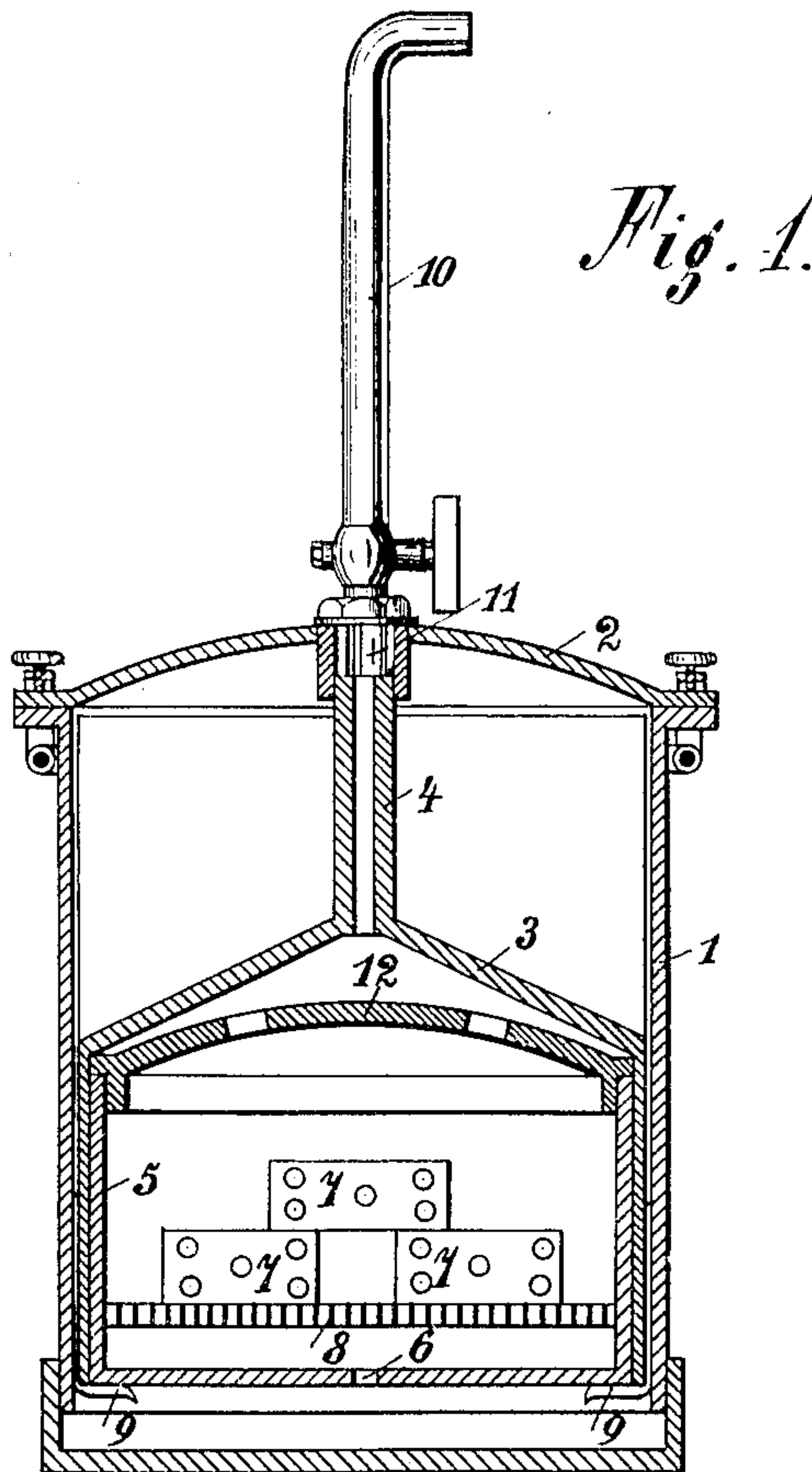


No. 869,719.

PATENTED OCT. 29, 1907.

