

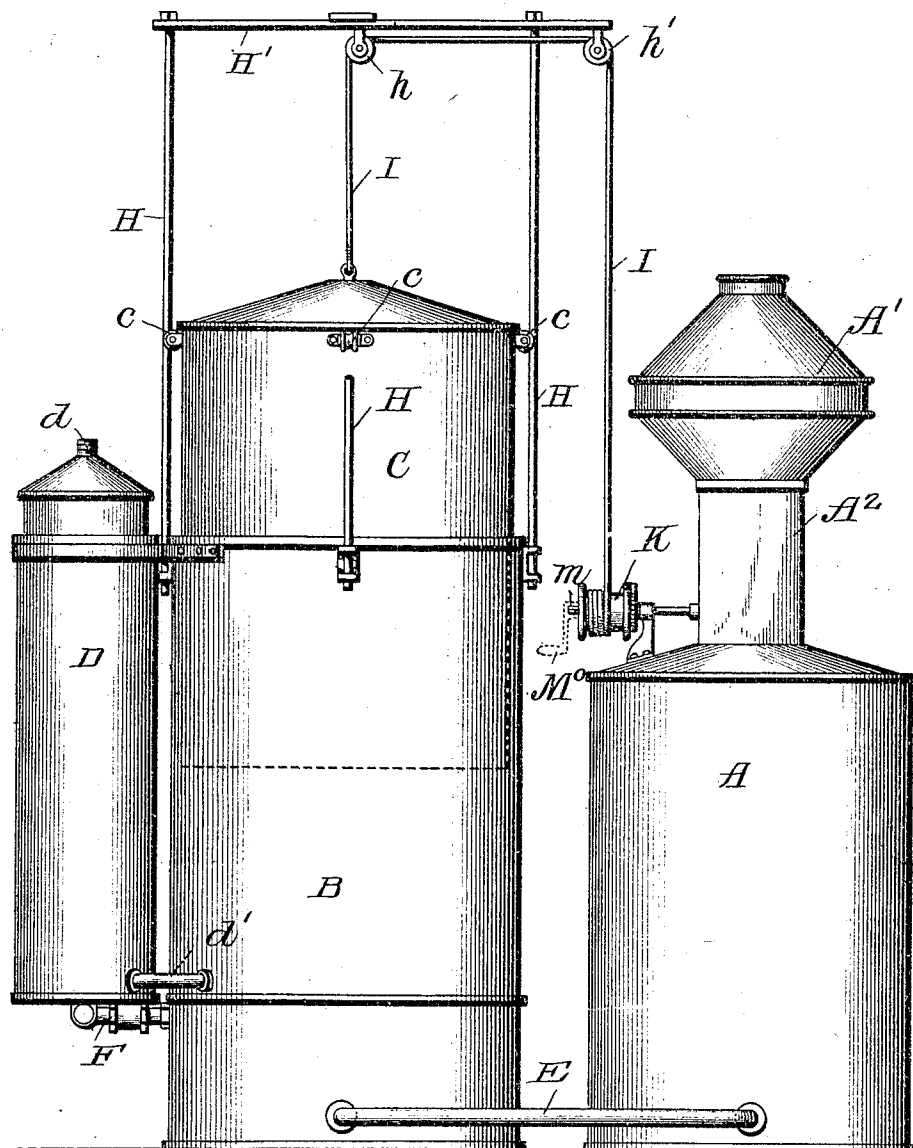
No. 784,462.

PATENTED MAR. 7, 1905.

A. YANCEY.  
ACETYLENE GENERATOR.  
APPLICATION FILED APR. 12, 1904.

3 SHEETS—SHEET 1.

Fig. 1.



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Fig. 2.

