

(No Model.)

J. F. HARRISON.  
EQUILIBRATED GAS HOLDER.

No. 272,248.

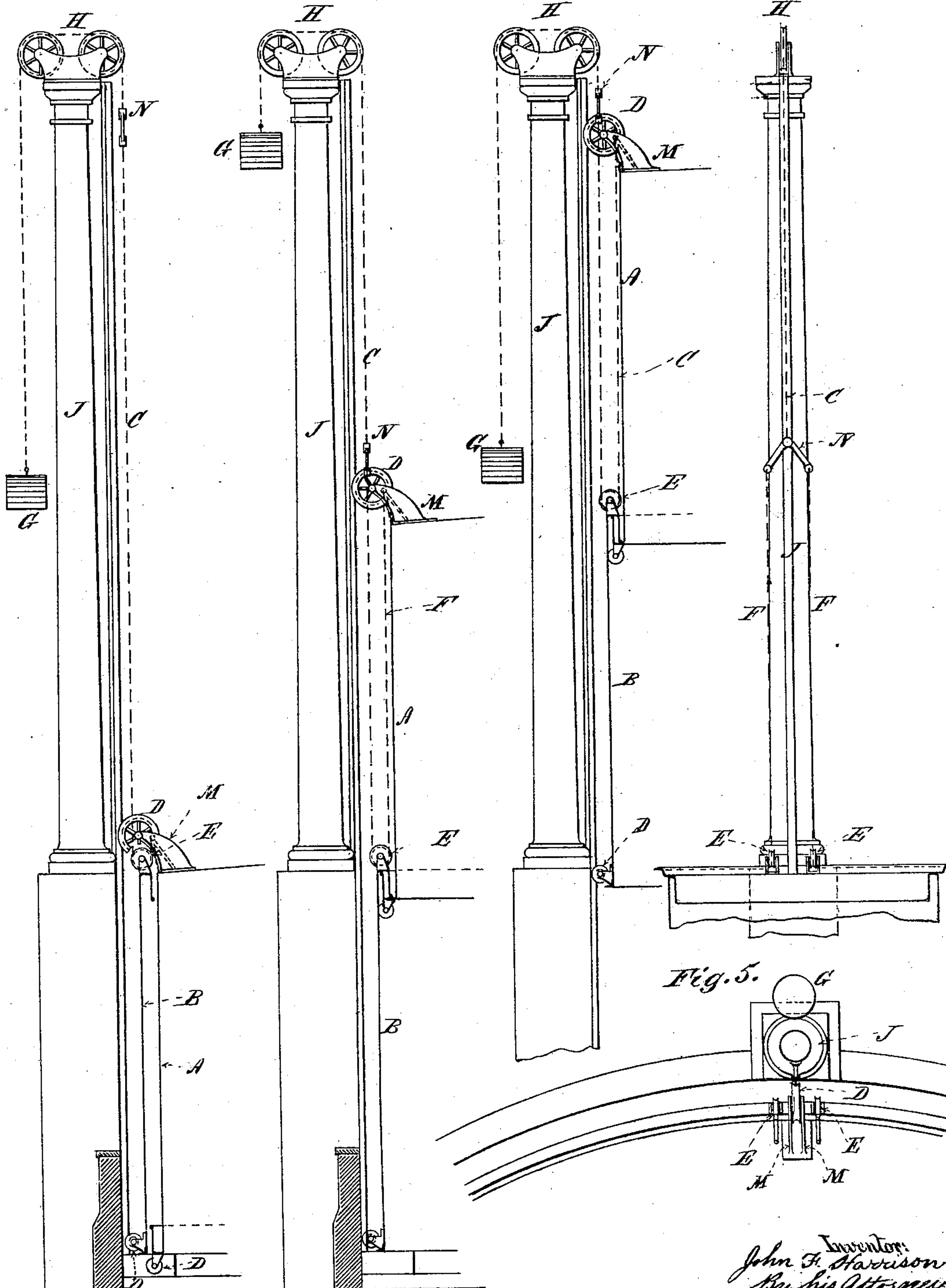
Patented Feb. 13, 1883.

Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.



Witnesses:  
Wm. A. Pollock  
Wm. Gardner.

Inventor:  
John F. Harrison  
By his Attorney  
E. N. Dickerson & Co.



