J. McV. MORRIS.

FEEDING MEANS FOR ACETYLENE GENERATORS.

APPLICATION FILED MAR. 21, 1906.

920,607.

Patented May 4, 1909.

2 SHEETS—SHEET 1.

Fig. 10.

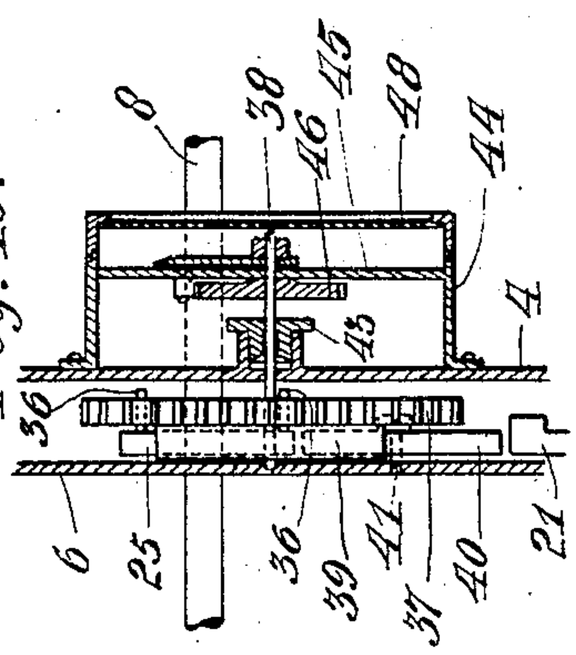


Fig. 3.

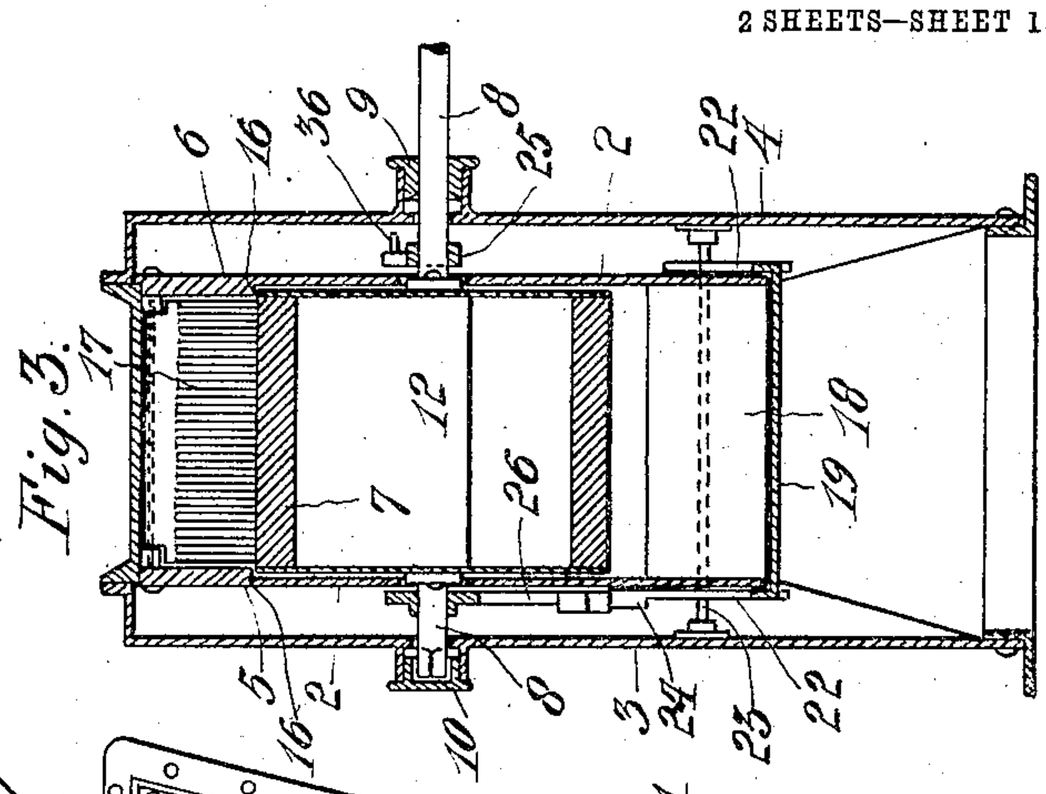


Fig. 9.

