

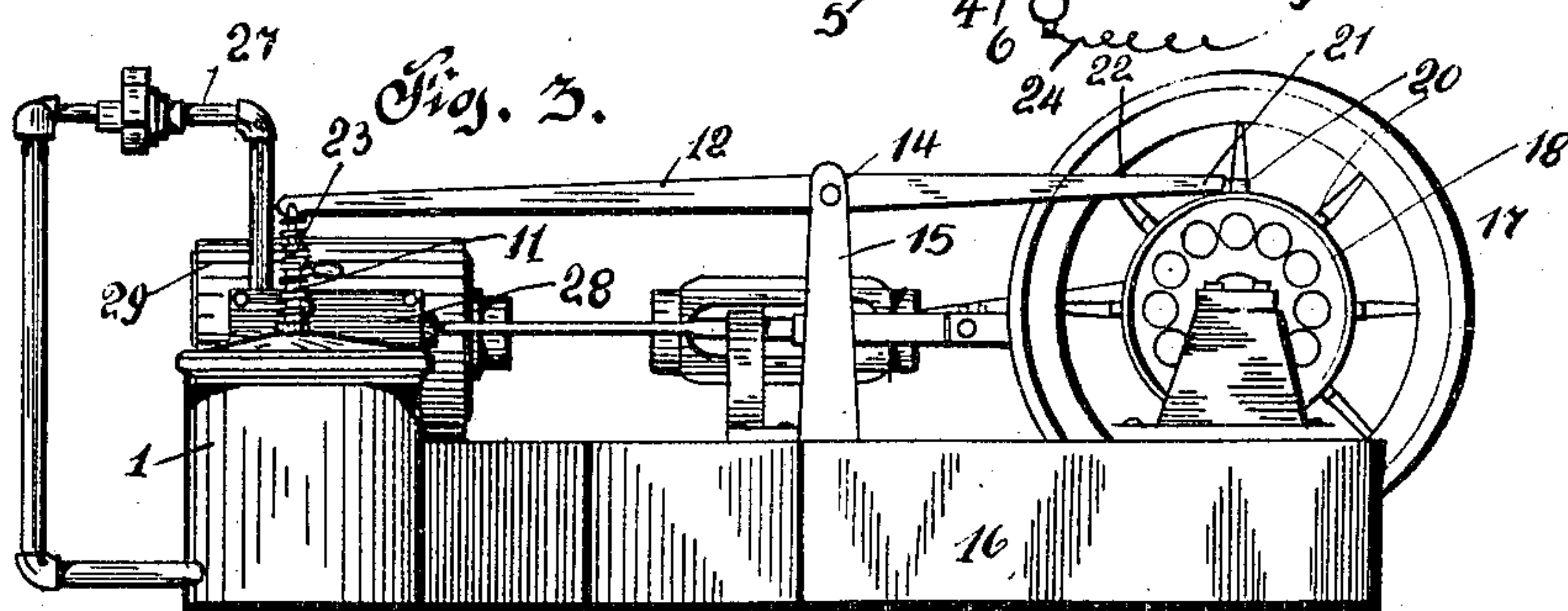
