

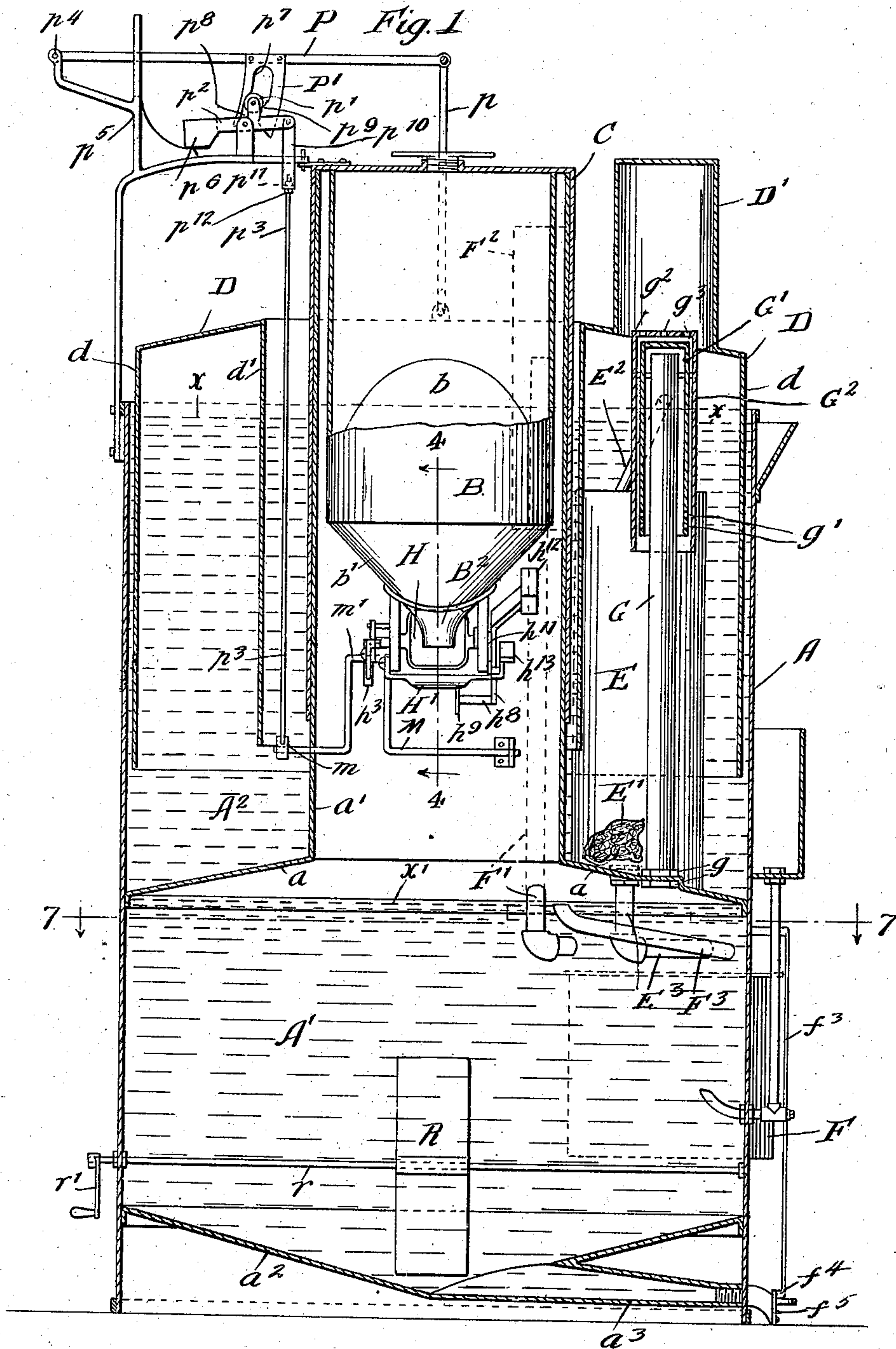
No. 881,615.

PATENTED MAR. 10, 1908.

A. S. PHELPS, JR.
ACETYLENE GAS GENERATOR.

APPLICATION FILED JULY 18, 1906.

3 SHEETS—SHEET 1.



Witnesses:

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A. M. Munday

Inventor.

Algernon S. Phelps Jr.

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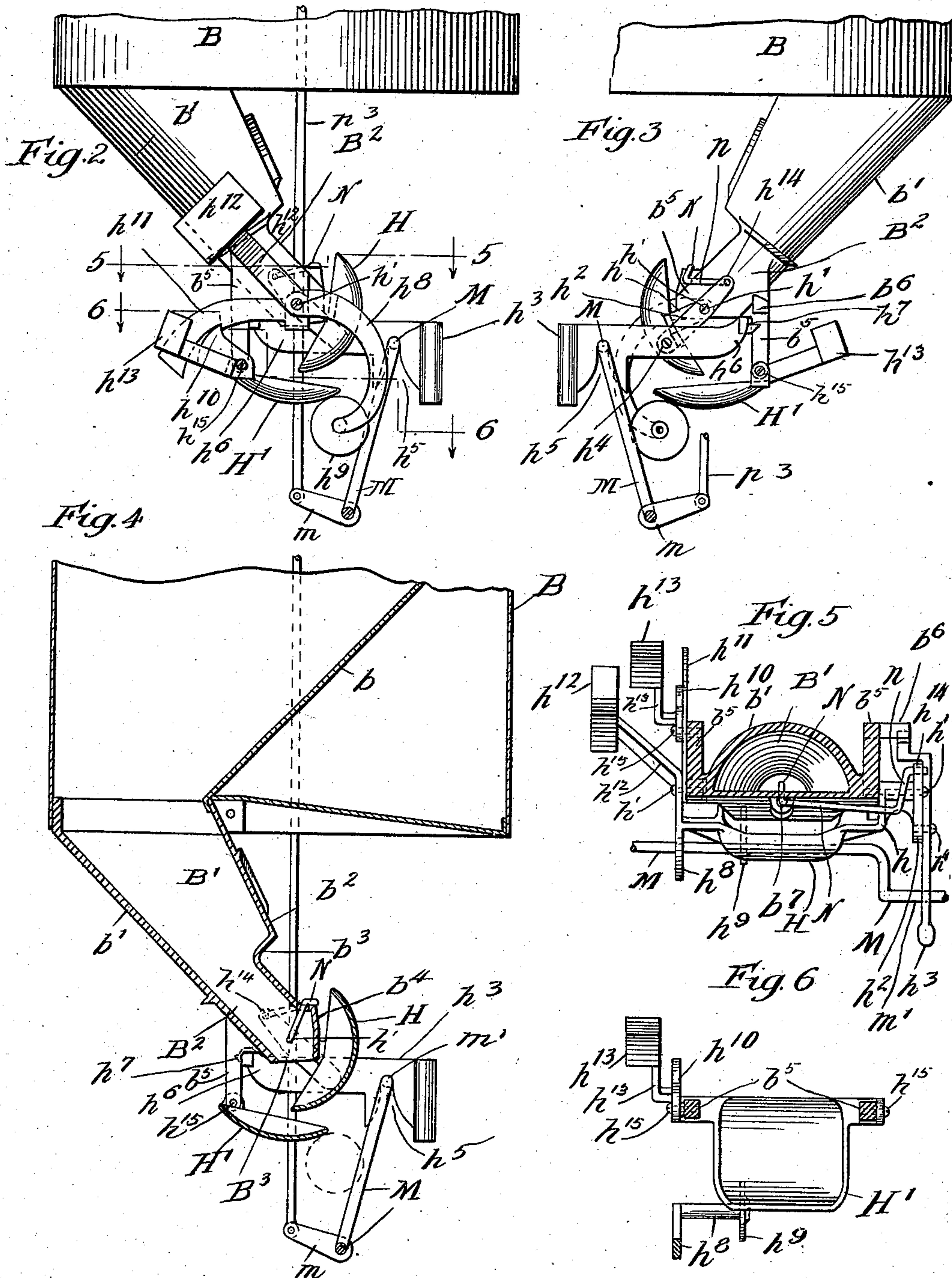
No. 881,615.