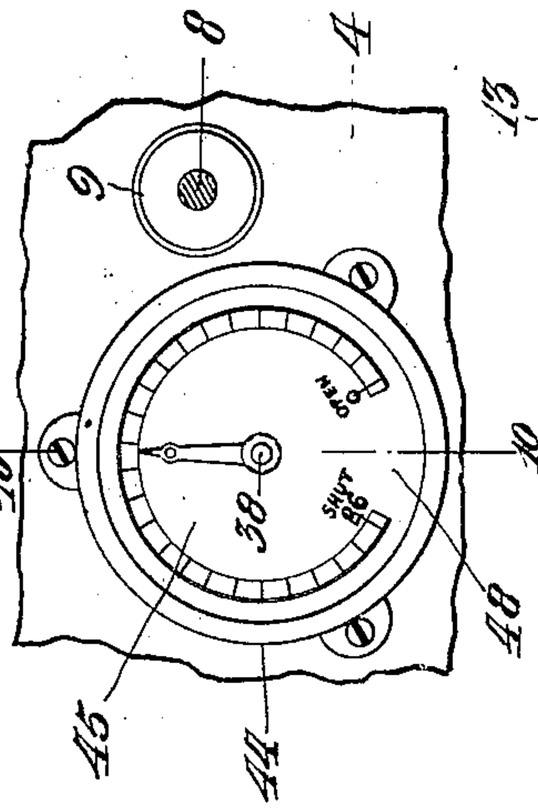


Fig. 2.