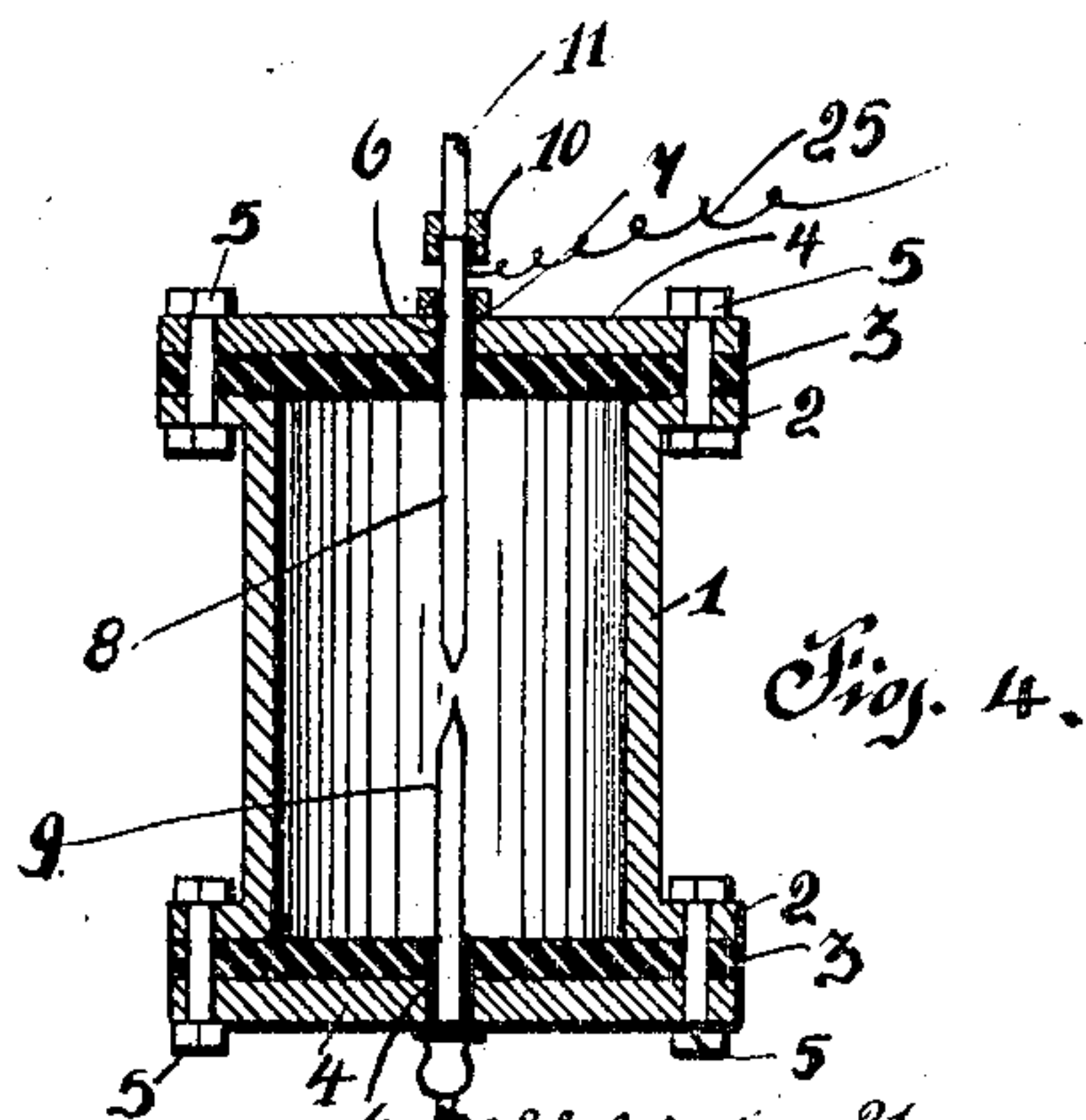
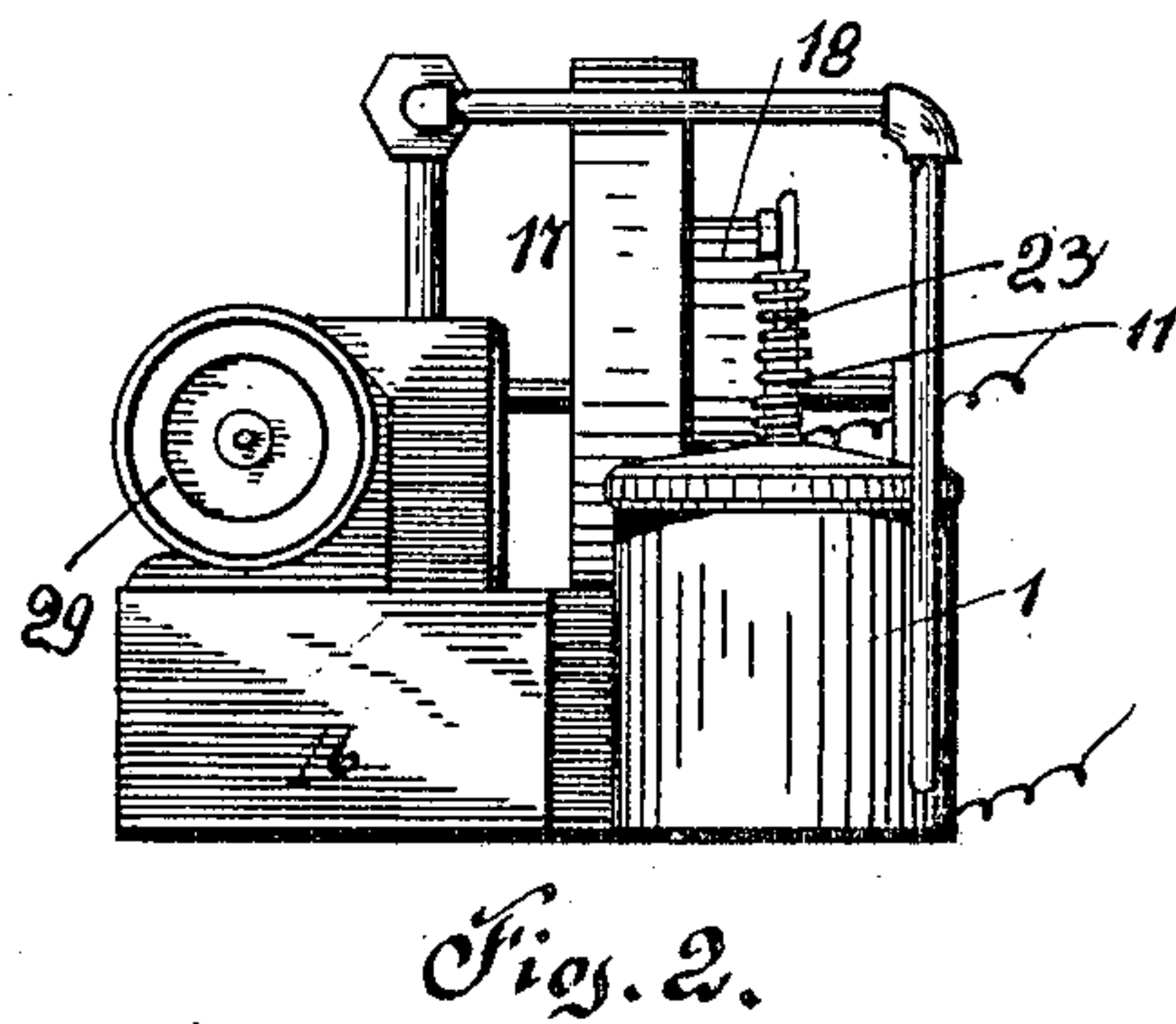
