

No. 664,731.

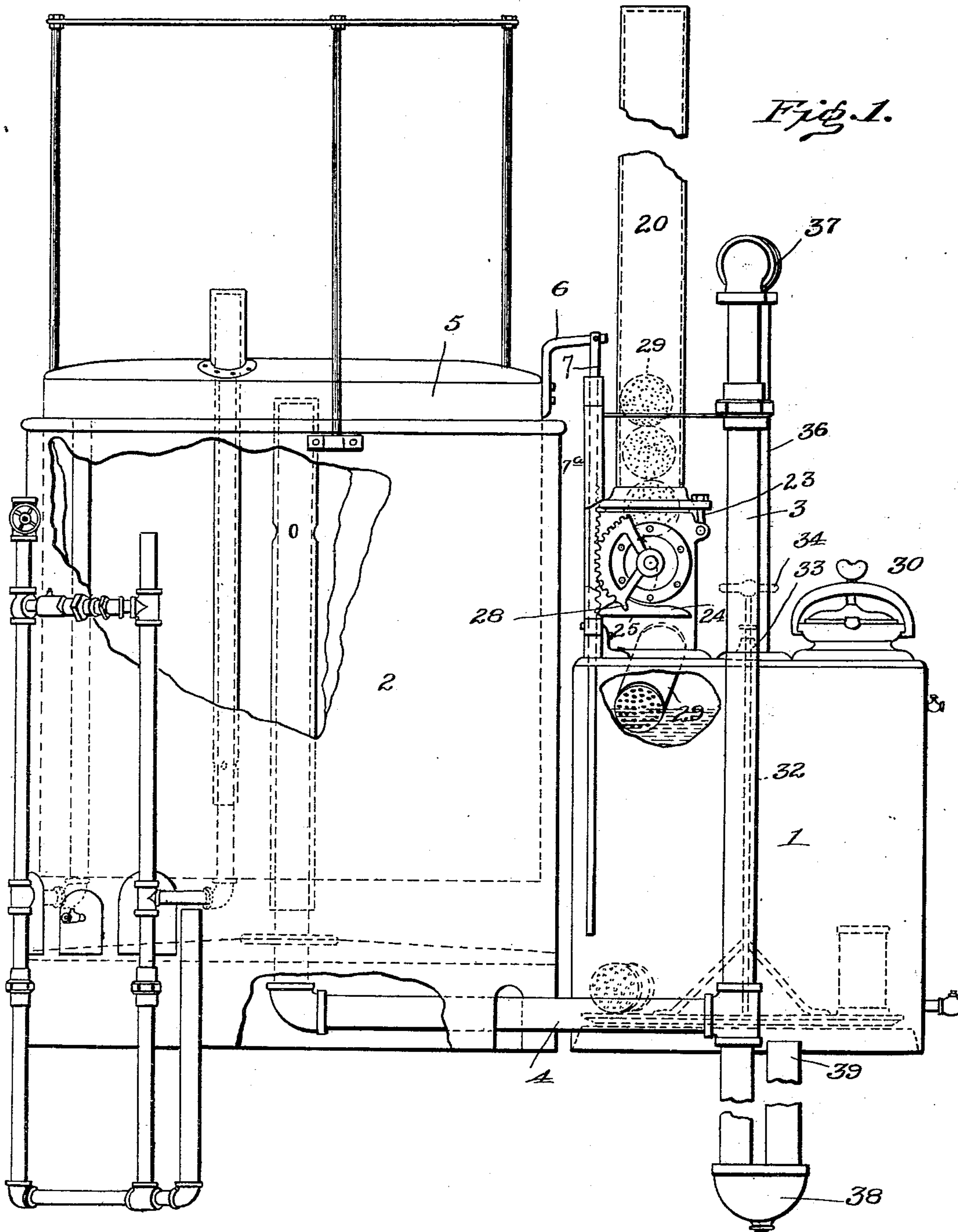
Patented Dec. 25, 1900.