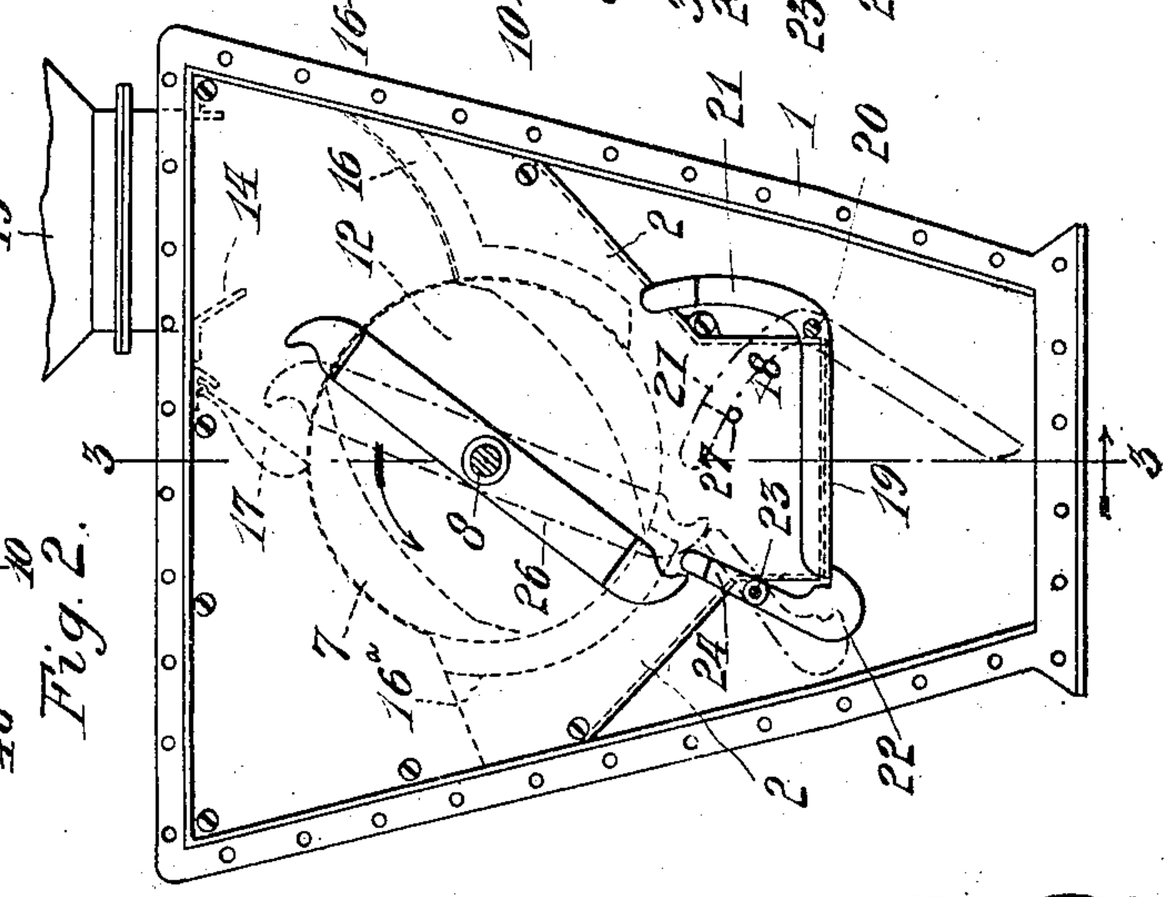
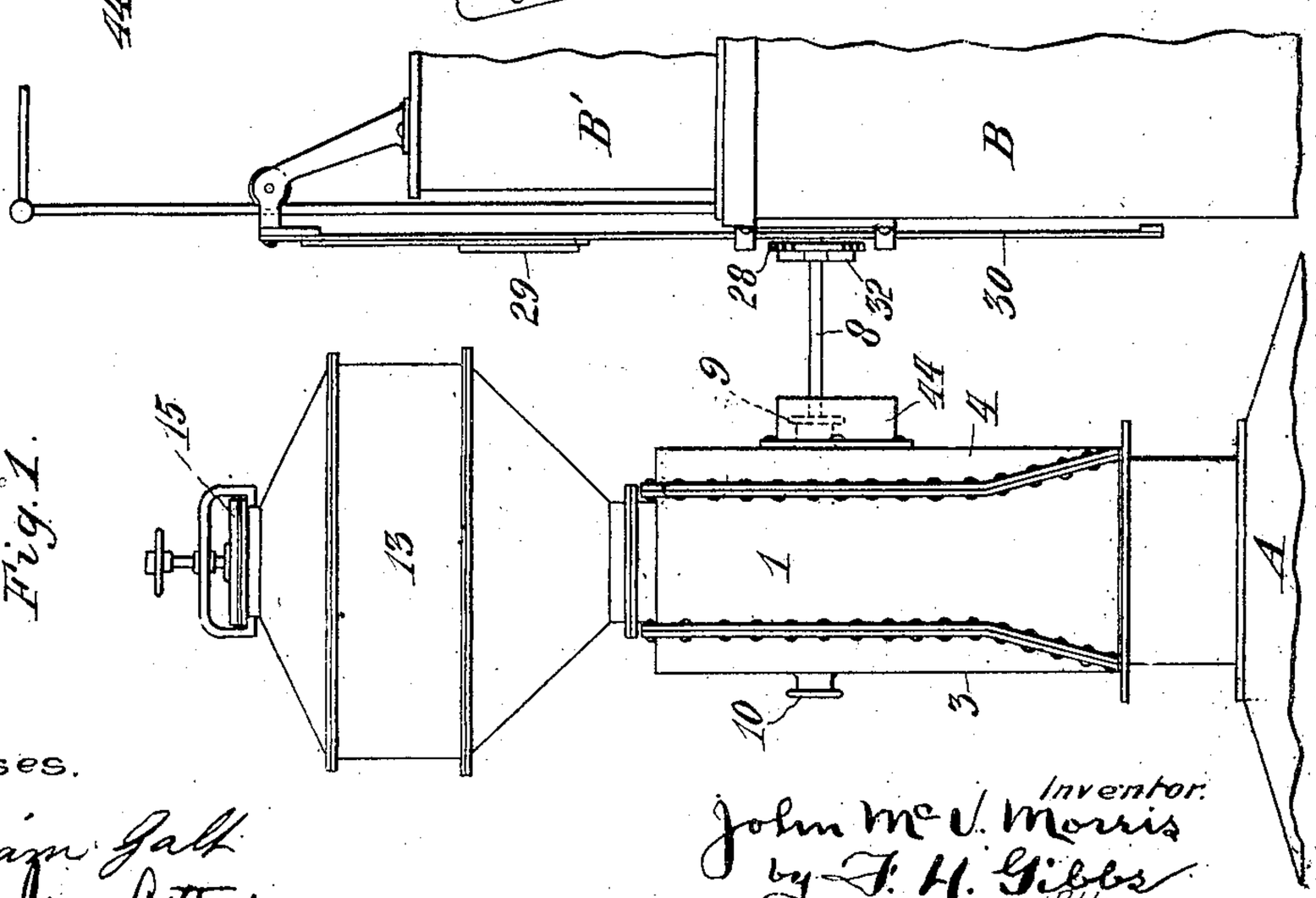


Fig. 1.



Witnesses.

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2 SHEETS—SHEET 2.