PATENTED MAR. 10, 1908.

A. S. PHELPS, JR.
ACETYLENE GAS GENERATOR.

APPLICATION FILED JULY 16, 1906.

3 SHEETS—SHEET 2.



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3 SHEETS—SHEET 3.

Fig. 7

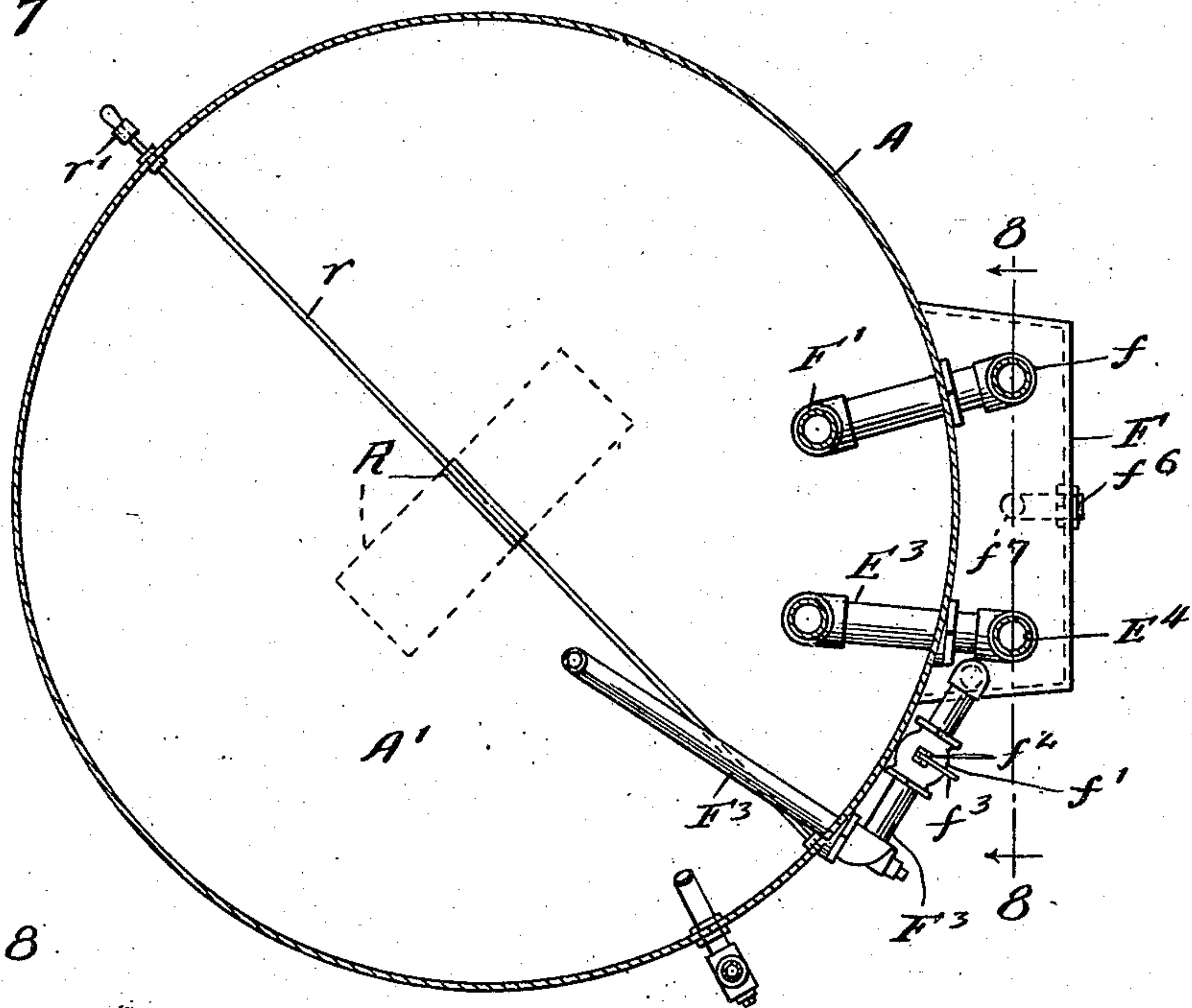


Fig. 8

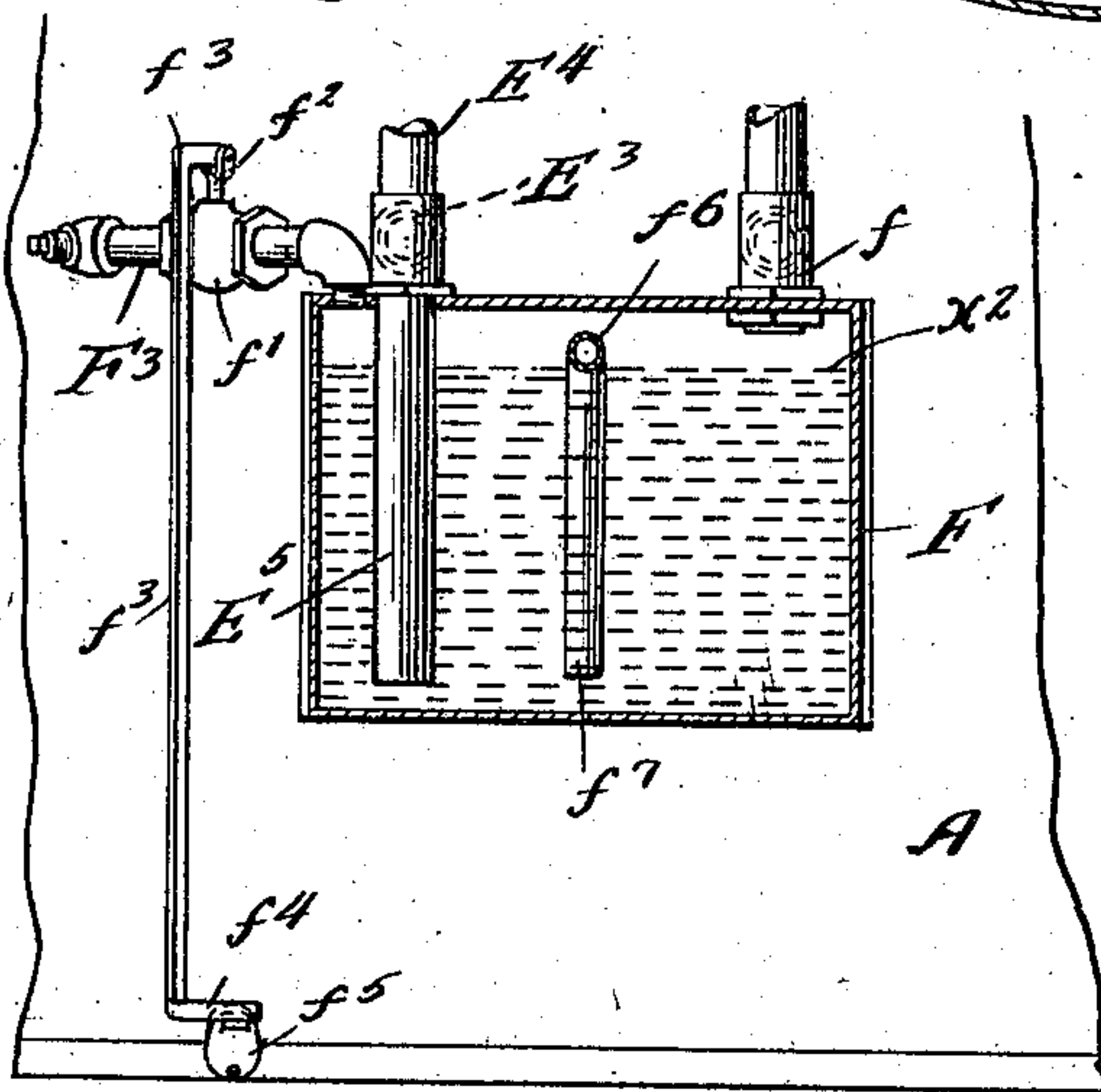
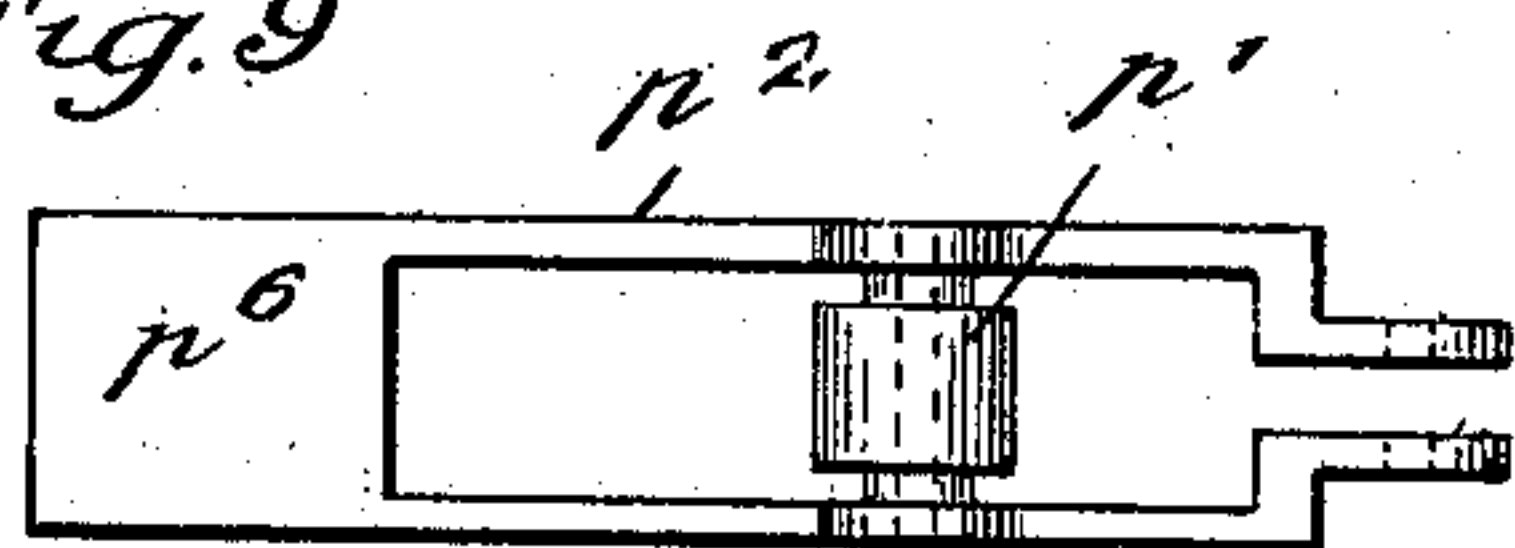


Fig. 9



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UNITED STATES PATENT OFFICE.

ALGERNON S. PHELPS, JR., OF CHICAGO, ILLINOIS.

ACETYLENE-GAS GENERATOR.

No. 881,615.

Specification of Letters Patent.

Patented March 10, 1908.

Application filed July 16, 1906. Serial No. 326,310.

To all whom it may concern:

Be it known that I, ALGERNON S. PHELPS, Jr., a citizen of the United States, residing in Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Acetylene-Gas Generators, of which the following is a specification.

My invention relates to improvements in acetylene gas generators.

The object of my invention is to provide an acetylene gas generator, of a simple, efficient, durable and safe construction, which will automatically operate to feed the carbide regularly and uniformly in measured charges as the gas is consumed, and whereby all danger or liability of delivering an excessive quantity of carbide to the generator and producing an excessive or unsafe pressure of gas is avoided.

My invention consists in the means I have devised and employ to accomplish this object or result, as herein shown and described, and more particularly specified in the claims.

In the drawing forming a part of this specification, Figure 1 is a central vertical section of an acetylene gas generator embodying my invention showing some of the parts in elevation. Fig. 2 is a detail elevation of the carbide magazine and feed mechanism. Fig. 3 is an elevation of the same looking from the opposite side. Fig. 4 is a detail vertical section on line 4—4 of Fig. 1. Fig. 5 is a detail horizontal section on the broken line 5—5 of Fig. 2. Fig. 6 is a detail horizontal section on the broken line 6—6 of Fig. 2. Fig. 7 is a horizontal section on line 7—7 of Fig. 1. Fig. 8 is a detail vertical section on line 8—8 of Fig. 7 and Fig. 9 is a detail plan view of a part hereinafter to be described.

