

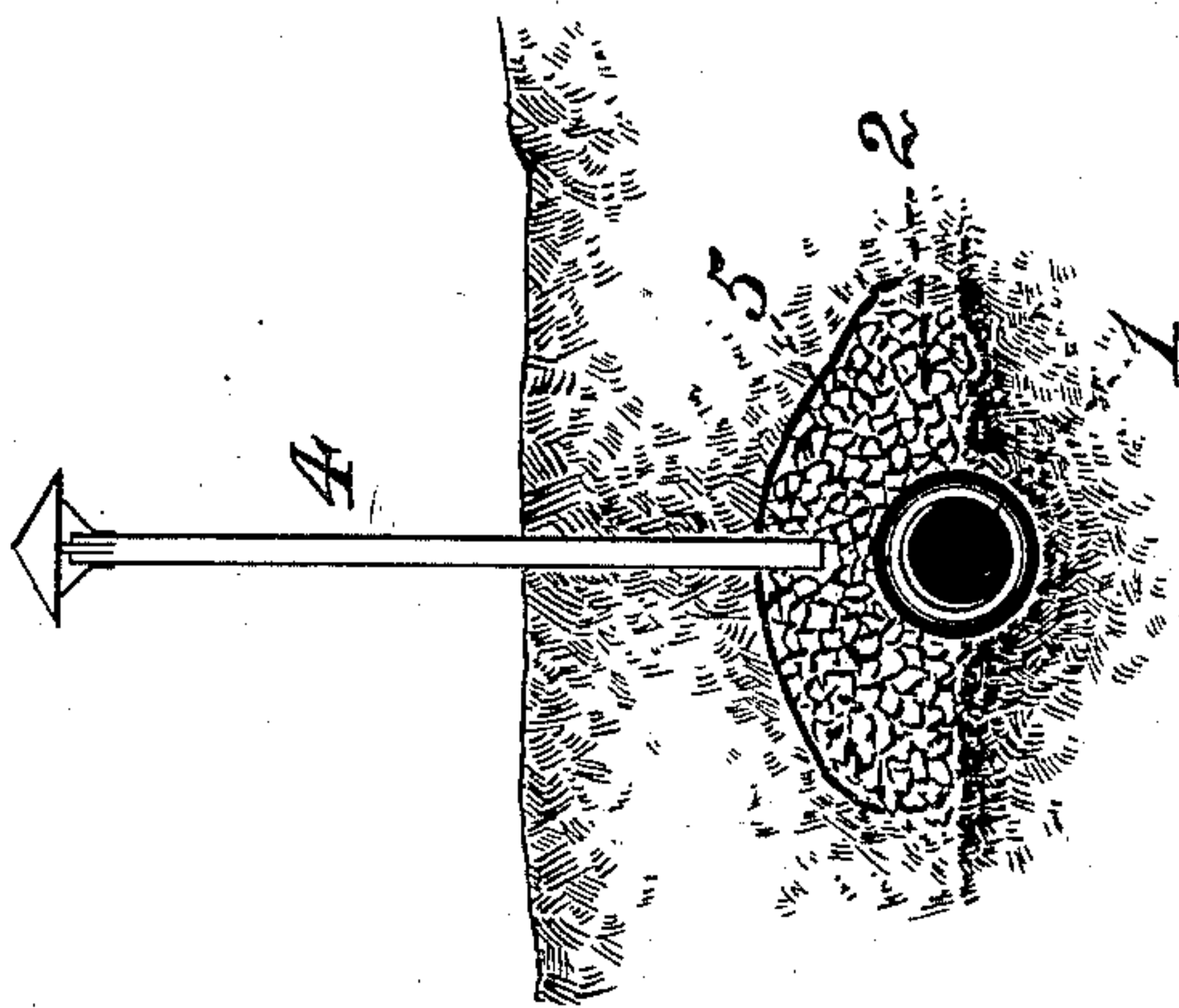
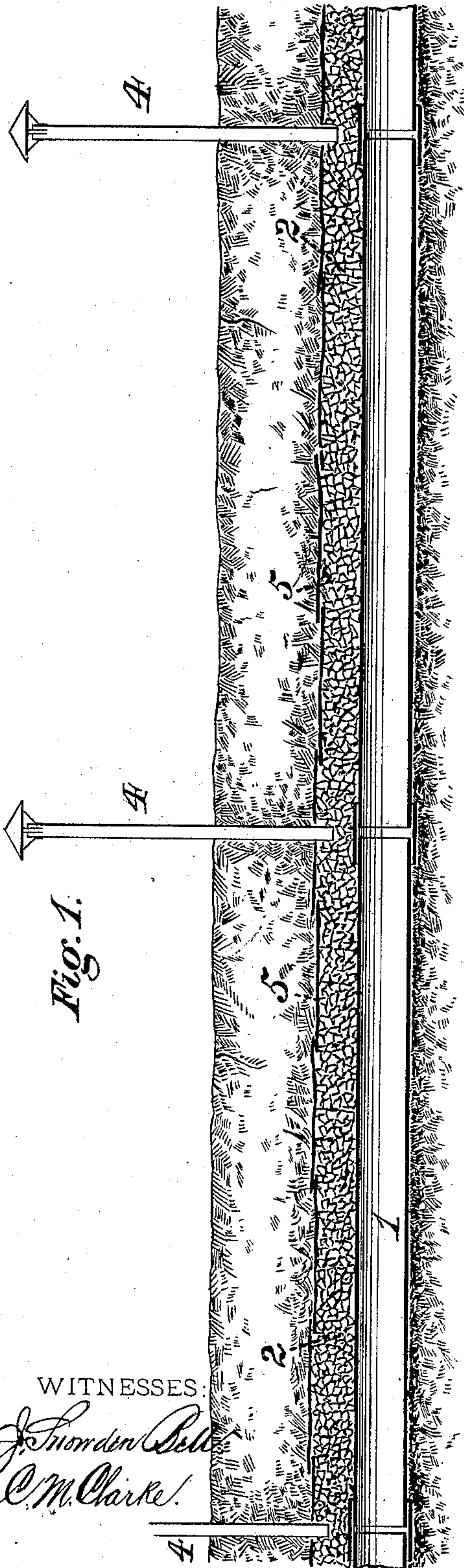
(No Model.)

