

No. 653,099.

Patented July 3, 1900.

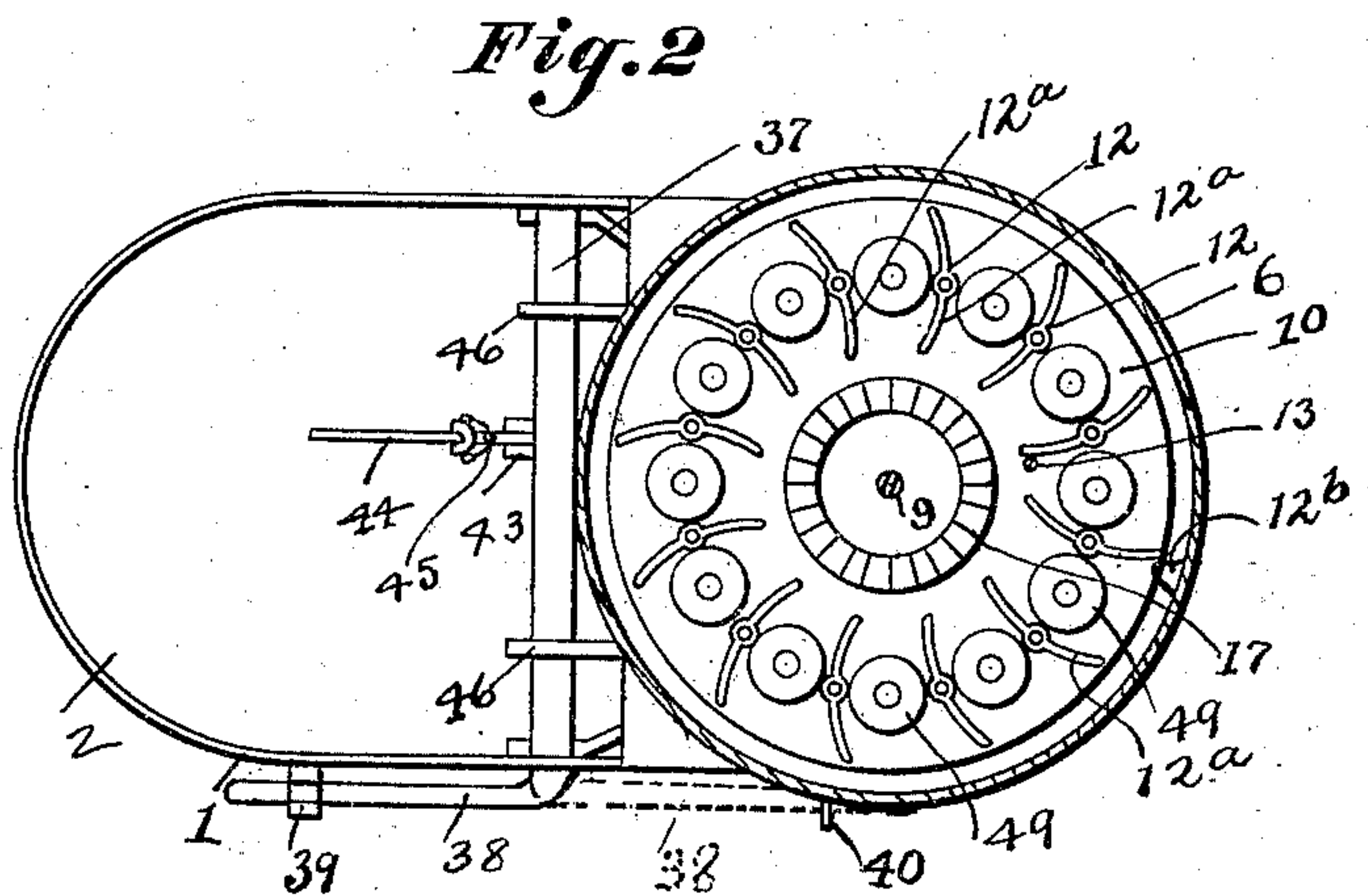
