

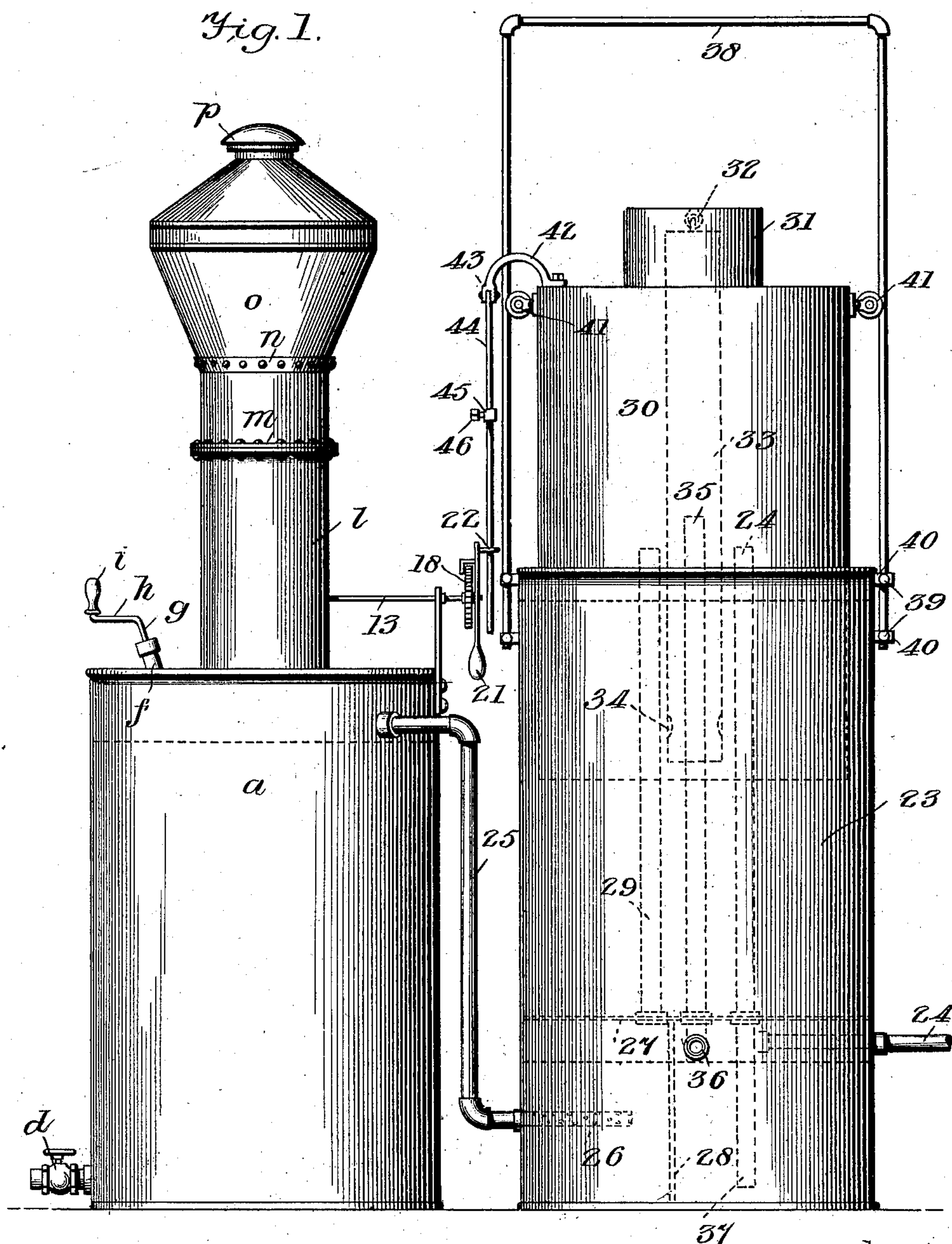
No. 746,571.

PATENTED DEC. 8, 1903.

L. P. POWELL.  
ACETYLENE GAS GENERATOR.  
APPLICATION FILED MAR. 3, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.

Fig. 2.

