A. DAVIS.

CARBID FEEDING DEVICE.

APPLICATION FILED MAR. 22, 1906.

928,853.

Patented July 20, 1909.

Fig. 1.

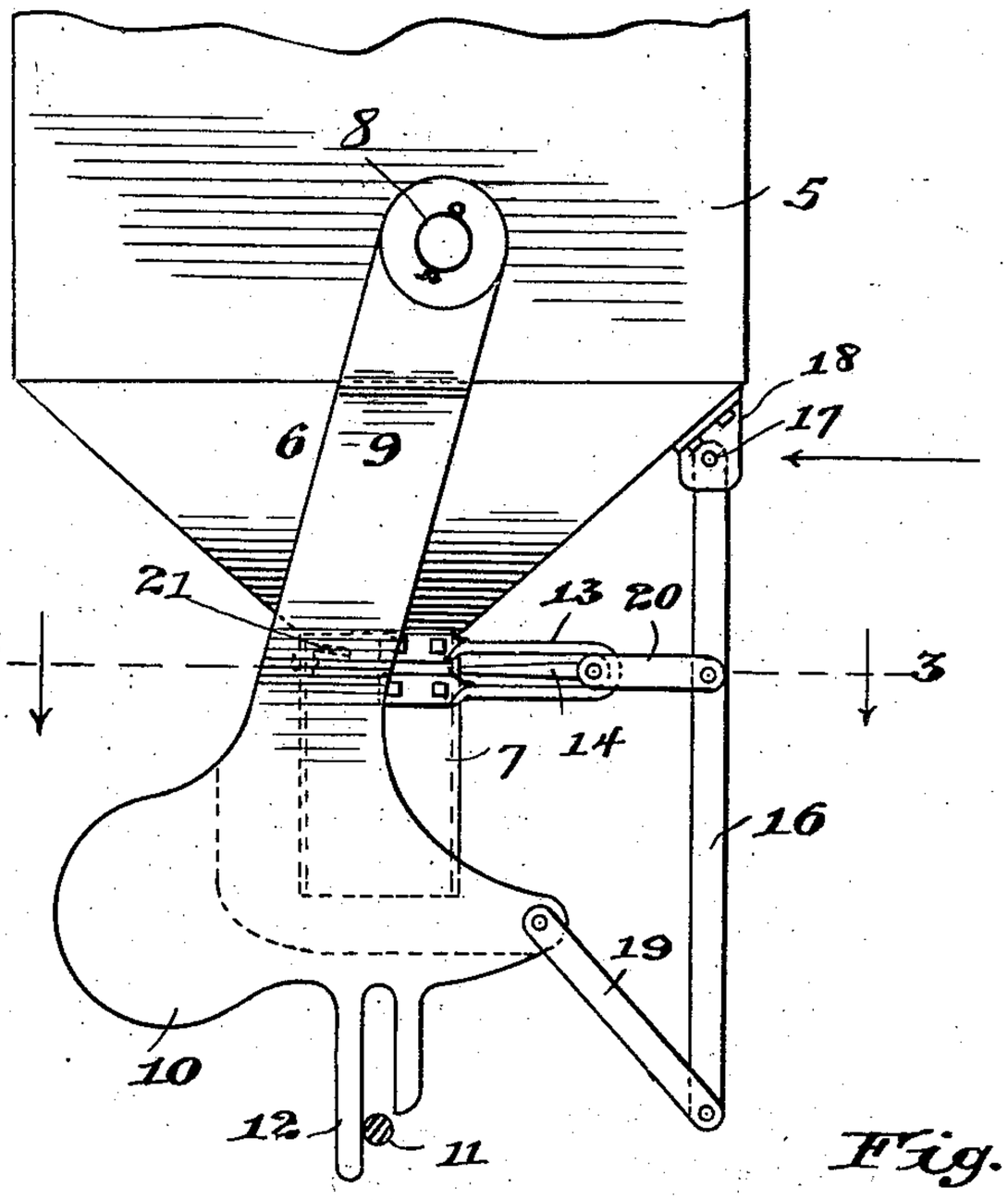


Fig. 2.

