No. 633,427. Patented Sept. 19, 1899.

W. F. COOPER.

GASOMETER.

(Application filed July 12, 1899.)

(No Model.)

Fig. 1.

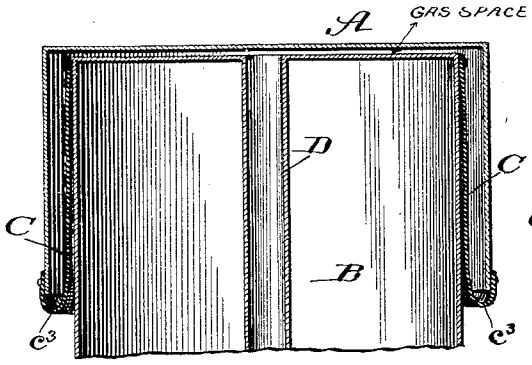


Fig. 1a.

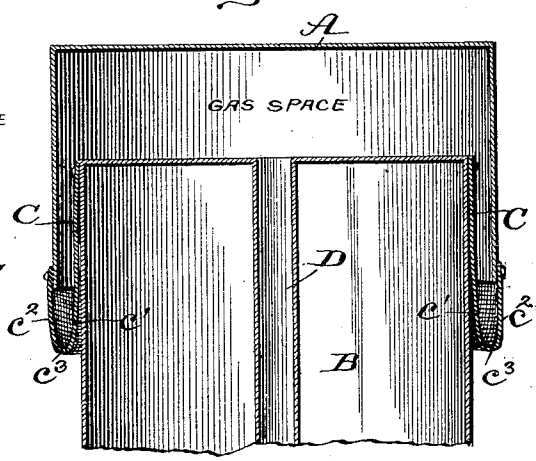


Fig. 2.

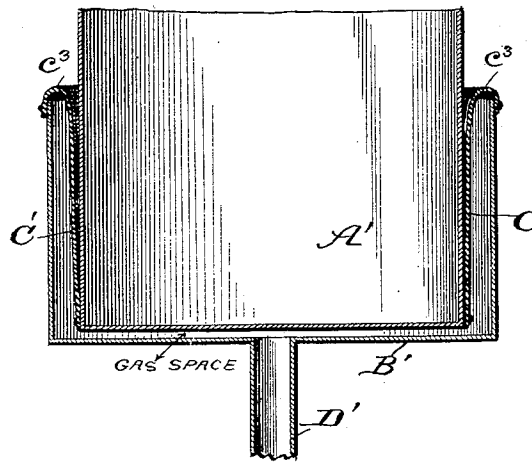
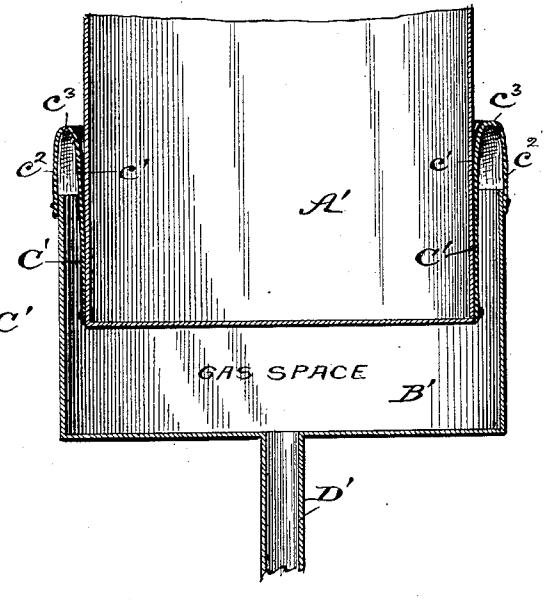


Fig. 2a.



WITNESSES:

Jos. A. Ryan

Edw. W. Byrn.

INVENTOR

William F. Cooper.

BY Munn & Co.

ATTORNEYS.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

WILLIAM F. COOPER, OF MERIDEN, CONNECTICUT.

GASOMETER.

SPECIFICATION forming part of Letters Patent No. 633,427, dated September 19, 1899.

Application filed July 12, 1899. Serial No. 723,586. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM F. COOPER, of Meriden, in the county of New Haven and State of Connecticut, have invented a new and useful Improvement in Gasometers, of which the following is a specification.

My invention is in the nature of an improvement in gasometers or gas-holders. Its object is to dispense with the water seal for the rising-and-falling bell and to give the bell a larger range of movement and to adapt it for small generators, such as are used for the production of acetylene gas.