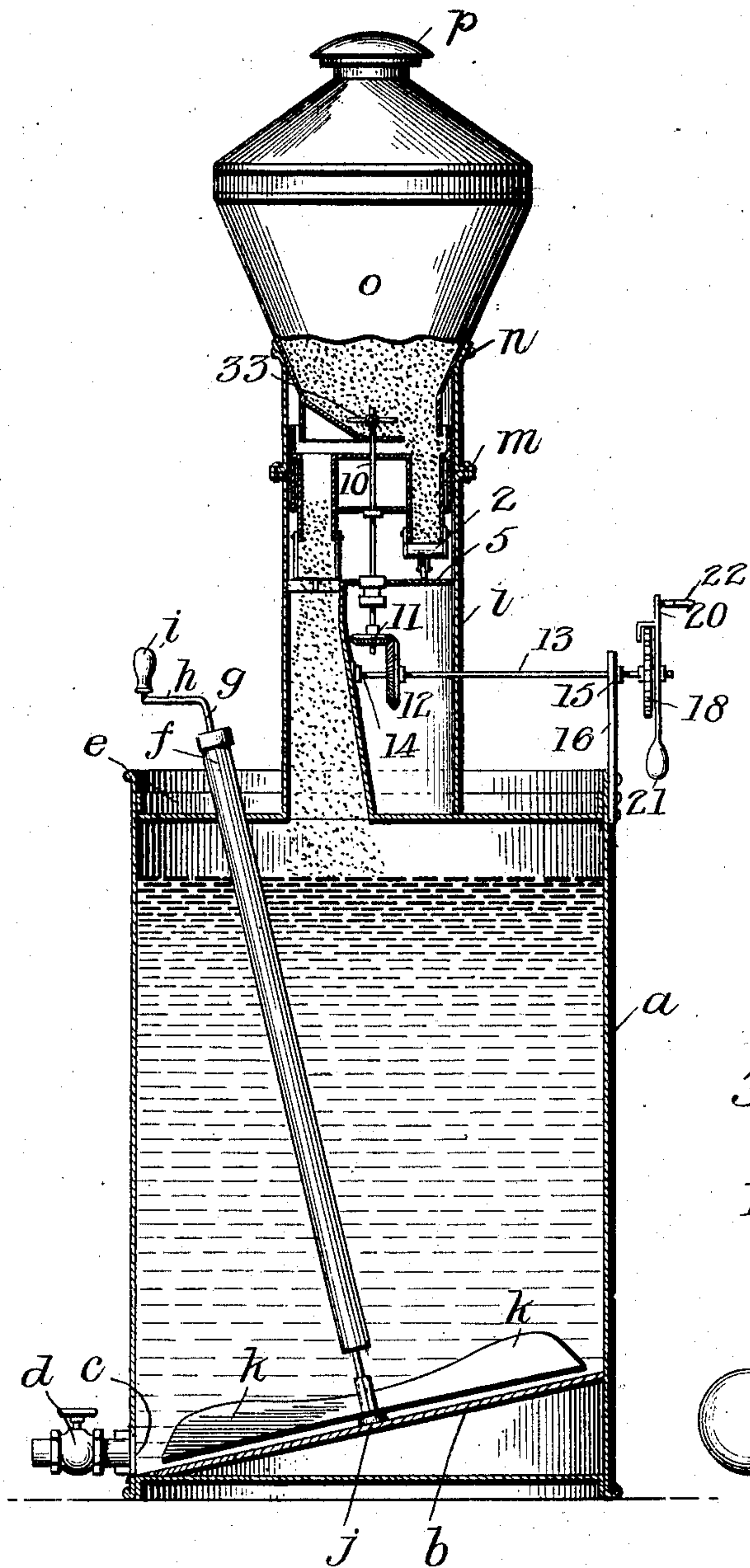


Fig. 3.

