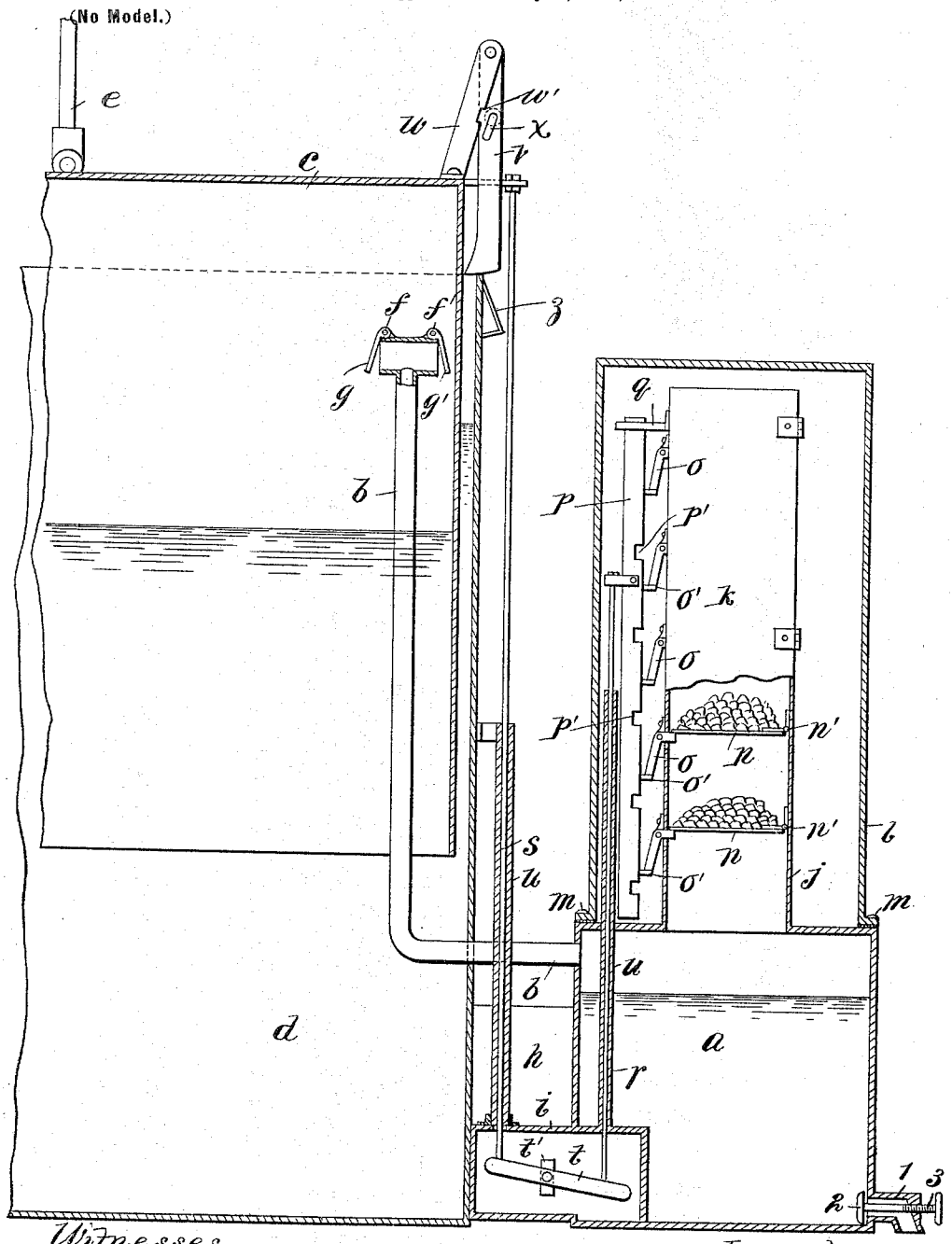
No. 642,298. Patented Jan. 30, 1900.

H. M. COOPER.

ACETYLENE GENERATOR.

(Application filed May 15, 1899.)