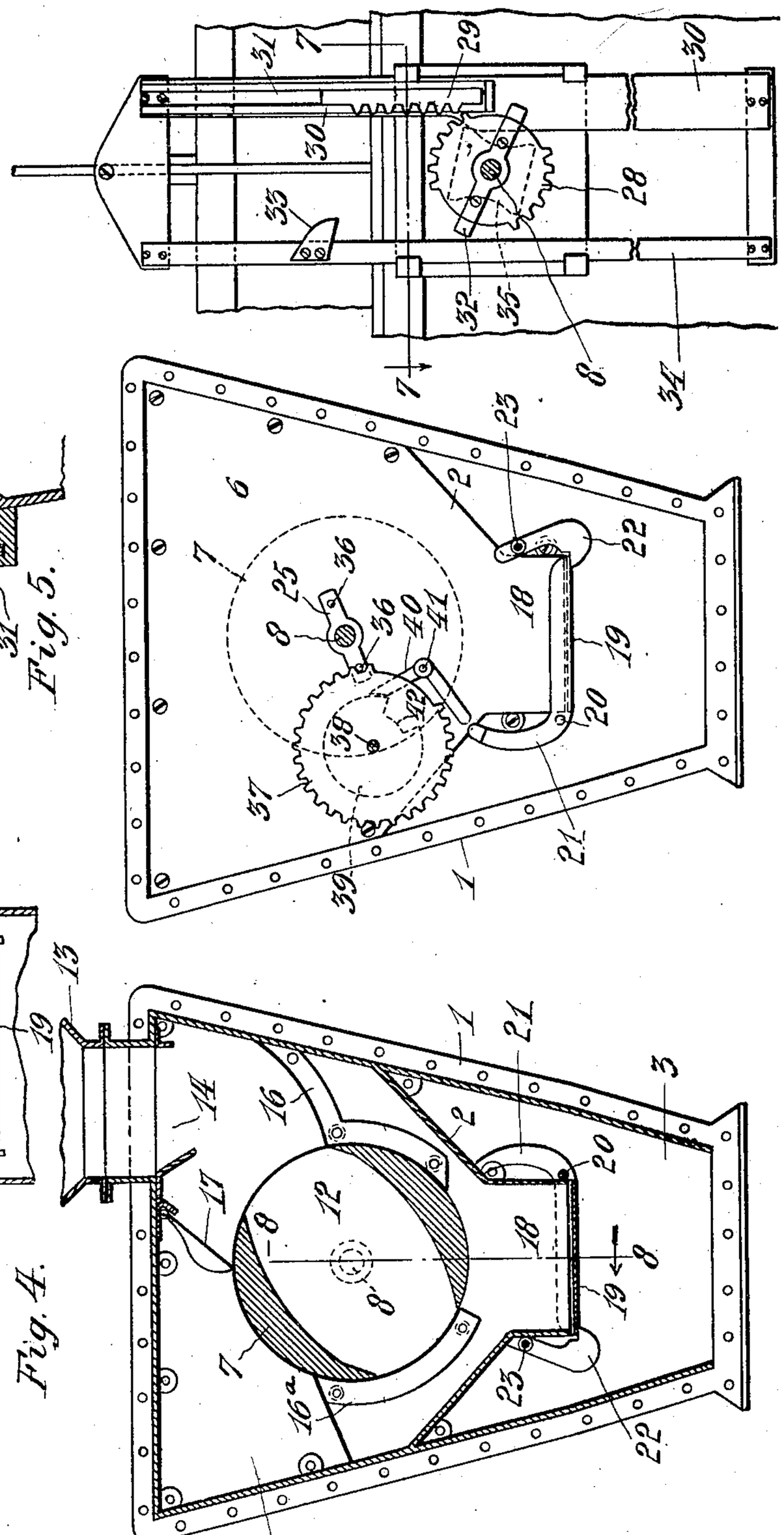

Fig. 6.

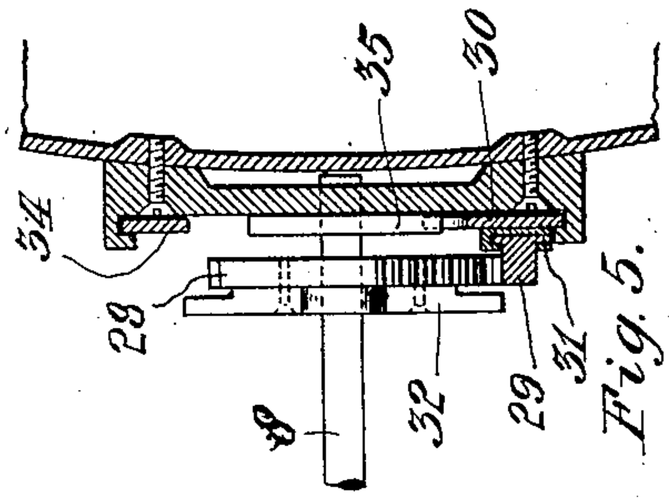

Fig. 5.