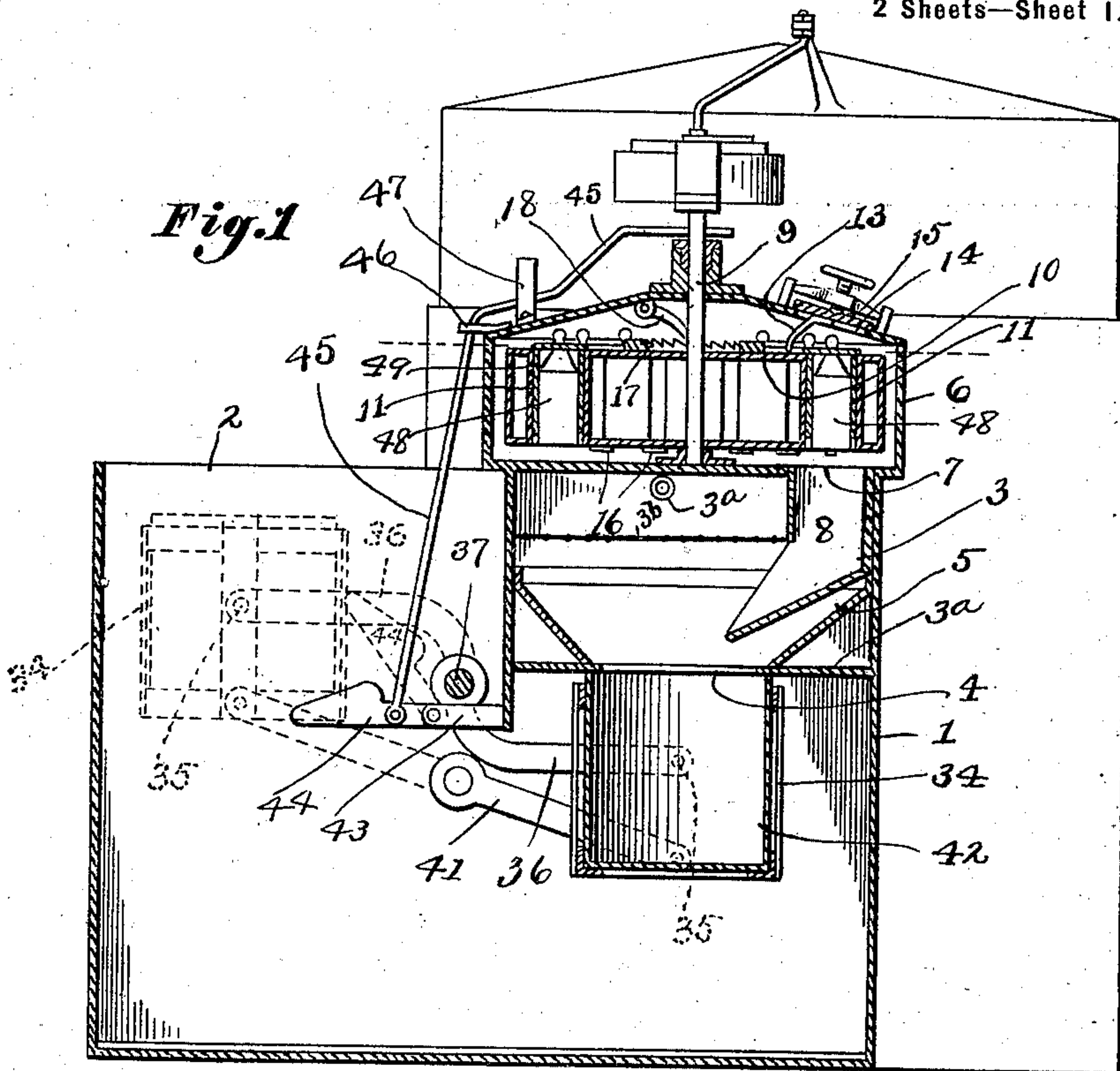
J. E. LANDRUM, SR., G. F. DILLON & J. E. LANDRUM, JR.

