

**No. 675,819.**

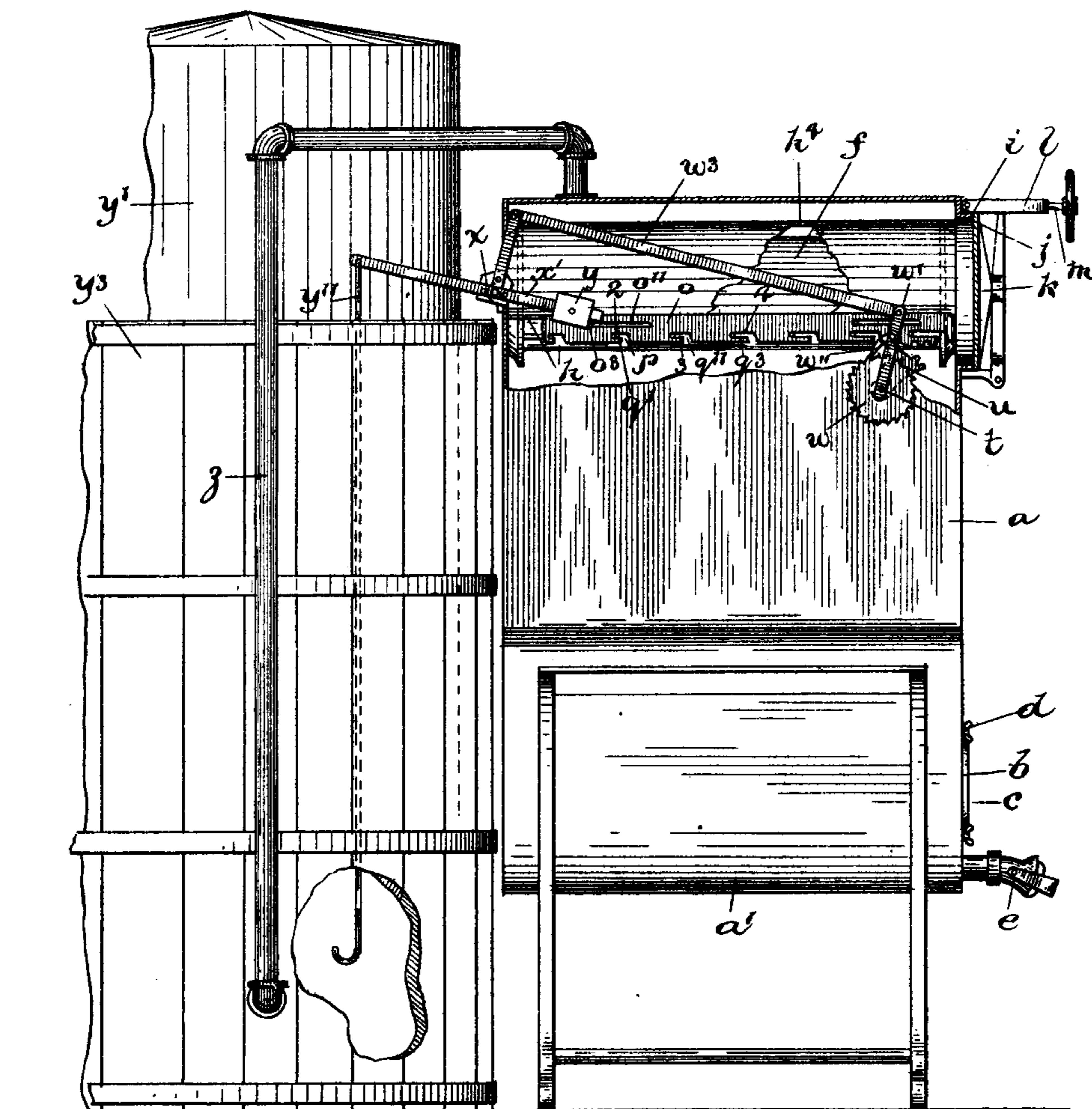
**Patented June 4, 1901.**

**A. H. DEIKE.**  
**ACETYLENE GAS GENERATOR.**

(Application filed May 31, 1900.)

