be again put into the attachment and the gas-valve opened the ignited gas at the tip of each burner in use when the gas-valve was closed would immediately come into full flame.

By my invention it is impossible for an accident to happen solely due to the meter, accidents which are commonly noticed in newspaper articles, whereby loss of life is occasioned due to suffocation by inhaling unburned gas.

The gas passing through the leak device will move the usual recording mechanism a', and the gas company may present a bill for gas indicated by the recording mechanism used in excess of the amount paid for by the coin taken from the attachment.

The gears d^6 and d^8 are clamped on their respective shafts, so that when the valve is closed upon the seat 103 the gas passing through the leak device will continue to actuate the recording mechanism and at the same time will rotate the shaft d^5, and it during such rotation will slip and not drive the pinion c^4, and consequently the gas passing through the leak device will be properly recorded to be paid for. It will be under-

stood, therefore, that the frictional connection of the gearing referred to with relation to the driving-shaft d^5 is a matter of the utmost importance, for owing to the slip between the said shaft and the said gears it is possible to let the recording mechanism of the meter work and yet stop the action of the prepayment attachment after duly closing the valve, and in the claims I shall refer to this loose connection of the toothed wheels d^6 and d^8 as friction means, said gears being fully described in said patent.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a prepayment attachment for gas-meters, a valve, means to close said valve after the delivery of the amount of prepaid gas, and a leak device to permit the continuous delivery of enough gas to prevent the gas issuing from a lighted burner or burners from being extinguished whereby, when the attachment is again supplied with coin to cause the opening of the valve, any burner or burners which were lighted when the valve was closed may come into full flame, thereby preventing the escape of unburned gas from the burner or burners.

2. In a prepayment attachment for gas-meters, the combination with a valve, and means for closing the same after the delivery of the prepaid gas, of a leak device carried by said valve, said device having a cap to prevent distillation or liquid products from the gas entering and closing the delivery-passage in said leak device.

3. In a prepayment attachment for gas-meters, a valve, means for closing said valve after the delivery of prepaid gas, frictional driving means for the means for closing said valve, means for recording the quantity of gas delivered by the meter, and a leak device to admit gas to the meter after the said valve has been closed to thereby obviate the escape of unburned gas to cause suffocation after the closing of the valve, the gas delivered through the leak device being recorded on the usual recording mechanism.

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

CHARLES LUKE.

Witnesses:
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GEORGE E. HAIGHT.