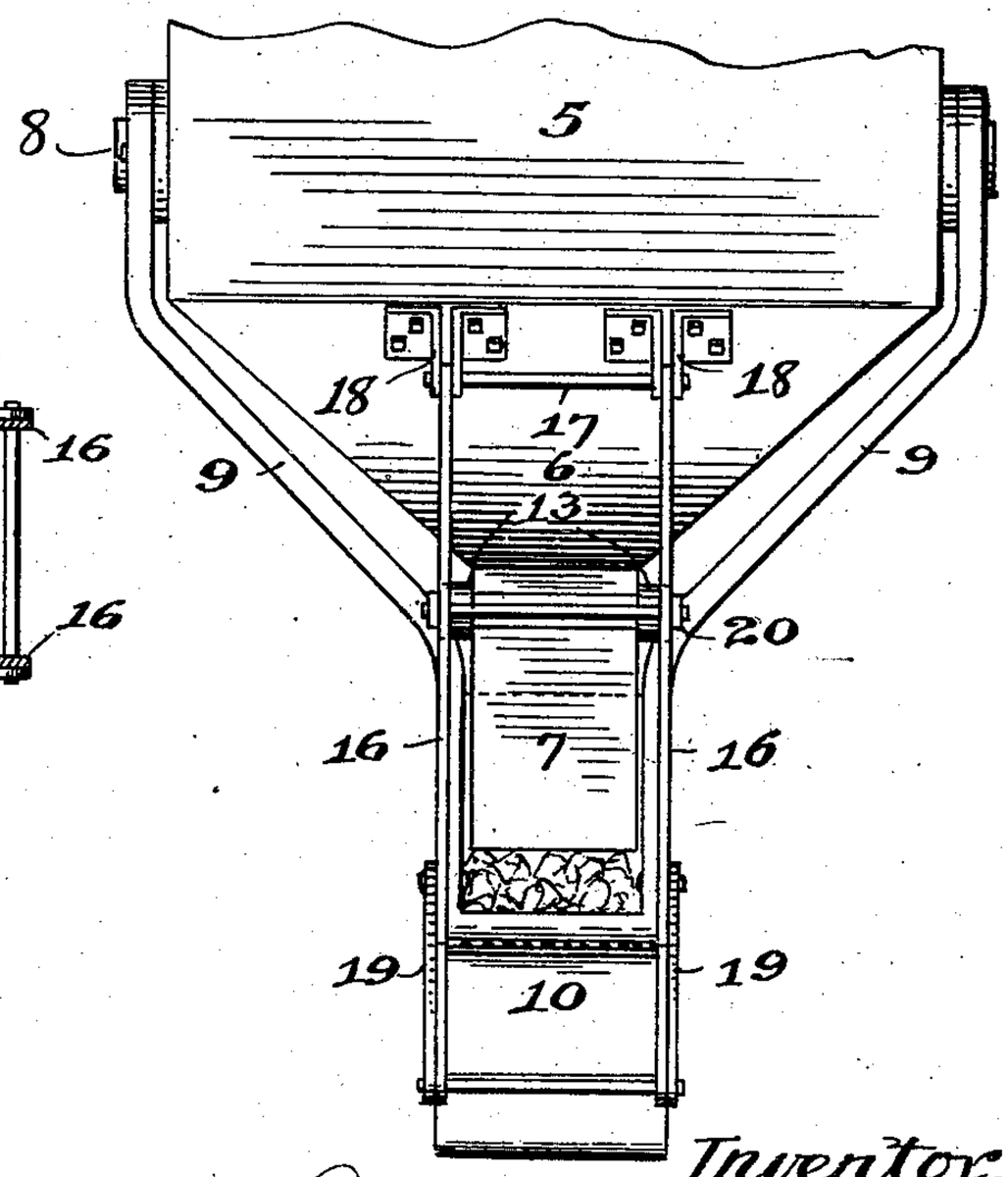
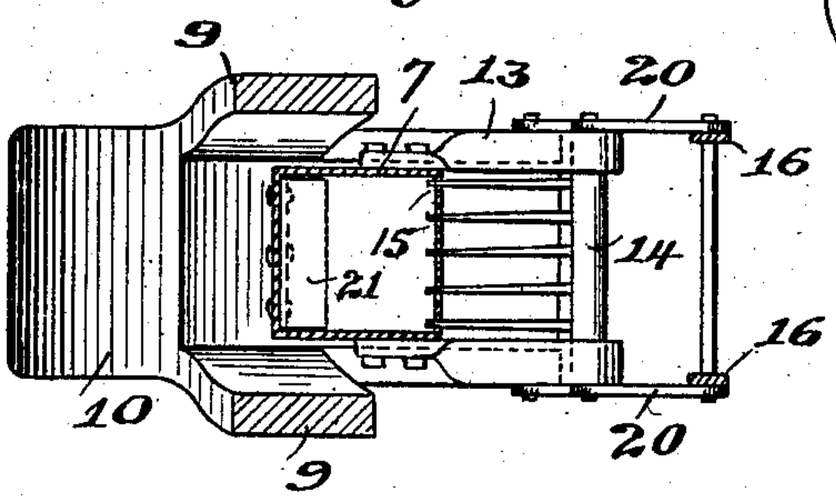


