N. GOODYEAR.

FEEDING APPARATUS FOR ACETYLENE GENERATORS.

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Fig. 2.

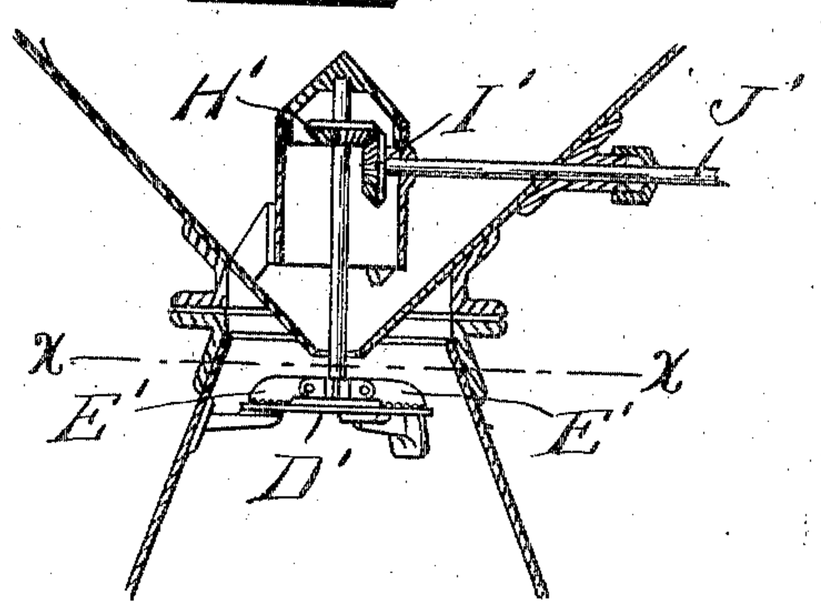


Fig. 3.

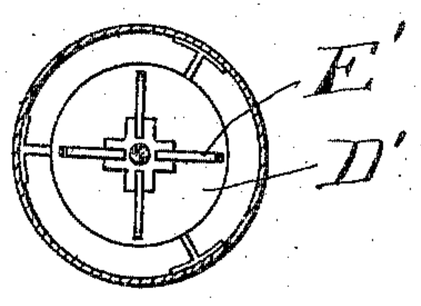
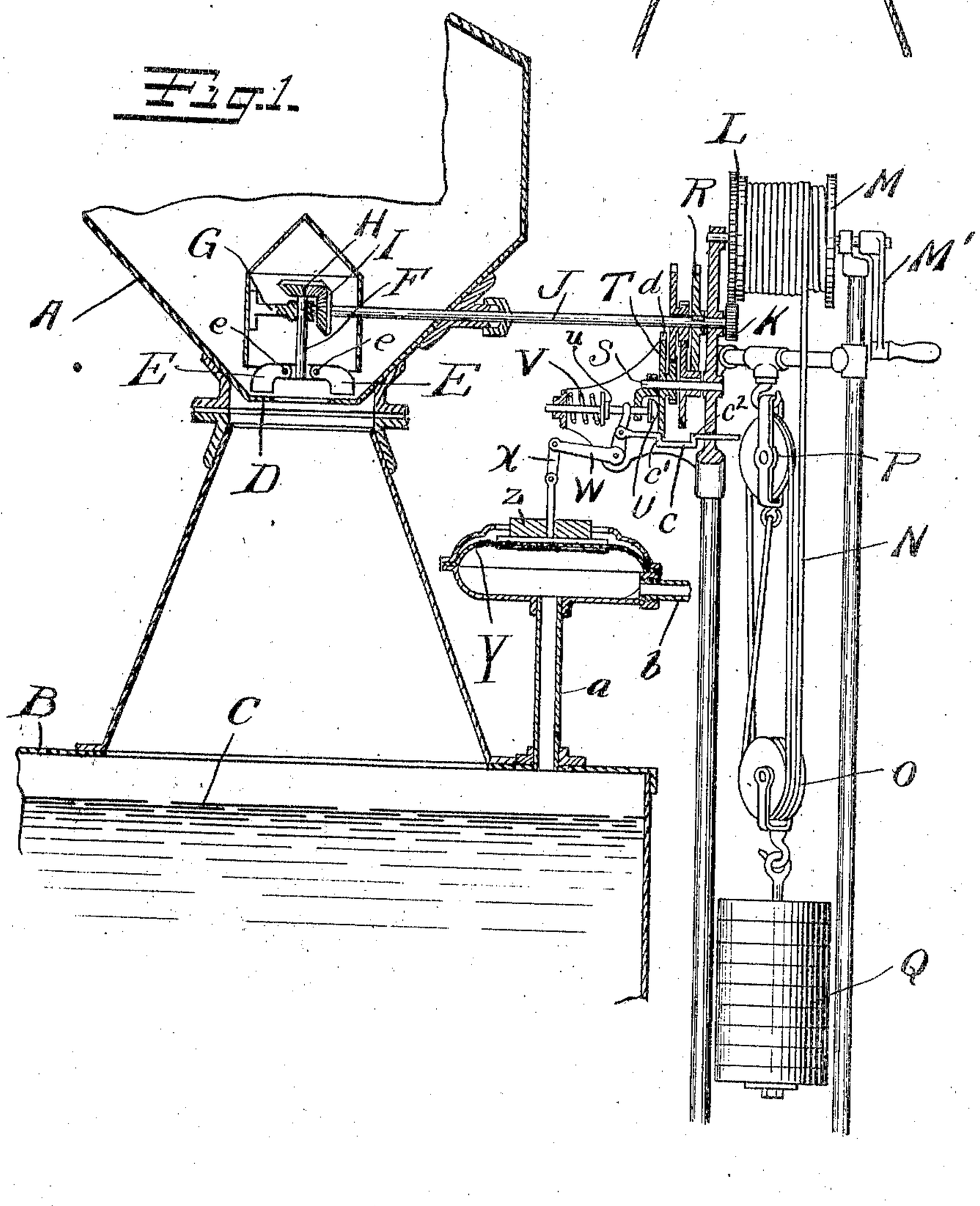