Fig. 7.

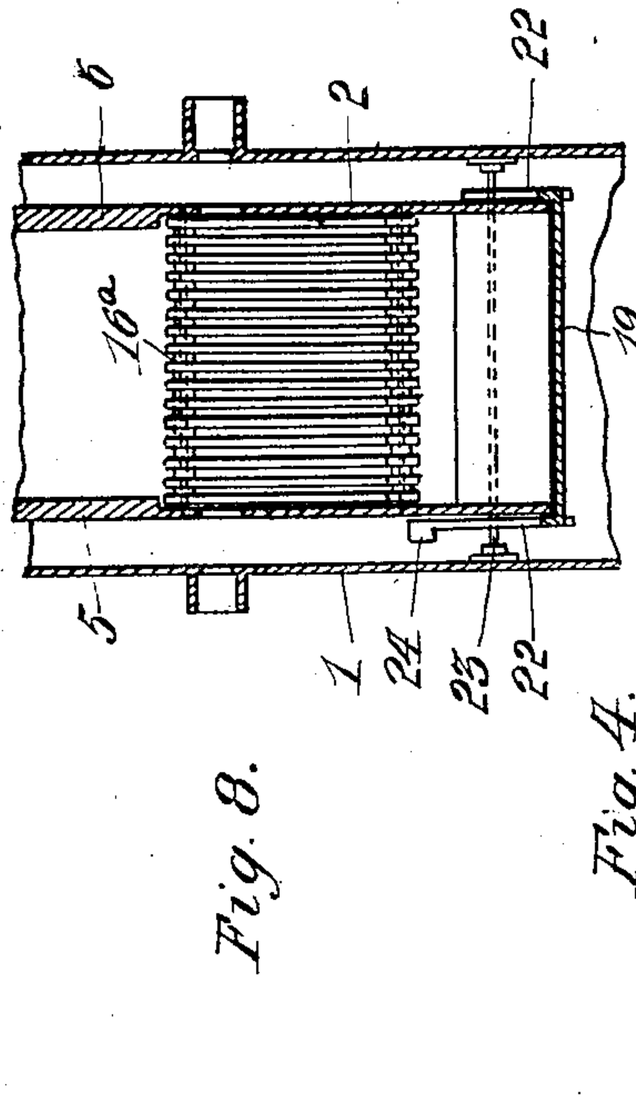

Fig. 8.

Fig. 4.

Witnesses.

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UNITED STATES PATENT OFFICE.

JOHN McVICKER MORRIS, OF BRISTOL, ENGLAND.

FEEDING MEANS FOR ACETYLENE-GENERATORS.

No. 920,607. Specification of Letters Patent. Patented May 4, 1909.

Application filed March 21, 1906. Serial No. 307,180.

To all whom it may concern:

Be it known that I, JOHN McVICKER MORRIS, a subject of the King of England, residing at No. 3 Melita road, St. Andrews Park, in the city of Bristol, England, have invented certain new and useful Improvements in Feeding Means for Acetylene-Generators, of which the following is a specification.

This invention relates to acetylene generators, and consists in a new and useful improvement in feeding means for acetylene generators whereby greater regularity of feed of carbid is provided than has heretofore been secured in devices of the same general character.

Another object of the invention is to provide a counting means so connected that the machine will indicate to the person in charge approximately the amount of carbid which has been used, and the probable need of furnishing a new supply thereof.

The invention is fully illustrated in the accompanying drawings in which:

Figure 1 is an elevational view, showing the relation of the means forming the subject matter of this invention to the general arrangement of an apparatus adapted for generating acetylene gas, though in this view the generator, the gasometer and its connected parts are shown broken away, as they form no part of the present invention; Fig. 2 is a side elevational view of the feed-chamber in which is placed much of the matter forming this invention, one wall of said chamber being broken away to expose the interior thereof. Fig. 3 is a vertical sectional view taken on line 3—3 of Fig. 2, looking in the direction indicated by the arrow; Fig. 4 is a side elevational view looking from the same side of the feed-chamber to that shown in Fig. 2, with the outer plate removed; and parts shown in section. Fig. 5 is a similar view with only the outer plate removed; Fig. 6 is a fragmentary elevational view, showing parts at the right hand side of Fig. 1. Fig. 7 is a sectional view taken on line 7—7 of Fig. 6. Fig. 8 is a sectional view taken on line 8—8 of Fig. 4; Figs. 9 and 10 are details of the counting means hereinafter more specifically described.