(No Model.)

**4 Sheets—Sheet 1.**



*Fig. 1*

Witnesses  
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4 Sheets—Sheet 2.

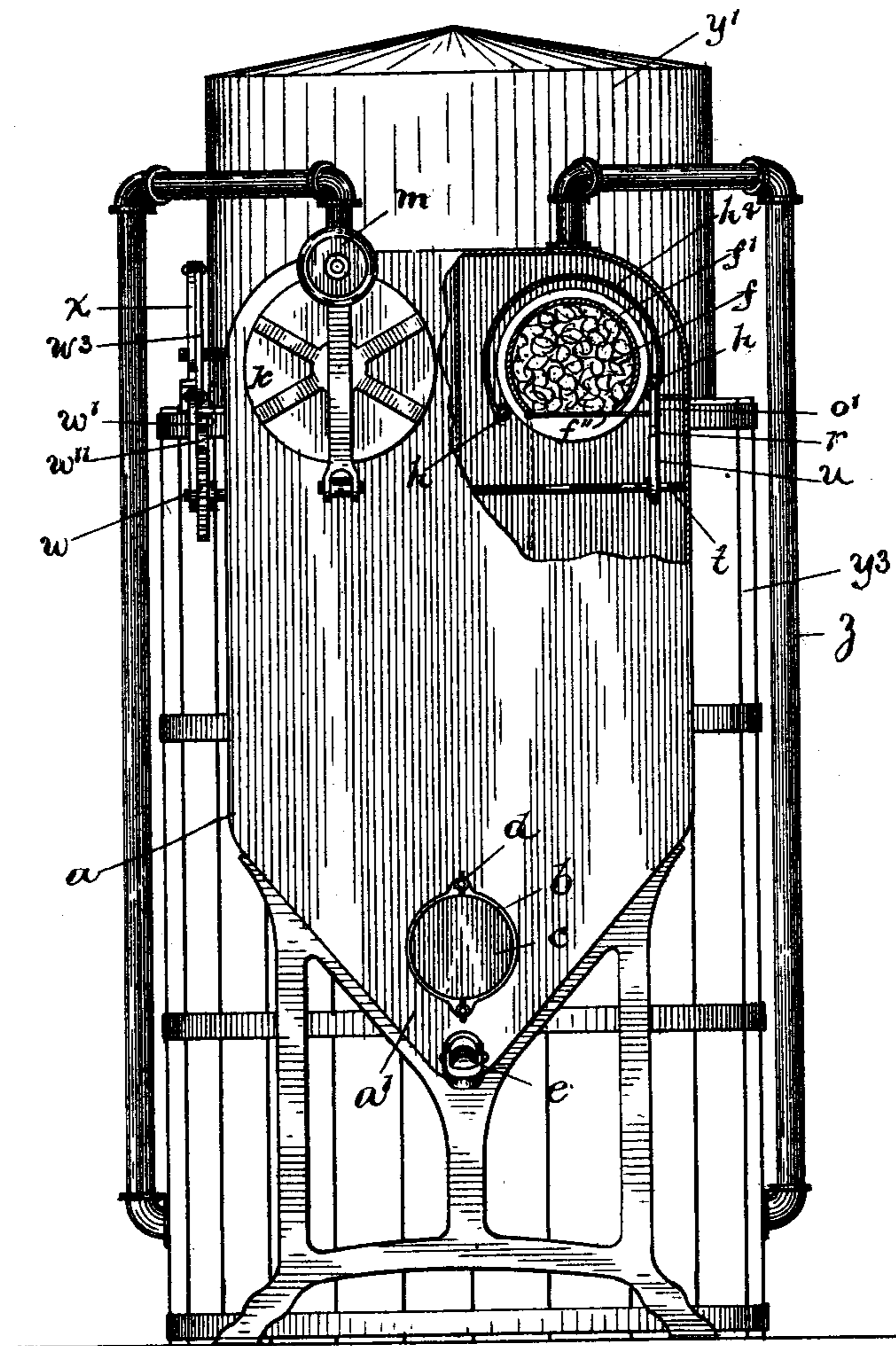


Fig. 2

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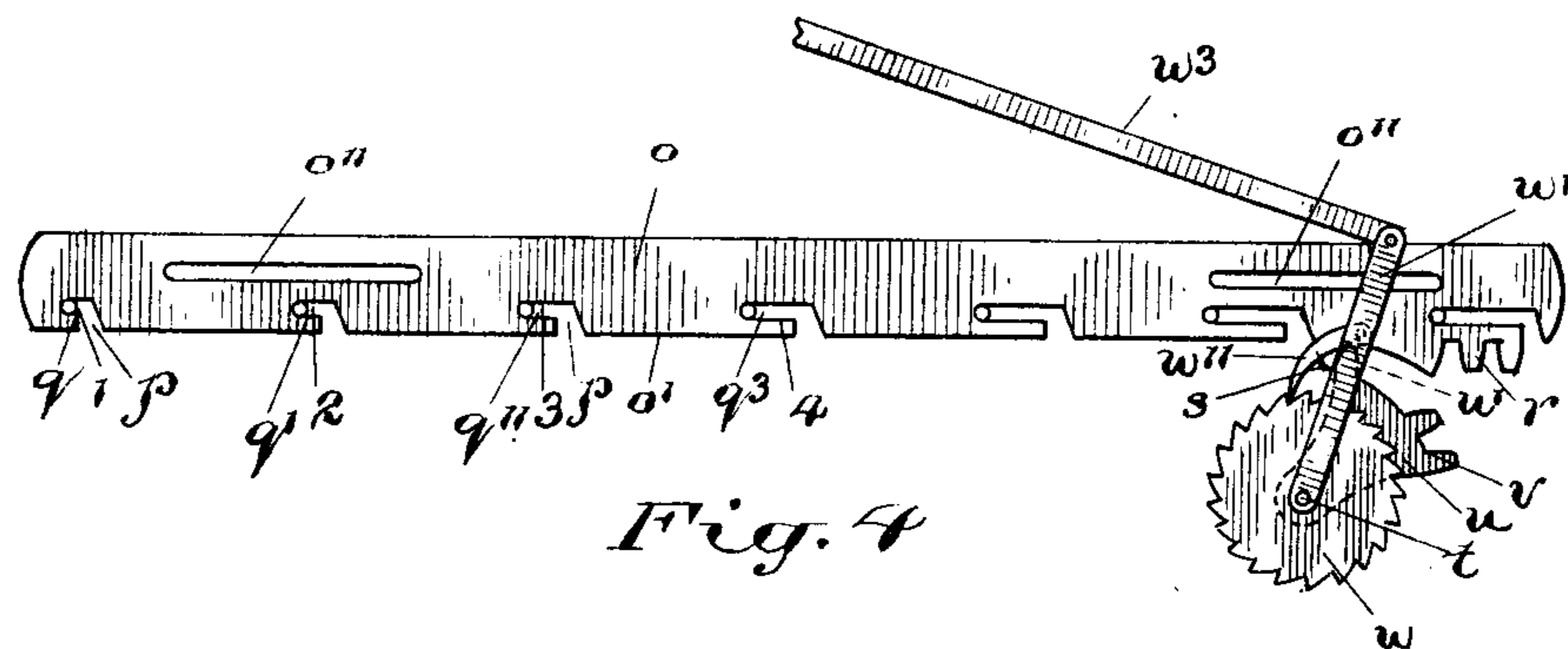