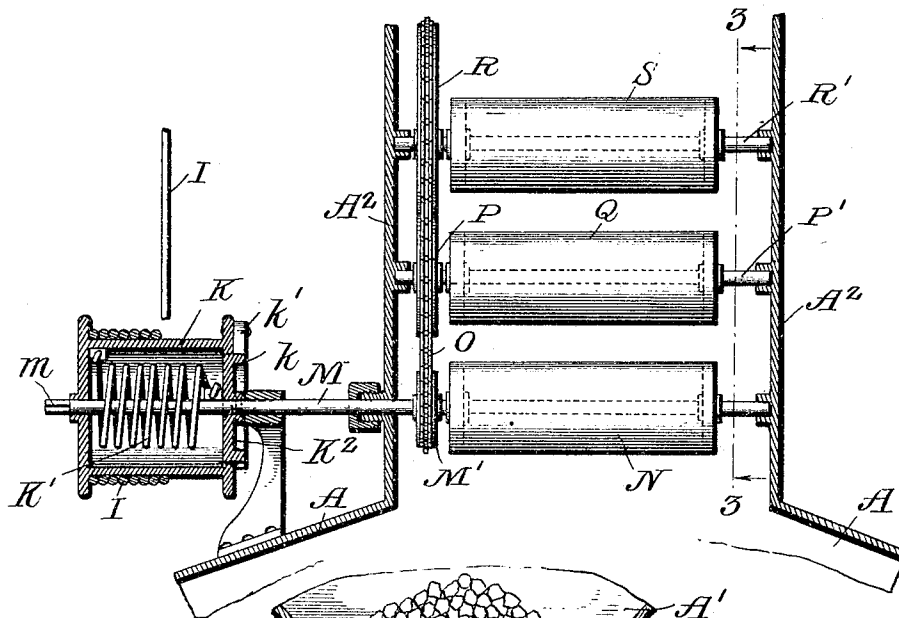
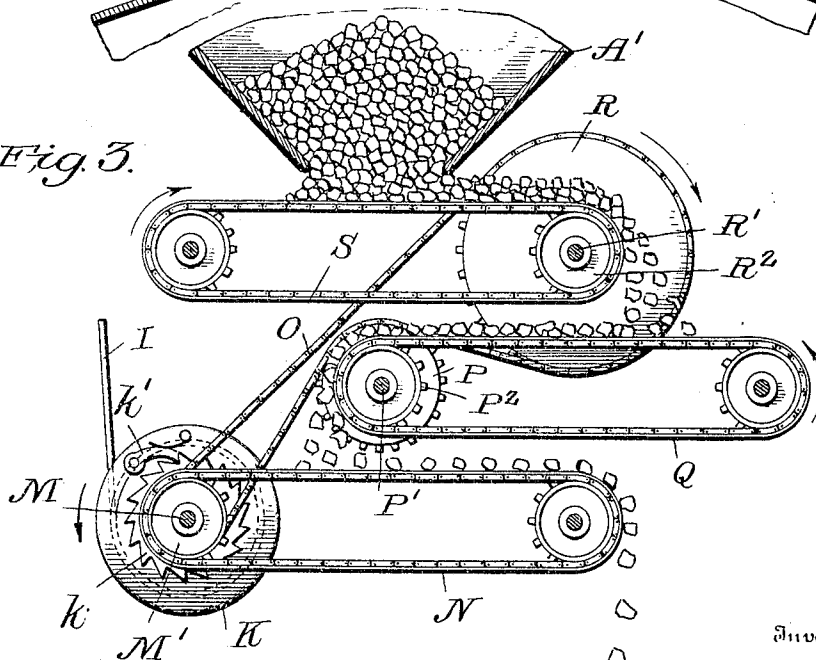


Fig. 3.