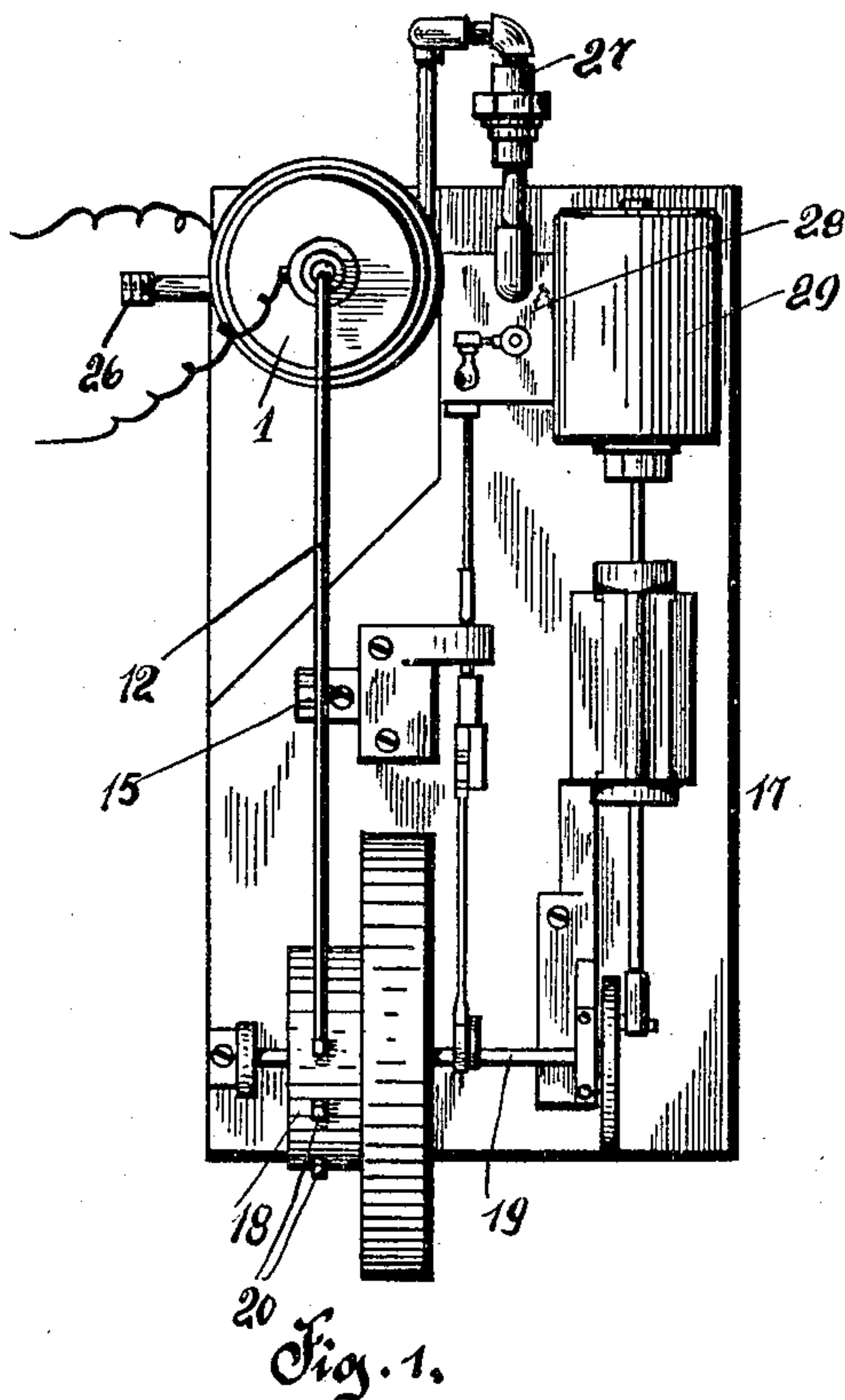
No. 825,687.

