(No Model.)

J. D. UPPERMAN.

GAS CONDUCTOR.

No. 316,506. Patented Apr. 28, 1885.

Fig. 1.

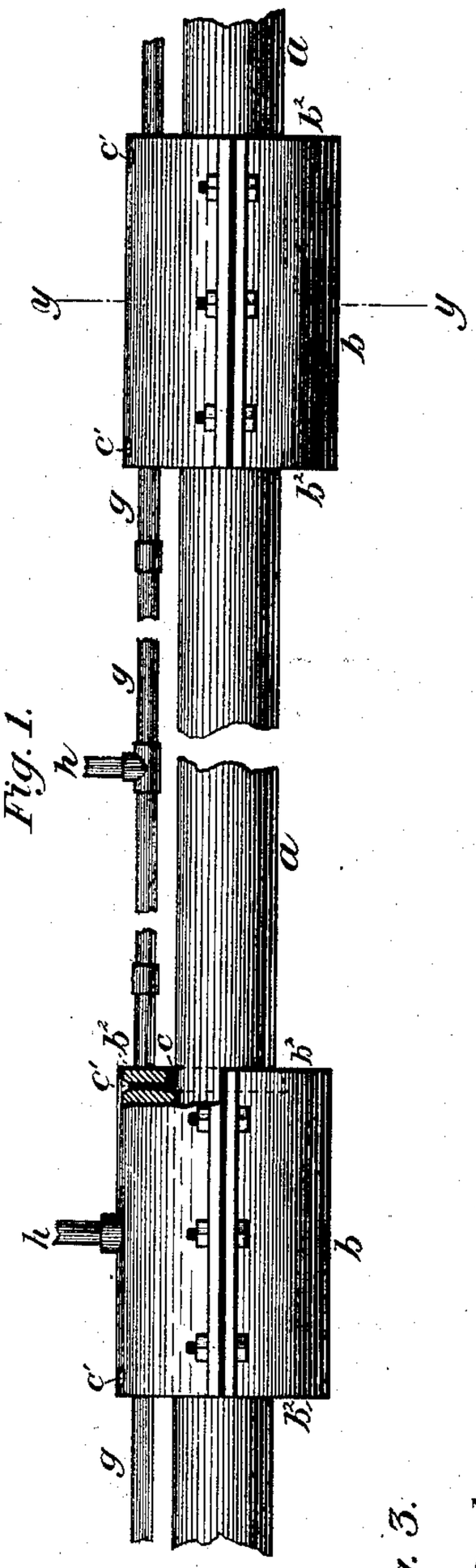


Fig. 2.

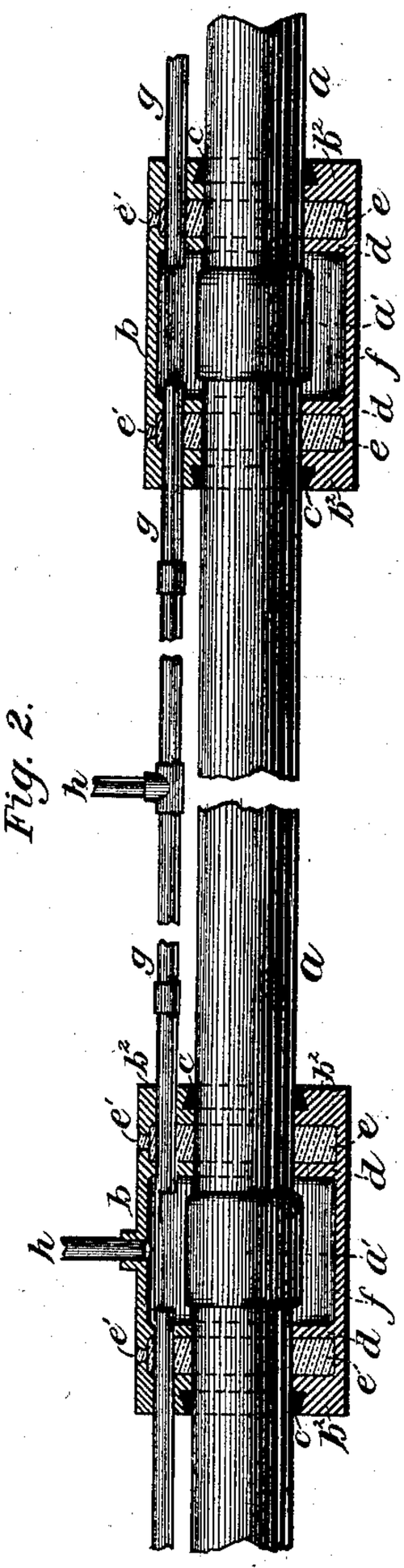
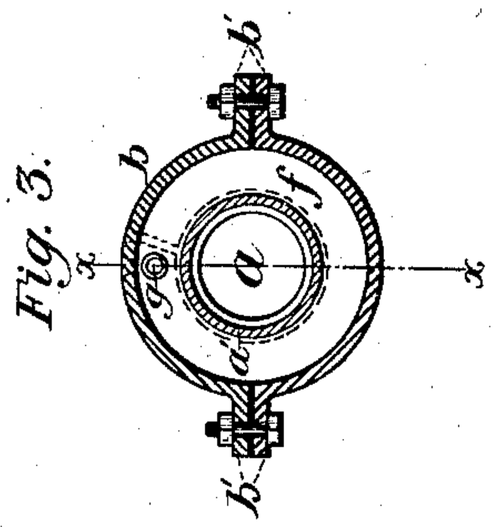


Fig. 3.



