

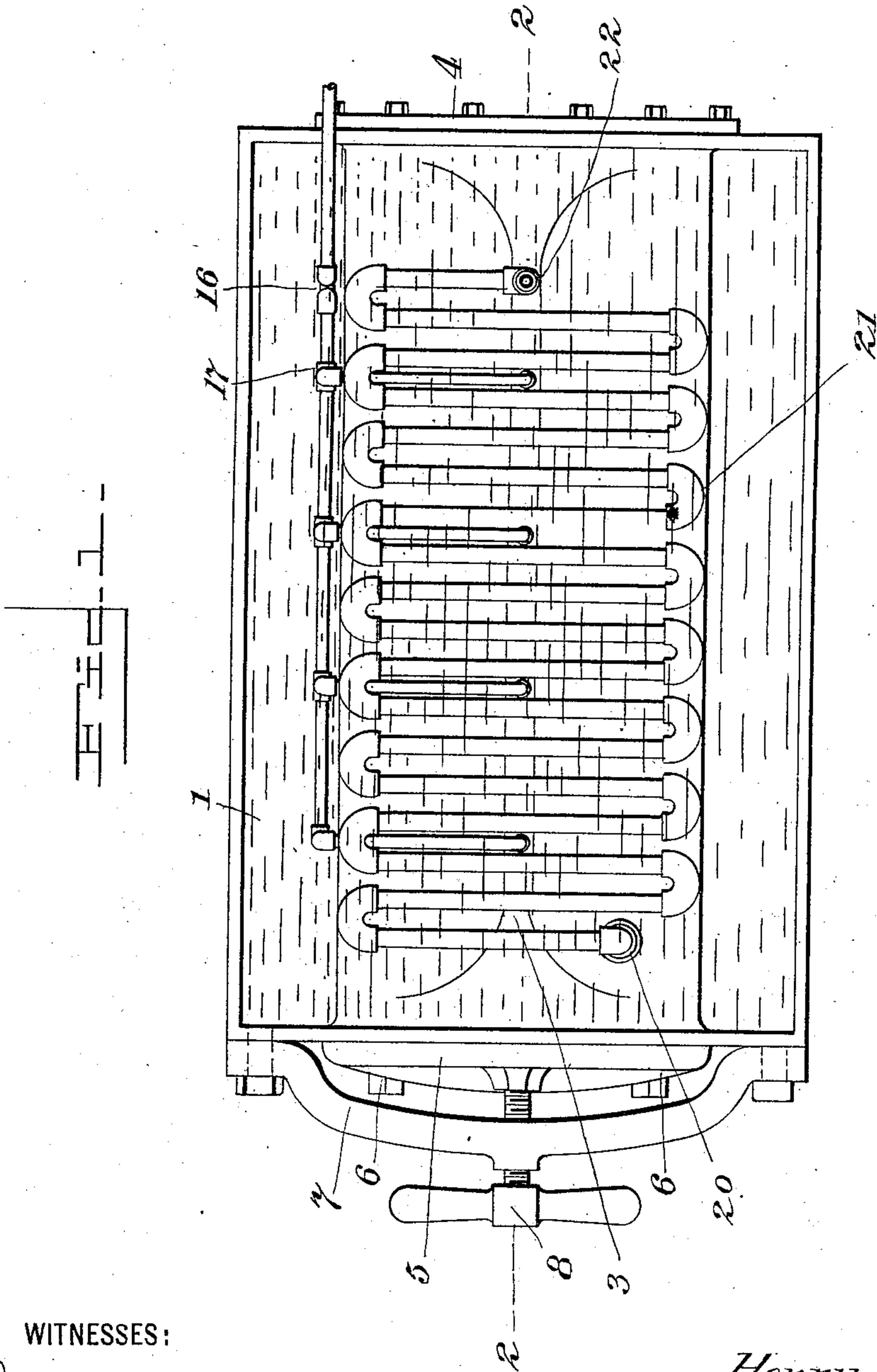
(No Model.)

3 Sheets—Sheet 1.

H. C. SERGEANT.
GENERATOR FOR MAKING ACETYLENE GAS.

No. 576,826.

Patented Feb. 9, 1897.