J. MARGRETH.
ACETYLENE GAS GENERATOR.
APPLICATION FILED NOV. 28, 1904.

2 SHEETS—SHEET 1.



Witnesses:
Stephen Lineta
W. Max. Small

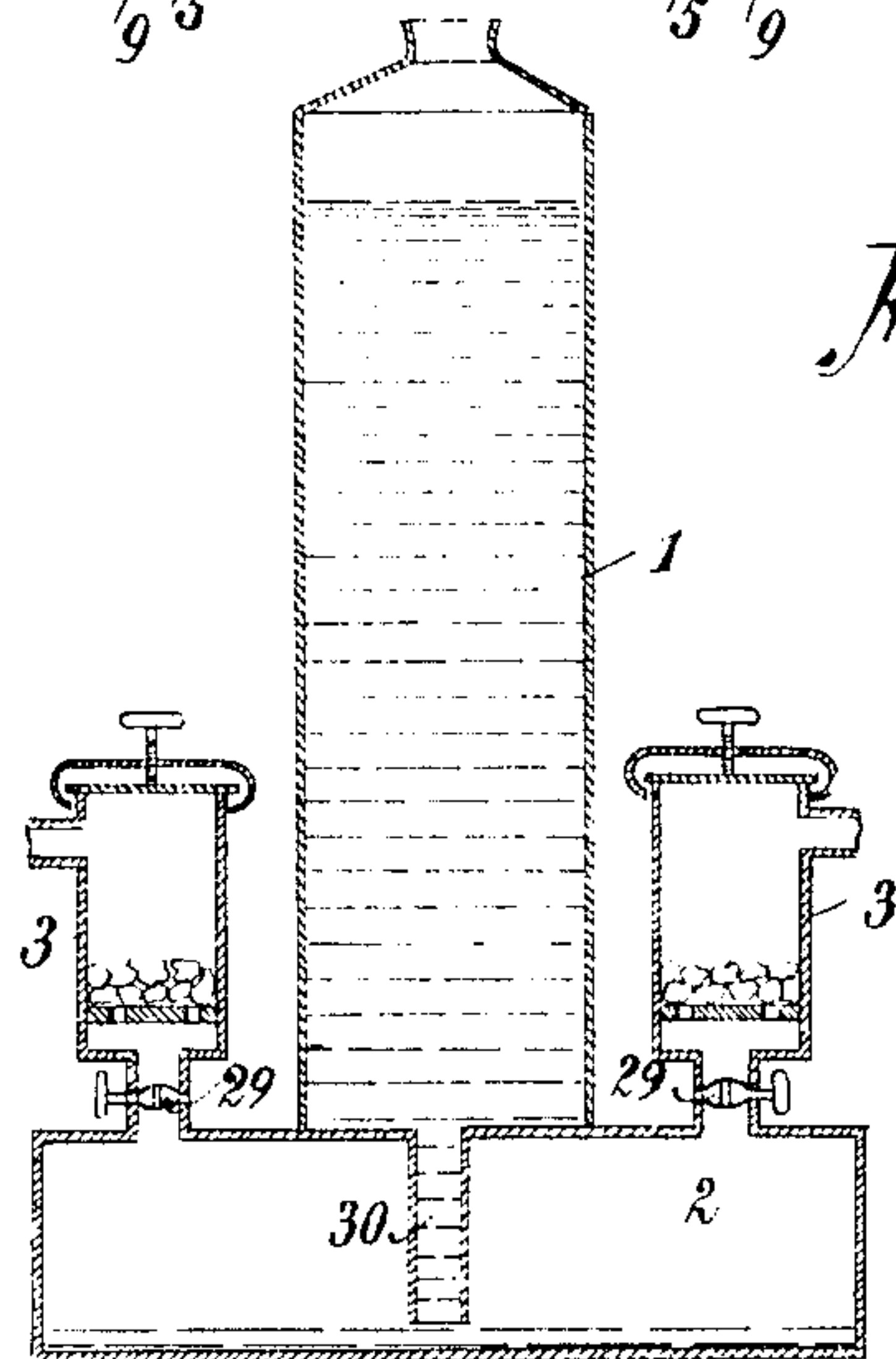
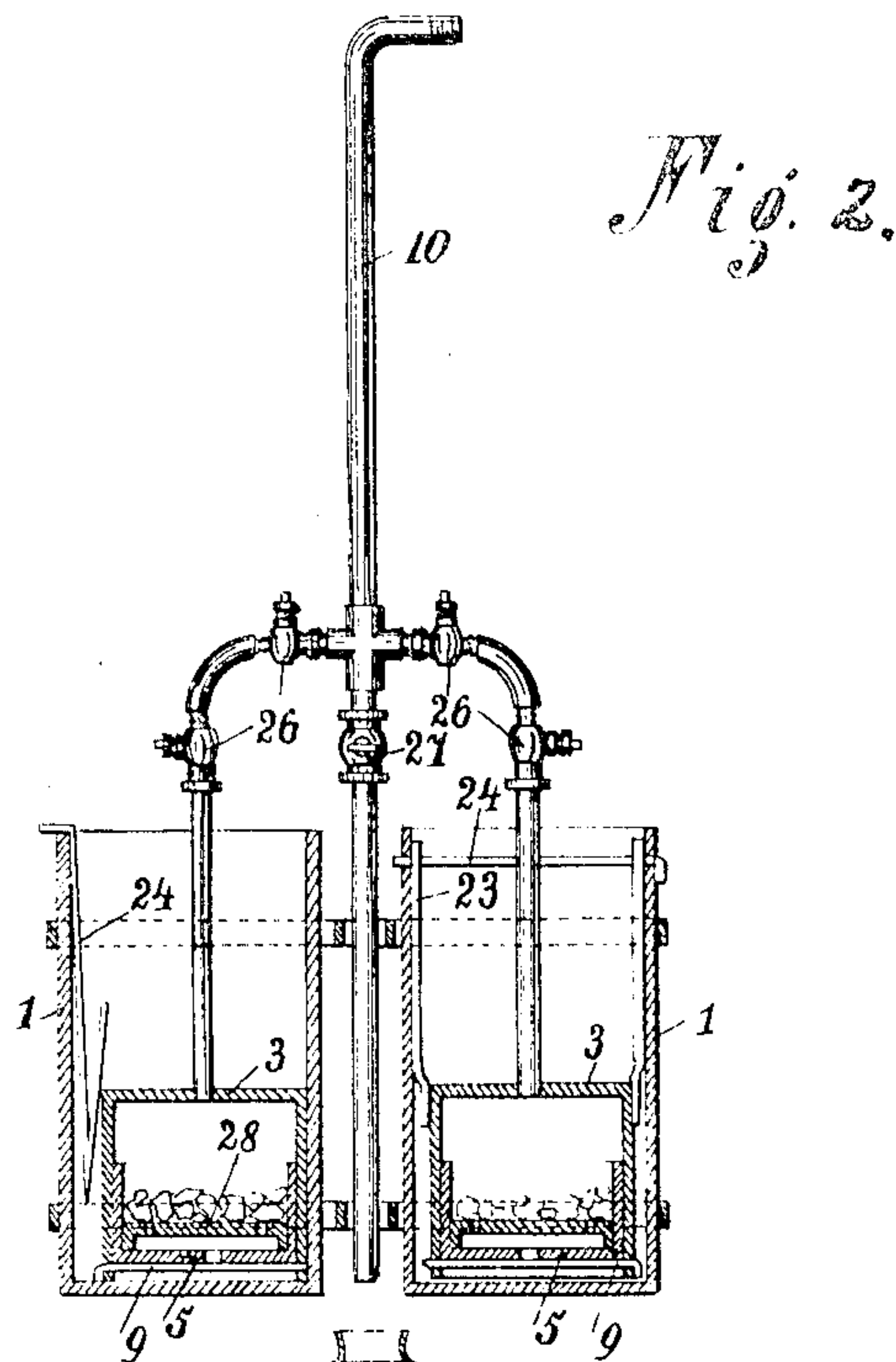
Inventor:
J. Margreth
By Wilkinson & Fisher
his Attorneys