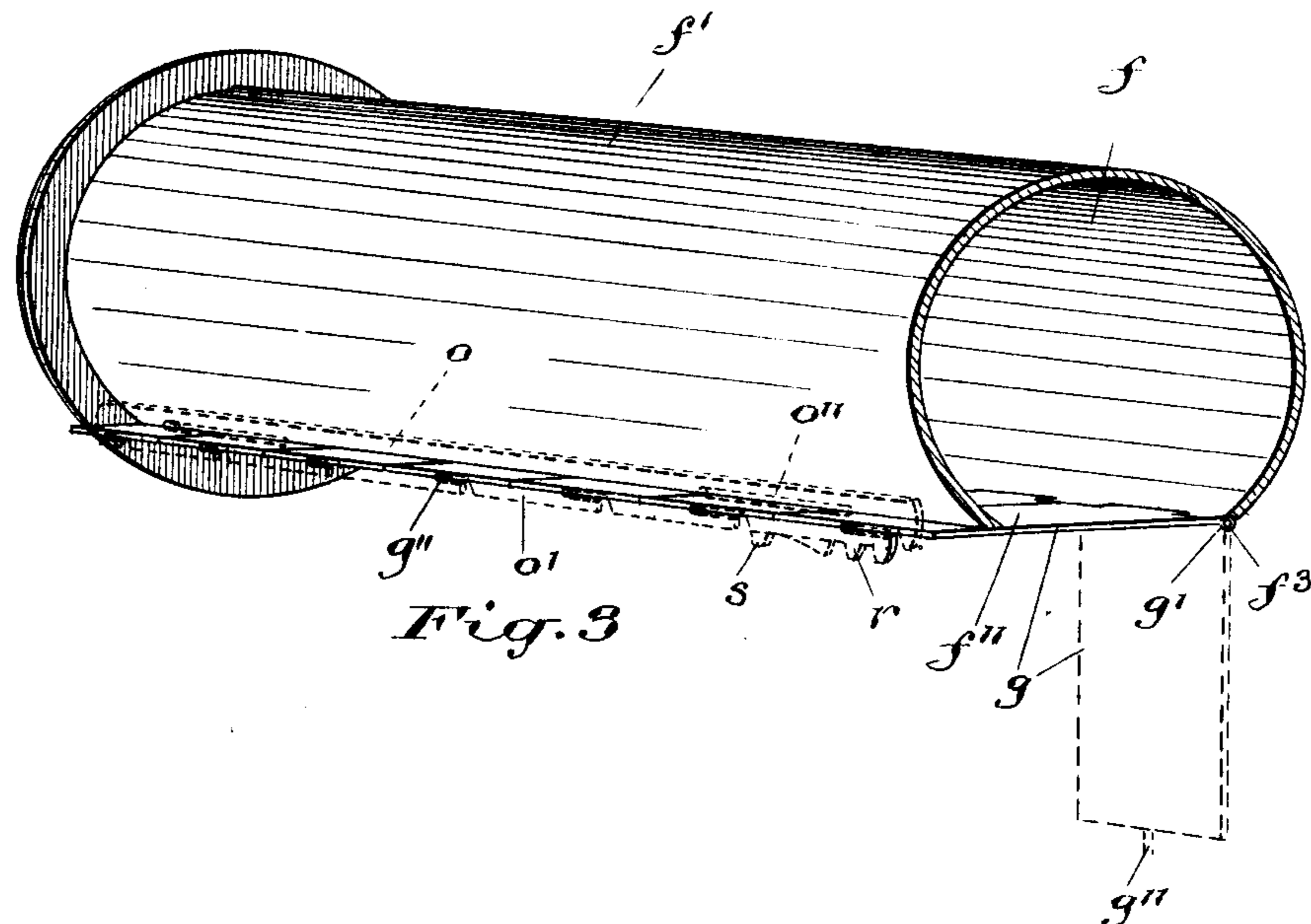
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4 Sheets—Sheet 3.