ACETYLENE GAS GENERATOR.

(Application filed Sept. 18, 1899.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES:

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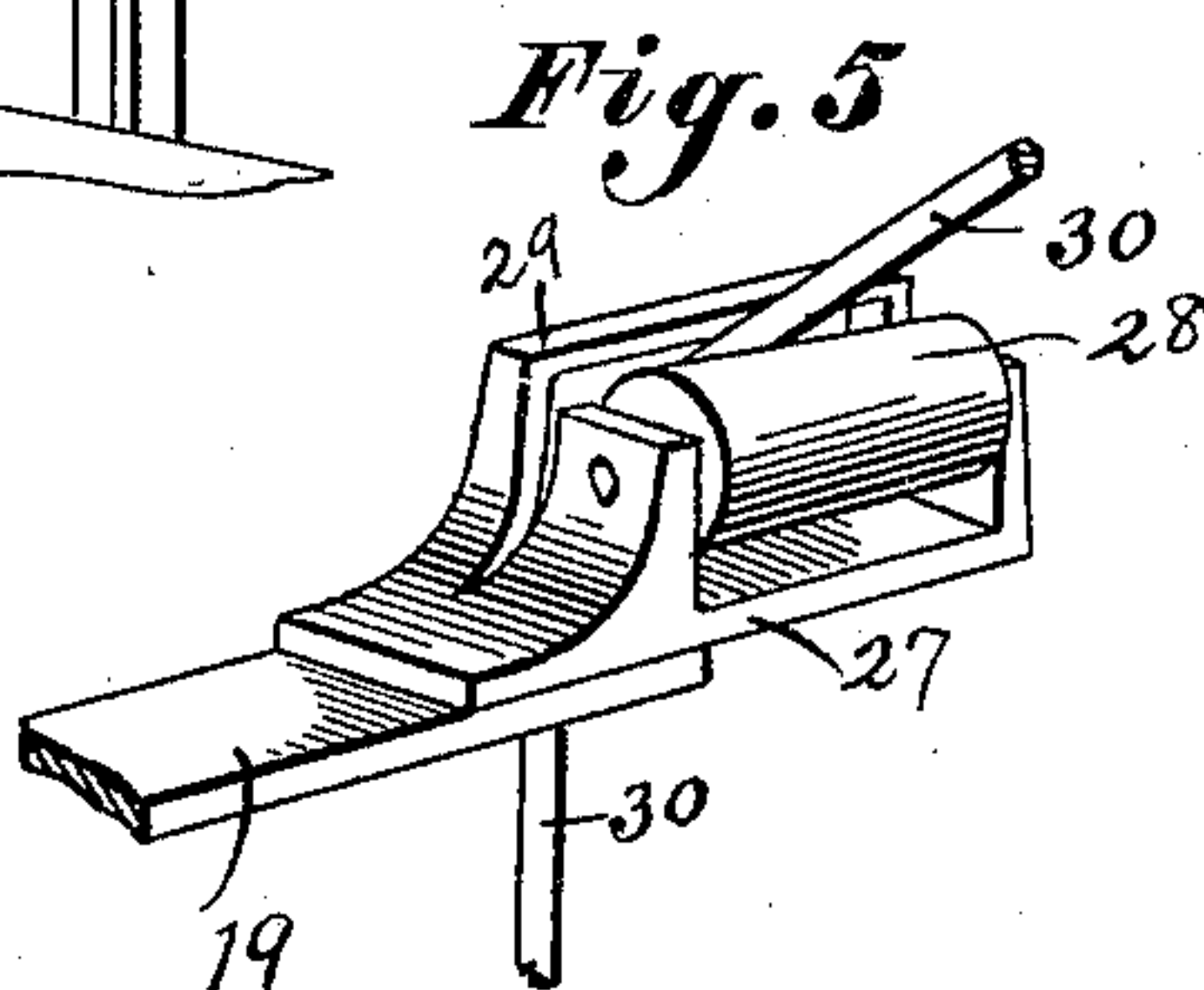
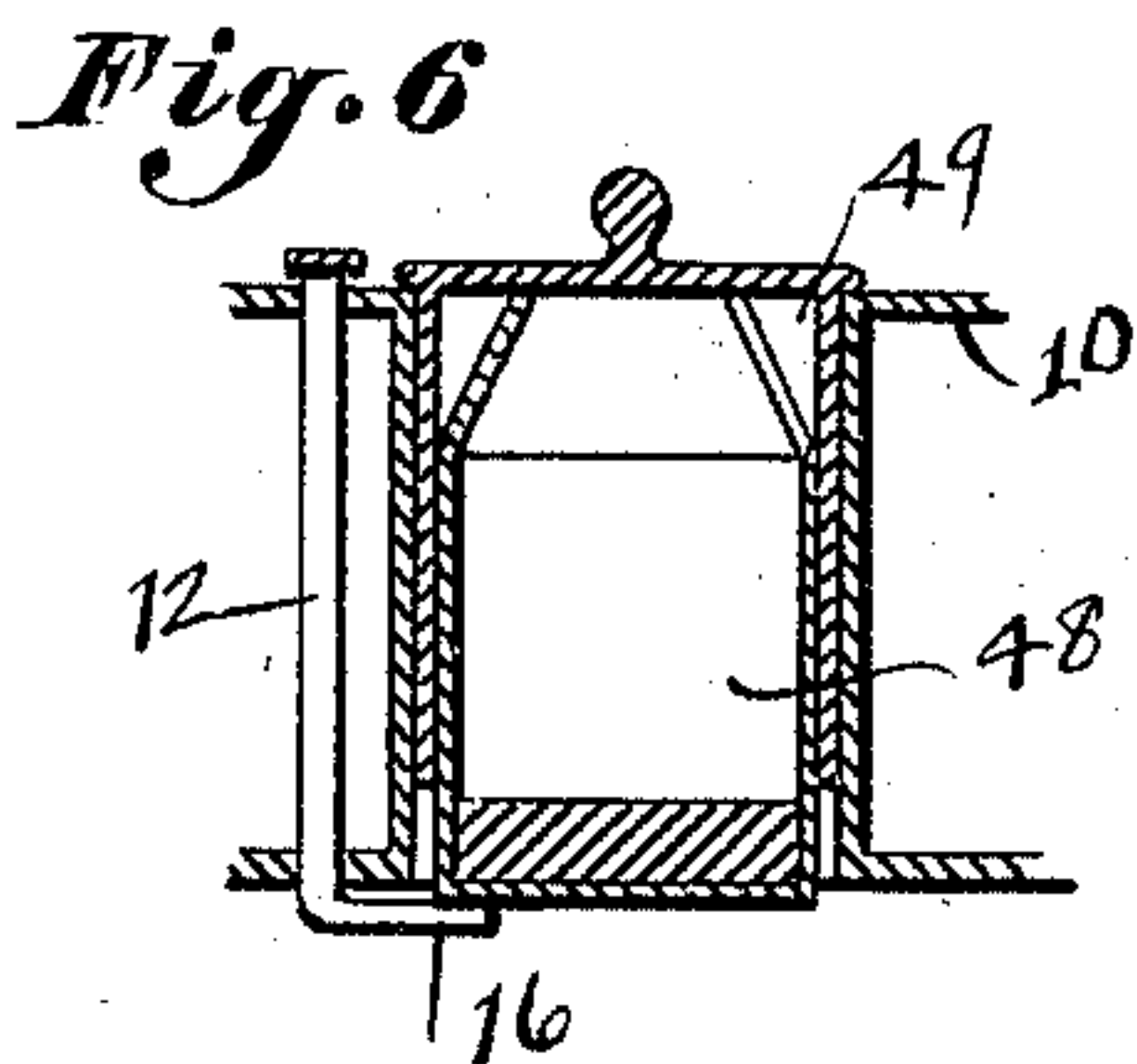
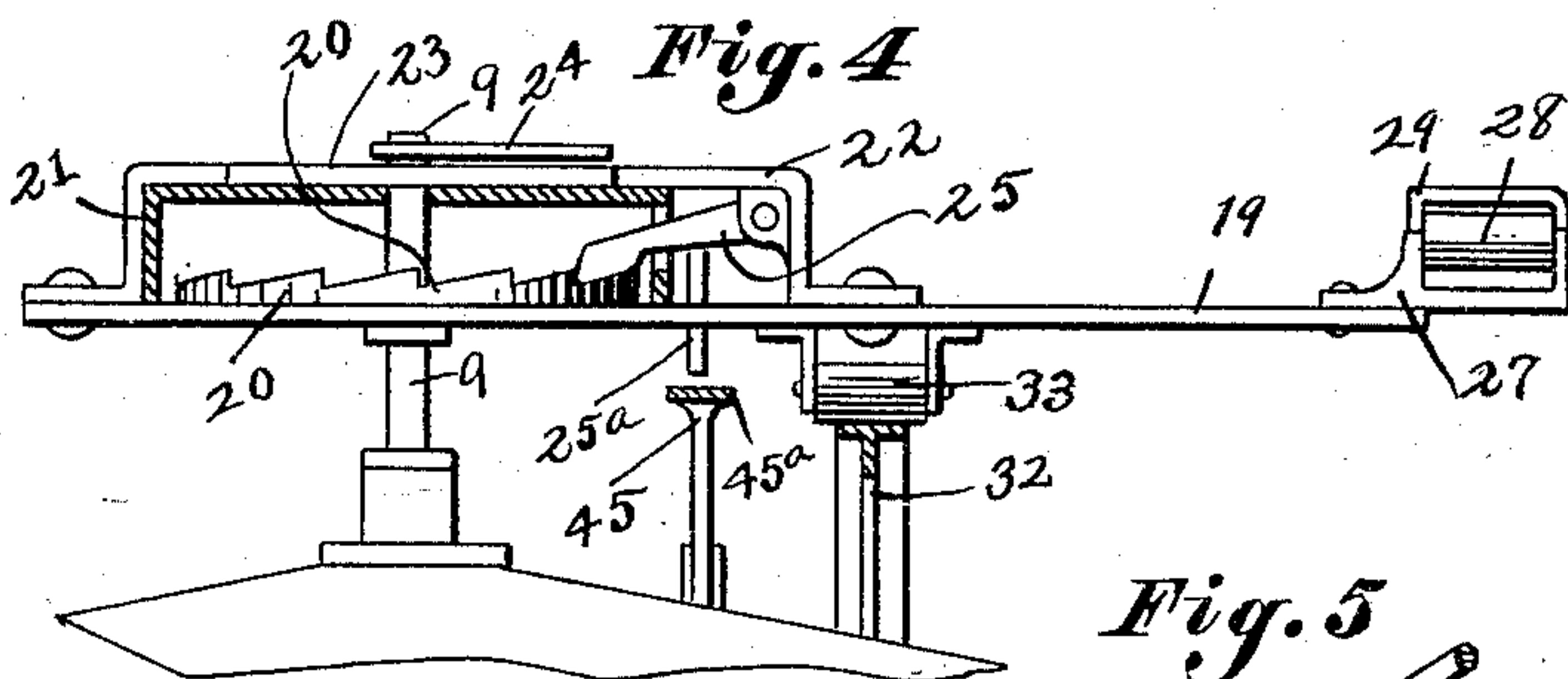
