No. 875,466. PATENTED DEC. 31, 1907.

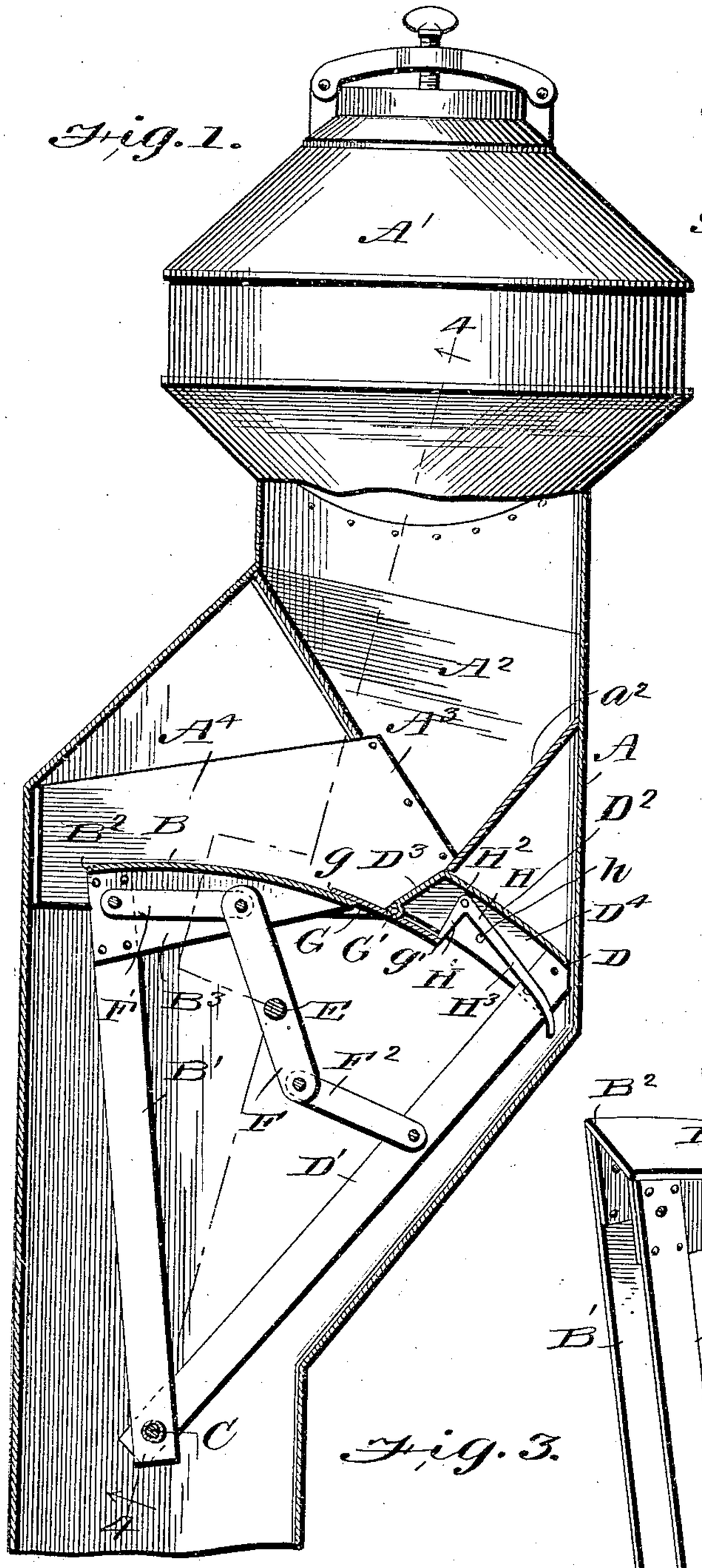
N. D. SHAFFER.

CARBID FEEDING DEVICE.

APPLICATION FILED MAR. 12, 1907.

2 SHEETS—SHEET 1.

Fig. 1.