Fig. 1.



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UNITED STATES PATENT OFFICE.

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FEEDING APPARATUS FOR ACETYLENE-GENERATORS.

967,184. Specification of Letters Patent. Patented Aug. 16, 1910.

Application filed March 10, 1908. Serial No. 420,180.

To all whom it may concern:

Be it known that I, NELSON GOODYEAR, a citizen of the United States, residing at New York, county and State of New York, have invented certain new and useful Improvements in Feeding Apparatus for Acetylene-Generators, of which the following is a full, clear, and exact description.

My invention relates to feeding apparatus for acetylene generators, and has for its object to provide a new and improved means for feeding carbid.

It further has for its object to provide means for feeding what is known as lump carbid, that is, carbid which is in rather coarse form as distinguished from pulverized carbid heretofore largely used in acetylene gas generators.

My apparatus is adapted to feed carbid of all sizes, but is particularly valuable in that it can be used in connection with lump carbid.

Another object of my invention is to provide an apparatus for feeding lump carbid in which the carbid is contained within a hopper and discharged directly therefrom through a small opening into the water beneath it, the advantage being that on account of the small opening the carbid within the hopper is very much less subject to hygroscopic action. The carbid is discharged piece by piece substantially continuously so long as the movement of the operating mechanism goes on, thus insuring a substantially continuous feed which maintains the pressure of the gas within the generator substantially constant.

Another object of my invention is to do away with the need of a gasometer for maintaining a substantially constant pressure by employing a motor controlled by the gas pressure, thus reducing the expense and enabling the installation of the apparatus in a smaller space, and also doing away with the water seal and other features of a gasometer which require attention and are liable to cause trouble.

My invention also has for its object to provide a power-driven feeding apparatus in which the power is supplied independently of the gas pressure, but the movement is controlled by said pressure.

Another object of my invention is to control the feeding apparatus by both a positive stop and a friction brake, the positive stop being removed before the friction brake is removed upon starting the motor, and conversely the friction brake being applied before the positive stop is applied upon stopping the motor.

Another object of my invention is to provide a means for stopping the feeding apparatus in case for any reason the gas pressure falls below a predetermined amount, which condition is liable to arise either when the carbid entirely runs out of the hopper or the gas escapes on account of the disruption of some part.

Referring more particularly to the drawings, Figure 1 is an elevation of my apparatus partly in section. Fig. 2 is another form of one portion thereof. Fig. 3 is a section on the line X—X Fig. 2.

Referring more particularly to the drawings, A is the hopper in which the carbid is contained, the same being hermetically sealed after the carbid is placed therein. B is the tank containing the water C into which the carbid falls. The hopper A is provided with a flange D at its bottom, over which is revolved a scraper having wings E pivoted at *e* to a revolving shaft F, supported in a bearing G. This shaft carries a bevel pinion H which meshes with a bevel pinion I mounted on the shaft J. This shaft is driven by a gear K meshing with a gear L upon the drum M, on which is wound the cable N passing through blocks O—P.

Q are weights connected to the pulley O and tending to cause the cable N to unwind from the drum M and thus cause it and the gears L—K and shaft J to revolve, thus causing the shaft F and scraper wings E to revolve. The cable N is wound up by the crank M′.