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(Application filed May 31, 1900.)

(No Model.)

4 Sheets—Sheet 4.

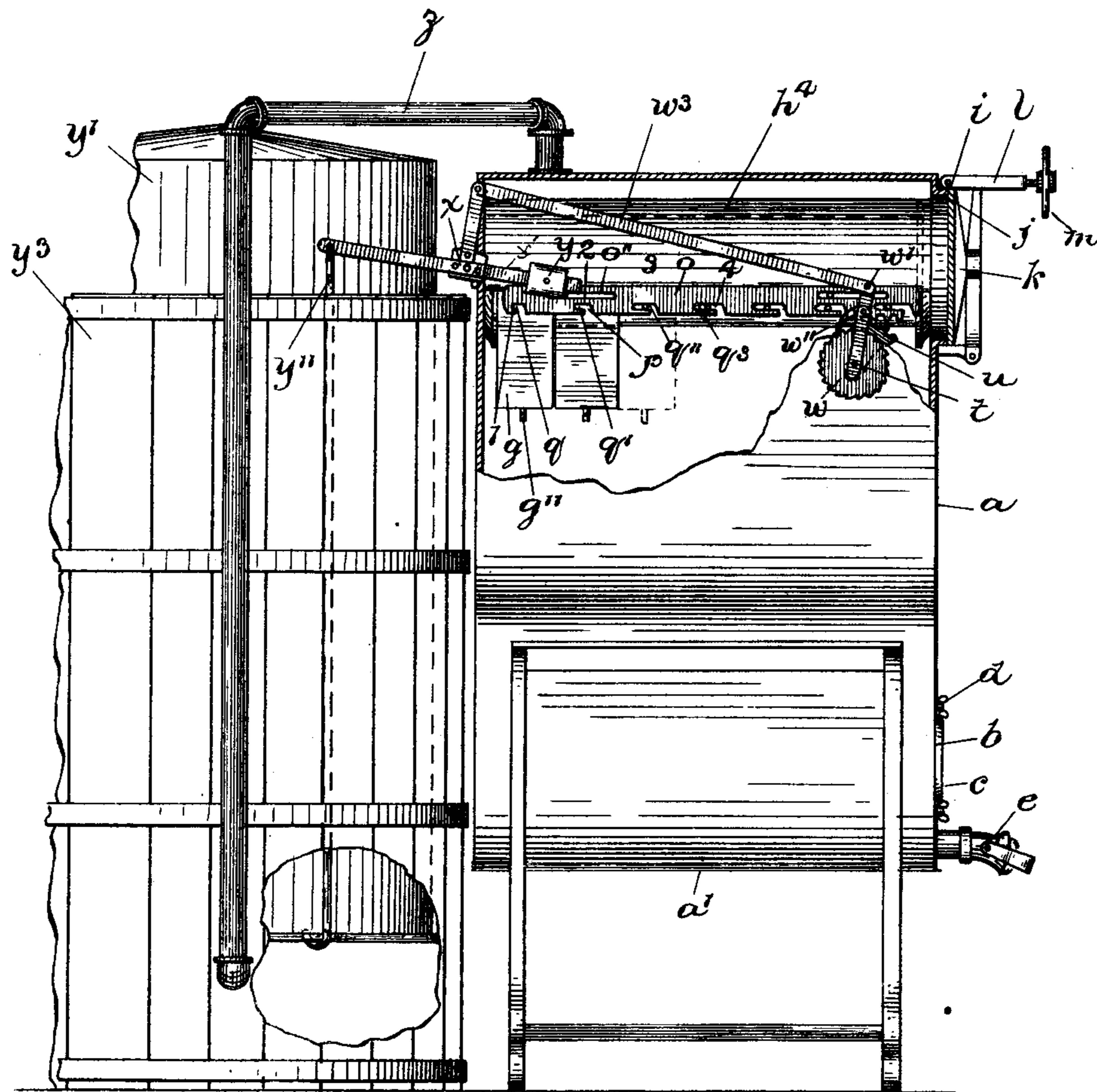


Fig. 5

Witnesses

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# UNITED STATES PATENT OFFICE.