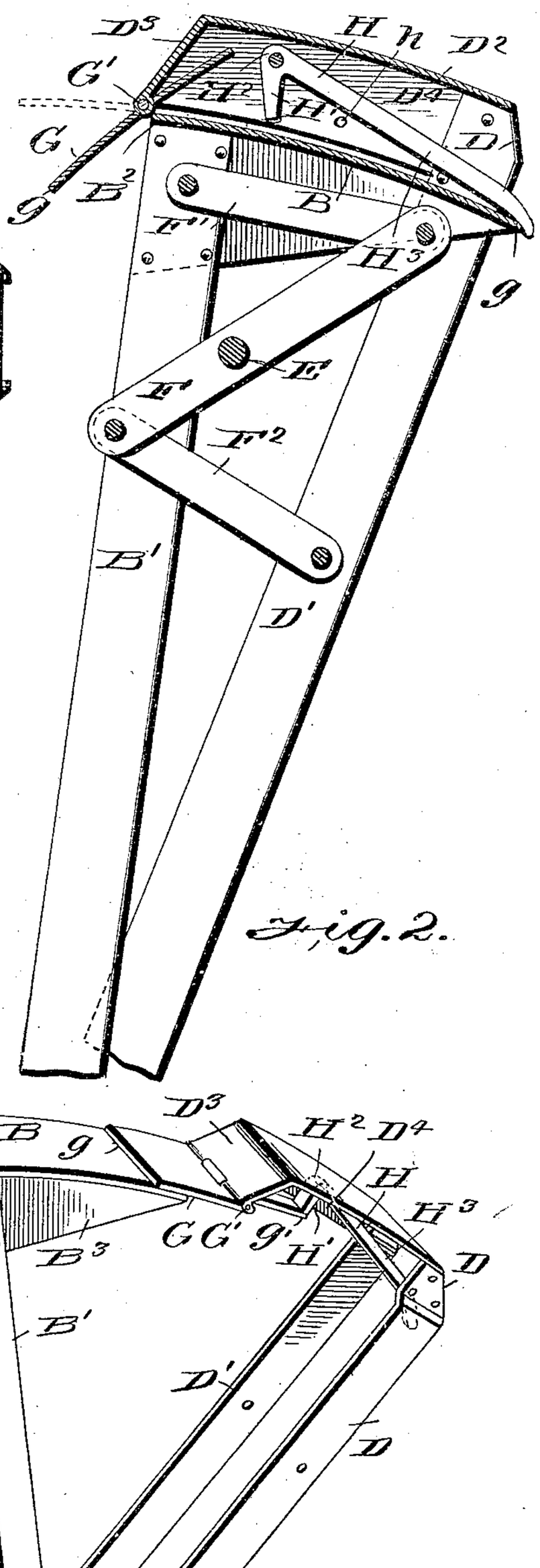


Fig. 2.

Fig. 3.

WITNESSES

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2 SHEETS—SHEET 2.

Fig. 6.