WITNESSES:

M. V. Bidgood
W. H. Humphrey

INVENTOR,
Henry C. Sergeant

BY *Fright Bros.*

ATTORNEYS

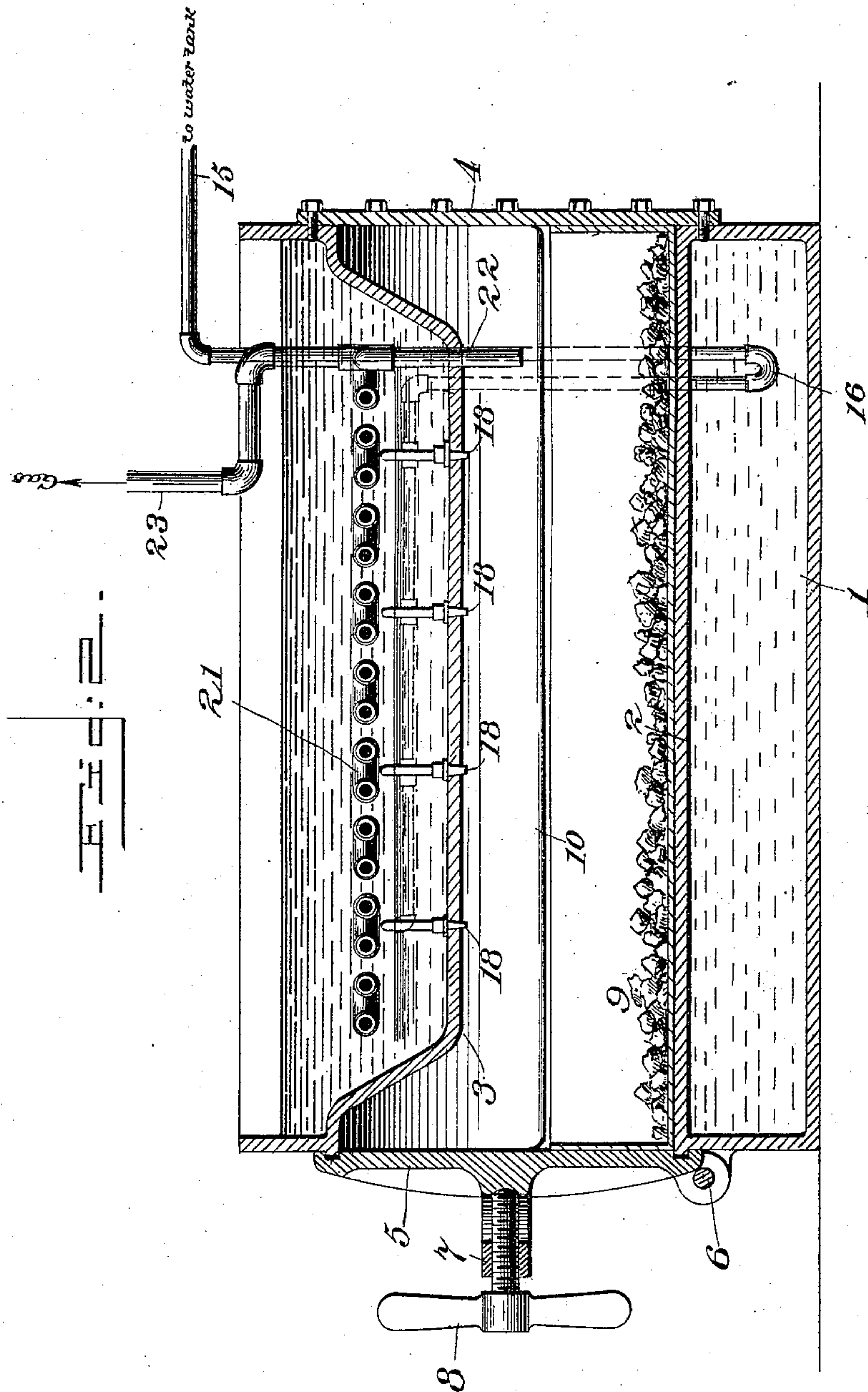
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WITNESSES:

J. V. Bidgood
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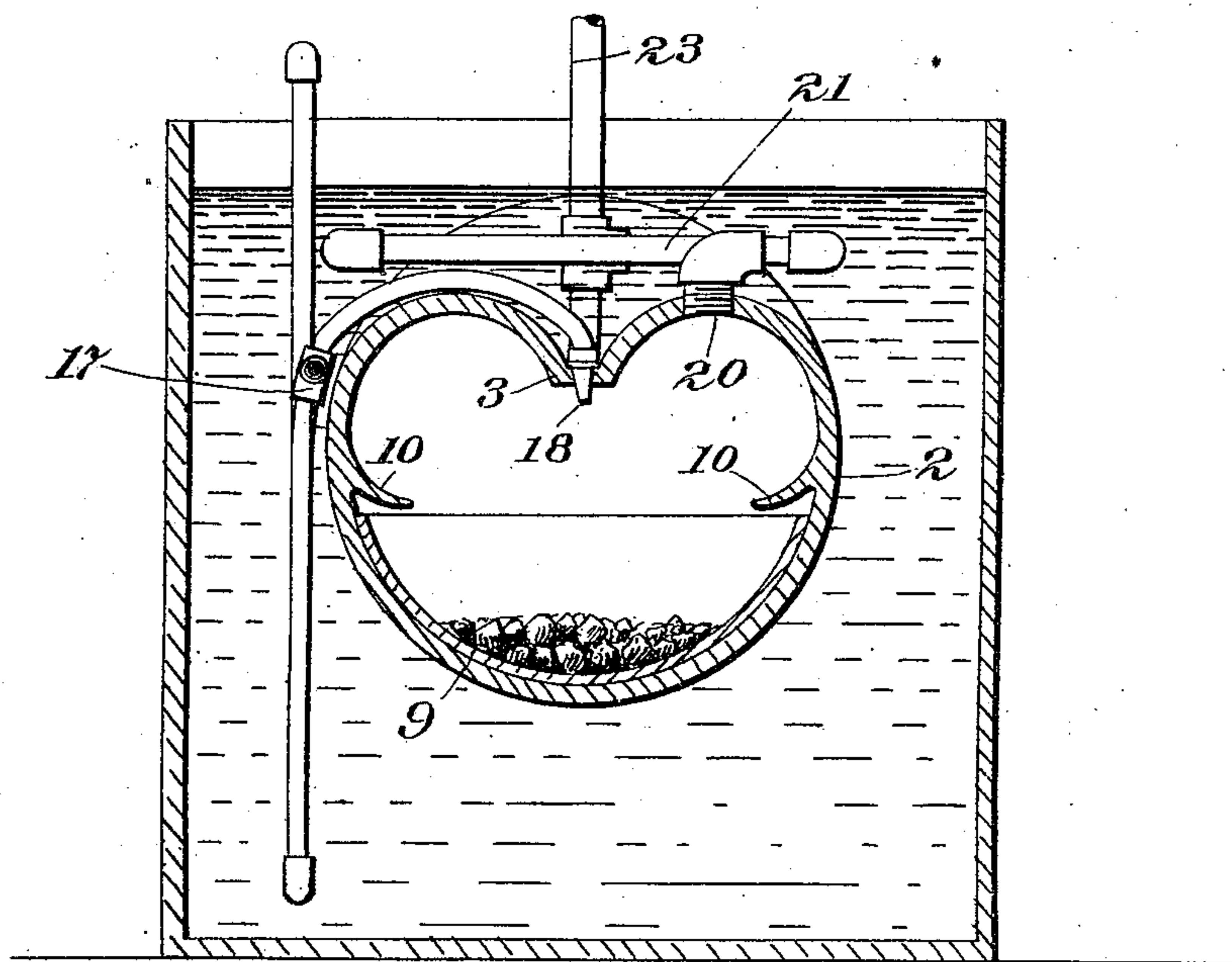
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Fig. 3.



WITNESSES:

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UNITED STATES PATENT OFFICE.

HENRY C. SERGEANT, OF WESTFIELD, NEW JERSEY.

GENERATOR FOR MAKING ACETYLENE GAS.

SPECIFICATION forming part of Letters Patent No. 576,826, dated February 9, 1897.

Application filed March 13, 1896. Serial No. 583,017. (No model.)

To all whom it may concern:

Be it known that I, HENRY C. SERGEANT, a citizen of the United States, residing at Westfield, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Generators for Making Acetylene Gas, of which the following is a specification.

The object of my invention is to improve the construction and efficiency of generators for making acetylene gas designed, primarily, for home use. In this class of gas-generators it is essential that the retort be provided with a removable pan, into which the calcium carbide is placed. Some trouble has been experienced by reason of the condensed vapors dropping between the pan and walls of the retort. This objection is partly obviated by the overhanging sides or projecting lips covered by my allowed application, Serial No. 561,535, filed September 5, 1895, patented June 16, 1896, No. 562,040. I propose to further obviate this difficulty by forming the retort with a central longitudinal depression which will tend to convey part of the condensed vapor into the pan and which will also reduce the objectionable air-space above the pan. The retort has preferably a general cylindrical outline with the central longitudinal depression and the divided curved top wall curving over and uniting with the side walls. The water for the generation of the gas from the calcium carbide is supplied from a series of nozzles or tubes entering the retort along the central depressed portion and connected with a common supply-pipe through short branch pipes which curve over one-half of the upper wall of the retort. The branch pipes are all detachably connected to the retort and main supply in order that any one can be separately removed for repair. A water seal is also preferably provided in the water-supply pipe. I provide a condenser coil or worm above the retort, connected at one end to a large gas-outlet and at the other end to a small opening for the return of the condensed vapor. The large gas-outlet opening is formed in one of the highest points of the curved top portions of the retort, while the condensation-return opening is formed in the depressed portion in line with the water-supply nozzles. The gas-supply pipe ex-