D. M. DORMAN.
ACETYLENE GAS GENERATOR.

(Application filed Oct. 28, 1899.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses:

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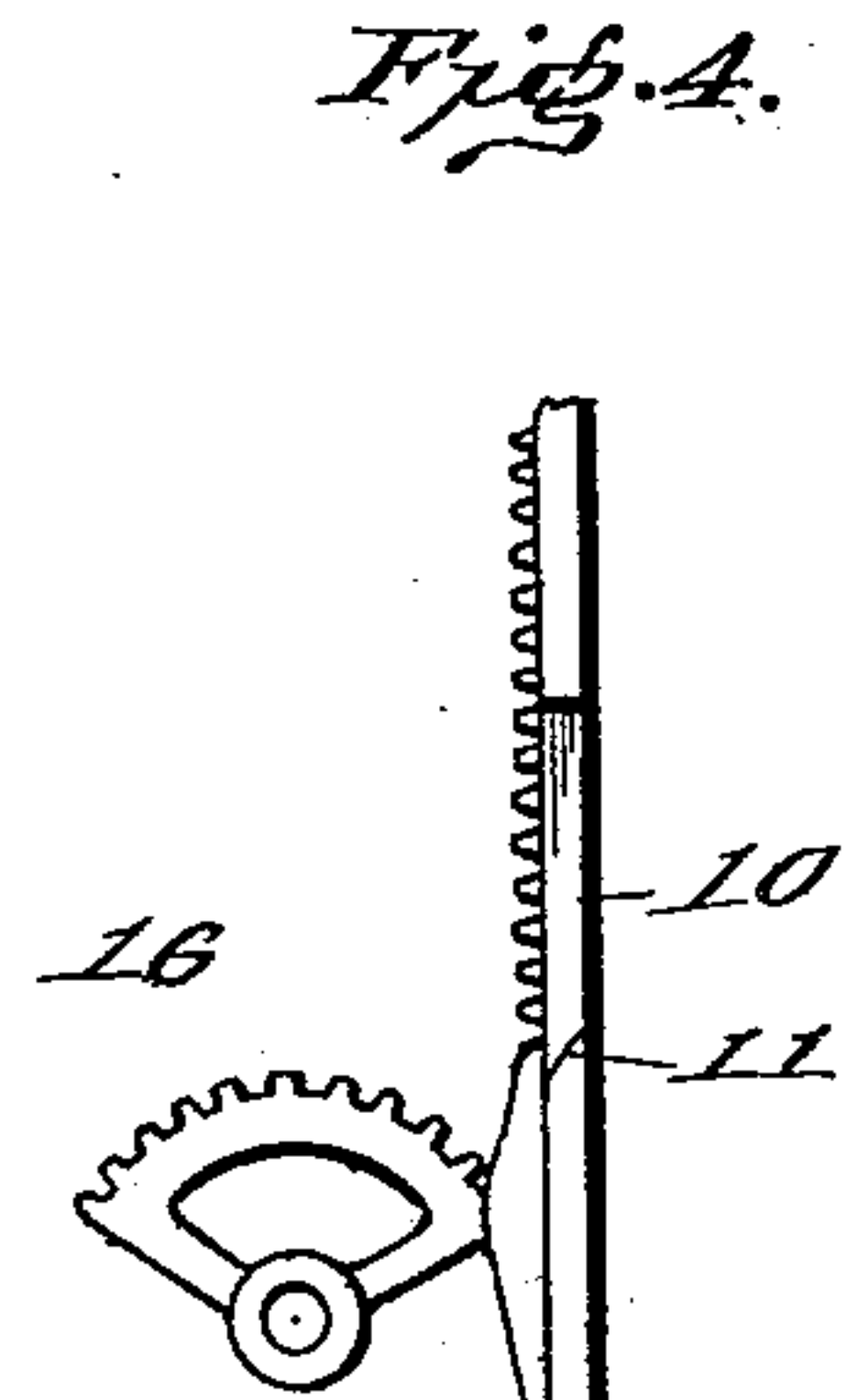
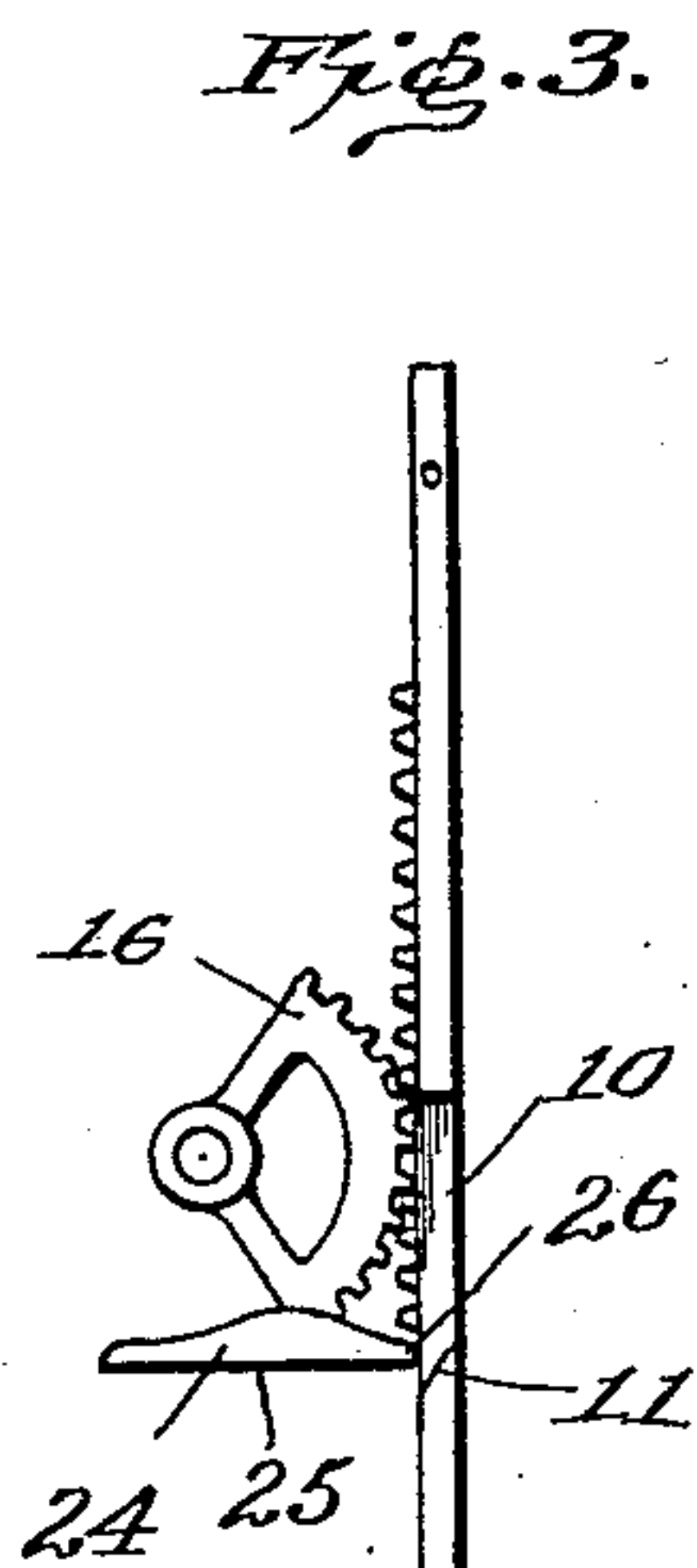
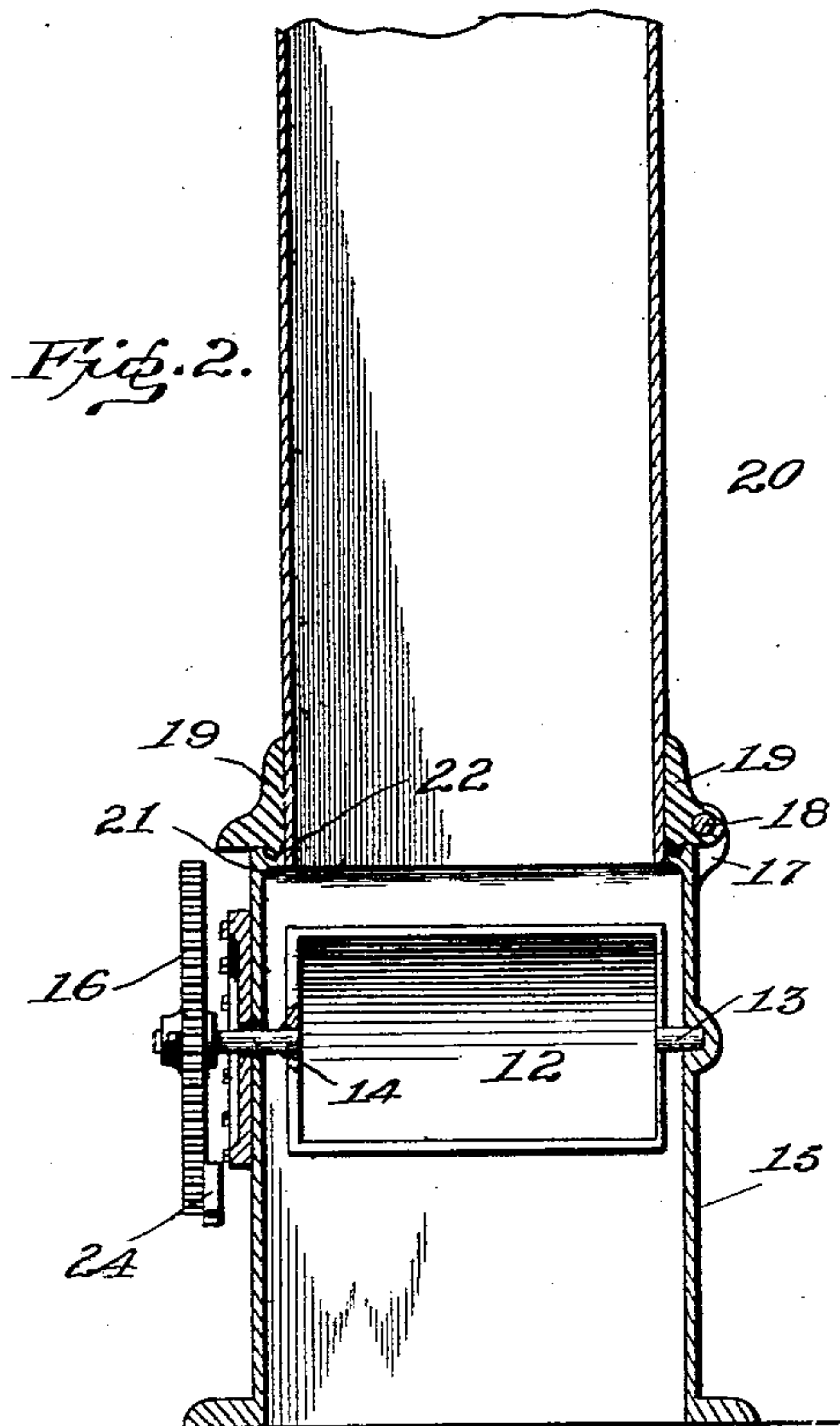