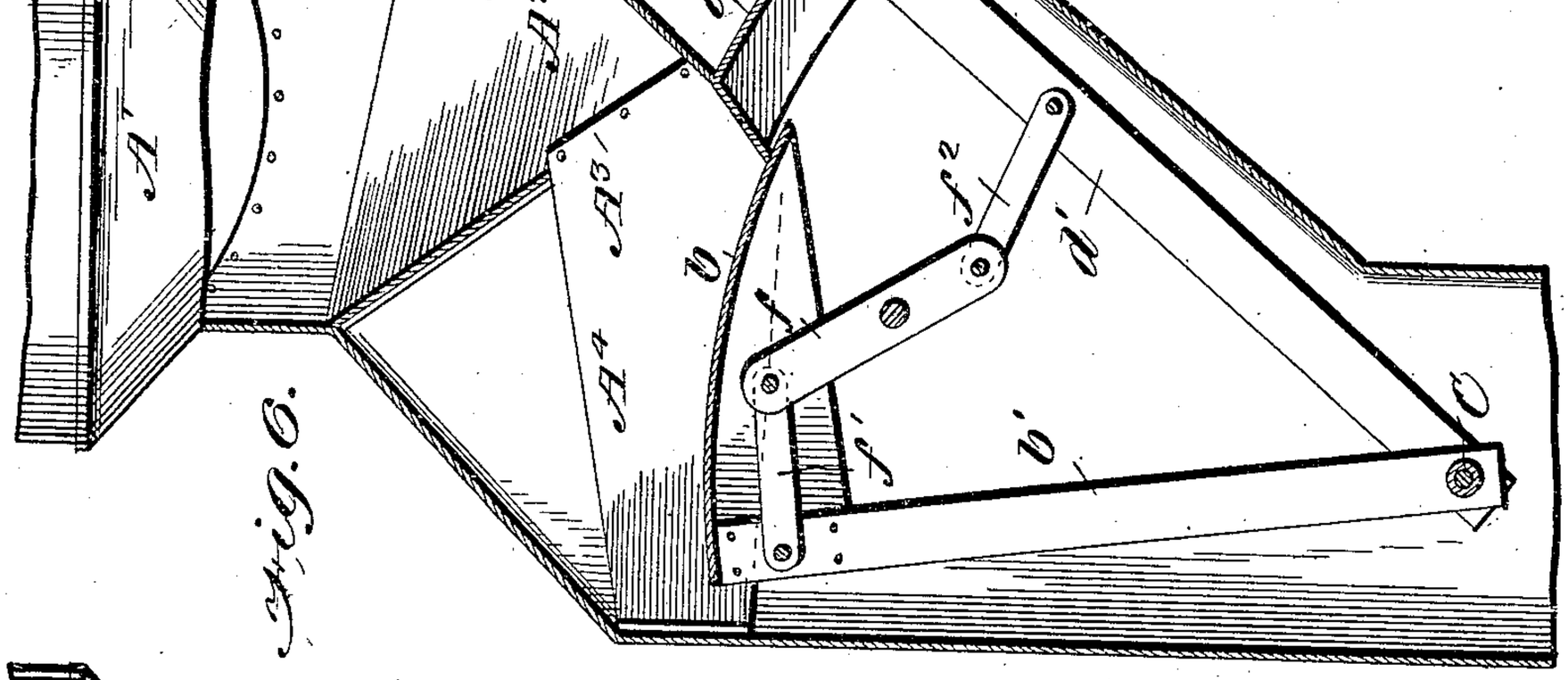


Fig. 5.