AUGUST HERMAN DEIKE, OF GUELPH, CANADA, ASSIGNOR OF TWO-THIRDS  
TO ALEXANDER W. ALEXANDER AND JOHN MITCHELL, OF SAME PLACE.

## ACETYLENE-GAS GENERATOR.

SPECIFICATION forming part of Letters Patent No. 675,819, dated June 4, 1901.

Application filed May 31, 1900. Serial No. 18,663. (No model.)

*To all whom it may concern:*

Be it known that I, AUGUST HERMAN DEIKE, of the city of Guelph, in the county of Wellington and Province of Ontario, Canada, (whose post-office address is Guelph, Ontario,) have invented certain new and useful Improvements in Acetylene-Gas Generators; and I hereby declare that the following is a full, clear, and exact description of the same.

This invention relates to certain new and useful improvements in acetylene-gas machines, and relates more particularly to the generator, the carbid-holder of which is so arranged as to automatically dump a predetermined quantity of calcium carbid into the water from time to time during the operation of the apparatus, such times being determined by the descending movement of the gasometer; and the invention consists of a gas-generator embracing in its construction a carbid-holder consisting of a horizontally-disposed cylinder provided with a hinged bottom composed of a series of independent sections, one end of each section being hinged to the cylinder and the other end temporarily held by a movable support actuated by the descending movement of the gasometer to release the bottom-sections successively one on each operation of the apparatus in order that they can in the same succession dump their charges into the water within the generator, as hereinafter more fully set forth, and more particularly pointed out in the claims.

In the drawings, Figure 1 is a side elevation, partly in section, of the gas-generator and a portion of the gas-holder, with the gasometer raised. Fig. 2 is a front view of the generator and the gas-holder. Fig. 3 is a perspective view of the carbid-holder. Fig. 4 is a side elevation of the movable support and operating-cam. Fig. 5 is a similar view to Fig. 1, showing the gasometer lowered to release one of the bottom-sections of the carbid-holder.

Like letters and numerals of reference refer to like parts throughout the specification and drawings.

The generator *a* may be of any suitable shape and size and is preferably provided with a substantially V-shaped bottom *a'*. In the lower part of the generator is an opening *b*,

closed by a removable cover *c*, held tightly in place by thumb-screws *d*. Fitted to the lowermost part of the generator is a faucet *e* to draw off the water and carbid-ashes when cleaning the generator.

Contained in the upper part of the generator *a* are two carbid-holders *f*, each consisting of a horizontally-disposed cylinder *f'* and a bottom *f''*, pivotally connected to the cylinder *f'* by means of a hinge-bolt *f<sup>3</sup>*. The bottom *f''* consists of a series of independent abutting sections *g*, each of which is provided at one end with an eye *g'* to embrace the hinge-bolt *f<sup>3</sup>* and pivotally connect the sections to the body portion and at the other end with an outwardly-directed pin *g''*. Each carbid-holder is supported upon two rods *h*, extending from end to end of the generator, the rods being so disposed as to allow of the free movement of the bottom-sections *g*. Connected to the rods *h* is a cylindrical casing *h<sup>4</sup>*. The front end of this casing is secured to the door-frame, while the rear end is connected to the back of the generator. The purpose of this casing is to minimize the escape of acetylene gas when the doors are open. One end of the generator *a* is fitted with two door-openings *i* to provide a means of access to the carbid-holders and to allow of the removal and replacement of the same, and each door-opening *i* is surrounded by a metal ring or frame *j*. Closing each opening *i* is a removable door or cover *k*, held tightly in place by any suitable locking device *l*. The locking device *l*, as shown in the drawings, consists of a lever hinged at one end of the generator and fastened at the other by means of a hand-screw *m*.