Fig. 5.

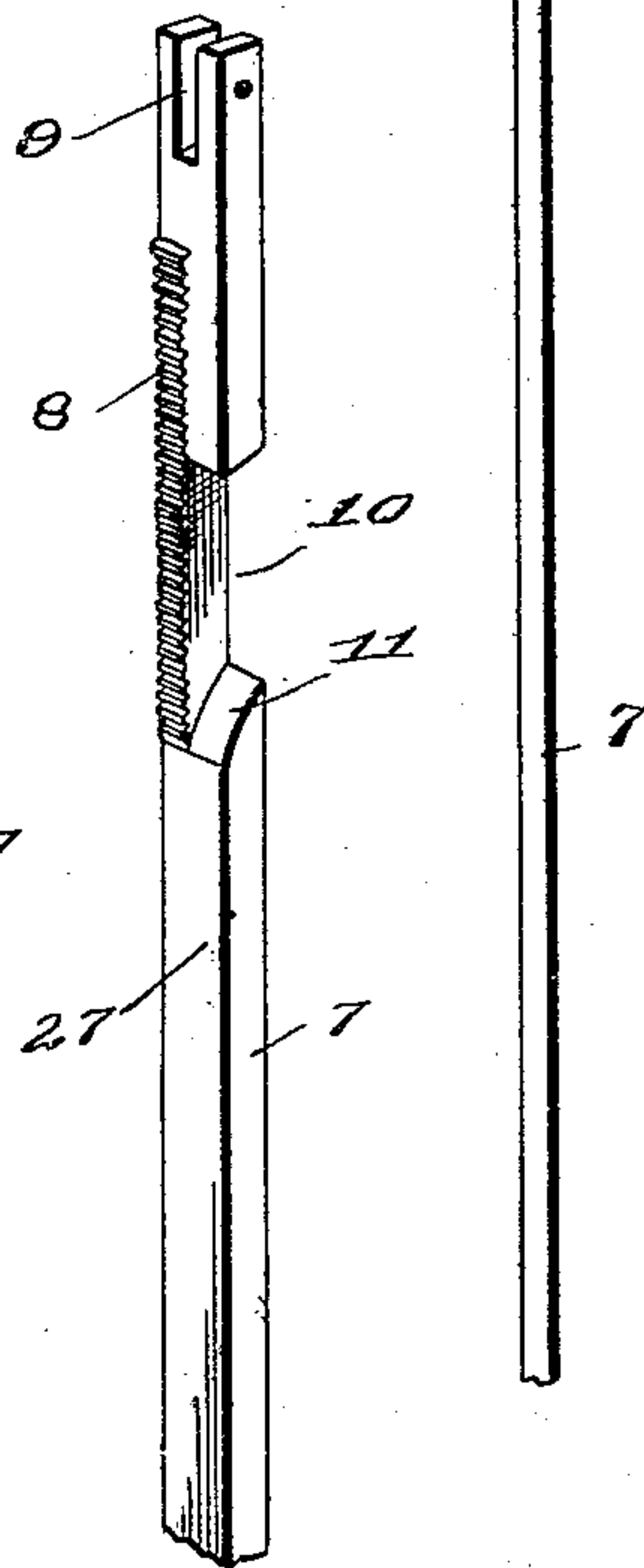


Fig. 6.

