

(No Model.)

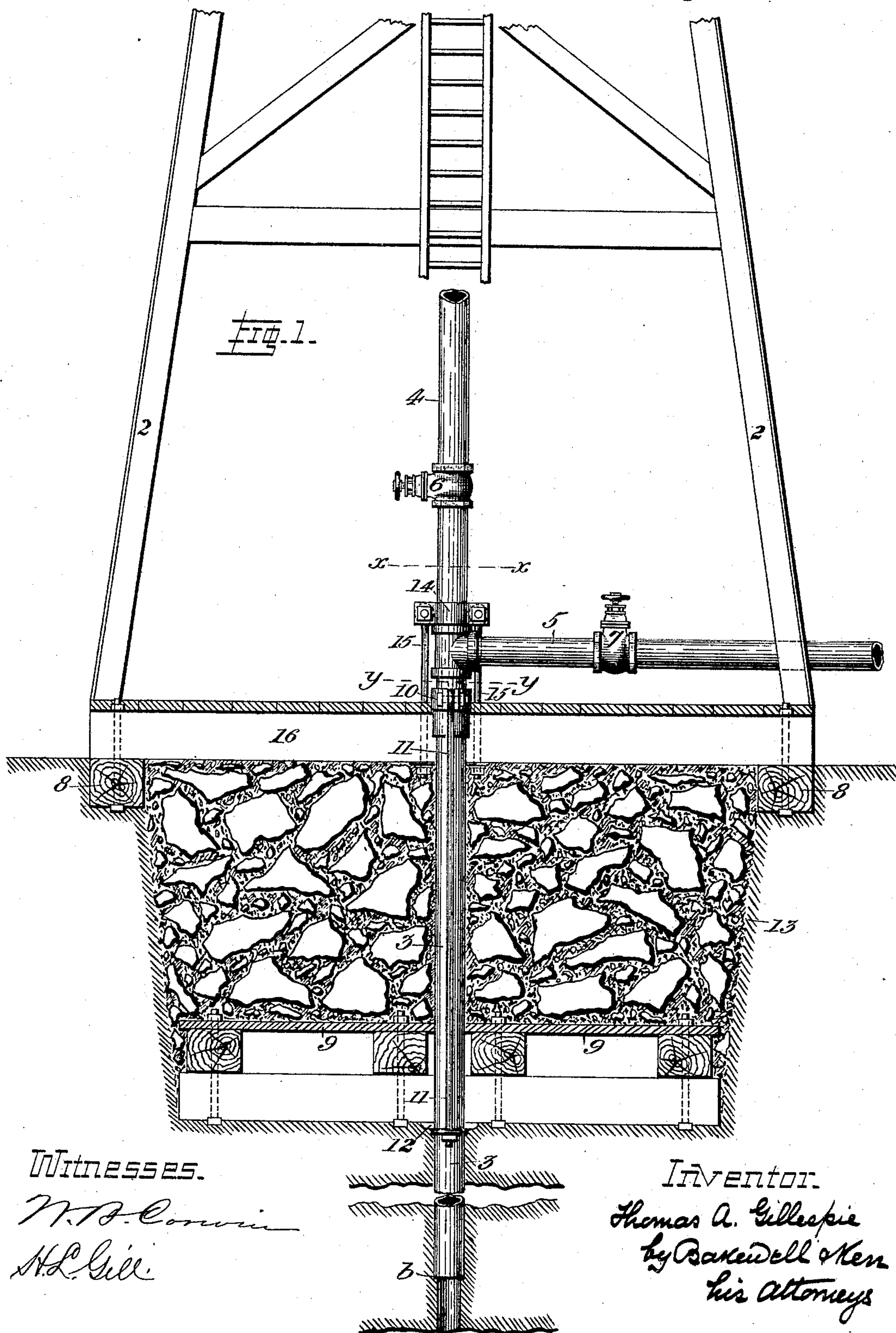
2 Sheets—Sheet 1.

T. A. GILLESPIE.

CASING FOR GAS OR OIL WELLS.

No. 368,826.

Patented Aug. 23, 1887.