In the drawing, A represents the main tank of my acetylene gas generator. The tank A has at its lower portion a generator chamber A¹, and an upper chamber A² for the gasometer, the two compartments or chambers being separated by an annular dome shaped partition *a*, having a central tubular extension *a*¹.

B is the carbide holder or magazine fitting within the central tube *a*¹.

C is a cylindrical hood or seal which fits over the central tube *a*¹ and the carbide holder within said tube and to which said holder is attached.

D is the bell or gasometer, the same being of annular form, having an outer wall *d* fitting within and concentric to the cylindrical

wall of the tank or casing A, and an inner wall *d*¹ eccentric to the wall *d* and surrounding the central tube *e*¹ and hood or seal C, the eccentricity of the inner wall *d*¹ serving to give space between said inner wall *d*¹ of the bell or gasometer and the hood or seal C to receive and accommodate the connection rod of the carbide feed mechanism.

E is the filter, the same consisting preferably of a cylindrical closed shell secured to the horizontal annular partition *a* and containing filtering material E¹ of any well known kind.

G is the gas pipe extending through an opening in the annular partition *a* and secured thereto by lock nuts *g g* and through which the gas from the generator chamber A¹ is conducted into the gasometer. The upper end of this tube projects above the water level *x* in the tank A and is covered by a closed hood G¹, the lower end of which extends below the water level and is provided with fine perforations *g*¹ through which the gas escapes into the water. Over the hood G¹, there is provided an outer hood G², the lower end of which extends below the lower end of the inner hood G¹, and the upper head *g*² of which is provided with perforations *g*³ through which the gas escapes into the gasometer.

The gasometer D is furnished with a dome D¹ which telescopes with the hoods G² G¹.

E² is a pipe, the upper end of which communicates with the gasometer above the water level, and by which the gas is conducted from the gasometer into the filter E.

E³ is the gas conducting pipe leading from the filter to the service pipe E⁴ on the outside of the machine.