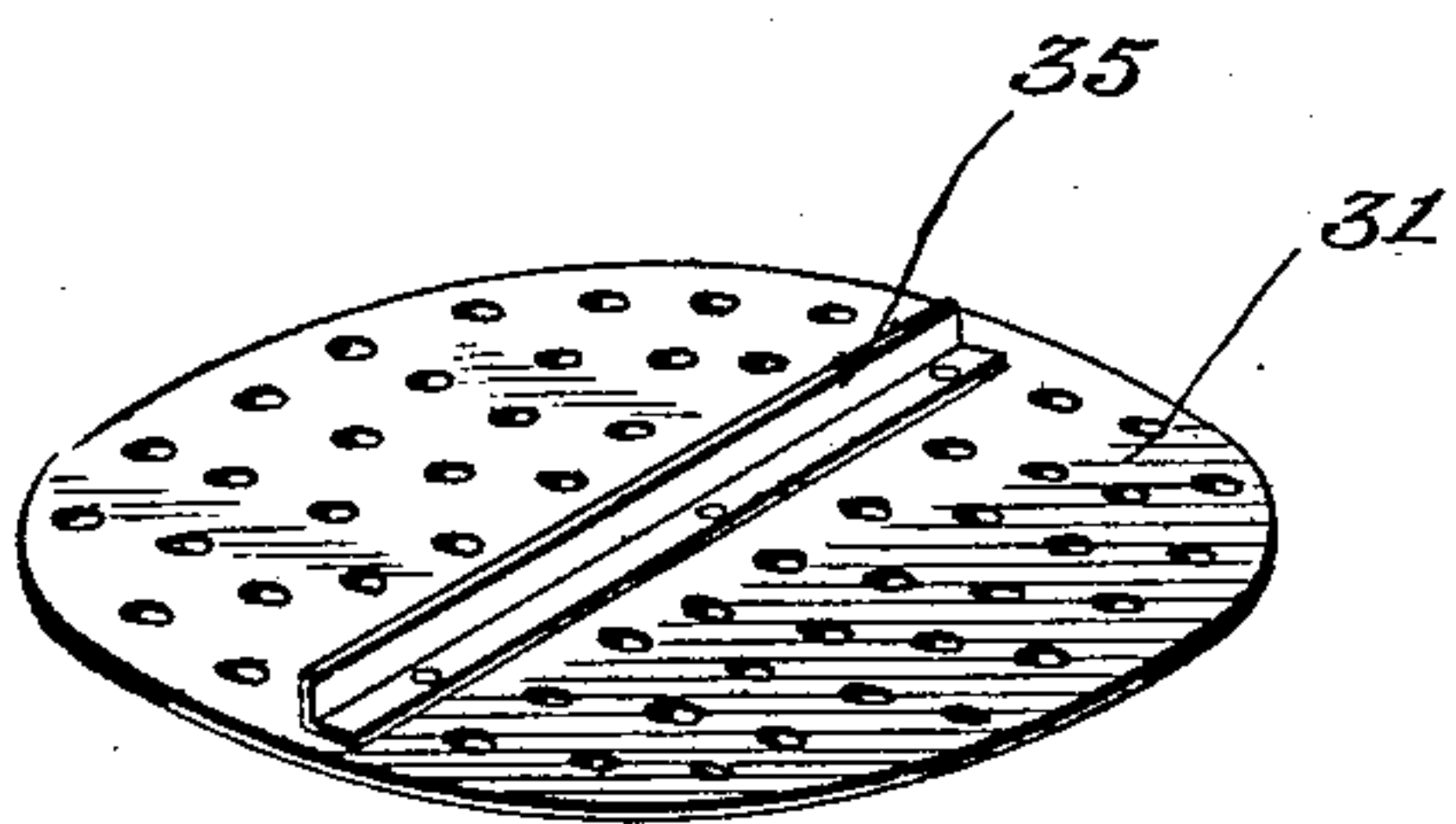
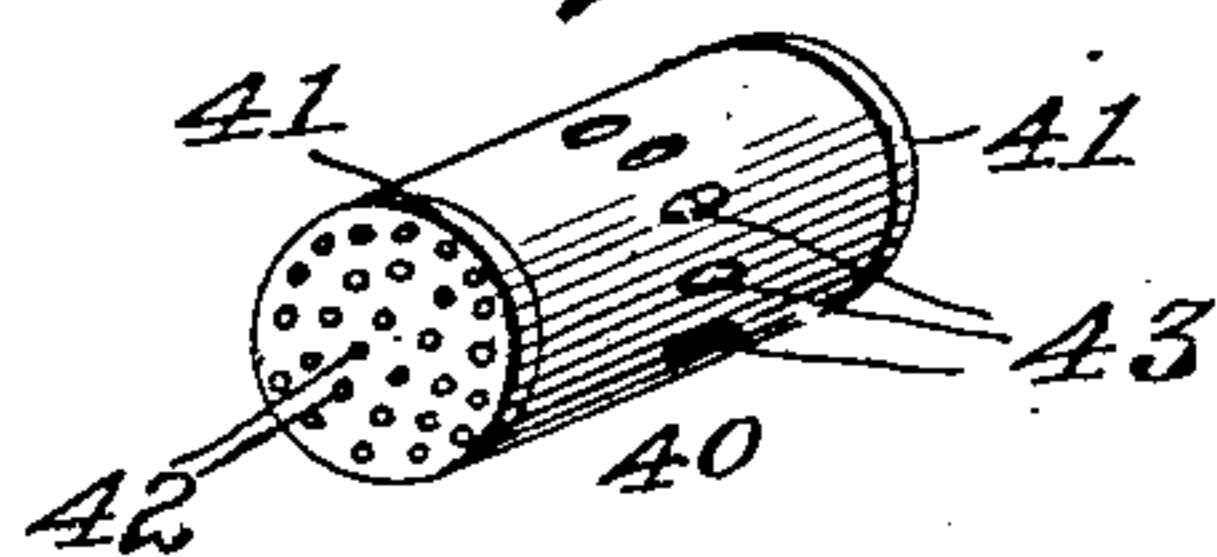


