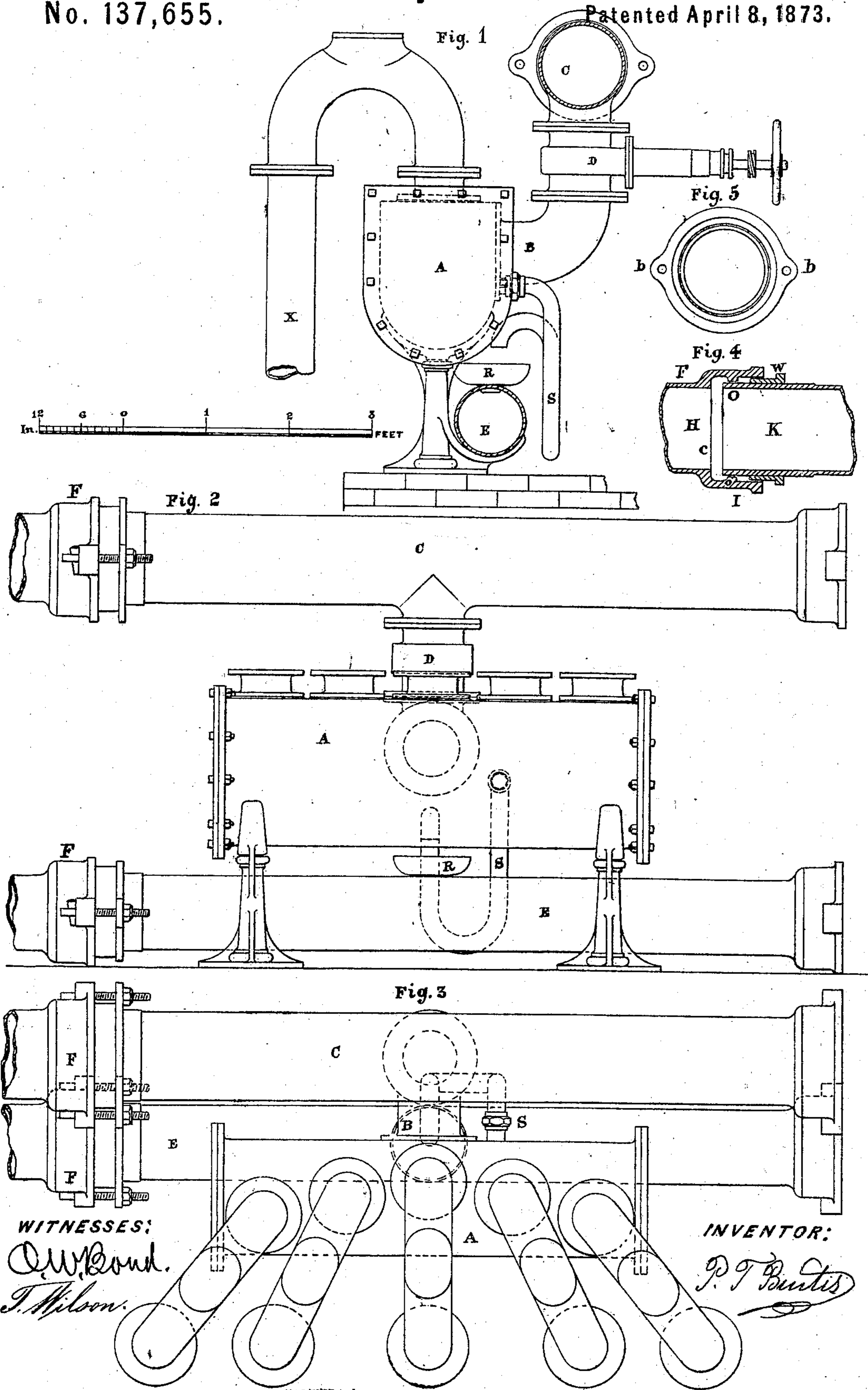


P. T. BURTIS.
Gas-Works Hydraulic Mains.
 No. 137,655.

Patented April 8, 1873.