PATENTED JULY 10, 1906.

F. A. WEIGEL & I. WOLF.
STEAM AND GAS GENERATOR.

APPLICATION FILED OCT. 5, 1905.

2 SHEETS—SHEET 1.



Witnesses:
C. Oglesby
A. H. Butler

Inventors
Friedrich A. Weigel & Isaac Wolf.

By A. C. Ewert & Co.
Attorneys.

No. 825,687.

PATENTED JULY 10, 1906.

F. A. WEIGEL & I. WOLF.
STEAM AND GAS GENERATOR.

APPLICATION FILED OCT. 5, 1905.

2 SHEETS—SHEET 2.

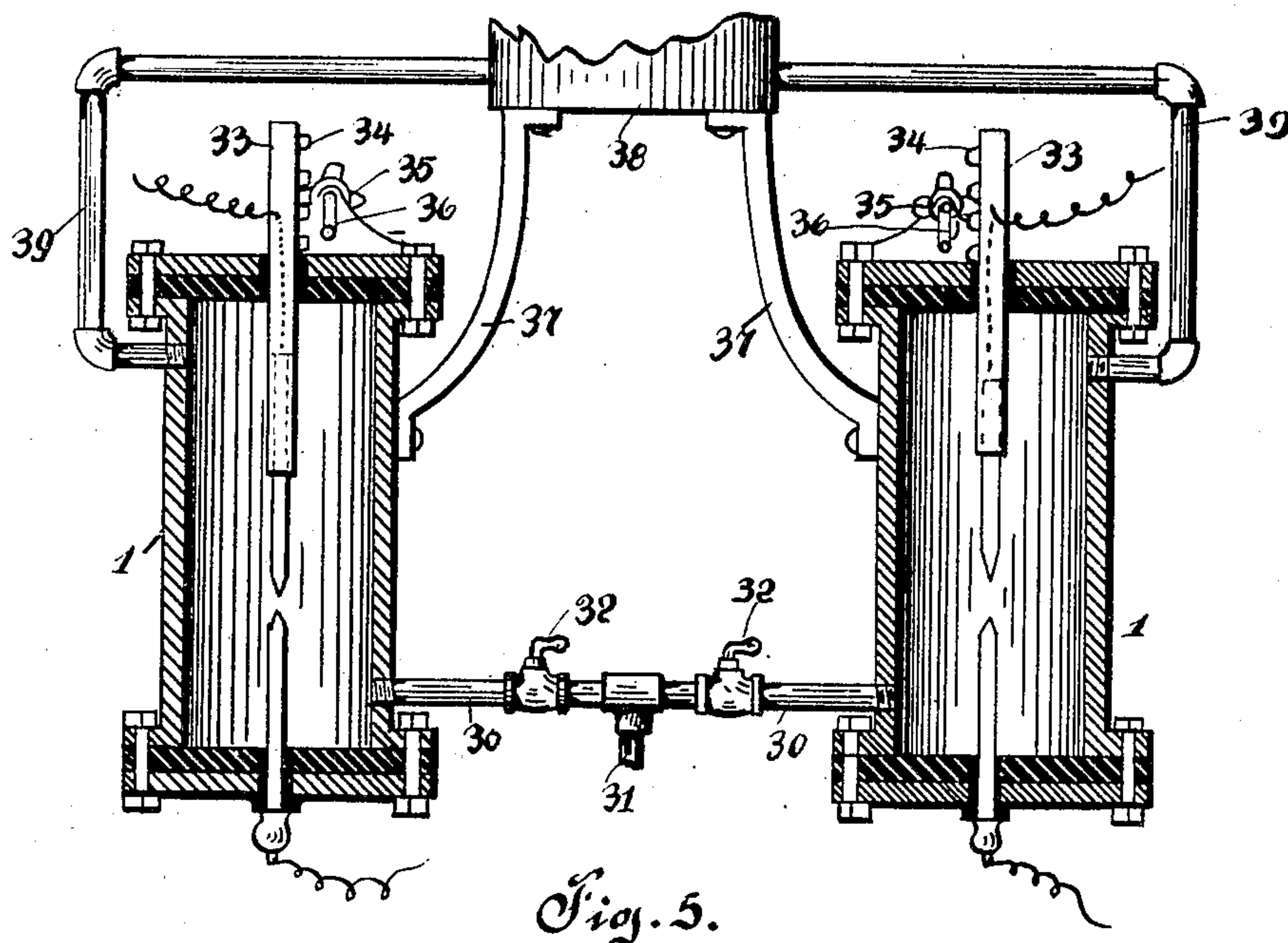
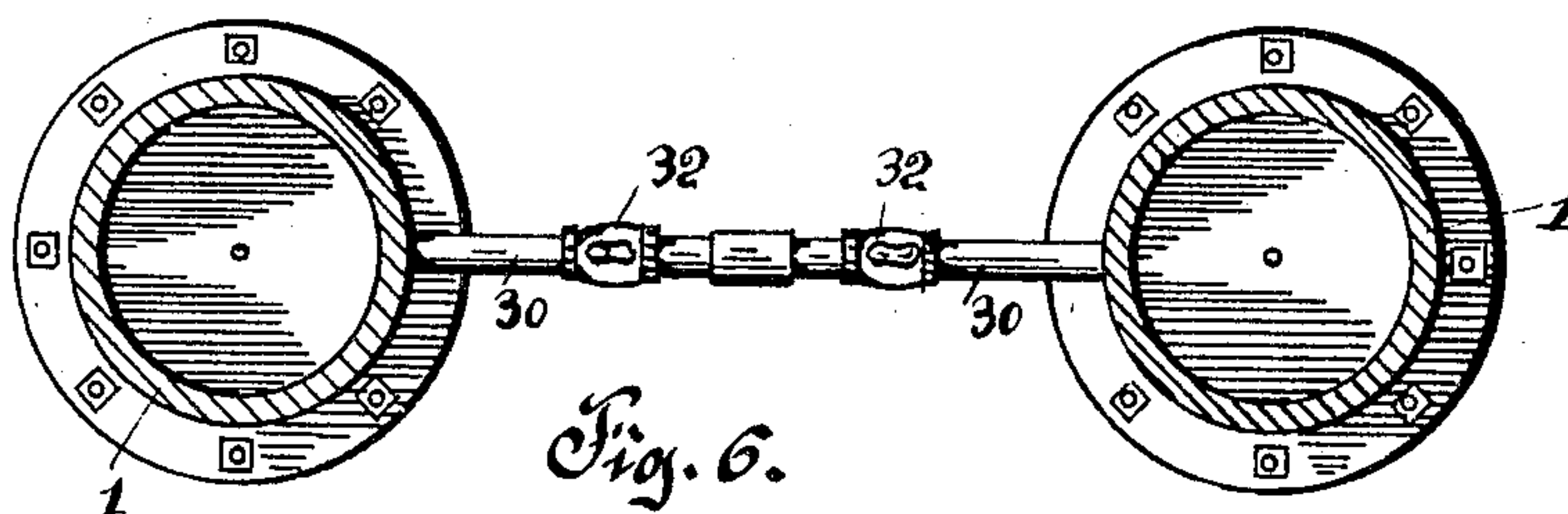