E⁵ is the drip pipe communicating with the pipe E³ and service pipe E⁴ and having its lower end extending into the by-pass box F.

F¹ is a blow-off pipe communicating at its upper end with the gasometer and extending through the annular partition *a* and out through the cylindrical wall of the tank A, and communicates with the by-pass box F through one arm of the T, *f*, the other arm of which connects with the blow-off pipe leading out doors for the escape of the gas. The upper end of the blow-off pipe F¹ is covered by a closed hood or tube F² attached to the gasometer, and prevents the escape of gas through the blow-off pipe except when the gasometer is raised by the gas pressure above the height desired.

F^3 is a pipe extending through the outer wall of the tank, having a stop cock f^1 , and communicating at its outer end with the by-pass box F. The inner end of this pipe F^3 determines the water level x^1 in the lower or generator chamber A^1 and also gives vent into the by-pass box F when the stop cock f^1 is opened. The handle f^2 of the stop cock f^1 is provided with a bent arm f^3 having a foot f^4 which serves as a lock to the gate or faucet f^5 by which the water is removed from the generator chamber A^1 of the tank A to recharge the machine. This prevents opening the gate or faucet f^5 before opening the stop cock f^1 which gives vent into the by-pass box. The by-pass box F is furnished with an overflow pipe f^6 having an interior nipple f^7 extending nearly to the bottom of the by-pass box F, which regulates the water level x^2 in the by-pass box F so that an air space is always maintained at the upper part of the by-pass box as required.

The carbid holder or magazine B is provided at its lower portion with an incline b , giving the magazine a hopper shape, and terminates at its lower end in a reversely inclined chute B^1 , the lower inclined wall b^1 of which is preferably rounded or curved, and the upper inclined wall b^2 of which is preferably provided with an internal ledge or shoulder b^3 to give the chute or passage B^1 a contracted throat B^2 . The throat B^2 is preferably furnished with a substantially upright wall b^4 on the side opposite the incline b^1 so as to give the feed passage B^1 a downwardly opening mouth B^3 .

H H^1 is the feeder by which the carbid is fed automatically and regularly in measured quantities from the holder or magazine B into the generator chamber A^1 , the same comprising a rocking shoe H and a tilting dump pan H^1 arranged below the shoe, the rocking or swinging shoe moving concentric or parallel to the curvature of the dump pan so as to avoid any wedging, clamping or binding action upon the carbid material between the dump pan and the swinging shoe.

The shoe H has a crank arm h pivoted to the lug b^5 on the chute B^1 by suitable pins h^1 . On the pivot h^1 of the arm h , a lever h^2 is fulcrumed to the lower end of which is pivoted the hook lever h^3 by a pin h^4 , the hook lever h^3 having a downwardly opening curved or wedging slot h^5 to adapt the hook lever to readily engage the bail or crank M, through which motion is communicated to the rocking shoe H from the gasometer D. To facilitate the engagement of the hook lever h^3 with the bail or crank M when the carbid holder or magazine B is lowered into the central tube a^1 , the hook lever h^3 is furnished with an arm h^6 having a notch h^7 which engages the lug b^6 on the reversely inclined chute B^1 , thus setting the hook lever in proper position to engage the bail M. When the en-

gagement takes place between the hook lever h^3 and bail M, the further lowering of the magazine causes the bail M to raise the hook lever so as to disengage itself from the lug b^6 and thus leave the hook free to move under action of the gasometer D. The rocking or swinging shoe H is provided at its opposite side with an arm h^8 , carrying at its lower end a friction wheel h^9 which is adapted to engage the curved lower face of the dump pan H^1 and close the same or turn it into a horizontal position beneath the discharge mouth B^3 of the chute as the shoe H begins to swing open and before said shoe moves sufficiently in its opening movement to permit the carbid to fall therefrom into the generator chamber A^1 . The operation of the dump pan is to close or turn into horizontal position before the shoe H in its opening movement begins to discharge the carbid therefrom.

To hold the dump pan H^1 which is hinged by a pin h^{15} to the lugs b^5 on the chute B^1 in its closed or horizontal position beneath the discharge mouth of the chute while the shoe H is swinging open or out of the way, the dump pan H^1 is provided with a dog or arm h^{10} which engages a latch or trip device h^{11} pivoted to the chute B^1 or its lugs b^5 at h^{15} . The latch or trip device h^{11} is automatically released or tripped by engagement with the arm h^8 on the rocking shoe H when said rocking shoe H is in its closed or horizontal position beneath the discharge mouth B^3 of the chute B^1 at which time the friction wheel or roller h^9 on said arm swings past and clears the dump pan H^1 , thus permitting the dump pan to swing freely and suddenly open and deliver the charge of carbid therein into the generator chamber. To partially counterbalance the rocking shoe H, it is provided with a weighted arm h^{12} and the dump pan H^1 is provided with a similar weighted arm h^{13} .

N is an agitator fitting in an opening b^7 in the chute B^1 and projecting downwardly into the mouth B^3 of the chute for the purpose of preventing danger of clogging. This agitator N has a crank arm n , preferably integral therewith, which fits in an arm h^{14} on the lever h^2 fulcrumed on the hinge pin h^1 of the rocking or swinging shoe, so that the agitator is automatically operated from and by the shoe H.

Motion is communicated to the bail or crank M which operates the feeder H H^1 by the up and down movement of the gasometer D by means of a lever P connected to the gasometer by a pivoted link p and provided with a cam P^1 of open slot form which engages the friction roller p^1 on the lever p^2 and which is connected by a link p^3 with the arm m of the bail or crank M. The lever P is fulcrumed at p^4 on a bracket p^5 on the tank or casing A. The lever p^2 is provided with a weight p^6 to turn or hold the crank M in proper position for engagement of its bail arm m^1 with the

hook lever h^3 when the carbid holder or magazine B is lifted out and returned to position in the central tube a^1 . By reason of the open slot form of the cam P^1 when the gas pressure rises too high, the gasometer operates to entirely disengage the cam P^1 from the roller p^1 on the lever p^2 , thus entirely disengaging the feed mechanism from the gasometer. The cam P^1 has extended neutral portions p^7 p^8 above and below the operative portion p^9 , said neutral portions being curved concentrically with the pivot p^4 about which the lever P turns, so that the gasometer may have the requisite extent of travel without acting upon the feed mechanism excepting at the operative or inclined portion p^9 of the cam.

The generator chamber A^1 has an inclined bottom a^2 , terminating in a drain channel a^3 and is provided with a rotary agitator R to stir up the sediment before drawing off the water in the generator chamber A^1 and recharging the same. This agitator R is secured to a shaft r having a crank r^1 for operating the same, on the outside of the tank A.

The connecting rod p^3 between the crank or bail M and the lever p^2 is provided with a link p^{10} and an adjustable connection therewith preferably consisting of screw threads on the connecting rod p^3 and lock nuts p^{11} p^{12} .

I claim:—

1. In an acetylene generator, the combination of a generator tank having a generating chamber at its lower portion and an annular gasometer chamber at its upper part, and a central tube to receive a carbid holder or magazine, of an annular gasometer bell having a cylindrical outer wall and a cylindrical inner wall eccentric to said outer wall; a carbid holder or magazine fitting in said central tube, a rocking feed shoe swinging beneath the discharge mouth of said magazine, a tilting dump pan mounted beneath said shoe, an arm on said shoe engaging the dump pan to close the same as the shoe swings open, a latch for holding the dump pan closed, an arm on the shoe operating to trip the dump pan latch as the shoe swings into its closed position beneath the discharge mouth of the magazine, a bail or crank for operating the shoe, an operating lever connected with the gasometer, and provided with a cam, and a connecting lever having a roller engaging the cam, and a link connecting said last mentioned lever with said feed operating bail or crank, substantially as specified.