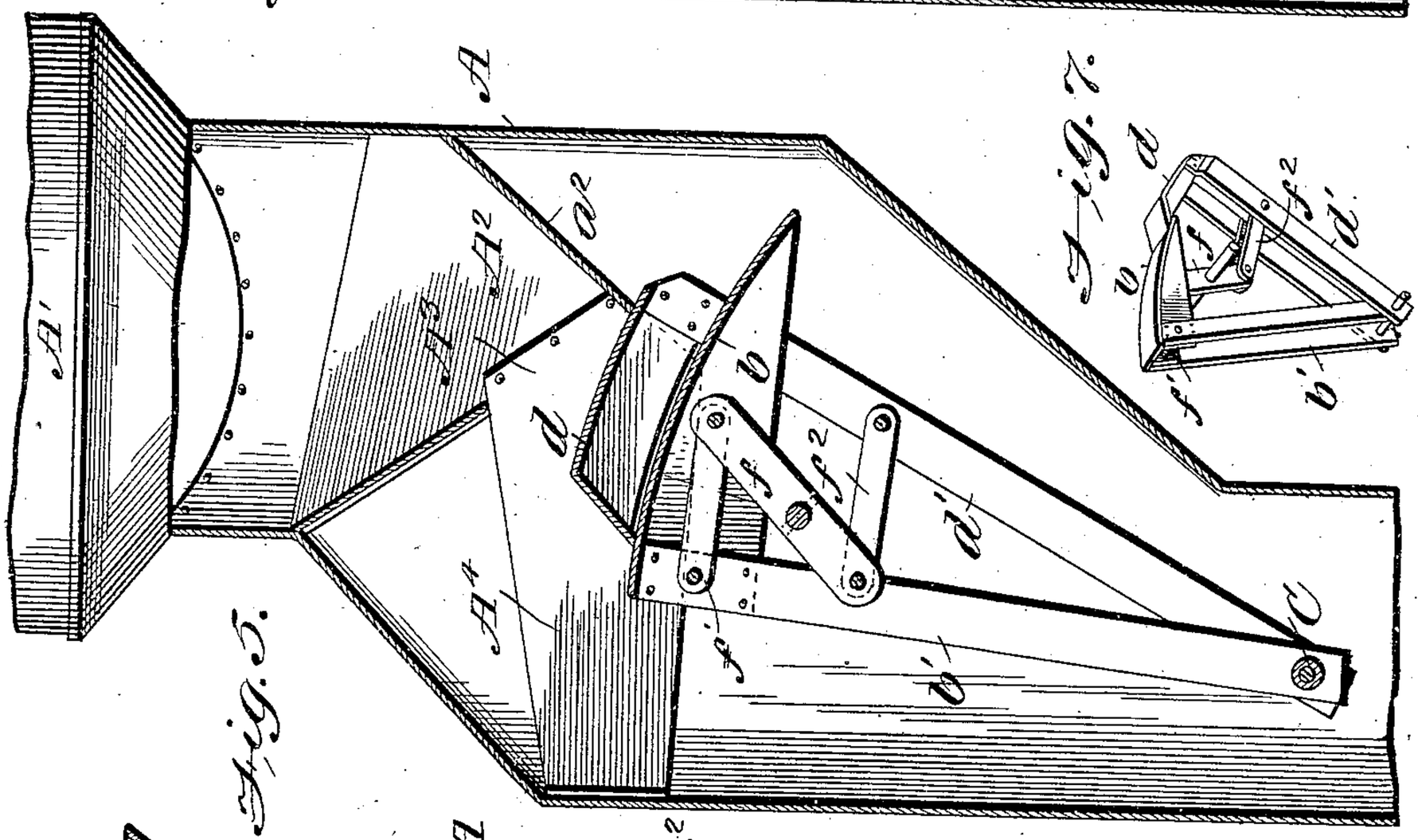
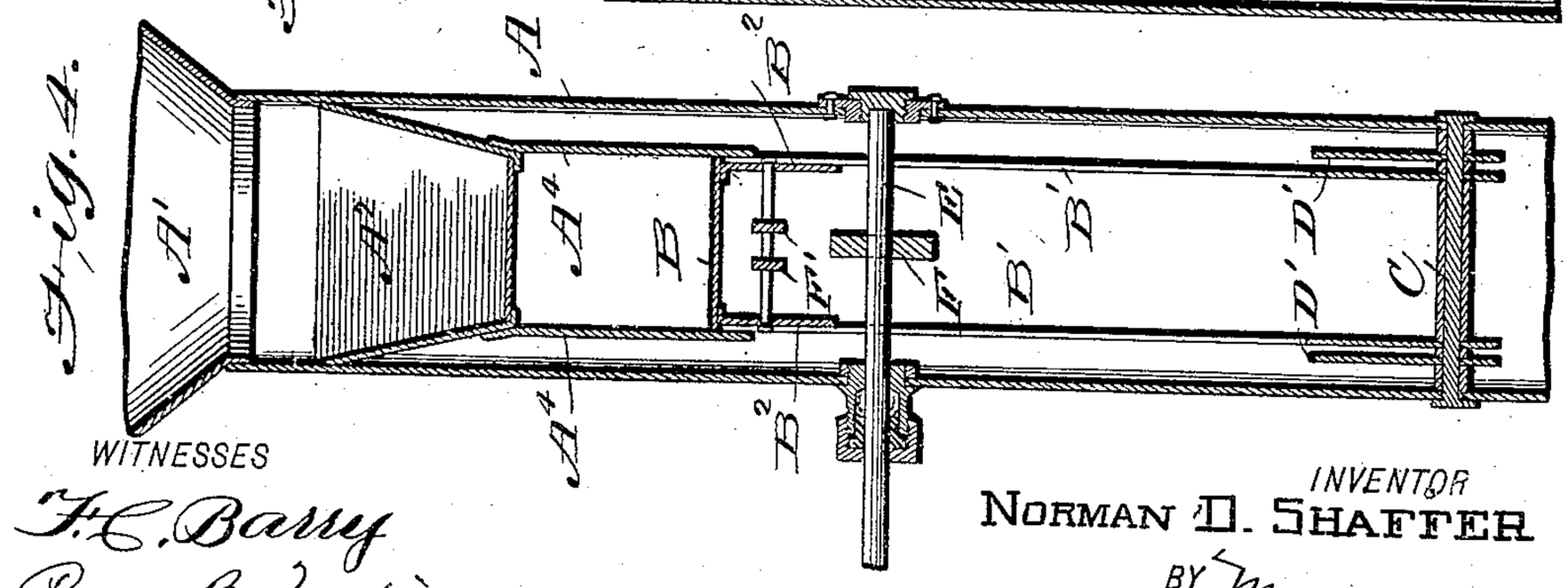


Fig. 7.

Fig. 4.



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CARBID-FEEDING DEVICE.

No. 875,466. Specification of Letters Patent. Patented Dec. 31, 1907.

Application filed March 12, 1907. Serial No. 361,932.

To all whom it may concern:

Be it known that I, NORMAN D. SHAFFER, a citizen of the United States, and a resident of Johnstown, in the county of Cambria and State of Pennsylvania, have made certain new and useful Improvements in Carbid-Feeding Devices, of which the following is a specification.

This invention is an improvement in feeding devices for acetylene gas generators.