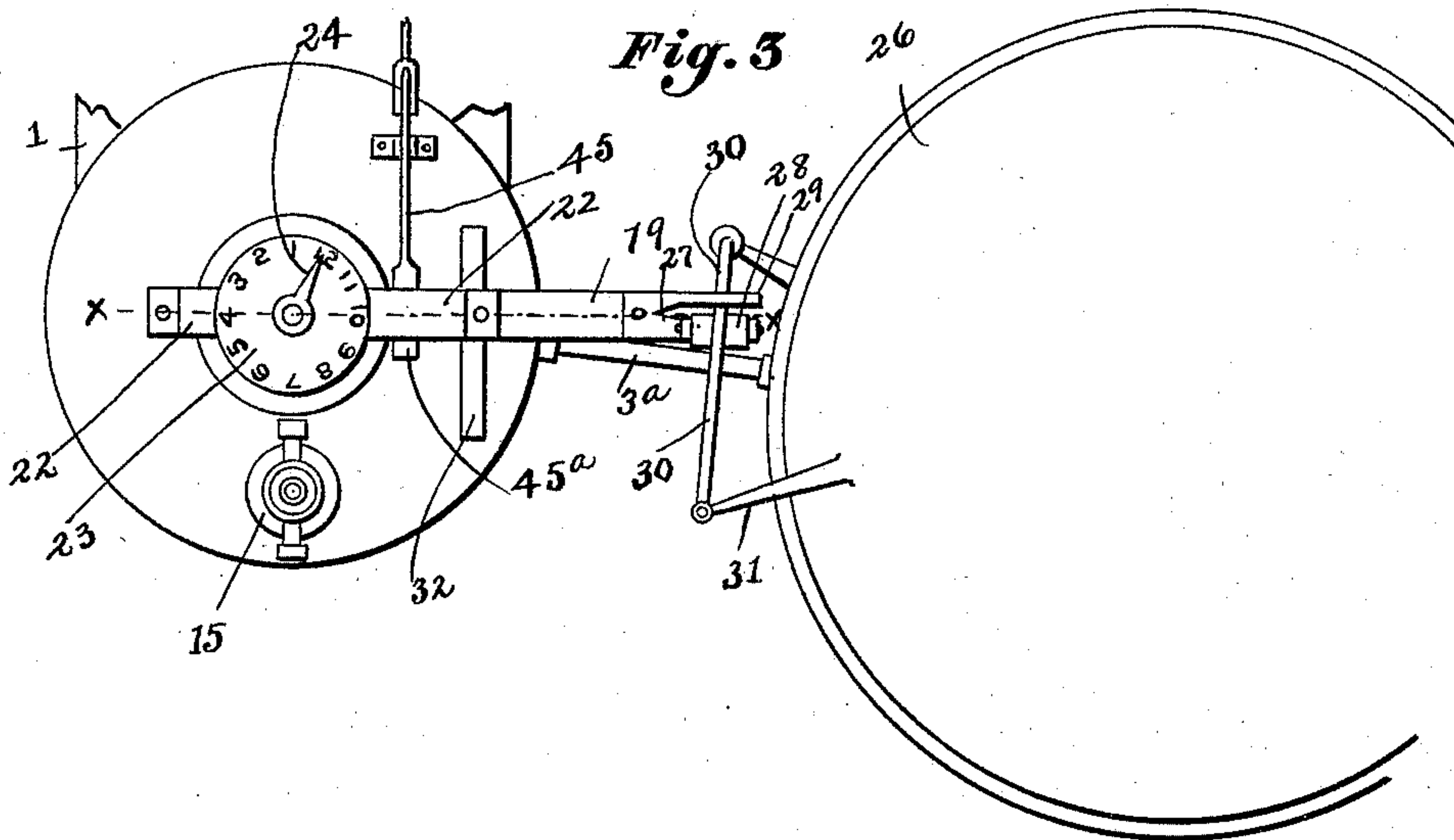
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UNITED STATES PATENT OFFICE.