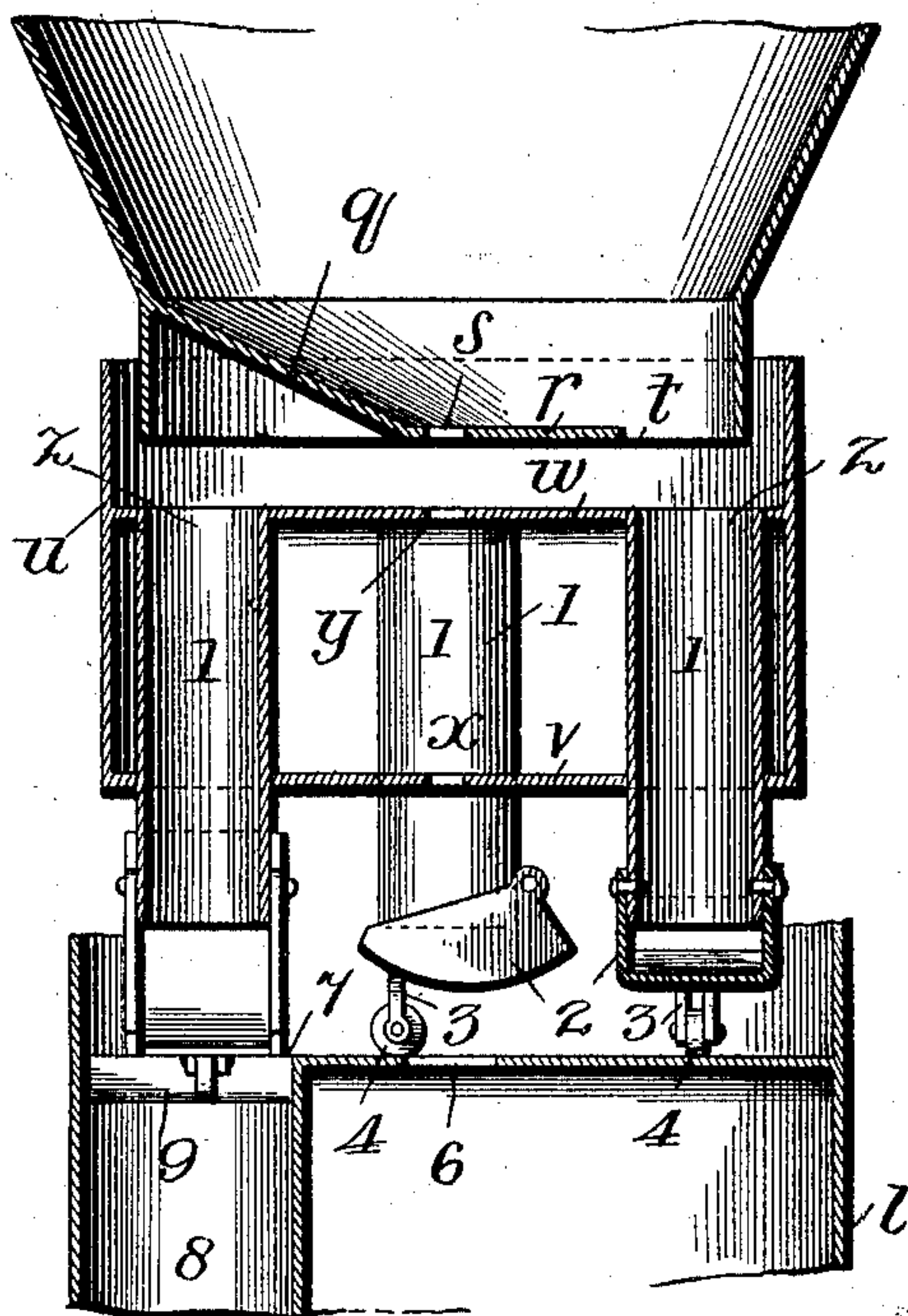


Fig. 4.