tends from the end of the condenser-coil to any suitable gas-holder. The retort and connecting-pipes are normally submerged in water contained in a box or casing which surrounds them.

In order that my invention may be fully understood, I will first describe the same with reference to the accompanying drawings and afterward point out the novelty with more particularity in the accompanying claims.

In said drawings, Figure 1 is a plan view of my improved gas-generator, part being shown in section. Fig. 2 is a longitudinal sectional view of the same, taken on the line 2 2 of Fig. 1. Fig. 3 is a transverse sectional view of the same.

1 is a box or receptacle, and 2 is the retort, located centrally within the box and of general cylindrical outline, and having the central longitudinal depression 3 in its top. The top wall of the retort curves upwardly from the central depression 3 to unite with the side walls. The retort has a stationary head 4 at one end and a removable head or door 5 at the opposite end. The door 5 is preferably hinged at 6 and provided with a securing-yoke 7 and screw 8.

9 is the removable carbide-pan, fitting closely in the bottom of the retort 2 beneath the overhanging lips 10. The central depression of the retort serves to reduce the capacity of the air-space above the pan and assists in returning the condensed moisture to the pan and preventing it getting between the pan and the bottom of the retort.

15 is the water-supply pipe, formed with the water-seal bend 16 and the horizontal extension 17, which extends alongside of the retort 2 adjacent to the top.

18 are water-supply nozzles or pipes projecting through the wall of the retort along the line of the central depression, and 19 are short branch pipes curved to follow the curved section of the top wall of the retort and detachably connected to the pipe 17 and to the nozzles 18 in order that any section can be readily removed without disturbing the other pipes. The nozzles 18 supply small streams or jets of water to the carbide in the pan 9 for generating the gas.

20 is the gas-outlet in one of the curved top sections of the retort, communicating with a

condenser 21, which winds back and forth from end to end above the retort.

22 is an inlet in the depressed portion 3 of the retort, communicating with the condenser 21 and adapted to return the condensed moisture to the retort therefrom.

23 is the gas-pipe leading from the end of the condenser to any suitable gas-holder. (Not shown.)

10 The receptacle 1 is filled with water, so as to completely surround the retort and gas and water pipes. A charge of calcium carbide having been placed in the pan 9 and the door 5 being securely fastened, a certain quantity of water is supplied through the water-pipe 15 and branch pipes 19. The water will drip upon the calcium carbide and generate the gas. The gas passes out through the outlet 20 into the condenser 21, and as the condenser is sub-merged any moisture contained in the gas will be condensed, and when it gets to the coupling at the end of the condenser-coil the condensed moisture will run through return-pipe 22 back into the calcium-carbide pan while 25 the gas passes on to the gas-holder. The condensation-return pipe 22 is so much smaller than the gas-outlet 20 that the flow of gas through the condenser will not be interfered with.

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

1. A gas-retort having a longitudinal depression in its top, in combination with wa-

ter-supply pipes entering the retort in the de- pressed portion, a gas-outlet pipe communi- cating with the retort at one of the highest points of the top wall, and a water chamber or jacket inclosing the retort and condenser-coil substantially as set forth.

2. A gas-retort having a central longitudinal depression in its top, a removable pan, water-supply pipes or nozzles entering the retort in its depressed portion, gas-outlet and condensed-moisture inlet in the top wall of the retort, a condenser-coil communicating with the gas-outlet and condensed-moisture-inlet openings in the top wall of the retort, a gas-pipe leading from the condenser and a water chamber or jacket completely surround- ing the retort and condenser-coil, substan- tially as set forth.

3. The combination of the retort having a central depression and curved top walls and sides, the water-supply pipe extending along- side of the retort, the water-supply nozzles en- tering the retort in its depressed portion, curved branch pipes leading from the water- supply pipe to the nozzles and curving over the curved top of the retort, a gas-outlet pipe communicating with the retort in its curved top wall and a water-jacket completely sur- rounding the retort, as set forth.

HENRY C. SERGEANT.

Witnesses:

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J. GREEN.