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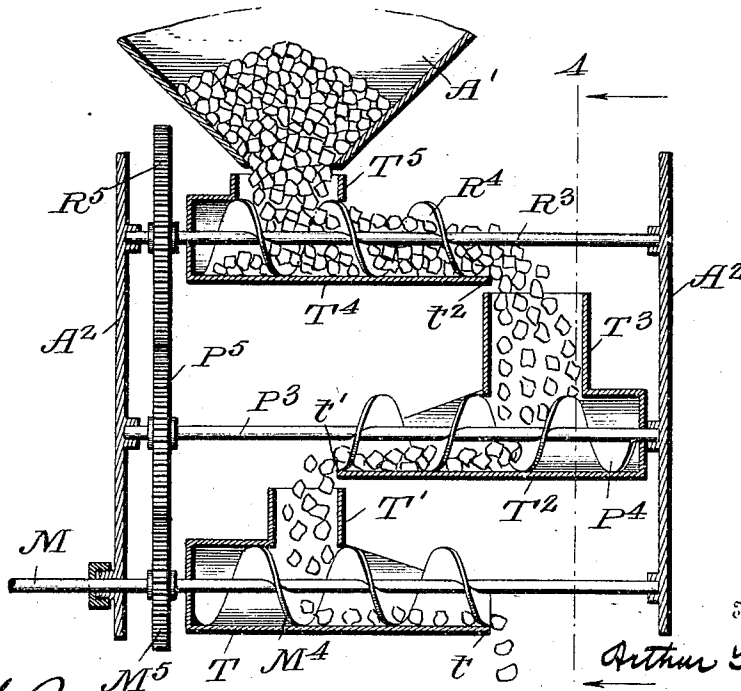
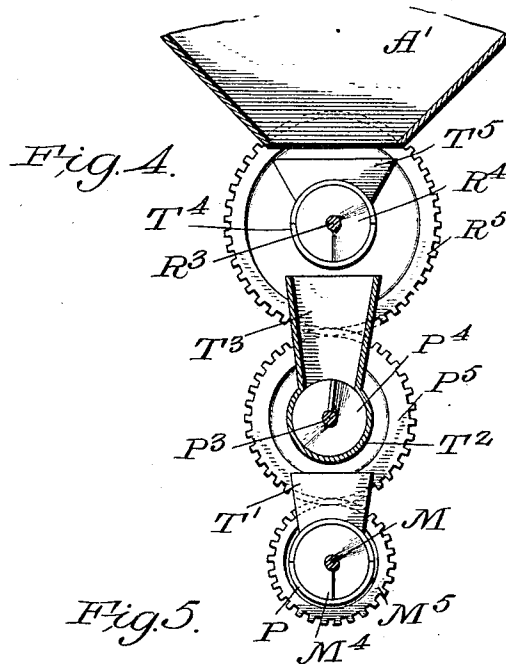
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3 SHEETS—SHEET 3.



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# UNITED STATES PATENT OFFICE.

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## ACETYLENE-GENERATOR.

SPECIFICATION forming part of Letters Patent No. 784,462, dated March 7, 1905.

Application filed April 12, 1904. Serial No. 202,811.

*To all whom it may concern:*

Be it known that I, ARTHUR YANCEY, a citizen of the United States, residing at Dermott, in the county of Chicot and State of Arkansas, have invented certain new and useful Improvements in Acetylene-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-generators, and more especially to that class of generators in which the carbid is fed to the water either in lump or granular form.

My invention consists of certain improved means for automatically feeding the carbid to the water in which a plurality of conveyers are employed, the said conveyers traveling at different speeds, whereby the carbid-feed is suitably regulated and the feed properly distributed.

My invention will be understood by reference to the accompanying drawings, in which the same parts are indicated by the same letters throughout the several views.

Figure 1 shows an embodiment of the invention in which a separate generator and gasometer are used and in which the carbid-feed is automatically controlled by the rise and fall of the gasometer. Fig. 2 shows a vertical section through the feeding device of Fig. 1, said section being in a plane parallel to the axis of the driving-shaft M. Fig. 3 shows a section along the line 3 3 of Fig. 2 looking in the direction of the arrows. Figs. 2 and 3 are on an enlarged scale. Figs. 4 and 5 show another form of the carbid-feeding device in which instead of endless carriers screw conveyers are employed. Fig. 4 shows a section along the line 4 4 of Fig. 5 and looking in the direction of the arrows.