*o* represents a movable support for the free ends of the bottom-sections *g*, and consists of a flat metallic rod *o'*, in which are formed two elongated slots *o''*, through which pass bolts or rivets *o<sup>3</sup>* to slidably fasten the rod to the cylinder *f'*. By means of the slots *o''* and bolts *o<sup>3</sup>* the support is connected to the cylinder *f'* and permitted to move longitudinally in either direction a distance equal to the length of the slots *o''*. Formed in the rod *o'* contiguous to its lower edge are a series of slots respectively numbered 1 2 3 4, &c., each of which communicates with the lower edge of the rod *o'* by

means of a notch  $p$ . These slots and notches form a series of ledges  $q$   $q'$   $q''$   $q^3$ , &c., respectively, which are adapted to support the pins  $g''$  of the bottom-sections  $g$  in their closed position. The slot 1 and its respective ledge  $q$  are equal in length to the width of the pin  $g''$  supported by the ledge  $q$ , so that when the rod  $o'$  has been moved the distance equal to the width of the pin the pin will pass into the notch and the first bottom-section will fall into a vertical position and dump its contents into the water at the bottom of the generator. The slot 2 and its respective ledge  $q'$  are twice the length of the slot 1 and ledge  $q$ , so that the second bottom-section will not be released until the second movement of the rod  $o'$ . The slot 3 and its respective ledge  $q''$  are three times the length of the slot 1 and ledge  $q$ , so that the third bottom-section will not be released until the third movement of the rod  $o'$ , and the slot 4 and ledge  $q^3$  are four times the length of the slot 1 and ledge  $q$  in order that the fourth bottom-section will not be released until the fourth movement of the rod  $o'$ , and so on. The lower edge of the rod  $o'$  is provided with a series of spur-teeth  $r$  and an abutting shoulder  $s$ . Mounted on the shaft  $t$  is a cam  $u$ , having a series of spur-teeth  $v$ , which are adapted to engage with the spur-teeth  $r$  of the rod  $o'$  to move the rod forward to release the bottom-sections  $g$ . The point  $u'$  of the cam is adapted to engage the shoulder  $s$  and assist the spur-teeth in the forward movement of the rod. The number of cams mounted on the shaft  $t$  will correspond with the number of carbid-holders in the generator and will be so disposed in relation to each other that when the last bottom-section of the first carbid-holder has fallen the second cam will be brought into action with the removable support  $o$  of the second carbid-holder to release its first bottom-section, and so on. The shaft  $t$  projects beyond the side of the generator  $a$ , and mounted on the outer end of the shaft is a ratchet-wheel  $w$ . Pivoted on the shaft  $t$ , on the outer side of the ratchet-wheel  $w$ , is an arm  $w'$ , fitted with a pawl  $w''$ . Pivoted to the side of the generator, contiguous to the gasometer and above the pawl  $w''$ , is a bell-crank lever  $x$ . Connecting the bell-crank lever  $x$  with the pawl  $w''$  is a pitman  $w^3$ . Connected to the bell-crank lever  $x$  is a draw-rod  $y''$ , the lower part of which is contained within the gas-holder  $y^3$ . The lower end of the draw-rod  $y''$  is hook-shaped and is adapted to be engaged by the gasometer  $y'$  when in its lowered position.

The descending movement of the gasometer  $y'$  causes the rod  $y''$  to move the bell-crank lever  $x$  and pitman  $w^3$  to operate the pawl  $w''$  to partially rotate the ratchet-wheel  $w$ . The partial rotation of the ratchet-wheel  $w$  causes the partial rotation of the shaft  $t$  and cam  $u$ , causing the cam  $u$  to move the rod  $o'$  forward a distance equal to the width of one pin to allow one bottom-section to fall. The bell-crank lever  $x$  is provided with a forwardly-directed

arm  $x'$ , fitted with a counterpoise  $y$  to cause the return of the bell-crank lever, connecting-rod, and pawl to their normal position when the draw-rod  $y''$  is relieved of the weight of the gas-holder  $y^3$ . Connected to the top of the generator and to the bottom of the gas-holder  $y^3$  is a pipe  $z$  to provide for the passage of the generated gas from the generator to the gas-holder.