(No Model.)



Witnesses.

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ACETYLENE-GENERATOR.

SPECIFICATION forming part of Letters Patent No. 642,298, dated January 30, 1900.

Application filed May 15, 1899. Serial No. 716,803. (No model.)

To all whom it may concern:

Be it known that I, HIPPOLYTE M. COOPER, a resident of Bath, in the county of Steuben and State of New York, have invented certain new and useful Improvements in Acetylene-Generators, of which the following is a specification.

This invention relates to improvements in acetylene-generators; and its object is to provide means for regulating the supply of carbid to the generator and to otherwise facilitate the operation of the apparatus.

My invention consists in the special construction of the carbid-feeding apparatus and in other details of construction, as hereinafter set forth and claimed.

The accompanying drawing represents in vertical section an apparatus embodying my invention.

The generator-tank *a* is connected by pipe or gas connection *b* to a gas-holder or gasometer comprising a bell *c*, arranged to slide vertically in tank *d* and guided by guide-rods *e*. The pipe *b* extends above high-water level in the gasometer-tank and terminates in a two-way or double check-valve having branches *f f'*, controlled, respectively, by clapper or clack valves *g g'*. The tanks *a* and *d* are shown as connected by a bridge-piece *h*, and tank *a* has a lateral extension *i*, boxed in or separated from tank, so that there is no liquid communication between them.

On top of tank *a* is a chute or vertical trunk *j*, having a door *k* on one side, which is hinged thereto or is otherwise movable to permit access to the interior of the chute. The chute is closed at top and on the other sides, but opens at the bottom into the generator-tank *a*. A cover or hood *l* is adapted to be removably attached to the top of tank *a*, so as to cover up the chute, and is held in place by bolts *m* or other means.

A series or plurality of platforms *n* are hinged at *n'* to one side of the chute and are adapted to extend across the chute and to engage with the tails of dogs or latch-levers *o*, pivoted to the other side of the chute. Projections *o'* on the respective dogs *o* engage with the side or edge of a slide-bar *p*, which slides in a guide *q*, attached to the chute, and is provided with notches *p'* on the side or edge, engaging with lever projections *o'*. Rods *r s*, attached, respectively, to the slide-bar *p* and to the gasometer-bell *c*, engage at their lower ends with opposite ends of a lever or walking-beam *t*, pivoted to a bracket *t'*, fixed in the tank extension *i*. The lever *t* is located within such tank extension, and the rods *r* and *s*, extending up through the tops of tank *a* and extension *i*, are surrounded by pipes or tubular extensions *u*, extending from a point below low-water mark to a point above high-water mark. The lever *t* is immersed in the water in tank *i* and communicates the motion of rod *s* to rod *r* without allowing any gas to escape through the place where the operating-rods pass from the tank-space into the outer air, such place being thus protected by a water seal. These tubular extensions also serve as guides for the respective rods.

When the bell *c* is elevated, the rod *s* is out of engagement with lever *t*, and the slide-bar *p* is in its lowest position, all the notches *p'* therein being then below the corresponding lever projections *o'* and the distance between the respective notches and the corresponding lever projections being least in the case of the lowest projection and successively greater for the higher notches and lever projections, so that as the bar *p* ascends the lowest notch will first come opposite the projection *o'* of the lowest lever *o*, and on further upward movement of the bar the other notches will come opposite the corresponding lever projections *o'* in succession in the order of their height.

On the bell *c*, preferably at the top of same, is a dog *v*, pivoted to a bracket *w*, fixed to the bell. When this dog hangs free, its lower end is adapted to engage the top of tank *c* or other fixed stop to arrest the downward movement of the bell as it approaches its lower limit of movement and before it has come into position to cause operation of any of the latch-tripping devices *o* for the platforms *n*. By means of a pawl *x*, pivoted to dog *v* and engaging in notch *w'* in bracket *w*, said dog may be held away from such fixed stop, so as to allow complete descent of the bell *c*. A cam or incline *z* on tank *c* or, generally speak-

ing, on or associated with the fixed stop engages the dog on such further descent of the bell to release the pawl x from notch w'.