JOHN E. LANDRUM, SR., GEORGE F. DILLON, AND JOHN E. LANDRUM, JR.,
OF CENTREBURG, OHIO.

ACETYLENE-GAS GENERATOR.

SPECIFICATION forming part of Letters Patent No. 653,099, dated July 3, 1900.

Application filed September 18, 1899. Serial No. 730,805. (No model.)

To all whom it may concern:

Be it known that we, JOHN E. LANDRUM, Sr., GEORGE F. DILLON, and JOHN E. LANDRUM, Jr., citizens of the United States, residing at Centreburg, in the county of Knox and State of Ohio, have invented a certain new and useful Improvement in Acetylene-Gas Generators, of which the following is a specification.

Our invention relates to the improvement of acetylene-gas generators; and the object of our invention is to provide means whereby the carbid or other gas-producing material is only discharged into the generator when the mixing or generating bucket is in position to receive the same. This object we accomplish in the manner illustrated in the accompanying drawings, in which—

Figure 1 is a central vertical section of our improved generating device, showing a gasometer in elevation adjacent thereto. Fig. 2 is a plan view of the generating apparatus with the top of the feeding-dome or hopper-casing removed. Fig. 3 is a plan view of portions of said generating apparatus and gasometer. Fig. 4 is an enlarged sectional view on line *xx* of Fig. 3. Fig. 5 is detail view in perspective of the outer end portion of the feed-operating bar, and Fig. 6 is a central vertical section through one of the carbid-cartridges and its casing.

Similar numerals refer to similar parts throughout the several views.

In carrying out our invention we employ a generator-body 1, which is in the form of a box or casing the top portion of which is open on its forward side, as indicated at 2. In its rear and upper portion the casing 1 is formed with a compartment 3, the bottom plate 3^a of which is provided with a central opening 4. About the central opening 4 we provide within the compartment 3 a flaring or conical mouth 5. As indicated at 3^b, we employ within the compartment 3 and below the water-level thereof a transverse screen. Above said compartment 3 we employ a cylindrical case or dome 6, from an eccentrically-arranged opening 7 in the bottom of which leads downward into the mouth 5 a discharging-chute 8. Centrally secured on a vertical shaft 9, which is rotatably mounted in the casing or dome

6, is a cylindrical feed-roller 10, the latter being formed adjacent to its outer side with a circular row of vertical and tubular openings 11. Rotatably mounted between each of the hopper-openings 11 is the vertical portion of a trigger or supporting-trip 12, the upper arm of which extends, as shown more clearly in Fig. 2, on the outer and inner side of the line of openings 11. The inner projecting portions 12^a of the upper transverse arms of said triggers project in the path of the lower end of a finger 13, which projects downwardly from a cover-plate 14, which is suitably secured over a feed-opening 15 in the upper side of the dome 6. The lower projecting arm of each of the triggers 12 is adapted to extend, as indicated at 16, beneath a portion of the adjoining hopper-opening 11. Upon the inner side of the cylindrical hopper 10 we provide a circular rack-bar 17, the inclined teeth of which are adapted to be engaged by a pawl 18, which depends from the under side of the dome top plate, said pawl serving to prevent the rotation of the hopper in more than one direction. Upon the upwardly-extending end portion of the vertical shaft 9, above the dome 6, is mounted to turn a horizontal bar 19. Immediately above this bar we fix to the shaft 9 the central portion of a ratchet-wheel 20, the inclined teeth of which are arranged on the upper side of its rim. Surrounding the ratchet-wheel 20 and supported upon the bar 19 is a casing 21, the latter being embraced by a yoke 22, which is also mounted on said bar 19. Intersecting the horizontal arm of the yoke 22 and rigidly connected therewith is a dial-plate 23, while upon the upper extremity of the shaft 9 is carried an indicating-hand 24.