# UNITED STATES PATENT OFFICE.

JOHN F. HARRISON, OF NEW YORK, N. Y., ASSIGNOR OF ONE-HALF TO  
HENRY J. DAVISON, OF SAME PLACE.

## EQUILIBRATED GAS-HOLDER.

SPECIFICATION forming part of Letters Patent No. 272,248, dated February 13, 1883.

Application filed November 4, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN F. HARRISON, of the city, county, and State of New York, have invented a new and useful Improvement in Equilibrated Gas-Holders, of which the following is a full, true, and exact description, reference being had to the accompanying drawings.

In the ordinary construction of gas-holders it has been found to be practically impossible to maintain a uniform pressure upon the gas in the different positions of the holder, owing to the fact that the inner and outer sections of the holder do not permanently engage with each other, and that when the inner section is free there is less pressure upon the gas than when the two sections are connected together and the combined weight of them bears upon the gas. An attempt has been made to remedy this difficulty by more or less counterbalancing the weight of the exterior section of the holder; but this remedy is insufficient for the difficulty, since the exterior section must necessarily be heavier than the counter-balance.

I have devised a method wherein by a simple arrangement the interior section of the holder is in its resulting pressure upon the gas at first made heavier than its own weight, and after it has arisen to its full upward movement this additional weight is taken off and an upward or counterbalancing spring put upon the outer section of the holder, thereby in effect decreasing its weight. These results are accomplished by one counter-balance and chain at each point of suspension, and in their result practically increase, during the operation of the machine, the weight of the inner section and decrease the weight of the outer section of the holder.

My invention will be readily understood from the accompanying drawings, in which similar letters refer to similar parts.

Figure 1 represents a sectional view of both sections of the holder depressed; Fig. 2, a view of the holder with the inner section raised; Fig. 3, a sectional view of the holder with both sections raised; Fig. 4, a detailed view of my pulley and chain arrangement; Fig. 5, a plan view of one of my pulleys, showing also the pulleys in position.

A represents the inner section, B the outer

section, of an ordinary gas-holder. *a* is one of a suitable number of pulleys surrounding said holder. These sections are guided past each other by suitable guide-rolls, *D*, in the usual manner. Double chains are attached to the brackets *M*, supporting the guide-roll *D* on the upper holder. These chains pass downward and around the rollers *E*, fastened to the outer section of the holder, and thence upward to the link *N*, where they are united in one chain, passing over the rollers *H* on top of the pulley *J*. To the other end of this chain the adjustable weight *G* is attached.

The operation of my apparatus can now be readily understood. Supposing gas to be admitted to the holder when in the position shown in Fig. 1, the inner section will commence to rise, and will continue to rise until its sealing-cup engages with the corresponding lip on the outer section, *B*, of the holder, when it will be in the position shown in Fig. 2. As the inner holder rises from the position shown in Fig. 1 to that in Fig. 2, it will thereby elevate the weight, as shown in the figures, and the weight *G* is thereby added to the weight of the inner section, *A*, of the holder. After engagement, however, when the two sections rise together, the weight *G* will once more fall, and as the combined sections move from the position shown in Fig. 2 to the position shown in Fig. 3 their weight will be lessened by the weight of *G*. In descending the converse operation takes place.

It will be understood that in speaking of the weight *G*, I refer to each of the several weights which may surround the holder. By properly apportioning these weights and judiciously distributing the entire weight between the inner and outer sections a perfectly uniform pressure may be maintained upon the gas.

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

1. The equilibrated gas-holder here shown, which consists of the combination of an inner and outer holder-section, and a chain or cord attached to the upper part of the inner section and passing under a pulley on the outer section and then over an elevated pulley, and having a weight attached to its free end, thereby increasing the weight of the inner section

and decreasing the weight of the two combined sections in their effect upon the gas, substantially as described.

2. The combination, in a gas-holder, of the  
5 inner section, A, the outer section B, and the double chain or cord C, passing under the pulleys E and attached to bracket M, or its equivalent, substantially as described.

3. The combination of the inner holder-section, A, outer section, B, chain C, pulley H, 10 weight G, pulley E, and bracket M, or its equivalent, substantially as described.

JOHN F. HARRISON.

Witnesses:

GEO. H. EVANS,

WM. A. POLLOCK.