2. In an acetylene generator, the combination with a tank having a generator chamber at its lower portion, and an upper annular gasometer chamber, and a central tube to receive the carbid magazine, of an annular gasometer bell, a carbid magazine in said central tube provided with an incline and with a reversely inclined feed chute at its lower portion, a closed hood covering and

surrounding said central tube, a rocking feed shoe swinging beneath the discharge mouth of said feed chute, a tilting dumping pan mounted beneath said shoe, means for closing the dump pan as the feed shoe begins to open, means for locking or holding the dump pan in its closed position, means for tripping or releasing the dump pan when the shoe is closed, and means for operating said shoe automatically from the gasometer bell, substantially as specified.

3. In an acetylene gas generator, the combination of a tank having a generating chamber, of a carbid magazine, a rocking feed shoe swinging beneath the discharge mouth of said magazine, a tilting dumping pan mounted beneath said shoe, a latch for holding the dump pan closed, the shoe being provided with means for releasing or tripping said latch as the shoe closes, substantially as specified.

4. In an acetylene gas generator, the combination with a generator tank having a generating chamber, and an annular gasometer chamber, and a central tube to receive the carbid magazine, of an annular gasometer bell fitting in the annular chamber of the tank, a carbid magazine fitting in said central tube, a rocking feed shoe swinging under the discharge mouth of said magazine, a tilting dump pan mounted beneath said feed shoe, said feed shoe being provided with means for automatically operating the dump pan, and connecting means for operating said feed shoe from and by the gasometer bell, substantially as specified.

5. In an acetylene gas generator, the combination with a generator tank having a generating chamber, and an annular gasometer chamber, and a central tube to receive a carbid magazine, of an annular gasometer bell fitting in the annular chamber of the tank, a carbid magazine fitting in said central tube, a rocking feed shoe swinging under the discharge mouth of said magazine, a tilting dump pan mounted beneath said feed shoe, said feed shoe being provided with means for automatically operating the dump pan, and connecting means for operating said feed shoe from and by the gasometer bell, said tilting dump pan being curved and said rocking feed shoe being also curved and swinging concentrically to the dump pan, substantially as specified.

6. In an acetylene gas generator, the combination with a generator tank having a generating chamber, and an annular gasometer chamber, and a central tube to receive a carbid magazine, of an annular gasometer bell fitting in the annular chamber of the tank, a carbid magazine fitting in said central tube, a rocking feed shoe swinging under the discharge mouth of said magazine, a tilting dump pan mounted beneath said feed shoe, said feed shoe being provided

with means for automatically operating the dump pan, and connecting means for operating said feed shoe from and by the gasometer bell, said connecting means for operating said feed shoe from said bell comprising an open slot cam actuated by the gasometer and adapted to be disengaged from its cooperating part by excessive rise of the gasometer, substantially as specified.

7. In an acetylene gas generator, the combination with a generator tank having a generating chamber, and an annular gasometer chamber, and a central tube to receive a carbid magazine, of an annular gasometer bell fitting in the annular chamber of the tank, a carbid magazine fitting in said central tube, a rocking feed shoe swinging under the discharge mouth of said magazine, a tilting dump pan mounted beneath said feed shoe, said feed shoe being provided with means for automatically operating the dump pan, and connecting means for operating said feed shoe from and by the gasometer bell, said connecting means for operating said feed shoe from said bell comprising an open slot cam actuated by the gasometer and adapted to be disengaged from its cooperating part by excessive rise of the gasometer, and a lever carrying a roller engaged by said open slot cam, substantially as specified.

8. In an acetylene gas generator, the combination with a generator tank having a generating chamber, and an annular gasometer chamber, and a central tube to receive a carbid magazine, of an annular gasometer bell fitting in the annular chamber of the tank, a carbid magazine fitting in said central tube, a rocking feed shoe swinging under the discharge mouth of said magazine, a tilting dump pan mounted beneath said feed shoe, said feed shoe being provided with means for automatically operating the dump pan, and connecting means for operating said feed shoe from and by the gasometer bell, said connecting means for operating said feed shoe from said bell comprising an open slot cam actuated by the gasometer and adapted to be disengaged from its cooperating part by excessive rise of the gasometer, a lever carrying a roller engaged by said open slot cam, and a connecting rod extending between the inner cylindrical wall of the gasometer and said central tube, substantially as specified.

9. In an acetylene gas generator, the combination with a generator tank having a generating chamber, and an annular gasometer chamber, and a central tube to receive a carbid magazine, of an annular gasometer bell fitting in the annular chamber of the tank, a carbid magazine fitting in said central tube, a rocking feed shoe swinging under the discharge mouth of said magazine, a tilting dump pan mounted beneath said feed shoe,

said feed shoe being provided with means for automatically operating the dump pan, and connecting means for operating said feed shoe from and by the gasometer bell, said connecting means for operating said feed shoe from said bell comprising an open slot cam actuated by the gasometer and adapted to be disengaged from its cooperating part by excessive rise of the gasometer, a lever carrying a roller engaged by said open slot cam, and a connecting rod extending between the inner cylindrical wall of the gasometer and said central tube, a bail or crank attached to the connecting rod and a hook lever on said magazine provided with a flaring slot to facilitate engagement with said bail or crank, substantially as specified.

10. In an acetylene gas generator, the combination with a generator tank having a generating chamber, and an annular gasometer chamber, and a central tube to receive a carbid magazine, of an annular gasometer bell fitting in the annular chamber of the tank, a carbid magazine fitting in said central tube, a rocking feed shoe swinging under the discharge mouth of said magazine, a tilting dump pan mounted beneath said feed shoe, said feed shoe being provided with means for automatically operating the dump pan, connecting means for operating said feed shoe from and by the gasometer bell, said connecting means for operating said feed shoe from said bell comprising an open slot cam actuated by the gasometer and adapted to be disengaged from its cooperating part by excessive rise of the gasometer, a lever carrying a roller engaged by said open slot cam, a connecting rod extending between the inner cylindrical wall of the gasometer and said central tube, a bail or crank attached to the connecting rod and a hook lever on said magazine provided with a flaring slot to facilitate engagement with said bail or crank, said hook lever having a dog or arm, and said magazine having a notch engaged by said dog on the hook lever to set the hook lever in position for engagement with the bail, substantially as specified.

11. In an acetylene gas generator, the combination with a generator, having a generating chamber, and an annular gasometer chamber, and a central tube to receive a carbid magazine, of an annular gasometer bell fitting in the annular chamber of the tank, a carbid magazine fitting in said central tube, a rocking feed shoe swinging under the discharge mouth of said magazine, a tilting dump pan mounted beneath said feed shoe, said feed shoe being provided with means for automatically operating the dump pan, connecting means for operating said feed shoe from and by the gasometer bell, said connecting means for operating said feed shoe from said bell comprising an open slot cam actuated by the gasometer and adapted to

be disengaged from its cooperating part by excessive rise of the gasometer, a lever carrying a roller engaged by said open slot cam, a connecting rod extending between the inner cylindrical wall of the gasometer and said central tube, a bail or crank and a hook lever on said magazine provided with a flaring slot to facilitate engagement with said bail or crank, said hook lever having a dog or arm and said magazine having a notch engaged by said dog on the hook lever to set the hook lever in position for engagement with the bail, said roller carrying lever having a weight to return and hold the bail in position for engagement with said hook lever when the magazine is removed and returned to position, substantially as specified.