Fig. 3.



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UNITED STATES PATENT OFFICE.

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CARBID-FEEDING DEVICE.

No. 928,853. Specification of Letters Patent. Patented July 20, 1909.

Application filed March 22, 1906. Serial No. 307,467.

To all whom it may concern:

Be it known that I, AUGUSTINE DAVIS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Carbid-Feeding Devices, of which the following is a specification.

This invention relates to acetylene gas generators of that type wherein the carbid is fed in automatically-regulated quantities to the water; and pertains more especially to an improved device for controlling the discharge of the carbid.

Of late the desirability of so controlling the discharge of the carbid as to render impossible the accidental discharge of a large volume has become apparent, and in some localities underwriters have required that generators be equipped with means for preventing such accidental discharge as a prerequisite to the granting of permits for the operation of machines.

My invention has for its main object to provide a simple and automatic means for so controlling the discharge of the carbid as to prevent the accidental discharge of abnormally large quantities; minor objects being to effect an agitation of the carbid to prevent its choking at the throat of the receptacle and also to retain in the discharge-throat of the receptacle a sufficient quantity of carbid so that in case a portion thereof hydrates and becomes inert, there will remain a sufficient quantity of live carbid to insure the operation of the machine.

My invention is capable of and intended for application generally to generators of the type wherein the carbid is fed to the water; but for convenience of illustration I have herein shown the device as applied to a machine such as is shown in Letters Patent No. 675,376, granted June 4, 1901, to which patent reference may be had for a description and illustration of auxiliary parts not herein shown.

My invention, in one simple and practical embodiment thereof, is illustrated in the accompanying drawing, wherein,—

Figure 1 is a side elevation of the lower portion and throat of a carbid receptacle having my improvement applied thereto; Fig. 2 is an elevational view at right angles to Fig. 1, in the direction indicated by the arrow in the latter figure; and Fig. 3 is a cross-sectional view on the line 3—3 of Fig. 1, looking in the direction indicated by the arrows.

Referring to the drawings, 5 may designate a carbid-holder, having a flaring bottom 6 terminating in a discharge-throat 7, which latter is herein shown as rectangular in cross-section, although not necessarily so. Suitably pivoted to opposite side walls of the holder 5 as at 8 are a pair of suspension arms 9 supporting an integral shoe 10, which latter is adapted to swing to and fro across and slightly below the lower orifice of the discharge-throat 7, all as fully explained in my prior patent, No. 675,376, above referred to. As will be understood by reference to said patent, the carbid dropping through the throat 7 settles on the face of the shoe, and as the latter is swung by a bail 11 engaging a depending finger 12 of the shoe, the carbid drops off the forward edge of the shoe in a substantially uniform flow or feed into the body of water lying therebeneath. Now it will be seen that, should the shoe 10 be accidentally detained or held in its rearmost position, the weight of the carbid might cause the latter to flow in a practically unobstructed and abnormally large volume through the throat, resulting in the sudden generation of an abnormal pressure in the generator, the blowing out of the seals, and the escape of a large amount of gas and other consequent injurious results, all of which it is the primary purpose of the present invention to render impossible.