Fig. 7.



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UNITED STATES PATENT OFFICE.

DENNIE M. DORMAN, OF BINGHAMTON, NEW YORK.

ACETYLENE-GAS GENERATOR.

SPECIFICATION forming part of Letters Patent No. 664,731, dated December 25, 1900.

Application filed October 28, 1899. Serial No. 735,096. (No model.)

To all whom it may concern:

Be it known that I, DENNIE M. DORMAN, a citizen of the United States, residing at Binghamton, in the county of Broome and State of New York, have invented new and useful Improvements in Acetylene-Gas Generators, of which the following is a specification.

My invention relates to certain new and useful improvements in acetylene-gas generators of the type described and illustrated in my Patent No. 634,401, dated October 3, 1899. In my said patent is shown a chute communicating with the generator and having mounted in its bottom a half-round bucket, on the journal of which is a pinion which is in engagement with a rack-bar carried by the bell of the gasometer. The chute is designed to hold a number of carbid cartridges, one of which always rests in the half-round bucket. As the bell of the gasometer descends the engagement of its rack-bar with the pinion of the bucket revolves said bucket, and thereby discharges the cartridge contained therein into the generator. The same general principle of operation is employed in the present case, and in addition thereto I have provided means for preventing the bucket from being turned either accidentally or by some maliciously-inclined person after the bell of the gasometer has risen to its extreme height. I have also provided an improvement in the chute, which consists in hinging said chute to the casing inclosing the bucket, whereby the upper end of the chute may be closed and the chute may be turned backward on its hinge when it is necessary to place cartridges in the same. I have further provided an improved device for removing the empty cartridges or shells from the generator and for stirring up the sediment in the generator to allow it to be more readily expelled therefrom.

The above-added features to what is shown and described in my patent above named constitute the objects of the present invention.

I have illustrated my invention in the accompanying drawings, in which—

Figure 1 is a view in elevation of an acetylene-generator constructed according to my invention. Fig. 2 is a sectional detail view of a portion of the chute and of the casing upon which it is hinged. Fig. 3 is a detail

view illustrating the position of the segment-gear and brake carried thereby relative to the rack-bar carried by the bell of the gasometer when the gasometer is in its lowest position. Fig. 4 is a similar view showing the position of these parts after the bell of the gasometer has risen some distance. Fig. 5 is a detail perspective view of the rack-bar, and Fig. 6 is a bottom perspective view of the device for removing the cans from the generator and for stirring up the sediment therein. Fig. 7 is a perspective view of a carbid-shell.