Fig. 5.



Witnesses:
C. O. Leiby,

A. H. Butler,

Inventors
Friedrich A. Weigel & Isaac Wolf.

By A. C. Ewert & Co.
Attorneys.

UNITED STATES PATENT OFFICE.

FRIEDRICK ALBIN WEIGEL AND ISAAC WOLF, OF JOHNETTA, PENNSYLVANIA.

STEAM AND GAS GENERATOR.

No. 825,687.

Specification of Letters Patent.

Patented July 10, 1906.

Application filed October 5, 1905. Serial No. 281,524.

To all whom it may concern:

Be it known that we, FRIEDRICK ALBIN WEIGEL and ISAAC WOLF, citizens of the United States of America, residing at Johnetta, in the county of Armstrong and State of Pennsylvania, have invented certain new and useful Improvements in Steam and Gas Generators, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain new and useful improvements in steam and gas generators; and the invention has for its primary object the provision of novel electrically-actuated means for generating steam and gas for operating engines.

To this end we employ cylinders into which are admitted water, and in each cylinder are mounted two carbon rods which constitute the positive and negative terminals of an electric circuit. The carbons are connected to a suitable source of electrical energy, and as the water enters these cylinders it is acted on by the electricity passing between the carbons and is raised in temperature, whereby steam is generated and a part of the water is decomposed, the resulting product being a mixture of steam, oxygen, and hydrogen, which is conveyed to a suitable receiving-tank or direct to the cylinder of an engine.

The construction entering into our improved steam and gas generator will be presently described in detail, and reference will now be had to the drawings accompanying this application, wherein like numerals of reference designate corresponding parts throughout the several views, in which—

Figure 1 is a plan of an engine equipped with our improved steam and gas generator. Fig. 2 is an end view of the same. Fig. 3 is a side elevation of the engine. Fig. 4 is a vertical sectional view of the cylinder used in connection with the same. Fig. 5 is a vertical sectional view of two cylinders combined for generating steam and gas. Fig. 6 is a horizontal sectional view of the same.

To put our invention into practice, we employ a cylinder 1 having flanged ends 2 2. Upon the flanged ends are mounted disks or plates of slate 3 3 and heads 4 4, the plates and heads being retained upon the flanged ends of the cylinder by nuts and bolts 5 5, as clearly illustrated in Fig. 4 of the drawings. The heads 4 and the plates 3 3 are provided

with central apertures 6 6, said apertures being in vertical alinement with each other. In each aperture is placed a sleeve 7, of some insulating material, as hardened rubber. Extending through said sleeves are sticks or poles of carbon 8 and 9, the stick of carbon 9 being fixed in the lowermost head, while the stick 8 is loosely mounted in the upper head in order that the same may be reciprocated within the cylinder 1. The upper end of the stick of carbon 8 is mounted in a coupling-block 10, which is attached to a link 11, carried by the outer end of a rock-arm 12. The rock-arm 12 is fulcrumed, as at 14, in a standard 15, mounted upon the bed-plate 16 of a conventional form of engine 17. The opposite end of the rock-arm 12 engages the periphery of a wheel 18, which is mounted upon the driven shaft 19 of the engine 17.