G. WESTINGHOUSE, Jr.

MEANS FOR DETECTING AND CARRYING OFF LEAKAGE FROM GAS MAINS.

No. 344,701.

Patented June 29, 1886.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

GEORGE WESTINGHOUSE, JR., OF PITTSBURG, PENNSYLVANIA.

MEANS FOR DETECTING AND CARRYING OFF LEAKAGE FROM GAS-MAINS.

SPECIFICATION forming part of Letters Patent No. 344,701, dated June 29, 1886.

Application filed October 12, 1885. Serial No. 179,582. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE WESTINGHOUSE, Jr., residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, a citizen of the United States, have invented or discovered a certain new and useful Improvement in Means for Detecting and Carrying off Leakage from Gas-Mains, of which improvement the following is a specification.

In the accompanying drawings, which make part of this specification, Figure 1 is a longitudinal central section through an underground gas-main with my improvement applied, and Fig. 2 a transverse section through the same at the line of one of the detector and escape pipes.

My present invention relates to improvements of the general class, which is exemplified in Reissued Letters Patent No. 10,561, and in Letters Patent Nos. 312,541 and 212,542, all granted and issued to me under date of February 17, 1885, and its object is to prevent the loose packing through which leakage of gas passes to the detector and escape pipe from becoming choked with earth or water, and thereby to maintain the same in proper condition to permit the free passage of gas.