The numeral 1 indicates the generator; 2, the gasometer; 3, the pipe for conducting gas from the generator, and 4 a pipe connected with the pipe 3 and leading into the gasometer. I have shown a form of gasometer which I have adopted; but as the principle of operation of this gasometer does not differ materially from other well-known forms of such apparatus, and as I do not claim herein any novelty for this form of gasometer, I have not considered it necessary to describe the same in detail. The numeral 5 indicates the bell of the gasometer, riveted to one side of which is a bracket-arm 6, projecting at right angles to the side of the gasometer and secured to the outer end of which is the upper end of a rack-bar 7. The said rack-bar is provided throughout a portion of its length and toward its upper end with a series of teeth 8 and in its upper end is bifurcated, as indicated at 9, to provide a convenient means of securing it to the bracket-arm 6. A portion of one side of the rack-bar 7 is cut away to provide a recess or opening 10, extending through the rack-bar from its front to its rear side, and the bottom of this recess is inclined upwardly and curved, as indicated at 11. The purpose of this construction will presently appear. The numeral 12 indicates the bucket for supporting the cartridges and for discharging them one at a time into the generator. This bucket is journaled by means of a stud 13 and the journal-shaft 14 in the sides of a casing 15, which is securely bolted or otherwise fastened on the upper side of the generator adjacent to the gasometer. On the outer end of the journal-shaft 14 I secure a segment-gear 16, the teeth of which are adapted to mesh with the teeth of the rack-bar 7. On

the upper side of the bucket-casing 15 are provided lugs 17, one of which is shown in Fig. 2, in which is journaled, by means of a pin 18, passing through said lugs 17 and a similar lug 19, a chute 20. The lug 19 is secured to or cast integral with the bottom of the chute 20. In the upper edge of the bucket-casing 15 is provided a groove 21, which is adapted to receive a bead or tongue 22, extending around the bottom edge of the chute 20 and preferably on the under side of the lug or projection 19, which is continued around the bottom of the chute for this purpose. A rubber gasket may be inserted in the bottom of the groove 21. Suitable means, such as a hinged bolt and nut, as indicated at 23 in Fig. 1, may be provided for clamping the bottom of the chute firmly to the upper side of the bucket-casing 15. Cast integral with the segment-gear 16 is what I will term a "brake" 24, having a flat side 25. The segment-gear 16 normally occupies the position shown in Fig. 1, and referring to the parts in this position the brake 24 is cast on the lower end of the segment-gear, its flat side 25 normally lying in a horizontal plane, as shown. A little space or offset is provided between the segment-gear and the brake 24, so that when the former is in engagement with the teeth 8 of the rack-bar the brake will lie opposite or at least in the path of the recess or opening 10. The operation of this part of the device is as follows: The parts being in position indicated in Fig. 1 and in Fig. 3, as the bell rises, carrying the rack-bar with it, the brake 24 will be carried thereby inward, so that its forward end 26 will ride over the curved bottom 11 and into the opening 10. As the rack continues to move upward the front end 26 of the brake will move in the arc of a circle through the opening 10 and will finally emerge therefrom and lie parallel with the rack-bar, as indicated in Fig. 4, resting against the plane surface 27 of said rack-bar. As the rack ascends the brake will be held in the position it is shown to occupy in Fig. 4, sliding along the plane surface 27 of the rack and being constantly in engagement therewith, even after the bell has reached the limit of its upward movement. It will thus be seen that it will be impossible to revolve the segment-gear 16 until the bell again descends. Thus the accidental discharge of a cartridge into the generator is rendered impossible. The lowermost tooth on the segment-gear projects outward a short distance beyond the other teeth, as shown at 28, so that when the bell descends the lowermost tooth on the rack may strike the projecting tooth 18 and start the revolution of the segment-gear. In this reverse movement the brake 24 turns backward in the opening 10, its flat side bearing on the curved bottom 11, and this engagement of the brake 24 with the bottom 11 of the rack-bar prevents the segment-gear 16 from being turned too far by the contact of the end of the rack-bar with the projecting tooth 28, so

that I thereby insure that the teeth on the rack-bar shall always be in a position relative to the tooth of the segment-gear to engage therewith. In the position shown in Fig. 1 the bell has descended and turned the bucket 12, so that it has discharged a cartridge 29 into the generator. When all of the cartridges 29 have been used, the fastenings 23 may be removed and the chute 20 turned backward on its hinge 18 and new cartridges be supplied to the chute through the bottom thereof, after which it may be again secured in position. The rack-bar 7 is guided in its movement by an upright casing 7^a, rectangular in cross-section and closed on three sides, its fourth side being open for the reception of the rack. This casing, as will be understood, would be provided with an elongated slot to permit the movement of the brake 24 through the same, this slot coinciding with but being longer than the opening 10.