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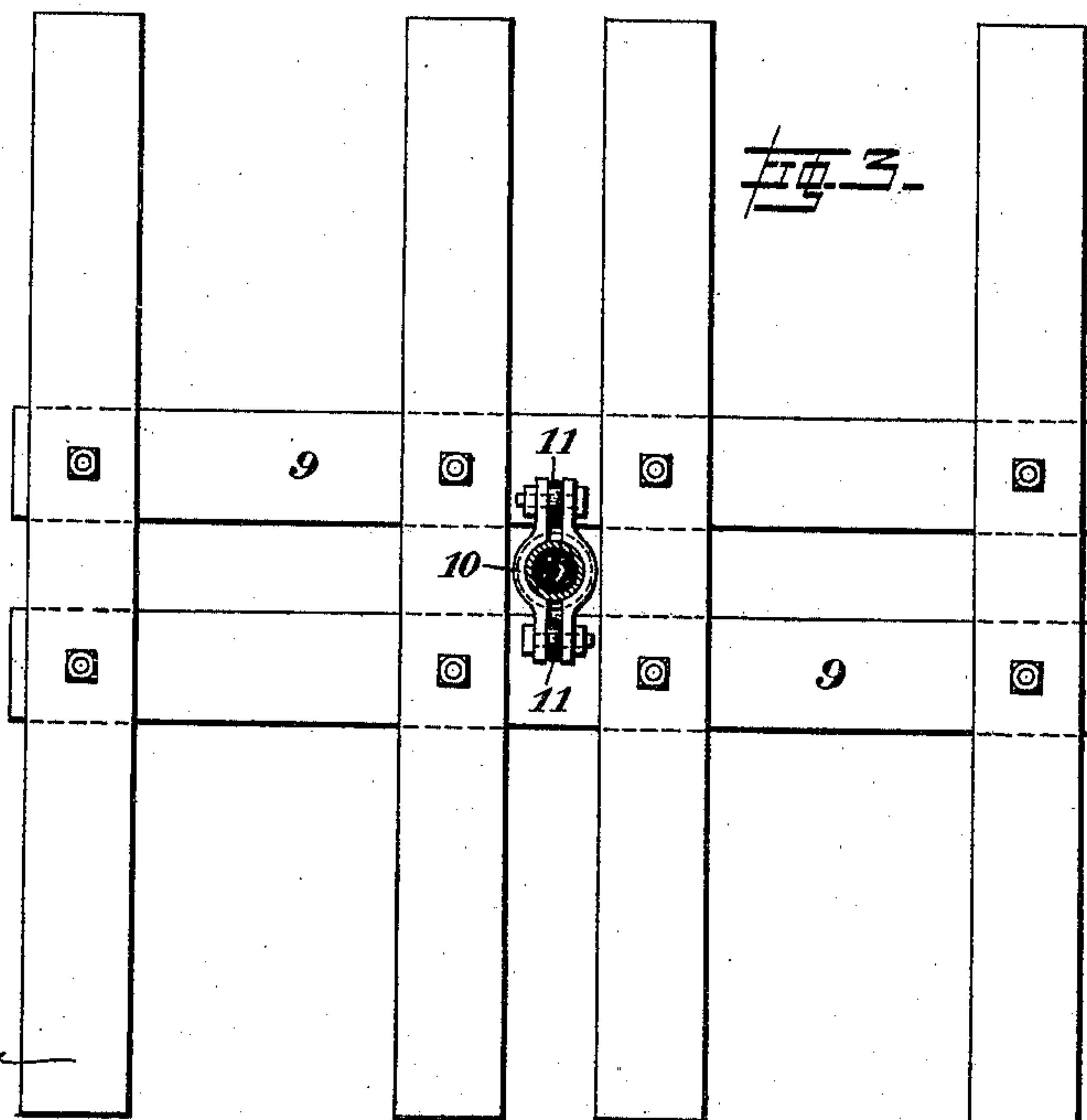
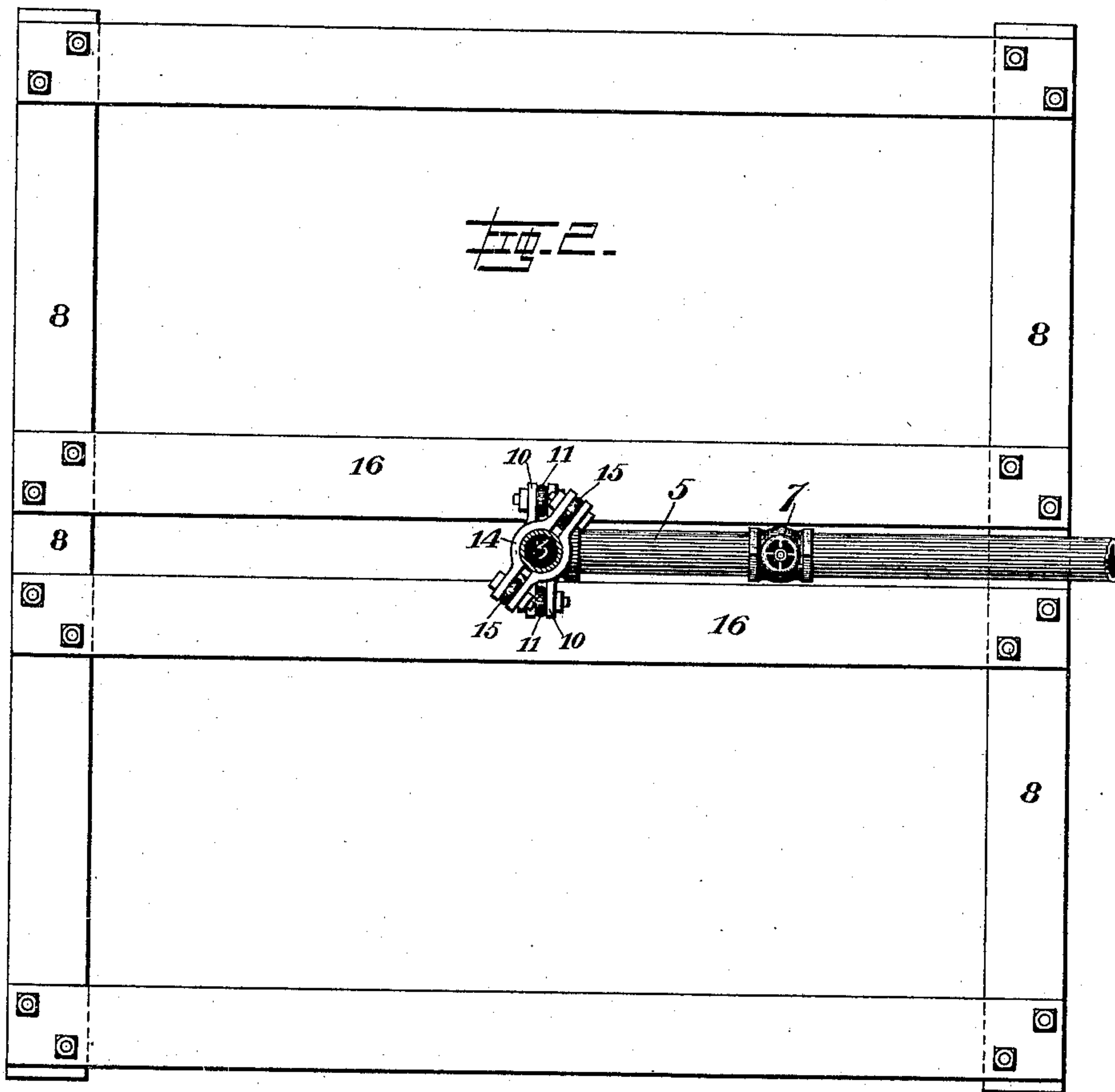
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WITNESSES.