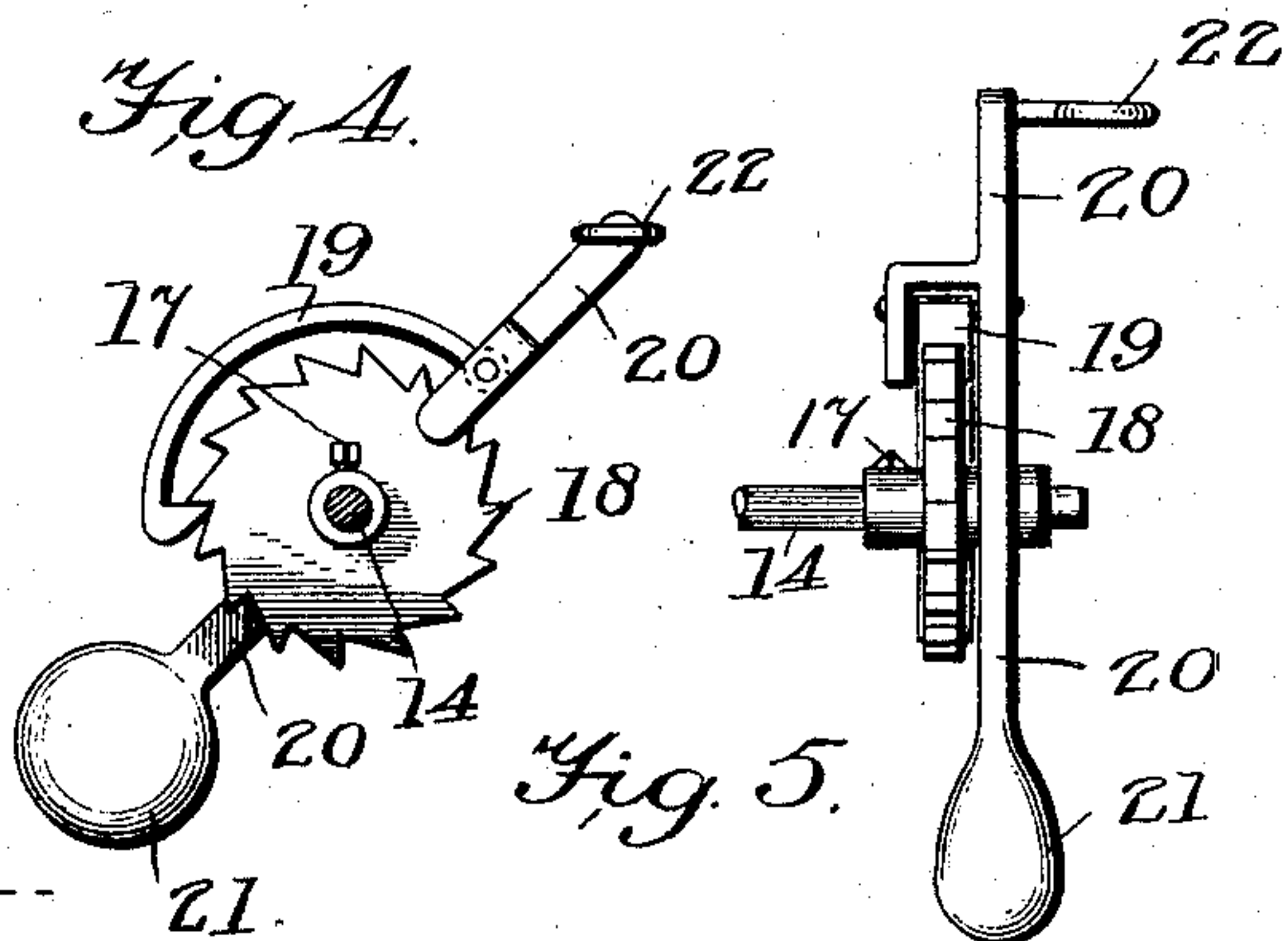