Either form of conveyer-feed may be used in the apparatus shown in Fig. 1. Referring now to said figure, A represents the generator, provided with the hopper A', in which the carbid is placed, beneath which hopper there is a feeding-throat A<sup>2</sup>, in which are mounted a plurality of conveyers having differential

speeds, as will be hereinafter described. B represents the tank for the gasometer C, which tank is connected with the generator A by the pipe E in any suitable way, and a filter or purifier D may also be provided, which receives gas by the pipe F and carries it off to the place of consumption by the nipple d. d' is a pipe for the water seal of the filter. The gasometer C is provided with a series of anti-friction-rollers c, which engage the guide-rods H, which are connected together at the top by the cross-pieces H', from which are suspended the pulleys h and h', over which the rope I is rove, which rope is secured at one end to the top of the gasometer and is wound at the other end on the drum K, which is loose on the shaft M. This drum is provided with a ratchet h', which engages in the teeth k of the disk K<sup>2</sup>, which is fast on the shaft M and which disk forms a portion of one of the heads of the drum, about which disk the drum is free to revolve in one direction, but is held by the ratchet-and-pawl arrangement from turning in the opposite direction. The drum and the disk K<sup>2</sup> are connected together by the coil-spring K', which is under such tension as to wind the drum in the direction indicated by the arrow in Fig. 3, and thus take in the slack of the rope I as the gasometer rises; but when the gasometer falls the cord will revolve the drum in the opposite direction, and the ratchet and pawl being then in engagement the shaft M will turn with it and the series of conveyers will be operated, as will now be described.

In Figs. 2 and 3 the conveyers consist of three endless aprons N, Q, and S, which are driven at differential speeds by the sprocket-chain O, which engages the sprocket-wheel M'. This sprocket-chain O also passes over the sprocket-wheels P and R, and thus drive the shafts P' and R' with the sprocket-wheels P<sup>2</sup> and R<sup>2</sup>, which drive the carriers Q and S. These sprocket-wheels M', P, and R are preferably so proportioned that the speed of the conveyer S is less than that of the conveyer Q and the speed of the conveyer Q is less than that of the conveyer N, so that the carbid which is delivered from the conveyer S is

spread out in a thinner layer on the conveyer Q and the carbid on the conveyer N is spread in a still thinner layer than that on the conveyer Q. It will be obvious that the number of these conveyers may be increased indefinitely, and, moreover, it will be obvious that the speeds may be varied as desired by adjusting the diameters of the various sprocket-wheels which drive the conveyers. The tension of the spring K' may be adjusted either by turning the hand-crank M' when the hopper is empty or by lifting the pawl k' and turning the drum K by hand.

In the form of device shown in Figs. 4 and 5 I substitute for the endless aprons of Figs. 2 and 3 a series of screw conveyers, which also are preferably driven at differential speeds, the speed increasing toward the delivery end of the apparatus. Thus it will be seen that the shaft M is driven as already described with reference to Figs. 1 and 2 and turns the train of gearing consisting of the gear-wheels M<sup>5</sup>, P<sup>5</sup>, and R<sup>5</sup>, mounted, respectively, on the shafts M, P<sup>3</sup>, and R<sup>3</sup>, on which shafts are mounted screws M<sup>4</sup>, P<sup>4</sup>, and R<sup>4</sup>, mounted in the boxes T, T<sup>2</sup>, and T<sup>1</sup>, respectively. The box T<sup>4</sup> is fed through a large throat T<sup>5</sup> from the hopper A' and delivers the carbid over the edge t' into a smaller throat T<sup>3</sup>, and passing through the box T<sup>2</sup> it falls over the edge t' into the larger throat T<sup>1</sup>, whence it is delivered to the generator over the edge t.