12. In an acetylene gas generator, the combination with a generator tank having a generating chamber and an annular gasometer chamber, and a central tube to receive a carbid magazine, of an annular gasometer bell fitting in the annular chamber of the tank, a carbid magazine fitting in said central tube, a rocking feed shoe swinging under the discharge mouth of said magazine, a tilting dump pan mounted beneath said feed shoe, said feed shoe being provided with means for automatically operating the dump pan, connecting means for operating said feed shoe from and by the gasometer bell, said means for operating the tilting dump pan from the rocking feed shoe comprising an arm on the feed shoe engaging the tilting dump pan as the feed shoe begins to swing open to close the dump pan, substantially as specified.

13. In an acetylene gas generator, the combination with a generator tank having a generating chamber and an annular gasometer chamber, and a central tube to receive a carbid magazine, of an annular gasometer bell fitting in the annular chamber of the tank, a carbid magazine fitting in said central tube, a rocking feed shoe swinging under the discharge mouth of said magazine, a tilting dump pan mounted beneath said feed shoe, said feed shoe being provided with means for automatically operating the dump pan, and connecting means for operating said feed shoe from and by the gasometer bell, said means for operating the tilting dump pan from the rocking feed shoe comprising an arm on the feed shoe engaging the tilting dump pan as the feed shoe begins to swing open to close the dump pan, said arm on the shoe having a wheel or roller for contacting with the shoe, substantially as specified.

14. In an acetylene gas generator, the combination with a generator having a generating chamber, and an annular gasometer chamber, and a central tube to receive a carbid magazine, of an annular gasometer bell fitting in the annular chamber of the tank,

a carbid magazine fitting in said central tube, a rocking feed shoe swinging under the discharge mouth of said magazine, a tilting dump pan mounted beneath said feed shoe, said feed shoe being provided with means for automatically operating the dump pan, and connecting means for operating said feed shoe from and by the gasometer bell, said means for operating the tilting dump pan from the rocking feed shoe comprising an arm on the feed shoe engaging the tilting dump pan as the feed shoe begins to swing open to close the dump pan, said arm on the shoe having a wheel or roller for contacting with the shoe, a movable latch and a dog or arm on the dump pan engaging said latch to hold the dump pan closed, substantially as specified.

15. In an acetylene gas generator, the combination with a generator tank having a generating chamber and an annular gasometer chamber, and a central tube to receive a carbid magazine, of an annular gasometer bell fitting in the annular chamber of the tank, a carbid magazine fitting in said central tube, a rocking feed shoe swinging under the discharge mouth of said magazine, a tilting dump pan mounted beneath said feed shoe, said feed shoe being provided with means for automatically operating the dump pan, and connecting means for operating said feed shoe from and by the gasometer bell, said means for operating the tilting dump pan from the rocking feed shoe comprising an arm on the feed shoe engaging the tilting dump pan as the feed shoe begins to swing open to close the dump pan, said arm on the shoe having a wheel or roller for contacting with the shoe, a movable latch and a dog or arm on the dump pan engaging said latch to hold the dump pan closed, one of said arms on said rocking feed shoe engaging said latch to release the same and thus cause the dump pan to be tilted to discharge its carbid charge as the rocking shoe reaches its closed position, substantially as specified.

16. In an acetylene gas generator, the combination with a generator tank having a generating chamber, and an annular gasometer chamber, and a central tube to receive a carbid magazine, of an annular gasometer bell fitting in the annular chamber of the tank, a carbid magazine fitting in said central tube, a rocking feed shoe swinging under the discharge mouth of said magazine, a tilting dump pan mounted beneath said feed shoe, said feed shoe being provided with means for automatically operating the dump pan, and connecting means for operating said feed shoe from and by the gasometer bell, said means for operating the tilting dump pan from the rocking feed shoe comprising an arm on the feed shoe engaging the tilting dump pan as the feed shoe begins to swing open to close the dump pan, said

arm on the shoe having a wheel or roller for contacting with the shoe, a movable latch and a dog or arm on the dump pan engaging said latch to hold the dump pan closed, one of said arms on said rocking feed shoe engaging said latch to release the same and thus cause the dump pan to be tilted to discharge its carbid charge as the rocking shoe reaches its closed position, the dump pan being also provided with a counter weight, substantially as specified.

17. In an acetylene gas generator, the combination with a generator tank having a generating chamber, and an annular gasometer chamber, and a central tube to receive a carbid magazine, of an annular gasometer bell fitting in the annular chamber of the tank, a carbid magazine fitting in said central tube, a rocking feed shoe swinging under the discharge mouth of said magazine, a tilting dump pan mounted beneath said feed shoe, said feed shoe being provided with means for automatically operating the dump pan, and connecting means for operating said feed shoe from and by the gasometer bell, said means for operating the tilting dump pan from the rocking shoe comprising an arm on the feed shoe engaging the tilting dump pan as the feed shoe begins to swing open to close the dump pan, said arm on the shoe having a wheel or roller for contacting with the shoe, a movable latch and a dog or arm on the dump pan engaging said latch to hold the dump pan closed, one of said arms on said rocking feed shoe engaging said latch to release the same and thus cause the dump pan to be tilted to discharge its carbid charge as the rocking shoe reaches its closed position, the dump pan being provided also with a counter weight, and the rocking shoe having also a counter weight, substantially as specified.

18. In an acetylene gas generator, the combination with the generating chamber, of a carbid magazine having a discharge chute and an automatic measuring feeder consisting of a rocking feed shoe swinging under the discharge mouth of the feed chute, and a tilting dump pan mounted below said rocking shoe, said rocking feed shoe having an arm engaging the tilting dump pan to close the same, substantially as specified.

19. In an acetylene gas generator, the combination with the generating chamber, of a carbid magazine having a discharge chute and an automatic measuring feeder consisting of a rocking feed shoe swinging under the discharge mouth of the feed chute, and a tilting dump pan mounted below said rocking shoe, said rocking feed shoe having an arm engaging the tilting dump pan to close the same, provided with a wheel or roller contacting with the dump pan, substantially as specified.

20. In an acetylene gas generator, the

combination with the generating chamber, of a carbid magazine having a discharge chute and an automatic measuring feeder consisting of a rocking feed shoe swinging under the discharge mouth of the feed chute, and a tilting dump pan mounted below said rocking shoe, said rocking feed shoe having an arm engaging the tilting dump pan to close the same, provided with a wheel or roller contacting with the dump pan and a movable latch for holding the dump pan closed, substantially as specified.

21. In an acetylene gas generator, the combination with the generating chamber, of a carbid magazine having a discharge chute, and an automatic measuring feeder consisting of a rocking feed shoe swinging under the discharge mouth of the feed chute, and a tilting dump pan mounted below said rocking shoe, said rocking feed shoe having an arm engaging the tilting dump pan to close the same, provided with a wheel or roller contacting with the dump pan and a movable latch for holding the dump pan closed, said arm on the rocking feed shoe engaging said latch to release the same and permit the sudden dumping of the carbid from the dump pan, substantially as specified.

22. In an acetylene gas generator, the combination with the generating chamber, of a carbid magazine having a discharge chute, and an automatic measuring feeder consisting of a rocking feed shoe swinging under the discharge mouth of the feed chute, and a tilting dump pan mounted below said rocking shoe, said rocking feed shoe having an arm engaging the tilting dump pan to close the same, provided with a wheel or roller contacting with the dump pan, and a movable latch for holding the dump pan closed, said arm on the rocking feed shoe engaging said latch to release the same and permit the sudden dumping of the carbid from the dump pan, the dump pan having an arm engaging said latch, substantially as specified.