As shown in Fig. 3 of the drawings, the upper face of the dial-plate is provided with consecutively-arranged numbers corresponding with the number of feed-openings in the cylindrical hopper. With that portion of the yoke 22 which extends on the outer side of the casing 21 we fulcrum one end of a drop-pawl 25, the outer end of the latter being normally retained by gravity in connection with the teeth of the ratchet 20, the arm of said pawl passing through an opening in the casing 21. On that extremity of the bar 19 which

is adjacent to the gasometer 26 we support a guide-bracket 27, the latter consisting of a bifurcated casing, in one side of which is journaled, in the direction of the length of the bar 19, a roller 28, the remaining side of said bracket, which is separated by said bifurcation from the roller, being in the nature of an upright frame 29.

30 represents a bent rod the upper and inclined arm of which has its upper termination jointedly connected with a fixed arm 31 of the gasometer-top 26. This inclined portion of the rod 30 passes, as shown, over the roller 28, while the vertical portion thereof extends downward and is adapted to work in suitable guides, which may project from the gasometer-base or other suitable point. Supported from the top of the dome 6 is a short track-section 32, which is designed to provide a bearing for a track-roller 33, which is journaled from the under side of the bar 19.

34 represents a bucket-holding cage which is provided at the center of its height and on opposite sides thereof with projecting trunnions, which are indicated in dotted lines at 35. These trunnions have a pivotal connection with corresponding ends of angular lever-bars 36, the outer ends of which are, as shown, fulcrumed on a horizontal crank-shaft 37, which is journaled between the side walls of the casing 1 at a point in front of the lower portion of the compartment 3. This crank-shaft extends through one of the side walls of the casing 1 and is provided with a handle extension 38, which when extending in one direction is adapted to be detachably connected with a suitable form of laterally-projecting catch-bracket 39, thereby retaining said shaft-arm 38 in a substantially-horizontal position and supporting the bucket-holding cage in the position indicated in full lines in Fig. 1 of the drawings—that is, with the said cage immediately beneath the opening 4 of the compartment 3. The shaft-arm 38 is also adapted when turned in the opposite direction to engage a suitable projecting catch-piece 40, this reversal of position of the said shaft resulting in the cage being swung to the position indicated in dotted lines in Fig. 1—that is, immediately below the opening 2 of the casing 1. The cage 34, which is in the nature of an open-work cup, is further supported by a lever-bar 41, one end of which is fulcrumed to one side of said cage in its lower portion and the remaining end of which is fulcrumed to one of the side walls of the case 1 at a point beneath the shaft 37. The cage provided as above described is designed to hold a generating-bucket 42.

As indicated in Fig. 1, we cause to be jointedly connected with an arm 43, which projects from the forward wall of the compartment 3, a trigger-arm 44, the latter in its inner portion being pivotally connected with one end of an upwardly-extending and inclined rod 45, which passes through a laterally-projecting bracket 46 on the dome 6,

from which point said rod extends inward through a guide 47, which projects from said dome-top, thence upward and inward, terminating in a flattened portion 45^a, which extends beneath the lower end of a pin 25^a, which extends downward from the pawl 25.

The carbid or similar material which is employed in combination with water to produce gas is contained in upright shells 48, having weighted bottoms and open upper sides, as indicated more clearly in Fig. 6. Each of these shells is adapted to be inclosed within an inverted-cup-shaped casing 49. The charges of carbid or cartridges thus constructed are respectively inserted into the cylindrical hopper-openings 11, the bottoms of the shells 48 being, as indicated in Fig. 6, supported upon the inwardly-projecting lower arms 16 of the triggers 12, while the upper ends of the shell-casing 49 have their shoulder portions engaging the upper side of the hopper adjacent to said openings.

