

(No Model.)

G. C. DEAKE & G. N. MOORE.
SUBWAY JUNCTION BOX.

No. 579,864.

Patented Mar. 30, 1897.

Fig: 1.

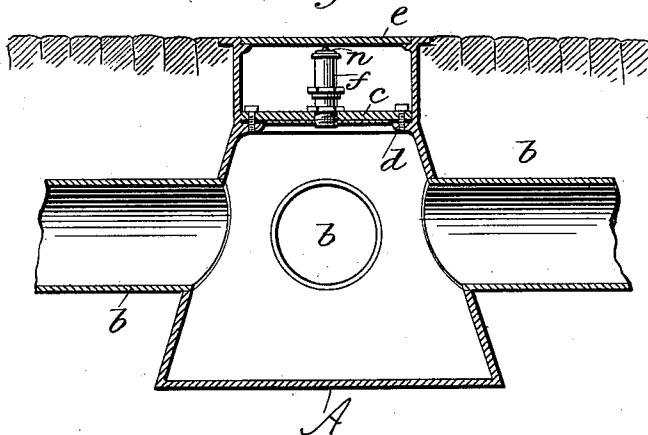


Fig: 2.

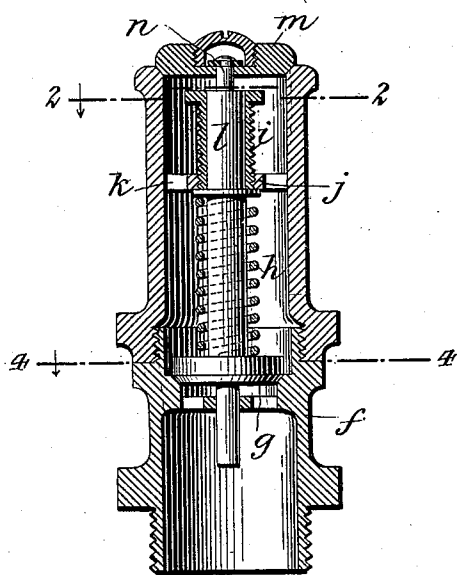


Fig: 3.

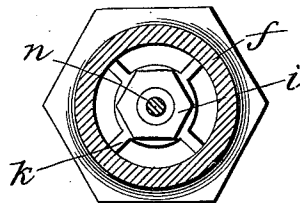
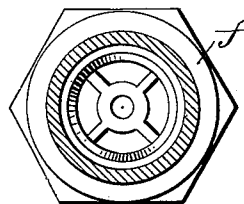


Fig: 4.



WITNESSES:

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UNITED STATES PATENT OFFICE.

GEORGE C. DEAKE AND GEORGE N. MOORE, OF NEW YORK, N. Y.

SUBWAY JUNCTION-BOX.

SPECIFICATION forming part of Letters Patent No. 579,864, dated March 30, 1897.

Application filed June 30, 1896. Serial No. 597,657. (No model.)

To all whom it may concern:

Be it known that we, GEORGE C. DEAKE and GEORGE N. MOORE, citizens of the United States, and residents of New York city, in the county and State of New York, have invented certain new and useful Improvements in Subway Junction-Boxes, of which the following is a specification.

Our invention consists of improvements in subway junction-boxes whereby the accumulations of gas in the subways may be effectually vented off without liability of derangement by water and frost in cold weather and so as to insure certainty of relief at all times from the dangerous explosions now common to subways, as hereinafter described, reference being made to the accompanying drawings, in which—

Figure 1 is a sectional elevation of a subway-box and parts of subway-tubes, illustrating the application of our invention. Fig. 2 is a sectional elevation of the duplex relief-valve of our improved apparatus on an enlarged scale. Fig. 3 is a transverse section of Fig. 2 on line 2 2, and Fig. 4 is a similar section on line 4 4.

A represents the subway-box; b, the tubes of the subway, connected with the box.

c is the cover-plate, bolted down and tightly packed on the flange d below the top of the box to exclude water, and e is the cover at the top of the box flush with the surface, as commonly arranged, said cover e not being bolted because of the impracticability of maintaining a tight cover at the surface exposed to the roadway traffic.

In a valve-case f, properly inserted in the cover c, we provide a relief-valve g, with a regulating-spring h, coiled on the stem and subject to a tubular adjusting-nut i for adjusting the pressure of the spring on the valve, as desired. The nut i is fitted in the perforated and screw-threaded diaphragm k, and is of tubular construction to permit the valve-stem l to extend through and above it for the application of another valve m to its upper end, and which seats on the top of the case f in an arrangement adapted to shed off any water that may fall on the top, as of vapor that may condense on the under side of the cover, or in case the chamber should fill with water leaking through the joint of the top

cover and thus protect the gas-valve from water and exclude it from the valve-case, which being filled or partly filled would burst by the freezing of the water in cold weather.

We couple the upper valve with the stem l by a sliding joint, as n, whereby the gas-valve will rise first and the chamber between the two valves will fill with gas of sufficient tension to blow off any water that may happen to be in such relation to valve m as would otherwise flow on the opening of valve m into the case and might carry dirt onto the seat and prevent effective closing.

Our invention relieves the subway service of a large expense in opening boxes at intervals along the lines daily to permit escape of gas, which is the common practice and involves the services of considerable numbers of men in large systems.

We claim—

1. The combination in a subway-box, of the inner lower water-tight cover, the loose top cover, and the duplex gas-relief valve in the lower cover, said valve adapted to first open the vent into the valve-chamber, and later open the vent from said chamber substantially as described.

2. The combination in a subway-box, of the inner lower water-tight cover, the loose top cover, and the duplex gas-relief valve in the lower cover, one of the valve-disks being connected to the valve-stem by a sliding joint to delay its opening relatively to the opening of the other disk substantially as described.

3. The combination in a subway-box, of the inner lower water-tight cover, the loose top cover, and the duplex gas-relief valve in the lower cover, the lower disk of said valve being permanently fixed to the stem, and the upper valve-disk connected to said stem by a sliding joint to delay its action relatively to the action of the lower disk substantially as described.

4. The combination in a subway-box, of the inner lower water-tight cover, the loose top cover, and the duplex gas-relief valve in the lower cover, the upper disk of the valve being seated at the top of the valve-case for discharge of the water thereon by the escaping gas substantially as described.

5. The combination in a subway-box, of the inner lower water-tight cover, the loose top

cover and the duplex gas-relief valve in the lower cover, the upper disk of the valve being seated at the top of the valve-case for discharge of the water thereon by the escaping
5 gas, and connected to the valve-stem by a sliding joint for opening later than the opening of the lower valve substantially as described.

Signed at New York city, in the county and State of New York, this 11th day of June, A. D. 1896.

GEO. C. DEAKE.
GEORGE N. MOORE.

Witnesses:

W. J. MORGAN,
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