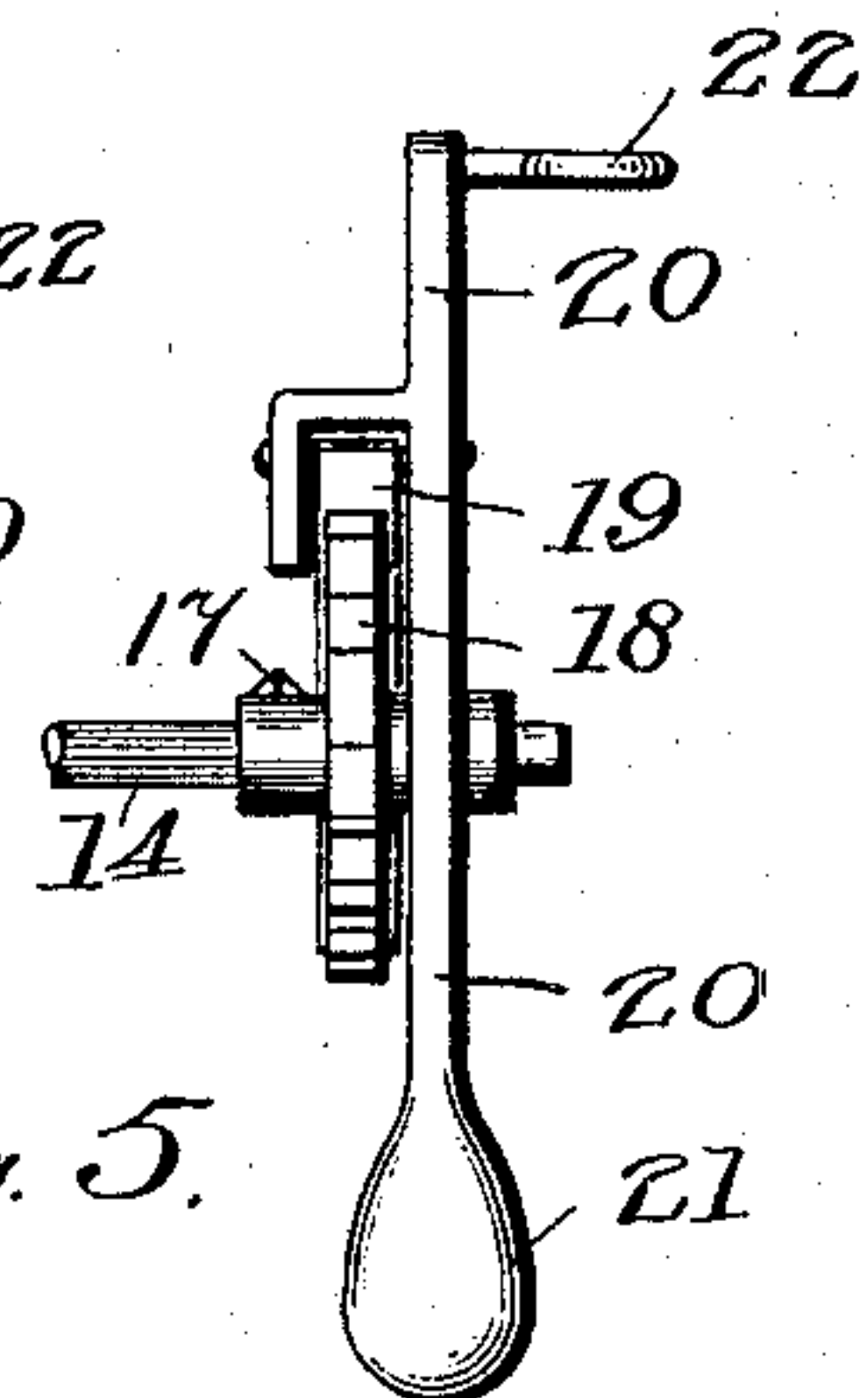