H. L. Gill
M. D. Corwin

INVENTOR.

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UNITED STATES PATENT OFFICE.

THOMAS A. GILLESPIE, OF PITTSBURG, PENNSYLVANIA.

CASING FOR GAS OR OIL WELLS.

SPECIFICATION forming part of Letters Patent No. 368,826, dated August 23, 1887.

Application filed April 22, 1887. Serial No. 235,725. (No model.)

To all whom it may concern:

Be it known that I, THOMAS A. GILLESPIE, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Casings for Gas or Oil Wells; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to an improvement in means for shutting off gas and oil wells, for the purpose of preventing the flow of the gas or oil. When in a gas-well the valve in the casing is closed to confine the gas, there is generally an enormous pressure, sometimes over five hundred pounds to the square inch, which is exerted upon the casing, tending to eject it from the well. The resistance to this pressure has been afforded by the usual rubber packer, which is set around the inner casing and expanded against the sides of the well; but this is inadequate to the work. The inner casing is generally a four-inch pipe, which extends from the top of the well to the desired point, and the outer casing is a five and five-eighths or six inch pipe, which extends from the top of the well to a point below the water-veins, its purpose being to exclude the water from the hole below. The inner casing reduces the diameter of the passage through which the gas has to flow, and therefore limits the quantity of gas which can be had from the well in a given time.