Secured to the shaft J is a gear R, which, through a train of gears loosely mounted upon the shaft J and the shaft S, causes a brake disk T to revolve. Against one face of the disk T is a shoe U, which is pressed against the disk by a spring V. This brake is controlled by a bell crank W, which is connected by a link X to a diaphragm Y, upon which rests a weight Z. The chamber beneath the diaphragm is connected by a pipe *a* to the interior of the tank B, so that the pressure within the tank B is exerted upon the under side of the piston Y. A discharge pipe *b* leads to the burners to be supplied. Connected to the bell crank W is a

double-acting stop c having two shoulders c' c^2 which engage notches d in the brake-disk T. The left hand projection c' of the stop c enters one of these notches d when the pressure becomes abnormally large, so that it is desirable to stop the mechanism and thereby stop the further feeding and further generation of gas, as for instance when the burners are all closed. The right hand projection c^2 on the stop c enters one of the recesses d when the pressure becomes abnormally low, as for instance upon the failure of the carbid or upon the disruption of some part of the apparatus, the diaphragm Y becoming depressed under such circumstances until the stop c is pulled to the extreme position in the left. In either case the feeding mechanism is brought to a standstill under conditions such that further feeding is undesirable.

A hood H^2 protects the gears H—I from the carbid in the hopper A.

The operation is as follows: Carbid of any size that will pass to the scraper wings E is placed in the hopper A and the hopper closed in the ordinary manner. If enough carbid does not fall into the tank to generate pressure sufficient to raise the diaphragm Y so as to release the shoulder c^2 of the catch c from the stop wheel T, the lever W is moved by hand until such release takes place. The drum M thereupon revolves and the scraper forces carbid from the flange D into the tank so as to generate the required pressure. As the pressure increases the diaphragm Y is raised until the bell crank disengages the abutment u and the friction brake U is applied, and under certain conditions until the stop shoulder c' engages a recess d on the disk T. If the pressure falls the shoulder c' is withdrawn and the apparatus starts up. If the pressure falls abnormally the shoulder c^2 is brought into engagement with a recess d stopping the mechanism under this condition also until the cause of the abnormal fall is removed. The machine is thus always under control, and the control is automatic, being dependent upon the pressure of the generated gas within the generating chamber.

Another form of certain portions of the feeding apparatus is shown in Figs. 2 and 3. In this form E′ are the wings of the scraper which cause carbid to fall from a rest D′ into the tank. The scraper is driven by gears H′ I′ through a shaft J′ corresponding to the shaft J of Fig. 1. While such an arrangement can be substituted for the hopper and scraper of Fig. 1, the construction of Fig. 1 is preferable in that the carbid is more largely confined to the hopper and is thus less subject to hygroscopic action.

What I claim is:

1. In a carbid generator, the combination of a feed mechanism having a revolving member, an independently driven motive device for actuating said member, a brake disk, a spring-pressed friction brake tending to bear thereon, a positive stop adapted to engage a moving portion of the motive device and having a lost motion connection with said friction brake, said brake and said stop constituting checking means, and a movable wall subjected to varying pressure of gas generated by the generator and operatively connected to one of said checking means.

2. In a carbid generator, the combination of a feed mechanism having a revolving member, an independently driven motive device for actuating said member, a brake disk, a spring-pressed friction brake tending to bear thereon, a positive stop adapted to engage a moving portion of the motive device when abnormally moved in one direction upon an abnormal fall in pressure and having a lost motion connection with said friction brake said brake and said stop constituting checking means, and a movable wall subjected to varying pressure of gas generated by the generator and operatively connected to one of said checking means.

3. In a carbid generator, the combination of a feed mechanism having a revolving member, an independently driven motive device for actuating said member, a brake disk, a spring-pressed friction brake tending to bear thereon, a positive stop adapted to engage a moving portion of the motive device when abnormally moved in one direction upon an abnormal rise in pressure and having a lost motion connection with said friction brake, said brake and said stop constituting checking means, and a movable wall subjected to varying pressure of gas generated by the generator and operatively connected to one of said checking means.

4. In a carbid generator, the combination of a feed mechanism having a revolving member, an independently driven motive device for actuating said member, a brake disk, a spring-pressed friction brake tending to bear thereon, a positive stop adapted to engage a moving portion of the motive device when abnormally moved in either direction upon abnormal pressures and having a lost motion connection with said friction brake, said brake and said stop constituting checking means, and a movable wall subjected to varying pressure of gas generated by the generator and operatively connected to one of said checking means.

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Witnesses:
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