23. In an acetylene gas generator, the combination with the generating chamber, of a carbid magazine having a discharge chute and an automatic measuring feeder consisting of a rocking feed shoe swinging under the discharge mouth of the feed chute, and a tilting dump pan mounted below said rocking shoe, said rocking feed shoe having an arm engaging the tilting dump pan to close the same, a gasometer bell and means for automatically operating said rocking shoe from the gasometer bell, substantially as specified.

24. In an acetylene gas generator, the combination with the generating chamber, of a carbid magazine having a discharge chute and an automatic measuring feeder consisting of a rocking feed shoe swinging under the discharge mouth of the feed chute, and a tilting dump pan mounted below said rocking shoe, said rocking feed shoe having an arm

engaging the tilting dump pan to close the same, a gasometer bell and means for automatically operating said rocking shoe from the gasometer bell, said means having a crank arm on said shoe and a hook lever pivoted thereto, substantially as specified.

25. In an acetylene gas generator, the combination with the generating chamber, of a carbid magazine having a discharge chute and an automatic measuring feeder consisting of a rocking feed shoe swinging under the discharge mouth of the feed chute, and a tilting dump pan mounted below said rocking shoe, said rocking feed shoe having an arm engaging the tilting dump pan to close the same, a gasometer bell and means for automatically operating said rocking shoe from the gasometer bell, said means having a crank arm on said shoe and a hook lever pivoted thereto, and a bail lever adapted to be engaged by said hook lever, substantially as specified.

26. In an acetylene gas generator, the combination with the generating chamber, of a carbid magazine having a discharge chute and an automatic measuring feeder consisting of a rocking feed shoe swinging under the discharge mouth of the feed chute, and a tilting dump pan mounted below said rocking shoe, said rocking feed shoe having an arm engaging the tilting dump pan to close the same, a gasometer bell and means for automatically operating said rocking shoe from the gasometer bell, said means having a crank arm on said shoe and a hook lever pivoted thereto, a bail lever adapted to be engaged by said hook lever, a connecting rod attached to said bail lever, a roller carrying lever and a cam lever provided with a slotted cam engaging the roller on said roller carrying lever and connected to said gasometer bell, substantially as specified.

27. In an acetylene generator, the combination of a tank A having a generating chamber A¹, an annular gasometer chamber A² and central tube *a*¹, with a carbid magazine B having incline *b*, and reversely inclined chute B¹ at the lower portion thereof, a closed hood C, gasometer bell D, rocking feed shoe H and tilting dump pan H¹ below said rocking shoe, substantially as specified.

28. In an acetylene generator, the combination of a tank A having a generating chamber A¹, an annular gasometer chamber A² and central tube *a*¹, with a carbid magazine B having incline *b*, and reversely inclined chute B¹ at the lower portion thereof, a closed hood C, gasometer bell D, rocking feed shoe H and tilting dump pan H¹ below said rocking shoe, said rocking shoe having a crank arm *h* provided with bent arm *h*² and a hook lever *h*³ pivoted thereto, and a bail or crank M engaged by said hook lever, substantially as specified.

29. In an acetylene generator, the com-

bination of a tank A having a generating chamber A¹, an annular gasometer chamber A² and central tube *a*¹, with a carbid magazine B having incline *b*, and reversely inclined chute B¹ at the lower portion thereof, a closed hood C, gasometer bell D, rocking feed shoe H and tilting dump pan H¹ below said rocking shoe, said rocking shoe having a crank arm *h* provided with bent arm *h*² and a hook lever *h*³ pivoted thereto, a bail or crank M engaged by said hook lever, said hook lever *h*³ being provided with an arm *h*⁶ and said chute B¹ having a lug *b*⁵ engaged by said arm *h*⁶ of the hook lever to set the hook lever in position to engage said bail M, substantially as specified.

30. In an acetylene generator, the combination of a tank A, having a generating chamber A¹, an annular gasometer chamber A² and central tube *a*¹, with a carbid magazine B having incline *b*, and reversely inclined chute B¹ at the lower portion thereof, a closed hood C, gasometer bell D, rocking feed shoe H and tilting dump pan H¹ below said rocking shoe, said rocking shoe having a crank arm *h* provided with bent arm *h*² and a hook lever *h*³ pivoted thereto, a bail or crank M engaged by said hook lever, said hook lever *h*³ being provided with an arm *h*⁶ and said chute B¹ having a lug *b*⁵ engaged by said arm *h*⁶ of the hook lever to set the hook lever in position to engage said bail M, connecting rod *p*³ and weighted lever *p*² for holding the bail lever in position for engaging said hook lever on the carbid magazine as the same is lowered into position, substantially as specified.

31. In an acetylene generator, the combination of a tank A, having a generating chamber A¹, an annular gasometer chamber A² and central tube *a*¹, with a carbid magazine B having incline *b*, and reversely inclined chute B¹ at the lower portion thereof, a closed hood C, gasometer bell D, rocking feed shoe H and tilting dump pan H¹ below said rocking shoe, said rocking shoe having an arm *h*, a hook lever *h*³ pivoted to said arm *h*, a bail or crank M, connecting rod *p*³, lever *p*² provided with roller *p*¹, lever P provided with cam P¹ and rod *p* connecting said lever P with said gasometer bell, substantially as specified.

32. In an acetylene gas generator, the combination with a generating chamber, of a carbid magazine B having a discharge chute B¹, of a rocking feed shoe H and a tilting dump pan below said rocking shoe, the dump pan and rocking shoe being curved and concentric with each other, substantially as specified.

33. In an acetylene gas generator, the combination with a generating chamber, of a carbid magazine B having a discharge chute B¹, of a rocking feed shoe H and a tilting dump pan below said rocking shoe, the

dump pan and rocking shoe being curved and concentric with each other, the rocking shoe being provided with a crank arm and a hook lever pivoted to said crank arm for operating the same, substantially as specified.

34. In an acetylene gas generator, the combination with a generating chamber, of a carbid magazine B having a discharge chute B¹, of a rocking feed shoe H and a tilting dump pan below said rocking shoe, the dump pan and rocking shoe being curved and concentric with each other, the rocking shoe having an arm engaging the tilting dump pan to automatically close the same, substantially as specified.

35. In an acetylene gas generator, the combination with a generating chamber, of a carbid magazine B having a discharge chute B¹, of a rocking feed shoe H and a tilting dump pan below said rocking shoe, the dump pan and rocking shoe being curved and concentric with each other, the rocking shoe having an arm engaging the tilting dump pan to automatically close the same, said arm being provided with a wheel or roller, substantially as specified.

36. In an acetylene gas generator, the combination with a generating chamber, of a carbid magazine B having a discharge chute B¹, of a rocking feed shoe H and a tilting dump pan below said rocking shoe, the dump pan and rocking shoe being curved and concentric with each other, and a movable latch to lock the dump pan closed, substantially as specified.

37. In an acetylene gas generator, the combination with a generating chamber, of a carbid magazine B having a discharge chute B¹, of a rocking feed shoe H and a tilting dump pan below said rocking shoe, the dump pan and rocking shoe being curved and concentric with each other, a movable latch to lock the dump pan closed, and means for automatically releasing said latch when the rocking shoe reaches its closed position, substantially as specified.