At the bottom of generator-tank a is a valve or draw-off cock 1, whose valve-disk or stopper 2 is located inside the tank-space and is operated by a screw-spindle 3 from the outside, so that as the valve is opened it forces the sediment or lime away from the valve-opening and insures exposure of such opening to allow the liquid to flow out.

The operation of the apparatus is as follows: The gasometer-tank d having been partly filled with water and the bell c placed therein, the cover l is removed, door k opened, valve 1 closed, and tank a is filled, say, about three-fourths full of water. The bell c is held in partly-elevated position by dog v, and the several platforms n are raised to horizontal position, being held in such position by latch-levers o, which in turn are held by their engagement with the side or edge of bar p. A portion of carbid is now placed on each shelf or platform n, the door k is closed, and the cover l is secured in place over the chute. Dog v is then turned away from the fixed stop and is held away by engaging its pawl x in notch w', and the bell c then descends, causing bar p to ascend until its lowest notch p' comes opposite the projection o' of the lowest lever o, whereupon said projection enters said notch, allowing lever o to turn and disengaging the tail of the lever from the lowest platform n, which falls into a vertical position and drops its charge of carbid into the generator-tank. This at once causes evolution of gas, and the bell c is forced upwardly by the evolved gas. On exhaustion of this charge the bell will again move down, and this time it will move a little farther to bring the tripping or latch devices of the second platform into operation, thus dropping another charge of carbid into tank a, this action being repeated until all the platforms are discharged. On the complete descent of the bell in tripping the last platform the dog v strikes the cam z, and its pawl x is thereby released from notch w', allowing the dog to fall into vertical position upon the next upward movement of the bell, thus bringing the dog in position to prevent the complete downward movement of the bell on the next downward movement. This leaves the latch devices disconnected from the bell, so that there is no danger of their accidental release during the ensuing charging operation, and by this means the pressure of gas back from the gasometer to the generator is also taken off during the charging.

The bar p may of course be placed either edgewise or sidewise to the chute, and the lever projections o' may be adapted to pass entirely through the notches in case the bar is arranged sidewise or to simply enter same, as shown, these details, as well as the particular form of the slide-bar, being immaterial to the invention, the form shown in the drawing being simply that which most conveniently illustrates the principle involved.

The cover l surrounds or covers all the operating devices p k, &c., for the platforms, as well as the chute, so that escape of gas through such operating devices is entirely prevented. The advantage of the double valve or two-way check-valve at the top of gas connection b is that it renders the apparatus more reliable in operation, inasmuch as while one valve may clog or stick and refuse to work it is not likely that both valves will thus be stuck or rendered inoperative at the same time.

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

1. In an acetylene-generator, the combination of a generator-tank, a chute opening into same, a plurality of platforms pivoted in such chute, a gasometer connected with the generator-tank and provided with a vertically-movable bell, latch devices for supporting the several platforms, a slide-bar having notches adapted to cause operation of the latch devices successively on successive movements thereof, and an operating connection between such slide-bar and the gasometer-bell, such operating connection comprising mechanically-connected rods extending down from the bell and slide-bar to a point below the water-level in the generator-tank, and a tubular extension of such tank forming a water seal at the place where the rod passes out from the generator-tank to connect to the gasometer-bell.

2. In an acetylene-generator, the combination of a generator-tank, a chute opening into same, a plurality of platforms pivoted in such chute, a gasometer connected with the generator-tank and provided with a vertically-movable bell, latch devices for supporting the several platforms, a slide-bar having notches adapted to cause operation of the latch devices, successively on successive movements thereof and an operating connection between such slide-bar and the gasometer-bell, such operating connection comprising a lever located below the water-level, in the generating-tank, rods engaging with opposite ends of said lever and extending up from such tank to connect with the bell and slide-bar respectively, and a tubular extension of such tank forming a water seal at the place where the rod passes from the generator-tank to connect to the gasometer-bell.

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Witnesses:
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