In order to illustrate the operation of our invention, we will assume that the bucket-holding cage is supported in the manner indicated in Fig. 1 of the drawings—that is, with the upper end of its bucket 42 in close engagement with the lower extending end of the mouthpiece 5—that the casing 1 and compartment 3 are partially filled with water, and that the feed-openings of the rotating hopper are charged with the carbid cartridges 48. As gas is used from the gasometer and the latter falls, it will be seen that the inclined portion of the rod 30 must move downward against the roller 28, with the result that the bar 19 is turned on the shaft 9, and through the engagement of the pawl 25 with the ratchet 20 a corresponding rotary movement is imparted to said shaft. The partial rotation thus imparted to the shaft 9 is transmitted to the hopper 10, with the result that one of the cartridges 48 is brought opposite the chute or spout 8 and with the further result that the finger 13 by contact with one of the trigger-arms 12^a moves the lower supporting-arm 16 of said trigger from beneath said cartridge and admits of the latter dropping through the chute 8 and opening 4 into the bucket 42, where the carbid contained therein mingles with the water and produces gas, which rises in the compartment 3. When the upper outwardly-extending arm of that trigger 12 which has been operated by contact with the finger 13 comes into contact with a lug 12^b, which projects from the inner wall of the casing 6, as indicated in Fig. 2, it is obvious that in passing said lug the trigger will be returned to its normal position. From the compartment 3 it is obvious that the gas may pass from a pipe 3^a out of the gasometer and that when the latter thus again becomes supplied with a sufficient quantity of gas it will rise, with the result that the bar 19 and dial 23 will be returned to their normal positions. In the rotary movement of the shaft 9, above described, the indicator-

hand 24, which is fixed on said shaft, is carried to such point as to indicate a new numeral on the dial 23, when the bar 19 is returned to its normal position. In this manner the indicator-hand, in conjunction with said dial, will indicate the number of cartridges which have been dropped from the hopper.

Owing to the employment of the screen 3^b, it will be observed that the gas-bubbles which rise through the water will by contact with the meshes of said screen be broken or separated in such manner as to admit of the gas being more completely subjected to the washing action of the water.

When it is desired to remove the residue from the generating-bucket, it is obvious that the lever or shaft arm 38 may be so turned as to bring the bucket and its cage to the position indicated in dotted lines in Fig. 1, in which position access may be had to said bucket, and the same may be removed and cleaned. In this upward and outward swinging movement of the bucket and its cage it is obvious that the bucket will come into contact with the trigger-arm 44, causing the same to be raised to the position indicated in dotted lines in Fig. 1 and through this raised movement producing a lifting movement of the rod 45 until, through contact of the latter with the pawl-pin 25^a, said pawl is lifted out of engagement with the teeth of the ratchet-wheel 20. In this manner it will be observed that operation of the feeding-hopper will be prevented when the cage is not in position to receive the charges of carbid. However, when the bucket is returned to the position indicated in full lines in Fig. 1 it is obvious that the trigger 44 will be dropped downward to its normal position and the pawl-pin released from contact with the extension 45^a of the rod 45 and the pawl again allowed to drop into engagement with the teeth of the ratchet-wheel 20.

In the manner above described it will be seen that improved means are provided for automatically discharging charges of carbid from a hopper or magazine into the generator and that these discharges will occur only when the quantity or volume of gas contained in the gasometer has become so reduced as to necessitate an additional generation.

Having now fully described our invention, what we claim, and desire to secure by Letters Patent, is—

In an acetylene-gas-generating mechanism, the combination with a main casing 1 provided with a gas-compartment which communicates with said main casing, a gasometer and a pipe connecting the latter with said gas-compartment, a transverse shaft in said casing 1 having an operating-arm, a bucket-holding cage swung from said shaft and adapted to be retained immediately beneath the communicating opening between the compartment 3 and casing 1 or to be swung to a position in the upper portion of said casing 1, of a rotary carbid-supply hopper journaled above the compartment 3, said hopper containing a circular row of vertical openings adapted to detachably support charges of carbid, a ratchet-wheel carried on the shaft of said hopper, a gravity-pawl engaging the teeth of said ratchet-wheel and having a depending pin, means for imparting rotary motion to the ratchet through the movement of its pawl, a trigger journaled within the casing 1 in the path of the swinging bucket-cage and a rod connected with said trigger and adapted by the upward movement of the latter to contact with said pawl-pin, substantially as specified.

JOHN E. LANDRUM, SR.

GEORGE F. DILLON.

JOHN E. LANDRUM, JR.

In presence of—

MAURICE WELSH,
J. C. COE.