No. 869,719.

PATENTED OCT. 29, 1907.

J. MARGRETH.
ACETYLENE GAS GENERATOR.
APPLICATION FILED NOV. 28, 1904.

2 SHEETS—SHEET 2.



Witnesses:
Stephen Ginstel
H. Max. Dorell

Inventor:
J. Margreth
W. Wilkinson & Jones
his Attorneys.

UNITED STATES PATENT OFFICE.

JOSEPH MARGRETH, OF BERGEDORF, NEAR HAMBURG, GERMANY.

ACETYLENE-GAS GENERATOR.

No. 869,719.

Specification of Letters Patent.

Patented Oct. 29, 1907.

Application filed November 28, 1904. Serial No. 234,554.

To all whom it may concern:

Be it known that I, JOSEPH MARGRETH, manufacturer, a citizen of Switzerland, and resident of Berge-
dorf, near Hamburg, Germany, have invented new and
5 useful Improvements in Acetylene-Gas Generators, of
which the following is a specification.

This invention relates to acetylene storm lamps
which are primarily designed for use in effecting an
economical and abundant illumination of large indus-
10 trial installations and the like and can also be used to
advantage for illuminating the permanent way of rail-
ways and the like in case of repairs and salvage opera-
tions. The new lamp may also be employed further
for fire brigade purposes in clearing up operations,
15 in building bridges, in foundries, in tunnel construc-
tions, etc. The improved lamp may also be made to
give out several thousand candle power and can be
set in operation in the fraction of a minute. An essen-
tial advantage of the new lamp consists in its extreme
20 simplicity and capacity to withstand the weather.

The essence of the invention consists in producing
a very high gas pressure, and causing the gas to issue
in one or more parallel jets from the burner with such
a high velocity that the velocity of ignition of the gas
25 is less than the velocity of exit.

Various practical forms of lamps according to this
invention are illustrated by way of example in the ac-
companying drawings in which

Figure 1 is a longitudinal section through the im-
30 proved lamp; Figs. 2 and 3 are sections of modified
forms of the generator.

The improved acetylene generator consists of the
water vessel 1 which is closed by removable cover 2.
In the water vessel there is arranged a gas bell 3 with
35 a gas outlet pipe 4. In the bell 3 there is inserted a
vessel 5 which has in its bottom an aperture 6 through
which the water reaches the carbid. The carbid car-
tridges 7 rest upon a grating 8 which is arranged in the
vessel 5 a few centimeters away from the bottom. The
40 vessel 5 is closed by a cover formed with holes or it may
be entirely open at the top. Right-angled springs,
catches or bolts 9 fixed to the bell 3 serve to prevent
the vessel 5 from falling out of the bell 3. But the
vessel 5 may also be omitted and in its stead the grating
45 8 may be fixed to the vessel 3 by means of the bolts 9.
However the arrangement of a vessel 5 or of a separate
bottom for the vessel 3 below the grating is advanta-
geous for the purpose of insuring a steady flame. In
the cover of the water vessel 1 is screwed the gas supply
50 pipe 10 for the burner which is of peculiar construction
and is hereinafter described. This pipe is provided
at its lower portion in the interior of the vessel 1 with
a sleeve or lock nut 11 into which the outlet pipe 4 of
the bell 3 is inserted or soldered in a gas-tight manner.

55 The manner of charging and operating the storm lamp

is as follows:—For the purpose of charging, the cover 2
is removed, the bell 3 is taken out, and after removing
the bolts 9, the vessel 5 is taken out from the bell. Then
after removing the cover 12, the carbid cartridges 7 are
placed into the vessel 5. These operations are then re- 60
versed in order to put the lamp together again. In
cases where no vessel 5 is employed, only the bell 3 and
the grating, or the bottom situated under the same, need
be removed. But before the cover 2 is replaced, the
vessel 1 is filled with water almost up to the top and 65
then the cover is replaced. Now as soon as the cock
provided in the pipe 10 is opened, the generation of gas
begins, and in a few seconds, as soon as the air contained
in the interior of the vessel 1 has escaped, the gas can be
ignited. The lamp will now require no further 70
attention, and also all risk of explosion is excluded.
When it is desired to stop the light, it is merely neces-
sary to close the cock provided in the pipe 10 where-
upon the resulting high pressure forces out the water
which has entered the vessel 5, and thus interrupts the 75
generation of gas, while on opening the cock the gener-
ation of gas begins again at once.