The invention has for its objects among others to provide a mechanism that will feed a small quantity of carbid into a large body of water automatically and in proportion to the consumption of gas; also to provide a mechanism adapted to be readily and automatically operated by means of the rise and fall of a gas retainer without requiring the use of weights, springs or other auxiliary source of energy; also to provide a mechanism positive in its motion and which does not require gears, ratchets, chains, cords, springs or weights; also to provide a mechanism that will feed carbid of various sizes either separately or collectively; and the invention consists in certain novel constructions and combinations of parts as will be hereinafter described and claimed.

In the drawings—Figure 1 is a vertical longitudinal section of an apparatus embodying my invention. Fig. 2 is an enlarged sectional view, and Fig. 3 a perspective view of the table and displacer and the parts immediately associated therewith. Fig. 4 is a section on about line 4—4 of Fig. 1. Fig. 5 is a section on a similar line to Fig. 1 showing a somewhat different construction from that presented in Fig. 1, the table and displacer being in discharged position. Fig. 6 is a sectional view of the construction shown in Fig. 5 with the table and displacer in open position, and Fig. 7 is a detail perspective view of the displacer and table shown in Figs. 5 and 6.

In carrying out my invention I employ a suitable casing A, which may be adapted at its lower end to receive the water for use in generating the gas and has at its upper end a carbid holder A' and a hopper A^2 discharging at A^3 between opposite side plates A^4 between which side plates the discharging devices operate in the use of the invention as presently described.

Referring now to Figs. 1, 2 and 3, the carbid feeding devices comprise a table B and what for convenience of reference I term a displacer D. These parts are moved reciprocally or have what might be termed a simultaneous reciprocating motion in opposite directions and they are supported to reciprocally oscillate on arms B' and D' pivoted on a shaft C and operated from a shaft E having a lever F whose opposite ends are connected respectively by links F' and F^2 with the carbid table and the displacer preferably through the medium of the arms B' and D as shown in Figs. 1 and 2 of the drawings.

In practice the shaft E may be oscillated by any suitable means, such for instance as the rise and fall of the gasometer bell, which will operate as is well known in this art to first turn the shaft E in one direction and then turn it in the opposite direction according as the gas is renewed and exhausted in the receiver as is well known to those skilled in this art.

It will be noticed that in the oscillation of the shaft E the table B and displacer D will be adjusted between the two positions shown in Figs. 1 and 2 and when in the position shown in Fig. 1, the carbid will pass from the hopper on to the table B and then as the parts assume the position shown in Fig. 2, the displacer operating over the table B will form a cut off below the discharge of the hopper and will also push the carbid on the table B over the edge B^2 thereof whence it will drop by gravity into the water below, the parts being then in the position shown in Fig. 2 and to which position they will be adjusted when the gas is at its lowest pressure. The generation of gas from the deposit of the carbid will then proceed and as the pressure rises the feeding devices will open to the position shown in Fig. 1, a fresh supply accumulating on the table B. Then when the pressure of gas begins to decrease the shaft E will be again turned in the opposite direction to adjust the table and displacer to the position shown in Fig. 2 and also illustrated in Fig. 5, which presents a slightly different construction as presently referred to, to discharge a fresh supply of carbid as before.

In the described operation it will be noticed that the carbid receiving table and the displacer are movable relatively and the displacer moves over the table to discharge the carbid therefrom and it is preferred to move both the table and the displacer as before described.

As shown the upper surface of the table B is preferably curved on an arc struck from the shaft C and the said table and the displacer D reciprocally oscillate in securing the reciprocal movement before described. The table is shown as having the top plate and the side plates B^3 below the same at its edges and forming a brace for the top plate and a convenient means for the connection of the arms B′; and the displacer D has the top plate D^2 moving close below the hopper plate a^2, the front or pusher plate D^3 and the side plates D^4 which brace the top plate D^2 and afford a convenient connection of the arms D′.

In Figs. 1, 2 and 3 I show a dumping gate G and a latch H therefor, the said parts being omitted in Figs. 5, 6 and 7. This dumping gate G will be found useful in automatically feeding a greater supply of carbid at one time when the gas container reaches nearly to its lowest point in order to generate a sufficient volume of gas more rapidly so as to lift the gas container to a point that will readjust the feeding device to position to receive the carbid and thus prevent "dying down" of the generator owing to excessive demand for gas or to great fluctuations in the demand for gas.