In the top of the generator I provide a hand-hole, which is normally covered by a suitable removable closure 30 of any preferred description, that form of closure shown in Fig. 1 being of the general character of those employed for closing the manholes of boilers and the like. In order to remove the empty shells from the generator, I provide a perforated disk 31, secured to the upper side of which is a rod 32, which projects upward through a suitable stuffing-box 33 on the upper side of the generator and is provided at its upper end with a handle 34. The disk 31 is very nearly of the circumference of the bottom of the generator, so that the shells discharged into the generator will rest upon said disk. When it is desired to remove these shells from the generator, the closure 30 is removed, the handle 34 is grasped, and the shaft 32 lifted upward through the stuffing-box 33. By turning the shaft 32 the disk 31 may be revolved to bring the cans beneath the opening in the generator, when they can be readily removed by hand, after which the parts may be returned to the positions shown in Fig. 1. On the bottom of the disk 31 I secure an angle-iron 35. The sediment or spent carbid frequently cakes in the bottom of the generator and is difficult to remove. By revolving the said disk 31 by means of the handle 34 the angle-iron 35 will operate to stir up the sediment in the generator, whence it may be readily discharged through the ordinary pipe provided for that purpose.

Extending upward from the top of the generator is a pipe 36, connected by a suitable coupling 37 with the upper end of the pipe 3. The lower end of the pipe 3 beneath the point of its connection with the pipe 4 is curved or bent upward to provide a trap 38, the discharge end of the pipe from this trap occupying a plane lower than that of the pipe 4, as shown at 39. The discharge end 39 of the trap 38 is supposed to lead to the outer air. By extending the pipe 36 upward a considerable distance above the generator I

thereby provide against water being carried through pipe 3 to the gasometer. Any moisture that is carried away by the gas will trickle down into the trap 38. The trap 38 will of course be filled with water, and it will be apparent that before any water can pass into the pipe 4 it will overrun at the discharge end 39, which is beneath the pipe 4.

The cartridges which I employ with this apparatus may have the construction shown and described in my Patent No. 634,402, dated October 3, 1899, or I may employ a construction such as shown in Fig. 7, in which a cylinder 40 for containing the carbid is closed by covers 41 inserted over the ends thereof, said covers being provided with a number of perforations 42. I may also provide several openings 43 in the wall of the cylinder 40 to afford additional means for the ready escape of the gas and the spent carbid.

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

1. In an acetylene-gas generator, the combination with a generating-chamber, of a gas-holder having a movable bell, a chute having communication with said generating-chamber and adapted to contain a number of carbid cartridges, a bucket journaled in the bottom of said chute, a sector-gear secured on the journal of said bucket, a brake 24, carried by said gear, a rack-bar carried by the bell and meshing with said gear to revolve said bucket in the movement of the bell, and provided with an opening through which said brake can turn in the revolution of the gear and below its toothed portion with a plane surface over which said brake can slide, substantially as described.

2. In an acetylene-gas generator, the combination with a generating-chamber, of a gas-holder having a movable bell, a chute having communication with said generating-chamber and adapted to contain a number

of carbid cartridges, a bucket journaled in the bottom of said chute, a sector-gear secured on the journal of said bucket, a brake carried by said gear having a straight side, a rack-bar carried by the bell and meshing with said gear to revolve said bucket in the movement of the bell and provided with an opening through which the brake can turn in the revolution of the gear, said opening having its bottom rounded to form a guide for the straight side of said brake, and having below its toothed portion a plane surface over which the straight side of said brake can slide, substantially as described.

3. In an acetylene-gas generator, the combination with a generating-chamber, of a casing mounted thereon having a bucket journaled therein, a chute hinged to the upper side of said casing and communicating at its lower end therewith and adapted to contain a number of carbid cartridges, said chute having an upper, permanently-closed end, a gasometer having a movable bell, and means operated in the movement of said gasometer to revolve said bucket, substantially as described.

4. In an acetylene-gas generator, in combination with a generating-chamber having a closable opening in its upper side and with means for delivering carbid cartridges into the said chamber, a disk in said chamber having on its under side a scraping device, and a rod secured to said disk and projecting upward through the top of the generating-chamber, said rod having means for turning and lifting the same.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

DENNIE M. DORMAN.

Witnesses:

H. J. HENNESSEY,
P. J. EDWARDS.