To this end my invention, generally stated, consists in the combination of an underground gas-main, a superposed body of loose packing having intercommunicating recesses, a cover or facing of tar paper or other material adapted to resist the entrance of foreign matters into the interstices of the packing, and a detector and escape pipe passing through said facing from the packing to a point above the level of the ground.

The improvement claimed is hereinafter fully set forth.

The underground gas-main 1 is, as in my Letters Patent above referred to, provided either at intervals in its length, as at couplings, valve-connections, connections with branch lines, or other points at which leakage may be apprehended, or continuously throughout its length, as the case may be, with a body of loose packing composed of fragments of solid material—such as broken stone, coarse gravel, small scrap-metal, &c.—the same covering the upper and more or less, as desired, of the lower portion of the main, and being arranged to present a series of intercommunicating recesses or

spaces, which form avenues for the passage of gas which may leak from the main. In order to prevent such spaces from becoming choked up by superincumbent earth, or interfered with by water leaking through them, a cover or facing, 5, for which in practice I have found tar paper to be desirably adapted, but which may be composed of thin sheet metal, wood, or other material which will prevent the entrance of foreign matters, is laid upon the top of the body of packing 2, and may extend as far as deemed necessary downwardly along the sides of the same. The detector and escape pipes 4, which are located at proper distances apart in the length of the main, pass through the cover 5, their lower ends being located within the body of packing 2 adjacent to the main 1, so as to afford an outlet for the gas leaking thereinto, which escapes from the upper ends of the pipes 4 at a suitable distance above the level of the ground.

The detector and escape pipes may either discharge directly into the atmosphere, as shown, or into the interior of lamp-posts or other structures through which the gas may be permitted to escape without danger or inconvenience.

The cover 5 may be easily applied at trifling cost, and, after the filling up of the excavation, acts to prevent the entrance of earth or leakage of water into the packing, which is thus always free to properly perform its function of conducting the leakage of gas to the detector and escape pipes.

I am aware that it has been proposed, and possibly practiced to some extent, to cover the stone filling of underground mains with brush, shavings, or straw, in order to prevent to a certain degree the crevices between the fragments of stone from becoming filled with earth. Such expedient does not, however, provide an equivalent for the positive continuous cover or facing of material in sheets employed by me, the former being an open casing, which arrests the passage of solid matter but partially and imperfectly, and is inoperative to prevent the passage of water, while the latter is a closed casing, and effectually performs both the functions stated.

I am further aware that a cover of solid material, placed above an underground main unprovided with a packing of solid material, was



known prior to my invention, and such, therefore, broadly I here disclaim. Such cover, however, and its relation to the main, as heretofore proposed, are wholly different from  
5 the combination constituting my present invention.

In the former instances the sole object of the cover was to provide a continuous open space of greater or less length above the main, while  
10 under my invention I avoid, by the employment of the packing of solid material, such continuous space, in which a sufficient volume of gas might collect to involve risk of explosion, and substitute therefor a series of compara-  
15 tively-minute separate and communicating recesses or passages. To maintain these in operative condition and insure the free passage of the gas which may leak from the main, the packing is furnished with a protecting-cover  
20 of solid material, and to carry off the gas at proper points detector and escape pipes lead from the packing to suitable points of dis-

charge. The result desired could not be attained without the co-operation of all the devices employed, and these, so far as my knowl- 25 edge and information extend, have not been heretofore combined as set forth by me.

I claim herein as my invention—

The combination of an underground gas-main, a packing of solid material having inter- 30 communicating interstices and adjoining the main, a cover or facing laid upon the packing and composed of tar paper or other material adapted to resist the passage of foreign matter into the same, and a detector and escape pipe 35 communicating with the packing and leading therefrom to a point above the surface of the ground, substantially as set forth.

In testimony whereof I have hereunto set my hand.

GEO. WESTINGHOUSE, JR.

Witnesses:

J. SNOWDEN BELL,

R. H. WHITTLESEY.