Fig. 5.



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# UNITED STATES PATENT OFFICE.

LUTHER PURCELL POWELL, OF LONG ISLAND CITY, NEW YORK.

## ACETYLENE-GAS GENERATOR.

SPECIFICATION forming part of Letters Patent No. 746,571, dated December 8, 1903.

Application filed March 3, 1903. Serial No. 145,986. (No model.)

*To all whom it may concern:*

Be it known that I, LUTHER PURCELL POWELL, a citizen of the United States, residing at Long Island City, in the county of Queens and State of New York, have invented certain new and useful Improvements in Acetylene-Gas Generators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in acetylene-gas generators.

The object of my invention is to improve the construction of this class of apparatus by providing more especially an improved means for feeding the carbide to said generator and for clearing out the waste.

Another object is to provide means whereby the rise and fall of the gasometer governs the feed of the carbide.

With these objects in view my invention consists in the construction and combination of parts, as hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a side elevation of my improved gas apparatus. Fig. 2 is a side elevation, partly in section, of the generator, showing the means for feeding the carbide to the water. Fig. 3 is a cross-section of the feeding mechanism on an enlarged scale, parts being removed. Fig. 4 is an enlarged end view of the means operated by the gasometer for effecting the feed. Fig. 5 is an enlarged side view of the same.

*a* represents the generator, which is simply an open-top vessel provided with an inclined bottom *b* and an outlet *c*, closed by a stop-cock *d*. Near the top of this generator is fastened a horizontal partition *e*, through which the carbide is fed into the generator. In the top *e* is fastened a long sleeve *f*, which extends nearly to the bottom of the generator and is at right angles to the inclined bottom *b* thereof. Through this sleeve runs a rod *g*, provided with a crank *h* and handle *i*. The lower end of the rod *g* is carried in a bearing *j*, secured to the center of the inclined bottom *b*. On the rod *g* just above the bearing *j* are arms or paddles *k* for the purpose of agitating the water and carbide

fed thereto and for driving the hydrate of lime obtained by the decomposition of the carbide down to the bottom and out through the opening *c* when the cock *d* is opened.

Centrally of the top *e* is fixed a cylindrical casing *l*, shown in the drawings as made in two parts united together by bolts *m*. The upper part of this casing has a flaring mouth *n*, in which closely fits the carbide-hopper *o*, which is in the shape of a double cone. The hopper *o* is provided with a screw-cap *p*, which may be removed for the purpose of filling the hopper with carbide before the generator is started. The hopper *o* has a bottom which is inclined and partly level, the inclined portion *q* being provided, so that the carbide will easily feed downward. The level portion *r* is provided with an aperture *s*, through which passes the agitator-shaft, and with a second aperture *t*, larger than the other, through which aperture the carbide is fed to the revolving feeder. This feeder *u* is best shown in Fig. 3. It consists of a cylindrical body having a bottom *v* and a partition *w*. The bottom *v* is provided with an aperture *x* for the passage of the agitator-shaft, and the partition *w* is provided with a similar aperture *y*, the apertures *s*, *y*, and *x* being of course in line with each other.

The partition *w* is provided with a number of apertures *z*. Four of these apertures are shown in the drawings; but it is obvious that any number may be used. From the apertures *z* pipes 1 extend downwardly through the bottom *v*, and to the bottom of each pipe is pivoted a movable valve 2. One end of each of these valves is provided with a downwardly-projecting arm 3. In the lower end of each arm is pivoted a roller 4. The casing or pipe *l* is provided with a partition 5, which partition has an aperture 6 for the reception of the bearing for the agitator-shaft and a larger aperture 7 communicating with the pipe 8, which flares outwardly at its lower end and delivers into the top of the generator. The pipe 8 is somewhat larger than the pipes 1, which pipes 1 deliver into said pipe 8 as they in turn are brought over said pipe, the movable valves dropping and discharging the carbide contained in the pipe 1 into



the pipe 8 when the two are in the same straight line. The pipe 8 is also provided with an inclined plate 9, against which each of the rollers 4 strikes in turn after the corresponding valve 2 has been opened, bringing said valves up to their closed position as the feeder *u* revolves. This revolution is effected in the following manner: The feeder *u* is supported on the agitator-shaft 10 and is firmly fixed thereto. This agitator-shaft is supported in bearings in the apertures 6 and 8. The lower end of the agitator is provided with a bevel gear-wheel 11, which meshes with a similar wheel 12 on the shaft 13, which shaft is journaled in a bearing 14, carried by the pipe 8 and in another bearing 15, carried by the arm 16, which is fastened to the casing *a* and extends upwardly therefrom.