Figs. 2 and 3 show further modifications of the
acetylene generator. In the construction shown in Fig
2, a number of water vessels are employed, having 80
their bells 3 connected to a common burner pipe 10.
The bells 3 may be fixed either singly or together in a
water vessel 1 by means of metal straps 23 which are
carried up from the bells and are connected to the wall of
the water vessel by means of removable studs or angle 85
strips 24. In the same manner the carbid vessel 5 may
be held by means of bolts 9 in the bell 3. The gas bells
3 communicate with the burner pipe 10 by means of
pipes in each of which there are included two cocks 26.
A further cock 27 in the pipe 10 serves for the purpose of 90
discharging any deposited water. Instead of the grat-
ing 8 shown in Fig. 1, a perforated disk or plate 28 may
be employed. The described construction allows of
producing a continuous illumination by the fact that
when one generator is exhausted the other generator is 95
set in operation. In this arrangement the cocks leading
to the exhausted generator are closed and the generator
is charged afresh.

In the modification shown in Fig. 3, only one water
vessel 1 resting on the box 2^a is employed. A pipe 30 100
extends from the water vessel down nearly to the bot-
tom of the box 2^a. On the box around the water vessel
1 there are arranged chambers 3 filled with carbid and
which may be shut off from the box 2^a by means of sep-
arate cocks 29. When a chamber is exhausted it is shut 105
off from the vessel 2^a by means of the cock 29 and is
charged afresh while another carbid chamber is set in
operation. It is clear that a high gas pressure is pro-
duced in consequence of the high level of the water con-
tained in the vessel 1. The gas pressure is increased up 110

to one atmosphere and requires a burner of special construction.

The new burner is unaffected by the weather, will burn without soot, and will give a great lighting power.

- 5 Its head or upper end may be flat, domed, or even slightly pointed. On the head of the burner are the gas exit holes which consist of a number of fine openings or gas outlet slits of any desired shape arranged in a form of a square, circle etc., flush with the burner head. The
- 10 gas outlet holes or slits are arranged so close together that the several lighting jets unite to form a single elongated flame terminating at its end in a kind of bunch or tuft of flame. The jets from the holes or slits may also cross one another, but only at a very acute angle in order
- 15 to retain the elongated shape of the flame. In consequence of the high gas pressure the gas issues from the several holes with a velocity which is greater than the velocity of ignition of the gas, so that the actual flame will be situated at a certain distance from the burner
- 20 head. In this manner the burner head is kept cool and there is no possibility of the gas exit holes becoming stopped up. The size of the holes depends mainly on the pressure acting upon the flame. It is also important that the burner head in which the gas exit holes are
- 25 situated shall have very thin walls in order that the holes shall form merely gas outlets and not gas passages, because in the latter case pressure is lost by friction, and such passages are very liable to become choked with dirt or water which is however impossible in the
- 30 case of holes in a burner head composed of a thin shell. The burners may in this arrangement be made of any

desired material because by reason of the distance of the flame from the burner head they do not become hot.

Having now particularly described and ascertained the nature of my invention I declare that what I claim 35 is—

1. In a gas generator, the combination of a water receptacle, a gas bell, a carbid vessel located within said bell, said vessel having a perforated cover, imperforate sides and a bottom having an opening for the admission of water 40 to said vessel, a supporting grate adjacent said bottom, and means for locking said gas bell and carbid vessel together, substantially as described.

2. In a gas generator, the combination of a water receptacle, a gas bell, a carbid vessel located within said bell, said vessel having a perforated cover, imperforate sides and a bottom having an opening for the admission of water 45 to said vessel, a supporting grate adjacent said bottom, a valved gas conveyer leading from said bell, and means for locking said gas bell and carbid vessel together, substantially as described. 50

3. In a gas generator, the combination of a water receptacle provided with a removable cover, a gas bell, a carbid vessel located within said bell, said vessel having a perforated cover, imperforate sides, and a bottom having an opening 55 for the admission of water to said vessel, a supporting grate adjacent said bottom, a valve gas conveyer leading from said bell, and locking devices secured to the bottom of said bell at right angles thereto for locking said bell and said carbid vessel together, substantially as described. 60

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

JOSEPH MARGRETH,

Witnesses:

OTTO W. HELLMRICH,
I. CHRIST. HAUFERMANN.