Throughout the views similar parts are marked with like characters of reference.

To the generator A, having the usual gasometer B with movable bell B′, and both of which are of the usual construction, is attached in a convenient manner the apparatus forming the carbid reservoir and distributer.

Within a suitable gas-tight casing 1 is fixed an inner casing 2 forming two compartments or chambers. Both casings are provided with removable covers front and back, 3, 4, 5 and 6, respectively. The inner casing 2 contains a drum 7 carried by a pair of alined stub shafts 8 which are adapted to revolve in suitable bearings formed in the front and back walls of the casings. The shaft 8 passes through a stuffing box 9 on the back cover (or side nearest the gasometer) of the outer casing 1 and the front end of said shaft is covered in by means of a screw cap 10, threaded into the front cover 3. The drum 7 which may be of any desired thickness is hollowed out as shown in Fig. 4 to form a carbid receptacle or cup 12, the capacity of which is determined by the quantity of carbid it is desired to discharge at each operation.

The supply of calcium carbid is obtained by means of a reservoir or hopper 13 fixed above the casings in such a manner as to allow the carbid to pass through an opening to a chute 14 on the upper portion of the inner casing 2 on that side of the drum 7 opposite to which it discharges. The hopper 13 is closed at its upper end by means of a removable cover 15 adapted to form a gas-tight joint with said hopper. The lower portion of this side of the casing is provided with a seating 16 16ª in which the drum 7 revolves whereby the carbid is prevented from falling beyond the required point necessary to insure its being in position to drop into and fill the cup 12 as the openings thereof come uppermost. The seating 16 16ª may be formed as a grid by being built up of a plurality of arc-shaped sections held apart by interposing washers or is preferably formed by a series of parallel saw cuts or slats in a solid casting. The object of this arrangement is to allow of any dust accumulating on the face of the seating 16 to be cleared by the action of the drum forcing the dust through so that it may be conveyed into the receiver without causing any clogging action to the movements of the drum 7. A weighted metal brush 17 adapted to swing in the direction of the drum's movement is attached to

the upper portion of the outside case 1 so that its edge just sweeps the surface of the drum thereby preventing detached portions of carbid being carried around outside the cups.

The inner casing 2 terminates at its base in a small receiver 18 of a capacity sufficient to hold the carbid contained in the cup 12. This receiver is closed at its bottom by means of a flap or trap door 19 hinged at 20 and provided with a rearwardly and upwardly extending arm 21. The front edge of the flap 19 is adapted to be engaged by a weighted lever or catch 22 hinged at 23 and having an arm 24 carried beyond its hinging point. The catch or lever 22 in its normal position engages the flap 19 and so keeps the receiver closed. On operating the arm 24 in a manner to be presently described the catch 22 is released from engagement with the flap 19 which then falls, permitting the charge contained in the receiver 18 to drop through the lower part of the outer casing into the chute communicating with the generating chamber, which chute is connected in a gas-tight manner with the said chamber. The lever or catch 22 and the flap or trap door 19 are actuated by an arm or lever 26, attached on the outside of the inner casing 2 to the shaft 8, at every half turn thereof. The shaft 8 on being rotated in the direction of the arrow causes one of the ends of the lever 26 to first engage the arm 24 causing the lever or catch 22 to assume the position shown in dot and dash line on Fig. 2 thereby releasing the flap or trap door 19 which falls into the position shown in dot and dash line. A suitably arranged stop 27, adapted to engage the arm 21, is provided to limit this opening movement. As soon as the lever 26 moves out of engagement with the arm 24, the lever or catch 22 returns to its normal position owing to its lower end being weighted. The continued movement of the lever 26 then causes its end to engage the arm 21 restoring the flap or trap door to its closed position, when it is automatically engaged by the lever or catch 22. The trap door 19 may be counterweighted in any convenient manner to lessen the dead weight and facilitate its return to the closed position.

In order to automatically rotate the shaft 8 the latter carries on the outside of the casing a mutilated pinion 28 which engages with a rack 29 carried on a rod 30 attached to the gasometer of the generator. The rack 29 is preferably carried in a slot 31 on the rod 30 so as to be free to move upwardly independently of the rod. The shaft 8 of the pinion 28 also carries an arm 32 adapted to be engaged by a stop 33 fixed to another rod 34 also carried by the gasometer, the arrangement being such that the gasometer on rising causes the rack 29 to engage and partially rotate the pinion 28; and on falling causes the stop 33 to engage the arm 32 thus imparting an intermittent rotation to the shaft 8 in one direction. In order to prevent any movement of the shaft 8 during the period that the above described mechanism is not in engagement, the said shaft is provided with a boss 35 (Fig. 7) so arranged as to slightly engage with the rod 30 on the latter's upward movement thus locking the shaft against any forward or backward movement until the broad portion of the rod shall have cleared the boss on its return or downward path and enabling the mechanism to perform the rotary movement above described. The free end of the shaft 8 which is covered by the removable screw cap 10 (Fig. 3) is squared or otherwise formed in order that a key or handle may be temporarily fitted in order to rotate the shaft when first starting the apparatus.