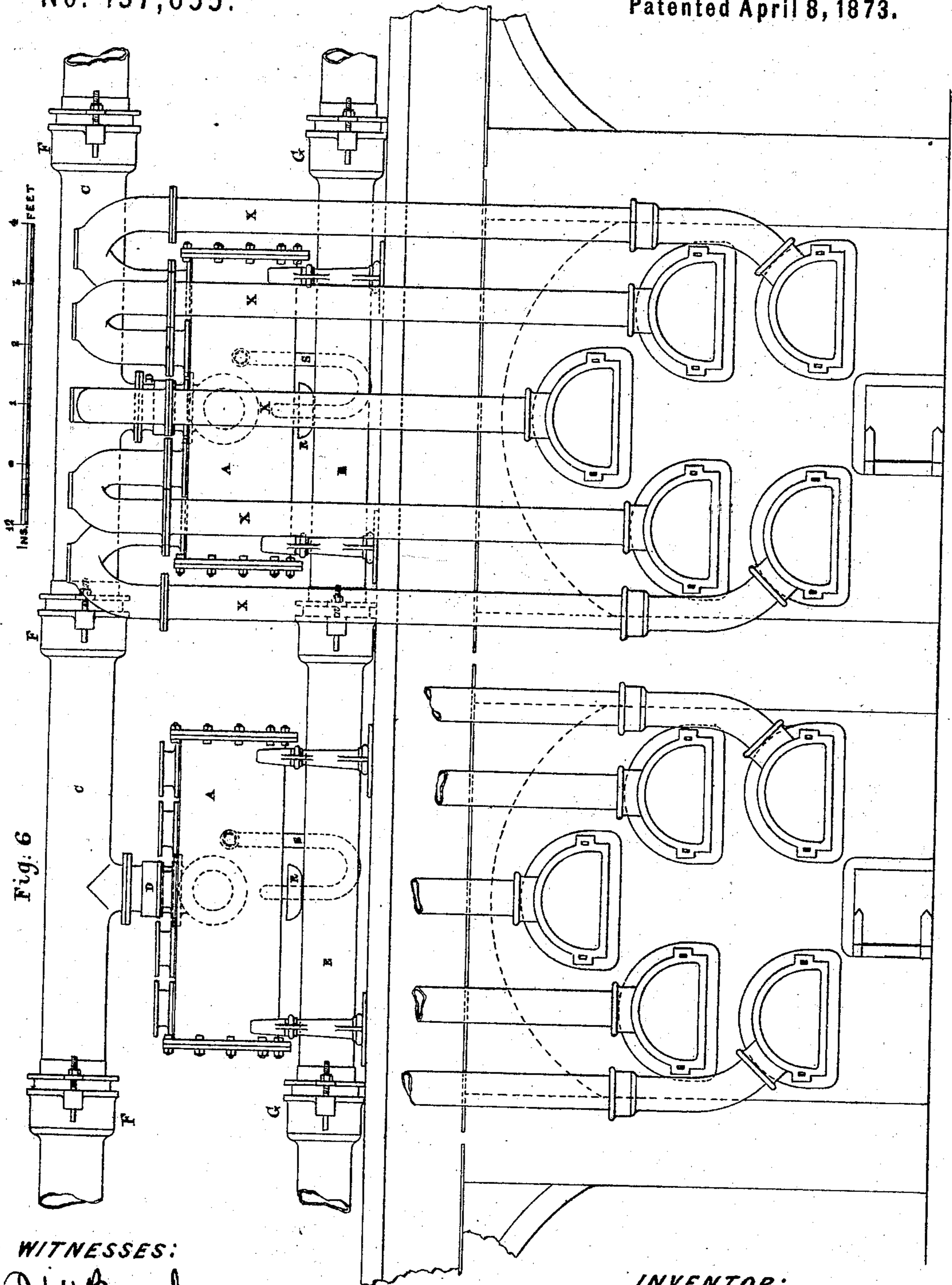
WITNESSES:
O. W. Bond.
T. Wilson.

INVENTOR:
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UNITED STATES PATENT OFFICE.

PETER T. BURTIS, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN GAS-WORKS HYDRAULIC MAINS.

Specification forming part of Letters Patent No. 137,655, dated April 8, 1873; application filed November 18, 1872.