The operation of the invention is as follows: The carbid-holders of the generator are charged with calcium carbid, and the bottom-sections are held in a closed position by means of the movable support. The descending movement of the gasometer  $y'$  causes the operation of the draw-rod  $y''$ , bell-crank lever  $x$ , and pitman  $w^3$  to operate the pawl  $w''$  to rotate the ratchet-wheel a predetermined distance, which causes a corresponding rotation of the shaft  $t$  and cam  $u$ . The partial rotation of the cam  $u$  moves the rod  $o'$  forward a distance equal to the width of one pin and disengages the pin from its respective ledge. The pin when disengaged from its respective ledge passes out through the notch connecting the slot with the lower edge and allows the bottom-section to fall into a vertical position and drop or dump its contents into the water at the bottom of the generator. The gas produced by the contact of the calcium carbid with the water fills the gas-holder and causes the gasometer to rise. When the gas-holder is emptied and the gasometer again engages the draw-rod, it operates the cam in the manner above described to again move the rod  $o'$  forward and allow the second bottom-section to fall, this operation being repeated until the last bottom-section of the first carbid-holder has dumped its contents into the water.

A generator containing any number of carbid-holders can be operated in the same manner as above described, and the shape and construction of the generator, including the operating mechanism for the supports, can be varied or modified without departing from the nature of the invention; so, also, can the shape of the carbid-holders.

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

1. The combination with the telescoping gas-holder, a gas-generator embracing in its construction an outer casing, a carbid-holder removably supported within the outer casing, a bottom for the carbid-holder consisting of a plurality of independently-acting hinged plates or sections, an outwardly-projecting pin for the free end of each plate or section, a longitudinally-movable rack provided with longitudinal slots to receive the pins of the hinged plates or sections terminating at one end in a downwardly-directed opening, a shaft journaled in the generator, a cam mounted on the shaft to engage the longitudinally-movable rack and release successively the hinged plates or sections, a ratchet-wheel on

the end of the shaft, an arm pivotally secured to the shaft, a pawl on the arm to engage the ratchet-wheel, a bell-crank lever fulcrumed to the generator, a connecting-rod between  
5 the lever and pawl-actuating arm, a rod connected to the outer arm of the bell-crank lever extending to the gas-holder and actuated by the rise and fall of the telescoping part of the gas-holder, substantially as specified.  
10 2. The combination with the telescoping gas-holder, a gas-generator embracing in its construction an outer casing a carbid-holder removably supported within the outer casing, a bottom for the carbid-holder consisting of  
15 a plurality of independently-acting hinged plates or sections, an outwardly-projecting pin for the free end of each plate or section, a longitudinally-movable rack provided with longitudinal slots to receive the pins of the  
20 hinged plates or sections having at one end a

downwardly-directed opening to allow of the escape of the pin, teeth at one end of the rack, a shaft journaled in the generator, a cam mounted on the shaft provided with teeth to engage the teeth of the rack to move it longi- 25 tudinally and release successively the hinged plates or sections, a ratchet-wheel on the end of the shaft, an arm pivotally secured to the shaft, a pawl on the arm to engage the ratchet-wheel, a bell-crank lever fulcrumed to the 30 generator, a connecting-rod between the lever and pawl-actuating arm and a depending hooked rod in the path of the gasometer substantially as specified.

Guelph, April 9, 1900.

AUGUST HERMAN DEIKE.

In presence of—  
JOSEPH GOWDY,  
THOS. GOWDY.