My invention consists, first, in providing a well-casing with a valve for shutting off the gas and anchoring the casing against the upward pressure by means of anchoring devices situate at or near the surface of the well; and, second, it consists in constructing such a gas-well without the inner casing and of a uniform bore from top to bottom, whereby a larger gas-outlet is afforded and more gas is consequently obtainable.

It also consists of certain details of construction, which are specifically indicated in the claims.

My invention is illustrated in the drawings, wherein—

Figure 1 is a vertical section of a well constructed according to the principles of my invention, the collar 14 being shown in this figure at a different angle from its position in Fig. 2, to illustrate more clearly its relation

to the casing and to prevent it from obscuring the other parts. Fig. 2 is a horizontal section on the line $x x$; and Fig. 3 is a horizontal section on the line $y y$ of Fig. 1, the beams 16 and 8 being omitted to expose the lower parts of the structure.

Like symbols of reference indicate like parts in each.

In the drawings, 2 represents the derrick of a gas-well, and 3 represents the well casing or pipe having the usual blow-off extension, 4, and the branch pipe 5, leading to the distributing-pipe system. The blow-off pipe 4 is provided with a valve, 6, and the pipe 5 has a valve, 7.

As shown in Fig. 1, the well-hole is of uniform bore throughout, the casing 3, which is of standard size, extending down to the desired point b , and the remainder of the hole being drilled through the casing of the same internal diameter therewith and uncased. If desired, the casing 2 may be extended to the bottom of the well.

In order to hold the casing in the well against the pressure of gas exerted on it when the valves 6 and 7 are closed, I employ the following anchoring devices: Beneath the ground-sill 8 of the derrick I make an excavation, 13, around the casing, and at its base build a floor or frame, 9, of timbers. At the surface of the ground I place a collar or clamp, 10, around the casing, Figs. 1 and 3, and from this collar iron rods 11 extend to a bar or plate, 12, which is set underneath the floor 9. I then fill up the excavation 13 with stone and earth, as shown in Fig. 1, the weight of which, pressing on the floor 9 and on the collar 10 through the plate 12 and rods 11, opposes resistance to the gas-pressure on the casing and holds it very securely in place. The casing may further be held by a second collar, 14, inclosing it above the pipe 5, and connected by rods 15 with the ground floor 16 of the derrick. In this way I am enabled to shut off the valves 6 and 7 and to confine the gas within the well at will without endangering the casing or pipe. It also makes it possible to dispense with the packing devices heretofore employed for retaining the casing or pipe in position and with the inner casing, so that the diameter of the hole is not reduced and a larger product is attainable.

The advantages of being able to shut the

gas in the well when desired are very material. The gas, when not used, can be prevented from wasting uselessly, and thus the supply can be economized and the producing life of the well correspondingly prolonged.

My improved construction may be applied to flowing oil-wells with the same advantages in holding the casing and economizing in oil.

I claim—

10 1. The combination, with a gas or oil well casing or pipe, of an anchor at the surface of the well connected with the casing and retaining it in the well, and a valve controlling the casing for confining the gas or oil therein, substantially as and for the purposes described.

15 2. The combination, with a deep-well casing or pipe, of a buried anchor-plate connected therewith, and a valve for confining the gas or oil in the casing, substantially as and for the purposes described.

3. The combination, with a deep-well casing or pipe, of a collar attached thereto, a buried anchor-plate connected with the collar, and a valve for confining the gas or oil in the casing, substantially as and for the purposes described.

4. In a deep well having its discharging-hole of uniform diameter throughout, a casing or pipe having a surface anchoring device, and a valve for confining the gas or oil in the well, substantially as and for the purposes described.

In testimony whereof I have hereunto set my hand this 7th day of April, A. D. 1887.

THOMAS A. GILLESPIE.

Witnesses:

THOMAS W. BAKEWELL,
W. B. CORWIN.