Referring now more particularly to those features which constitute my present improvements, 13 may designate each of a pair of slide-ways or guides secured to opposite sides of the throat 7 preferably near the upper end of the latter, in and between which is mounted a controller in the general nature of a slide, herein shown as having the form of a fork 14, the prongs of which enter the throat 7 in a direction transversely thereof through a series of apertures 15 (Fig. 3) in the side wall. This controller or slide is designed to be automatically actuated

from the movements of the shoe 10, a simple means which I have devised for this purpose comprising a pair of depending bars or strips 16 pivotally suspended at 17 from lugs or ears 18 secured to the flaring bottom of the holder, which bars are connected by pivot-links 19 at their lower ends to the sides of the shoe 10 and by other links 20 pivoted thereto intermediate their ends to the controller 14. All of the points of connection illustrated are pivotal, so that the bars and links can freely partake of the necessary angular movements essential to the operation of the device. To the inner wall of the throat 7, on the side opposite that through which the slide operates, and preferably slightly above the plane of the slide is preferably secured a relatively narrow ledge 21, the purpose of which will appear in connection with the description of the operation.

The parts are shown in Fig. 1 of the drawings in the positions which they occupy when the shoe is at the extreme of its inner or closing movement; and from the foregoing it will be seen that as the shoe is swung outwardly in a direction to uncover the throat 7, the prongs of the controller gradually enter the throat, piercing the body of carbid therein, more or less agitating and breaking up the latter, and, in the performance of their principal function, sustaining and retaining the superposed body of carbid against accidental discharge, while that portion of the carbid in the throat lying below the controller is fed to the water over the edge of the shoe, in a manner well understood. The parts are so proportioned and connected that, by the time the shoe has begun to uncover the lower end of the throat, the inner ends of the prongs of the controller have reached the inner edge of the ledge or bridge 21, so that the entire body of superposed carbid is supported and prevented from flowing through the throat; and as the shoe still further uncovers the lower end of the throat in its continued movement, the inner portions of the prongs pass idly beneath the ledge 21. It will also be seen that by locating the controller relatively high up on the discharge-throat, provision is made for the presence at all times below the controller of a body of carbid in such a volume that, even if the carbid lying on the shoe and in the lower end of the throat hydrates and becomes inert, there will nevertheless always be a sufficient body of live or unaffected carbid thereabove to insure continued operation of the machine. However, so far as the function of arresting and preventing accidental discharge of abnormal volumes of carbid is concerned, the particular location of the controller relatively to the throat is immaterial, and hence the particular location herein shown and described is to be understood as representing only the preferred arrangement. It is also evident that the controller might be located, if desired, still higher up in or across the flaring bottom of the holder.

While I have illustrated but a single embodiment of my invention, it will be understood that numerous modifications and changes in respect to details of construction and relative arrangement of parts might be made by those skilled in the art without departing from the principle of the invention or sacrificing any of the advantages thereof. Hence the invention is not limited to the construction shown and described, except to the extent indicated in specific claims.

I claim:

1. In a carbid feed mechanism, the combination with a carbid holder having a vertical discharge throat, of a feed-shoe pivotally mounted beneath and across the lower open end of said throat and adapted to receive the carbid therefrom and discharge the same in quantities substantially proportional to the swinging movement of said feed-shoe, a forked slide adapted to reciprocate across said throat above the lower end of the latter, and connections between said feed-shoe and slide whereby an outward movement of said feed-shoe in a direction to partially open the lower end of said throat positively effects an inward or closing movement of said slide, and vice versa.

2. In a carbid-feed mechanism, the combination with a carbid holder having a discharge throat, and feeding mechanism beneath the lower open end of said throat, of a slide adapted to reciprocate across said throat above the lower end of the latter, a fixed projection extending partially across said throat opposite said slide, and connections between said feeding mechanism and said slide whereby the opening movement of the former effects the closing movement of the latter, and vice versa.

3. In a carbid feed mechanism, the combination with a carbid holder having a discharge throat, and a pivotally suspended feed-shoe lying beneath the lower open end of said throat, of a forked slide reciprocable across said throat through a side wall thereof, a strip pivotally suspended from the carbid holder, a link pivotally connecting said strip with said feed-shoe, and another link pivotally connecting said strip with said forked slide.

4. In a carbid feeding mechanism, the combination with a carbid holder provided with a discharge throat having an apertured vertical side wall and an open lower end, of a pivoted feed shoe mounted to oscillate across the lower end of said discharge throat and

distribute carbid falling through the latter, a carbid-controlling device in the form of a fork the prongs whereof are rigidly connected and adapted to reciprocate transversely of the throat through the apertured side wall thereof, and lever and link connections between said feed-shoe and controlling device through which the latter is positively actuated in both its inward and outward movements, substantially as described.

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