On the shaft 13 is fixed, by means of a set-screw 17, a toothed wheel 18, which is engaged by a curved pawl 19, carried by a vibrating arm 20, which arm is also fastened to the shaft 14. The arm 20 extends some distance beyond the toothed wheel 18 and is provided with a heavy weight 21, which normally tends to bring the arm 20 into a vertical position, the pawl during such movement merely slipping over the teeth of the wheel 20.

22 represents a pin provided with a perforated end with which the rod from the gasometer-bell engages to operate the feeder by the rise and fall of the bell.

23 represents the gasometer provided with a service-pipe 24 and an inlet-pipe 25, connecting the generator with the gasometer. The gasometer is provided with a horizontal partition 27 near its bottom, forming a chamber which is adapted to be partially filled with water.

28 represents a vertical partition dividing this chamber into two parts. The pipe 25 after entering the gasometer is closed at one end and provided with a number of perforations 26, whereby the gas generated is forced to travel upwardly through the water, thereby washing it.

29 represents a vertical pipe passing through the partition 27 and extending upwardly to about the top of the gasometer-tank, where it delivers gas into the bell 30. This bell is provided with an upwardly-extending portion 31, to which is pivoted a pipe 33 by means of a link 32. The lower end of this pipe 33 is open, and said pipe is provided with a series of perforations 34, so that when the bell rises so as to bring the pipe 33 above the water-line in the gasometer the gas enters the pipe 33, passes through the pipe 35, and finally escapes into the atmosphere through the branch pipe 36.

37 represents an open-ended drain-pipe attached to the service-pipe 24.

38 represents a guiding-frame for the bell, which is adjustably secured by means of pins 39 in projections 40, extending from the tank.

41 represents the ordinary guide-pulleys attached to the bell, and 42 is a rigid bent arm or crane attached to the top of the bell. To this arm is attached a rod 44 by means of a pivot 43. The rod 44 carries a stop 45, which by means of the set-screw 46 may be adjusted upon the rod 44. The rod 44 passes downwardly through the perforated pin or projection 22. It is obvious from the construction described that the fall of the bell by means of the stop 45 will operate the feeder, bringing the ratchet devices into the position, for example, shown in Fig. 4. As the bell rises the ratchet devices are restored to their original positions by the weight 21.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In an acetylene-gas generator, a revolving feeder consisting of a cylinder provided with an open top, a shaft supporting said cylinder, an agitator upon said shaft, a partition, and a bottom, pipes running from said partition through said bottom, a valve pivoted to the lower end of each of said pipes, and a roller carried by each of said valves, substantially as described.

2. In an acetylene-gas generator, the combination of a generator, a cylinder supported by said generator and provided with a partition and an inclined plate for returning the valves to their closed position, a revolving feeder adapted to revolve over said partition, said feeder being provided with pipes, and each pipe having a valve pivoted to it at its lower end, a carbid-hopper, and means for agitating the carbid in said hopper and simultaneously revolving the feeder by the rise and fall of the bell, substantially as described.

3. In an acetylene-gas generator, the combination of a generator, a cylinder attached thereto and provided with a partition and an inclined plate for returning the valves to their closed position, said partition having an opening therein, a carbid-hopper supported in the top of said cylinder, a revolving feeder between said carbid-hopper and the partition in said cylinder, said feeder being provided with discharge-pipes, a valve pivoted at the lower end of each of said discharge-pipes, a roller carried by each valve, a shaft supporting said feeder, agitators in said hopper connected to said shaft, a second shaft geared to said feeder-shaft, a toothed wheel mounted on said second shaft, a weighted arm provided with a pawl also mounted on said second shaft, said pawl being adapted to engage the teeth of said wheel, a gasometer and connections between the bell of said gasometer and said arm, whereby the carbid-feed is governed by the rise and fall of said bell, substantially as described.

4. In an acetylene-gas generator, the combination of a generator, a revolving feeder, a bell, and means for operating said feeder by



the fall of said bell, said means including a toothed wheel, a weighted arm, a pawl attached to said arm, said arm being provided with a perforated pin, and a rod passing  
5 through said pin, said rod being provided with an adjustable stop and being pivotally supported by said bell, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

LUTHER PURCELL POWELL.

Witnesses:

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