The drawing shows the drum adapted to form only one cup in which case the shaft 8 before mentioned would not pass through the drum but would be attached on the outer sides of the drum forming the cup. The seating 16^a is provided to close the bottom end of the cup as it is being filled, and thus it will be seen that the two ends of the cup form alternately the mouth and bottom.

The distributer also comprises an indicator for automatically registering the number of charges supplied to the generating chamber and for arresting the further discharge of carbid when the maximum number of charges which the generator is designed to carry have been reached.

The operating mechanism as shown in Figs. 9 and 10 is situated between the back inner and outer covers. The shaft 8 carries on the outside of the back inner cover a short arm or lever 25. Upon this arm or lever and at right angles to it are two small pins 36 which engage with the mutilated pinion 37 carried on a shaft 38 at every half turn of the shaft 8 corresponding to each discharge of carbid. The pinion 37 carries as many teeth as are charges required. On the back of this pinion and between it and the inner cover is attached a circular disk 39 shown in Fig. 5. This disk carries one end of a V-shaped arm 40 hinged at 41. When the pinion 37 has been revolved until the last tooth has been engaged the upper arm of 40 falls into a slot or recess 42 cut in the disk 39 thereby causing the lower arm to drop into the path of an arm or lever 21 connected with the flap 19 thus preventing it from falling until the arm 40 shall have again been lifted by further rotation of the disk 39. The shaft 38 passes through the back outer cover through a stuffing box 43 into the dial case 44 and carries at the back of the dial plate 45 a ratchet and spring pawl device 46, the notches on which ratchet correspond to the teeth on the pinion 37,

thus preventing any movement or play of the said pinion after registration of a charge. This registration being accomplished by means of a clock face dial and pointer the dial being numbered from the figure 0 to (in the instance shown) 26, against the 0 is placed the word "Open" and against 26 the word "Shut". The shaft 38 is fitted with a square nut at its free end, so that a key or handle may be temporarily fitted in order that the indicator may be reset on charging the generator afresh, or to close the action of the mechanism should such be desired. The dial is covered by means of a glass front or lid 48. If required the dial case could be set at right angles to the face of the outer cover by means of cross gearing (on the shaft 38) or other suitable mechanism.

Having described the invention, what I claim as new is:—

1. In an apparatus of the character described, the combination comprising a reservoir, a chamber in communication therewith, a receiving drum rotatably mounted in said chamber, a receiving compartment below said drum, a flap door serving as a closure for said receiving compartment, below said drum, a weighted catch adapted to engage said door, a trip rotatable with said drum, said trip being adapted to release said catch, and an arm on said door adapted to be actuated by said trip to close said door.

2. In an apparatus of the character described, the combination comprising a reservoir, a chamber in communication therewith, a receiving and feeding drum rotatably mounted in said chamber, there being a passage entirely through said drum, a seating adapted to direct carbid into said drum, a receiving compartment below said drum, a flap door for said receiving compartment, a gravity catch adapted to engage said door, a trip adapted to release said catch, and an arm adapted to be actuated by said trip to close the door.

3. In a feed for acetylene generators, the combination comprising a rotatable drum having a passage entirely through the same, fixed means for blocking the discharge therefrom, means for rotating said drum to permit it to discharge its contents, a receptacle for the material discharged from said drum, a flap door adapted to close the bottom of said receptacle, means carried with said drum to release said door to permit it to open by gravity, and means for closing the said door.

4. In an acetylene gas generator, a carbid reservoir, a chamber in communication therewith, a receiving drum rotatable in said chamber, a shaft on which said drum is supported, means for rotating said drum, a partition separating said chamber into two compartments, a flap door forming a part of said partition, and an arm fixed to said shaft opening and closing said door at each rotation of said drum, a gasometer and means for connecting the same operatively with said drum actuating means.