In the construction shown the gate G is pivoted midway between its front edge *g* and its rear edge *g′* at G′ to the lower front edge of the displacer and its front edge *g* overlaps the table B and its rear edge *g′* is engaged by the arm H′ of the latch H which latch is pivoted at H^2 and has its other arm H^3 extending rearwardly in position to be released by the inner edge of the table B when the parts are in the position shown in Fig. 2. In this position of the parts it will be noticed the table will trip the latch H from the position shown in Fig. 1 just as the pivot of the gate passes the outer edge of the table B so the gate will dump as will be understood from full lines in Fig. 2 of the drawing, discharging at this time a considerable quantity of the carbid to the water below. Then as the parts readjust to the position shown in Fig. 1 it will be noticed the table B will tilt the gate to the dotted line position shown in Fig. 2 on its initial movement and then will release the latch H so the latter may drop by gravity to the position shown in Fig. 1, in which position it will hold the gate until the position shown in Fig. 2 is again reached. Any suitable stop such as shown at *h* in Fig. 1 may be employed to limit the downward movement of the arm H^3 of the latch when the parts are in the position shown in Fig. 1.

In the construction shown in Figs. 5 and 6 I employ the same casing with the hopper and side plates A^4 and the table *b* and displacer *d*, the arms *b′*, *d′*, lever *f* and links *f′* and f^2 are similar to the corresponding parts B, D, B′, D′, F, F′ and F^2, previously described, except that the dumping gate is omitted and the parts have a slightly different adjustment by reason of the omission of said gate, the operation of the parts shown in Figs. 5 and 6 being similar to that previously described in connection with the construction shown in Fig. 1, except for the omission of the dumping gate G and the latch for operating the same.

I claim—

1. The combination of a casing having a hopper and side plates extending on opposite sides of and below the discharge of said hopper and a carbid feeding device operating between said side plates and comprising a table, a carbid displacer operating above said table and between the same and the discharge of the hopper, arms connected with said table and displacer and pivotally supported, a dumping gate pivoted between its edges to the front edge of the displacer and overlapping at its front edge the table, a latch pivoted to the displacer and having an arm to engage with the dumping gate and a second arm for engagement by the table, an oscillating shaft, a lever on said shaft and intermediate devices between the opposite arms of said lever and the table and displacer, substantially as set forth.

2. An apparatus for feeding carbid comprising a casing having a hopper and side plates extending below the discharge of said hopper, a table and a displacer operating between said side plates, the displacer being movable over the table and adapted to discharge carbid therefrom, an oscillating shaft, a lever on said shaft and intermediate devices between the said lever and the table and displacer whereby the said table and displacer may be moved reciprocally, substantially as set forth.

3. A carbid feeding device comprising a table and a displacer operating above the same and means for moving said table and displacer reciprocally.

4. A carbid feeding device comprising a receiving table and a displacer movable relatively to and over the table to discharge carbid therefrom, a rocking lever below the table and displacer and intermediate devices between the said lever and the table including links connected with the opposite ends of the rocking lever.

5. A carbid feeding device comprising a table and a displacer above the same, said table and displacer being movable reciprocally whereby the displacer may discharge carbid from the table.

6. The combination of a casing having a hopper, a table below and in position to receive carbid from the hopper, and a displacer operating between the hopper and table whereby the displacer may operate as a cut off between the hopper and table and may discharge the carbid from said table

arms supporting respectively the table and displacer and depending therefrom and pivoted below the said parts, and operating devices between and connected with the said arms.

7. The combination of a carbid receiving table and a displacer above the same and means for simultaneously reciprocating said table and displacer in opposite directions.

8. A carbid feeding device comprising an oscillating table, an oscillating displacer operating above the table, a rocking lever between the said table and displacer and intermediate devices between said rocking lever and displacer and table, substantially as set forth.

9. The combination in a carbid feeding device of a carbid receiving table, a displacer operating above the said table, said parts being movable relatively, and a dumping gate pivoted to the displacer, substantially as set forth.

10. The combination in a carbid feeding device, of a table, and a displacer operating above the same, said parts being movable relatively, and a dumping gate in connection with the displacer, substantially as set forth.

11. A carbid feeding device having a carbid receiving table, a displacer operating above the table to discharge carbid therefrom and means for moving said parts reciprocally whereby the displacer may be adjusted to expose the upper side of the table for the reception of a charge of carbid and may then be moved across the table to discharge such carbid therefrom, substantially as set forth.

12. In a carbid feeding device the combination of a carbid receiving table, a displacer operating above the same, a dumping gate pivoted to the displacer, a latch having one arm movable to position to secure the said gate, and another arm extended into position to be operated by the table whereby the latter may operate the latch to release the dumping gate, substantially as set forth.

NORMAN D. SHAFFER.

Witnesses:

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J. S. BENTON.