The periphery of the wheel 18 is provided with a plurality of lugs or cam-surfaces 20, which are adapted to engage the end 21 of the rock-arm 22 and impart a vibratory or vertically-reciprocating movement to the opposite end of the arm, whereby the end of the stick of carbon 8 will move into close proximity to the end of the stick of carbon 9 and then recede a predetermined distance, this being governed by the length of the arm 12 and the lugs or cam-surface 20, carried by the wheel 18. To always return the rock-arm to its normal position in engagement with the periphery of the wheel 18, we mount a coiled spring 23 upon the head of the cylinder 1, this coiled spring surrounding the link 11 and the upper end of the carbon stick and normally holding the carbon stick in an elevated position.

It is a well-known fact that by electrolysis water and other liquids can be divided into their component gases, and in connection with the cylinders and sticks of carbon just described we intend to use water and a current of electricity for decomposing the water and generating steam and gases which will serve functionally as steam. To accomplish this, we connect wires 24 and 25 to the sticks of carbon 8 and 9, these wires representing the negative and positive poles of a dynamo or generator. The cylinder 1 is provided with a water-inlet pipe 26 and with a gas-outlet pipe 27, which leads to the chest 28, carried by the cylinder 29 of the engine 17. By permitting an electric current of

sufficient amperage and voltage to pass into the carbons 8 and 9 a spark will jump from one pole to the other when the carbons are separated, and when the carbon 8 is reciprocated rapidly through the medium of the rock-arm 12 and the wheel 18 a plurality of sparks will be generated continuously in rapid succession. By admitting water to the cylinder 1 the water will be decomposed into the gases represented by the following formula: H_2O (water) = H_2 + O.

The chemical action introduced by electricity dissolves the water into two volumes of hydrogen and one volume of oxygen, and it is these generated gases that we employ in connection with such steam as is simultaneously generated for driving the engine 17. These gases and the steam pass off from the cylinder 1 through the pipe 27 to the cylinder 29, and the expansive force and pressure of the gases and steam serve to drive the engine at a high speed.

We are aware that in order to rapidly decompose a large amount of water a current of high amperage and voltage is necessary, and we may employ a dynamo or generator or any other suitable source of electric energy to accomplish the desired result.

In Figs. 5 and 6 of the drawings we have illustrated two cylinders constructed similar to the cylinder 1, with the exception that they are connected by pipes 30 30 to a common water-supply 31, valves 32 32 being employed to control the admission of water to each cylinder. Instead of reciprocating the carbons of said cylinders I provide the upper sticks of carbon with metallic collars 33 33, each collar being provided with a rack 34, which is adapted to engage a pinion 35, journaled upon the head of each cylinder, said pinions being rotated by cranks 36 36. In this modified form of construction the upper carbons are set at all times to cause a jump-

spark, and the space through which said spark jumps can be regulated by the raising and lowering of said carbon through the medium of the pinion 35 and the rack 34. The cylinders are also constructed to support by brackets 37 37 a steam reservoir or chamber 38, into which the steam and gases generated in the cylinders may pass by pipes 39 39. The steam and gases collected in the reservoir are adapted to be used as the occasion demands.

It is thought from the foregoing that the construction, operation, and advantages of the herein-described steam and gas generator will be apparent without further description, and various changes in the form, proportion, and minor details of construction may be resorted to without departing from the spirit of the invention or sacrificing any of the advantages thereof.

What we claim, and desire to secure by Letters Patent, is—

In a generator, the combination with an engine, of a cylinder mounted adjacent to said engine and connected by a pipe with the steam-chest thereof, said cylinder being connected to a suitable water-supply, said cylinder having carbon sticks mounted therein and connected with a suitable source of electrical energy, one of said carbons being loosely mounted in said cylinder, means actuated by said engine to reciprocate one of said carbons to cause a jump-spark in connection with the electric current, substantially as described.

In testimony whereof we affix our signatures in the presence of two witnesses.

FRIEDRICK ALBIN WEIGEL.
ISAAC WOLF.

Witnesses:

S. M. BREWER,
W. P. MYFORD.