It will be obvious that the number of the screw conveyers may be varied at will and that the speed of the various conveyers may be varied by varying the sizes of the gear-wheels M<sup>5</sup>, P<sup>5</sup>, and R<sup>5</sup>. It will be seen that I employ a series of linear conveyers, all located above the water, as distinguished from those rotary conveyers provided with pockets, one or more of which rotary conveyers may or may not dip down into the water. Moreover, it will be obvious that any other suitable form of gearing may be adopted whereby the screw conveyers may be driven at a differential speed.

It will be obvious that suitable hoods or screens may be placed where needed to prevent the aqueous vapor from the water in the generator from having too free access to the carbid; but these can be supplied by any one skilled in the art and are not illustrated in the drawings.

It will be obvious that various other modifications might be made in the herein-described invention, and various changes in the construction, combination, and the arrangement of parts might be adopted which could be used without departing from the spirit of my invention.

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

1. In a feeding apparatus for acetylene-generators, the combination of an open-bot-

tom hopper, movable means beneath the same to support the carbid to be fed, and movable means traveling faster than the first-named means and governed by the movement of the gas-bell, to spread out the carbid into a thin layer and deliver it slowly to the water, substantially as described.

2. In a feeding apparatus for acetylene-generators, the combination of an open-bottom hopper, movable means beneath the same to support the carbid, movable means traveling faster than the first-named means to spread out the carbid into a thin layer and deliver it slowly to the water, a gas-bell, and connections whereby said means are set in operation by the fall of the bell and stop on the rise of the bell, substantially as described.

3. A feeding apparatus for acetylene-generators, including a hopper open at the bottom, and a plurality of linear conveyers traveling at speeds progressively increasing from the hopper to the water, all located below said hopper and above the water in the generator, substantially as described.

4. In a feeding apparatus for acetylene-generators, the combination with the carbid-hopper open at the bottom, of a series of linear conveyers located beneath said hopper, one above the other, and all located above the water in the generator, and means for running said conveyers at speeds increasing progressively from the hopper to the water, substantially as described.

5. In a feeding apparatus for acetylene-generators, the combination with the carbid-hopper open at the bottom, of a series of linear conveyers located beneath said hopper, one above the other and all located above the water in the generator, and automatic means for driving said conveyers at speeds progressively increasing from the hopper to the water, substantially as described.

6. In a feeding apparatus for acetylene-generators, the combination with a carbid-hopper provided with an opening at the bottom, of a series of linear conveyers located beneath said hopper, one above the other and all located above the water in the generator with automatic means controlled by the generation of the gas for running said conveyers at progressively-increasing speeds, substantially as described.

7. In a feeding apparatus for acetylene-generators, the combination with a carbid-hopper, provided with an opening at the bottom, of a series of linear conveyers located beneath said hopper, one above the other and running in opposite directions, and all located above the water in the generator and mechanism controlled by the generation of the gas for running said conveyers at progressively-increasing speeds, substantially as described.

8. In an acetylene-generating apparatus, the combination with a gasometer and a generator, of a feeding device comprising a hopper, and

a plurality of conveyers, receiving the carbid from said hopper, and all located above the water in the generator, with a rope and drum operated by the rise and fall of said gasometer for imparting progressively-increasing speeds to said conveyers, substantially as described.

9. In an acetylene-generating apparatus, the combination with a gasometer and a generator, of a feeding device comprising a hopper, a series of linear conveyers receiving the carbid from said hopper, and running in reverse directions and all located above the water in the generator with automatic means comprising a rope and drum and a ratchet-and-pawl arrangement controlled by the generation of the gas for running said conveyers at progressively-increasing speeds, substantially as described.

10. In an acetylene-generating apparatus, the combination with a gasometer and a generator, of a feeding device comprising a hopper, and a plurality of linear conveyers, receiving the carbid from said hopper, and all located above the water in the generator, a rope connected to said gasometer, a drum, a spring in said drum, and a ratchet-and-pawl arrangement mounted on said drum, with mechanism operated by said drum for imparting progressively-increasing speeds to said conveyers, substantially as described.

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

ARTHUR YANCEY.

Witnesses:

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M. M. O'CONNOR.