To all whom it may concern:

Be it known that I, PETER T. BURTIS, of the city of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Hydraulic Mains for Gas-Works, of which the following is a full description, reference being had to the accompanying drawing making a part of this specification, and consisting of two sheets, in which—

Figure 1 is an end elevation, showing the gas and tar pipes in section; Fig. 2, a front elevation; Fig. 3, a plan; Fig. 4, a longitudinal section of my expansion-joint; Fig. 5, an elevation of the gland detached; and Fig. 6, Sheet 2, shows a front elevation of two benches of retorts, each connected with a separate hydraulic main; showing also connecting-pipes, gas-pipes, and tar-pipes, the stand-pipes of one bench being broken away that the other parts may be more clearly represented.

As gas-works have been heretofore constructed the hydraulic main has been a single continuously-connected pipe without regard to the number of benches of retorts used. It is desirable and necessary that the main be perfectly level in order that the seals may be uniform; but the expansion and contraction of the brick-work, and parts connected therewith, render it difficult to keep it in such position, especially when a portion of the benches become cool, not being in use; and by contraction the main is liable to be broken, and a section of the main cannot be taken out and replaced, nor can permanent repairs to any extent be put thereon without stopping the benches, and the main cannot be cleaned while any of the benches are in use.

My invention consists in providing a detached and separate hydraulic main for each bench of retorts, the main of each having no connection or direct communication with the mains of the other benches of retorts; in providing a gas-pipe and tar-pipe for all the benches of retorts in a section of the works; in so connecting each main of each bench with such gas-pipe and tar-pipe that such main can be thrown out of use or removed without interfering with the use of the other

mains; and in the several devices and combinations hereinafter claimed.

In the drawing, A represents a hydraulic main for a single bench of retorts; X, stand-pipes passing from the retorts to the main; C, gas-pipe; B, pipe leading from the main to the gas-pipe; D, valve to shut off or open communication with the gas-pipe C; E, tar-pipe; R, cup on the top of the tar-pipe communicating therewith; S, siphon through which the tar from the main A flows into the cup R; and F, my expansion-joint applied to the pipes C or E. This joint F is represented in Fig. 4, in which H is a pipe with a socket, I, cast upon it, within which is a shoulder, *o*, either cast with it or inserted thereon. K is the spigot end of another pipe, somewhat enlarged, and turned so as to permit the collar or gland W to work freely thereon, packing will be held firmly in place between the inner end of the collar or gland and the shoulder *o*. The two parts of the joint are held together by stud-bolts and nuts at the points *b*, Fig. 5.

I thus form a joint which, while it will securely retain the gas or tar, admits of expansion and contraction, as the pipe K can move within the socket a distance equal to that between the inner end of K and the shoulder *o* of the socket.

As represented each main is made of several pieces, properly bolted and secured together; but each hydraulic main might be cast in a single piece with suitable openings for the several pipes and with a hand-hole. The ends of the pipes X extend down into the main and are sealed in the usual manner.

In operation the products of distillation from each bench of retorts passes directly into a separate and independent hydraulic main, A, from which the gas passes through the connecting-pipe B into a common gas-pipe, C, while the tar flows through the siphon S into a continuous tar-pipe, E.

By means of a valve, D, connection between the gas-pipe C and any one of the hydraulic mains A can be cut off at pleasure, so that such main and the bench of retorts with which it is connected may be out of use, while all the other benches of retorts and all the other hydraulic mains are still in use.

Each hydraulic main being separate, independent, and wholly disconnected from the others, the level of the tar in one main cannot be sensibly affected by the expansion and contraction of the works; neither can any one main be injured by such expansion and contraction.

The flexible joint permits considerable contraction and expansion of the gas-pipe without injury thereto. This joint is not as essential for the tar-pipe as for the gas-pipe, because the former is subjected to less heat than the latter.

What I claim as new is as follows:

1. The combination of these separate hydraulic mains A with the gas-pipe C and tar-pipe E, in gas-generators where more than one bench of retorts is used, substantially as specified.

2. The combination of the cut-off valve D and pipe B with the main A and gas-pipe C, so that either bench or main can be thrown out of use without interrupting or interfering with the gas-pipe or the other benches, substantially as described.

3. The expansion-joint F, in combination with the gas or tar pipe for equalizing the expansion or contraction of such pipes as different sections are brought into or thrown out of use, substantially as set forth.

4. The siphon S, in combination with the main A and tar-pipe E, substantially as and for the purposes specified.

PETER T. BURTIS.

Witnesses:

O. W. BOND,
THOMAS WILSON.