5. In an acetylene gas generator, the combination comprising a generator chamber, a carbid reservoir, a chamber in communication therewith, a receiving drum rotatably mounted in said chamber, a supporting shaft therefor, a receiving compartment below said drum, a closure for the lower part of said compartment and means on said shaft for actuating said closure a plurality of times with each rotation of said drum.

6. In an acetylene gas generator, the combination comprising a generator chamber, a carbid reservoir, a feed-chamber in communication with said reservoir, a rotatable member mounted in said feed-chamber said member having a pocket or receptacle extending therethrough, a receiver below said rotatable member, a closure for said receiver, means for actuating said closure to permit carbid to discharge from said receiver, a trip adapted to lock said closure, said trip being actuated to permit said closure to operate, a seating in said feed-chamber adapted to direct carbid into said rotatable member, and means adapted to rotate said rotatable member at predetermined times.

7. In an acetylene generator, the combination comprising a carbid receiver, a generating chamber, an intermediate feed-chamber in communication with said generating chamber, a receiving compartment in said intermediate chamber, a gravity operable door to said compartment, a drum rotatable above said receiving compartment, a seating adapted to direct carbid into said drum, a scraper adapted to bear on said drum, means for rotating said drum, and a rotatable arm for opening and closing communication between said intermediate compartment and said generator.

8. In an apparatus of the character described, the combination comprising a carbid reservoir, a generating chamber, an intermediate chamber in communication with said reservoir, a closure for said intermediate chamber, a rotatable hollow drum in said intermediate chamber, with a passage entirely through said drum, an arm carried by said drum for releasing said closure and also for resetting the same, and counting means for indicating the number of discharges from said drum.

9. In an acetylene generator, a carbid feeding means adapted to be operated from a gasometer, said means comprising an inner casing, with gravity operable door connected therewith, a drum rotatable within said inner casing said drum having a carbid receptacle therein, said receptacle comprising a passage extending entirely through said drum, rigid means for supporting the carbid in said receptacle, an outer casing and means rotata-

ble with said carbid receptacle adapted to release said door and to close the same.

10. In an acetylene generator, a carbid feeding means adapted to be operated from a gasometer, said means comprising an outer casing and an inner casing, with gravity operable door connected therewith, a drum rotatable above said inner casing, said drum having a carbid receptacle therein, said receptacle comprising a passage extending entirely through said drum, a curved seating adapted to support the carbid in said passage while filling the same, a gravity catch for said door, an arm rotatable with said drum adapted to release said catch, and means on said door projecting into the path of said arm whereby the door may be closed by said arm.

11. In an acetylene generator, a carbid feeding means comprising a casing and a rotatable drum therein with a passage extending entirely through the drum, means for rotating said drum, fixed means for supporting carbid during partial rotation of said drum, a carbid receiver below said drum, a gravity door therein and means rotatable with said carbid receiver for releasing and for closing said door.

12. In an acetylene generator, the combination comprising a generator, a casing mounted on said generator, a rotatable carbid receiving receptacle, a supporting shaft on which said receptacle is rotatably mounted, means for rotating said receptacle, a partition between said carbid receptacle and said generator, a flap door closing said partition and means rotatable with said shaft for releasing and for closing said door.

13. In an acetylene generator, the combination comprising a generator, a casing mounted on said generator, a rotatable carbid receiving receptacle, a supporting shaft on which said receptacle is rotatably mounted, means for rotating said receptacle, a partition between said carbid receptacle and said generator, a flap door closing said partition and an arm secured to and rotatable with said shaft for releasing and for closing said door.

14. In an acetylene generator, a generator chamber, a carbid supply casing mounted thereon, a rotatably mounted carbid receptacle, a receiver between said carbid receptacle and said chamber, a gravity door normally closing said receiver, and an arm rotatable with said carbid receptacle said arm being adapted to release said door and also to close the same.

15. In an acetylene generator, a generator chamber, a carbid supply casing mounted thereon, a rotatably mounted carbid receptacle having a passage entirely through the same, means for closing the lower opening of said receptacle while filling a receiver between said carbid receptacle and said chamber, a gravity door normally closing said receiver, and an arm rotatable with said carbid receptacle said arm being adapted to release said door and also to close the same.

16. In an acetylene generator, a generator chamber, a carbid supply casing mounted thereon, a rotatably mounted carbid receptacle having a passage entirely through the same, fixed means for closing the lower opening of said receptacle while filling, a receiver between said carbid receptacle and said chamber, a gravity door normally closing said receiver, and an arm rotatable with said carbid receptacle said arm being adapted to release said door and also to close the same.

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

JOHN McVICKER MORRIS.

Witnesses:

E. M. TOLERTON,

A. W. SMITH.