It consists in the special arrangement of two receptacles which telescope or nest the one into the other and a connecting-skirt of impervious elastic material which connects the edges of the two members of the gasometer in a peculiar way and for a specific purpose, as will be hereinafter more fully described with reference to the drawings, in which—

Figure 1 is a sectional view of the essential parts of the gasometer when the bell is in its lowest position. Fig. 1ª is a similar view showing the bell partly raised. Figs. 2 and 2ª are similar views showing a modification.

In the drawings, Figs. 1 and 1ª, A represents the rising-and-falling bell, having pendent side walls and an open bottom and made somewhat larger than and telescoping over an inner receptacle B. Into the space between A and B there opens an inlet-tube D for gas, which tube is fixed rigidly to the inner receptacle B at any desired point.

C is a flexible skirt of impervious flexible material, such as fabric soaked in some substance to fill its pores, fine soft leather, or any other similar material. For rendering it impervious, flexible, and free from friction a compound of oil and plumbago may be used. This skirt extends all the way around the gasometer and is connected at its upper edge to the upper edge of the inner receptacle B and at its lower edge to the lower edge of the side walls of the bell A.

I am aware that the two parts of a gasometer have been heretofore connected by a flexible skirt in the place of a water seal; but the peculiar arrangement of the flexible skirt in my invention is new and of very great importance in that it forms when the bell rises and falls an annular sheath, as in Fig. 1ª, in which the gas is contained between the two walls c' c^2 of the doubled skirt in the form of an annular film. This keeps the moving wall c^2 of the skirt separated some distance from the stationary wall c' and has the important result of making a large rolling bend in the bottom of the fabric at c^3 instead of a sharp one, which latter quickly breaks the material and forms leaks. In keeping the wall c^2 out of sliding contact with c' as the bell rises and falls it also entirely avoids the great friction of rubbing contact between the two walls of the fabric, thus securing great sensitiveness for the rise and fall of the bell instead of being cramped and retarded, as when one layer of the fabric slides in contact with the other layer.

As a modification of my invention I may, as in Figs. 2 and 2ª, invert the bell, as at A′, and also the other receptacle B′, the inlet-pipe D′ entering the stationary part B′ below. In this case the bell A′ enters the part B′, and the flexible skirting C′ is connected at the top to the upper edge of the receptacle B′ and at its bottom with the lower edge of the bell A′. The same principle, however, is involved in that the flexible skirting forms an annular gas-holding sheath as the gasometer moves, whose flexible walls are out of contact with each other, causing the skirting to bend or roll at the bottom with a large curve.

Although not absolutely necessary, it is desirable to use for the skirting of the gasometer a fabric or material that is elastic in the direction of the circumference, since as it rolls up it occupies a somewhat larger circumference.

In defining my invention with greater clearness I would state that the two cylindrical telescopic members of my gasometer are made of a sufficiently different diameter to leave considerable space between the side walls, so that the flexible skirting forms a gradual bend whose concave side faces inwardly to the gas-space and not only relieves friction, as hereinbefore described, but the annular rolling gas-sheath thus formed centralizes and guides the movable member in a very delicate and sensitive manner without the necessity of any separate mechanical guides.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A gasometer comprising two cylindrical members with closed heads telescoping the one into the other and having their side walls separated a distance from each other to give loose play, and a flexible skirt connecting the upper edge of one member to the lower edge of the other member and bending with a gradual curve whose concave side faces inwardly to the gas-space, forming a flexible annular sheath centralizing and guiding the movable member substantially as and for the purpose described.

2. A gasometer comprising two cylindrical members with closed heads telescoping the one into the other and having their side walls separated a distance from each other to give loose play, one member being movable and the other stationary, and the stationary member having a central gas-inlet, and a flexible skirt connecting the upper edge of one member to the lower edge of the other member and bending with a gradual curve whose concave side faces inwardly to the gas-space, forming a flexible annular sheath centralizing and guiding the movable member substantially as and for the purpose described.

3. A gasometer comprising two cylindrical members, with closed heads, telescoping the one into the other and having their side walls separated a distance from each other to give loose play both of these members having their heads at their upper ends and their chambers opening downwardly, and the lower and smaller member being stationary and having a central inlet-pipe opening through its head, and a flexible skirt attached at one edge to the lower edge of the larger and movable member and at its other edge to the upper edge of the smaller and stationary member and bending with a gradual curve whose concave side faces inwardly to the gas-space forming a flexible annular sheath centralizing and guiding the movable member substantially as and for the purpose described.

WILLIAM F. COOPER.

Witnesses:
M. W. DORGAN,
L. C. PARDEE.