38. In an acetylene gas generator, the combination with a generating chamber, of a carbid magazine B having a discharge chute B¹, of a rocking feed shoe H and a tilting dump pan below said rocking shoe, the dump pan and rocking shoe being curved and concentric with each other, a movable latch to lock the dump pan closed, and means for automatically releasing said latch when the rocking shoe reaches its closed position, said means for releasing said latch being an arm on the rocking shoe, substantially as specified.

39. The combination with a carbid magazine, of a rocking feed shoe swinging beneath the discharge mouth of the magazine, and a tilting dump pan and a movable latch for holding the tilting dump pan in its closed

position, said rocking shoe having an arm to raise or release the latch as the shoe reaches its closed position, substantially as specified.

40. The combination with a carbid magazine, of a rocking feed shoe swinging beneath the discharge mouth of the magazine, and a tilting dump pan and a movable latch for holding the tilting dump pan in its closed position, said rocking shoe having an arm to raise or release the latch as the shoe reaches its closed position, and means for automatically operating the rocking shoe, substantially as specified.

41. The combination, with a carbid magazine, of a feed shoe mounted to reciprocate from one side under the magazine mouth, a dump pan pivoted at a lower level to swing from the other side of the magazine mouth, and means to operate the shoe and dump pan in alternation.

42. In an acetylene gas generator, the combination of a tank having a generator chamber, of a carbid magazine, a feed shoe arranged to reciprocate beneath the discharge mouth of the magazine, a dump pan pivoted to swing to a position below said shoe, means to hold the dump pan closed while the shoe is open, and means to release the dump pan as the shoe closes.

43. In an acetylene gas generator, the combination of a tank having a generating chamber, of a carbid magazine, a rocking feed shoe swinging beneath the discharge mouth of said magazine, a tilting dumping pan mounted beneath said shoe, means for holding the dump pan closed, the shoe being provided with means for releasing the dump pan as the shoe closes.

44. In an acetylene gas generator, the combination with a generator tank having a generating chamber, and a gasometer chamber, and a tube to receive a carbid magazine, of a gasometer bell fitting in the gasometer chamber of the tank, a carbid magazine fitting in said tube, a rocking feed shoe swinging under the discharge mouth of said magazine, a tilting dump pan mounted beneath said feed shoe, said feed shoe being provided with means for automatically operating the dump pan, and connecting means for operating said feed shoe from and by the gasometer bell.

45. In an acetylene gas generator, the combination with a generator tank having a generating chamber, and a gasometer chamber, and a tube to receive a carbid magazine, of a gasometer bell fitting in the gasometer chamber of the tank, a carbid magazine fitting in said tube, a rocking feed shoe swinging under the discharge mouth of said magazine, a tilting dump pan mounted beneath said feed shoe, said feed shoe being provided with means for automatically operating the dump pan, and connecting

means for operating said feed shoe from and by the gasometer bell, said tilting dump pan being curved and said rocking feed shoe being also curved and swinging concentrically to the dump pan.

46. In an acetylene gas generator, the combination with a generator tank having a generating chamber, and a gasometer chamber, and a tube to receive a carbide magazine, of a gasometer bell fitting in the gasometer chamber of the tank, a carbide magazine fitting in said tube, a feed shoe reciprocating under the discharge mouth of said magazine, a tilting dump pan mounted beneath said feed shoe, said feed shoe being provided with means for automatically operating the dump pan in alternation with said shoe, and connecting means for operating said feed shoe from and by the gasometer bell, said connecting means for operating said feed shoe from said bell comprising an open slot cam actuated by the gasometer and adapted to be disengaged from its cooperating part by excessive rise of the gasometer.

47. In an acetylene gas generator, the combination with a generator tank having a generating chamber, and a gasometer chamber, and a tube to receive a carbide magazine, of a gasometer bell fitting in the gasometer chamber of the tank, a carbide magazine fitting in said tube, a feed shoe reciprocating under the discharge mouth of said magazine, a dump pan mounted beneath said feed shoe, said feed shoe being provided with means for automatically operating the dump pan in alternation with said shoe, and connecting means for operating said feed shoe from and by the gasometer bell, said connecting means for operating said feed shoe from said bell comprising a cam actuated by the intermediate movements of the gasometer and adapted to be rendered inoperative by excessive rise of the gasometer, and a lever carrying a roller engaged by said open slot cam.

48. In an acetylene gas generator, the combination with a generator tank having a generating chamber, and an annular gasometer chamber, and a central tube to receive a carbide magazine, of a gasometer bell fitting in the annular chamber of the tank, a carbide magazine fitting in said central tube, a rocking feed shoe swinging under the discharge mouth of said magazine, a tilting dump pan mounted beneath said feed shoe, said feed shoe being provided with means for automatically operating the dump pan in alternation with itself, and connecting means for operating said feed shoe from and by the gasometer bell, said connecting means for operating said feed shoe from said bell comprising an open slot cam actuated by the gasometer and adapted to be rendered in-

operative by excessive rise of the gasometer, a lever carrying a roller engaged by said open slot cam, and an adjustable connecting rod extending between the inner cylindrical wall of the gasometer and said central tube.

49. In an acetylene gas generator, the combination with a generator tank having a generating chamber, and an annular gasometer chamber, and a tube to receive a carbide magazine, of a gasometer bell fitting in the annular chamber of the tank, a carbide magazine fitting in said tube, a rocking feed shoe swinging under the discharge mouth of said magazine, a tilting dump pan mounted beneath said feed shoe, said feed shoe being provided with means for automatically operating the dump pan, and connecting means for operating said feed shoe from and by the gasometer bell, said connecting means for operating said feed shoe from said bell comprising an open slot cam actuated by the gasometer and adapted to be rendered inoperative by excessive rise of the gasometer, a lever carrying a roller engaged by said open slot cam, and a connecting rod extending between the inner cylindrical wall of the gasometer and said central tube, a bail or crank attached to the connecting rod and a hook lever on said magazine provided with a flaring slot to facilitate engagement with said bail or crank.

50. In an acetylene gas generator, the combination with a generator tank having a generating chamber, and an annular gasometer chamber, and a tube to receive a carbide magazine, of a gasometer bell fitting in the annular chamber of the tank, a carbide magazine fitting in said tube, a feed shoe reciprocating under the discharge mouth of said magazine, a tilting dump pan mounted beneath said feed shoe, said feed shoe being provided with means for automatically operating the dump pan in alternation with itself, connecting means for operating said feed shoe from and by the gasometer bell, said connecting means for operating said feed shoe from said bell comprising an open slot cam actuated by the gasometer and adapted to be disengaged from its cooperating part by excessive rise of the gasometer, a lever carrying a roller engaged by said open slot cam, a connecting rod extending between the inner cylindrical wall of the gasometer and said central tube, a bail or crank attached to the connecting rod and a hook lever on said magazine provided with a flaring slot to facilitate engagement with said bail or crank, said hook lever having an arm, and said magazine having means engaged by said arm on the hook lever to set the hook lever in position for engagement with the bail.

51. The combination with a carbide magazine, a feed shoe swinging beneath the discharge mouth of the magazine, and a dump

pan mounted below the feed shoe, of an agitator mounted in the magazine throat and operated by the movement of the shoe.

5 52. The combination with a carbid magazine, a feed shoe swinging beneath the discharge mouth of the magazine, and a dump pan mounted below the feed shoe, of an agitator pin projecting into the magazine throat,

and a connection between the pin and shoe to cause a movement of the pin simultaneously with the swinging of the shoe.

ALGERNON S. PHELPS, JR.

Witnesses:

PEARL ABRAMS,
H. M. MUNDAY.