Witnesses.

Harry L. Gill.

W. B. Corwin.

Inventor.

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by his attorneys

Bakewell & Kerr

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UNITED STATES PATENT OFFICE.

JAMES D. UPPERMAN, OF PITTSBURG, PENNSYLVANIA.

GAS-CONDUCTOR.

SPECIFICATION forming part of Letters Patent No. 316,506, dated April 28, 1885.

Application filed February 16, 1885. (No model.)

To all whom it may concern:

Be it known that I, JAMES D. UPPERMAN, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Natural-Gas Conductors; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention is designed to obtain greater safety in the conduction and distribution of natural gas.

Many efforts have been made to prevent the leakage of the joints of the conductors used for this purpose; but owing to the low temperature of the gas the pipes are subject to great contraction, and it has been found to be difficult, if not impossible, to preserve tight joints. The gas is of such a dangerous character that serious accidents, destructive of life and property, have occurred from the explosions of the leakage-gas from defective joints.

The object of my improvement is to collect and convey away to a safe point such leakage-gas.

To enable others skilled in the art to make and use my invention, I will now describe it by reference to the accompanying drawings, in which—

Figure 1 is a side view, partly in section, of a portion of a line of conductors fitted with my improvement. Fig. 2 is a longitudinal section, and Fig. 3 is a cross-section, on the lines *x x* and *y y* of Figs. 3 and 1, respectively.

Like letters of reference indicate like parts.

The conducting-pipe is composed of sections of pipe *a a*, united by screw couplings or sockets *a'*, in the usual manner. Around each joint I place a casing, *b*, formed in halves having side flanges, *b'*, which are united by suitable bolts. The end walls, b^2, of the sections are provided with annular dovetailed recesses *c*, having a hole, *c'*, leading from the outside into such recesses. A short distance inward from the end walls, b^2, are partitions *d*, forming an annular chamber, *e*, at each end next to the end walls, b^2. Holes *e'* extend from the outside of the casing into these chambers. The dovetailed recesses *c* are designed to receive a packing or filling of lead, which, being melted, is poured into the holes *c'* until said recesses are filled. The chambers *e* are designed to receive a packing or filling of sulphur, which, being first melted, is poured into the same through the holes or openings *e'*. These packing substances set around the pipes *a a* and form a double joint therewith, which is very hard, close, and impervious to the passage of air or gas, and not liable to be opened by the expansion and contraction sufficiently to permit the leakage from the joint to pass out along the said pipe. Between the two partitions *d* is an annular chamber, *f*, which surrounds the joint of the pipe, and leading from this chamber laterally and extending along the pipe *a* are small tubes *g*, which are designed to convey away the leakage from the chamber *f*. These pipes are intended to connect a number of the casings *b*, and at convenient points are connected with a stand-pipe, *h*, which, if desired, may be connected directly to one of the casings *b*. The leakage from the chambers passes, by the pipes *g*, to the stand-pipe *h*, which leads up to the atmosphere and terminates at a sufficient distance above the surface of the ground to insure the harmless escape of the gas. The casings *b*, being provided with a free outlet and escape for the waste gas, are not likely to accumulate any pressure of the same within them which would force it out past the packing material in the annular recesses *e c*, so that I am able to secure a safe collection and discharge of the leakage-gases and prevent them passing off along the main pipe and service-pipes into the basements and cellars of buildings and accumulating there, as has been the case with many of the systems of natural-gas distribution heretofore in use.

I have discovered that sulphur forms very advantageous and suitable packing for this use; that it is unaffected by the gas, and when set forms a hard, tenacious packing material which is not liable to separate from the adjacent surfaces. If desired, a layer of packing may be interposed between the flanges *b'*, so as to make a tight joint along the edges of the divided casing *b*.

I do not desire to claim, broadly, an outer casing around the gas-main or joints thereof;

nor do I desire to claim, broadly, sulphur as a packing; nor do I desire to claim, broadly, a pipe-coupling having a double packing, as I am aware that all these devices in themselves are not new.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, with the joint of a natural-gas conductor, *a*, of the sectional casing *b*, having annular chambers *e*, containing a packing substance, a waste-chamber, *f*, and tubes *g*, extending from the chamber *f* through the chambers *e* and their walls, substantially as and for the purpose specified.

2. The casing *b*, made in halves, provided with end walls, b^2, and partitions *d*, forming annular end chambers or recesses, *e*, provided with holes *e'*, for filling the same with a plastic substance, substantially as and for the purposes described.

In testimony whereof I have hereunto set my hand this 13th day of February, A. D. 1885.

JAMES D. UPPERMAN.

Witnesses:
W. B. CORWIN,
J. K. SMITH.