J. L. Gilliland,

Glass Furnace,

No. 41,065, Patented Jan. 5, 1864.

Fig: 1.

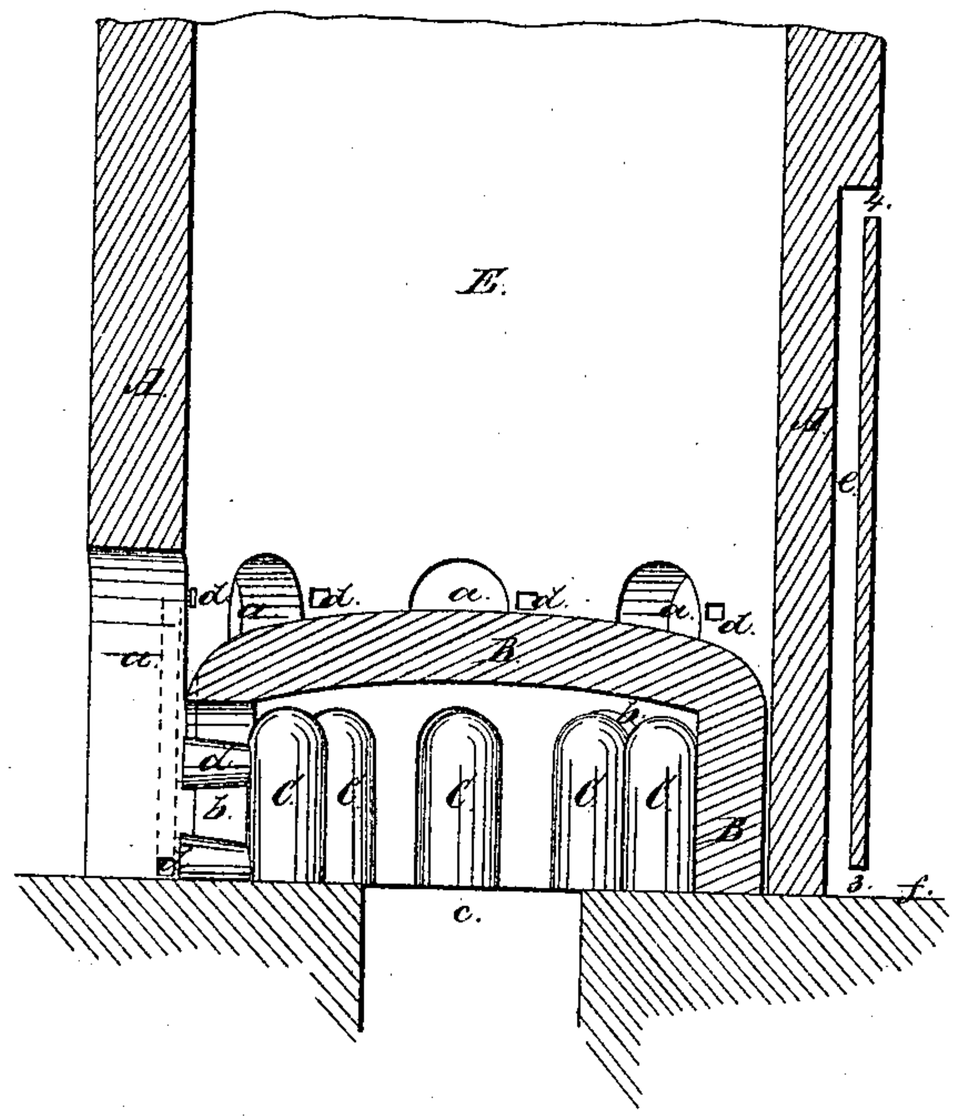
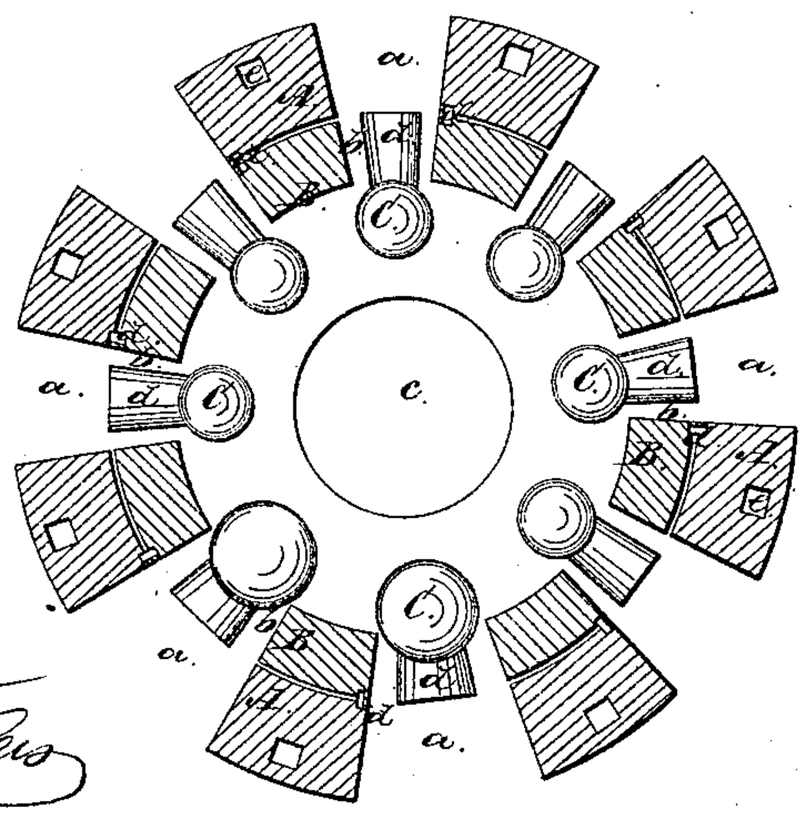


Fig: 2.



Witnesses:

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UNITED STATES PATENT OFFICE.

JOHN L. GILLILAND, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN MANUFACTURE OF GLASS.

Specification forming part of Letters Patent No. **41,065**, dated January 5, 1864.

To all whom it may concern:

Be it known that I, JOHN L. GILLILAND, of the city of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in the Manufacture of Glass; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a vertical section of a glass-furnace, illustrating my invention. Fig. 2 is a horizontal section of the same.

Similar letters of reference indicate corresponding parts in both figures.

My invention consists in the employment for what is termed the "finishing" of glassware of a furnace and pots of the same kind as are used in the melting process, whereby I am enabled to produce goods having a brighter and cleaner surface than goods finished by the use of any other kind of furnace, as the glass while being finished is not exposed to the fumes of sulphur, or to smoke, dust, or any other deleterious agency.

It also consists in providing in the outer shell of a glass-furnace a system of air-flues, which are open at the top and bottom, on the exterior of the shell or cone, the lower opening being arranged at a suitable distance from the floor of the glass-house for the reception of the heated and impure air, and the upper ones for the discharge of such air above the roof of the house, and the said flues serving both for the ventilation and cooling of the house and for the reduction of the excessive heat of the shell of the furnace.

I will now proceed to describe the furnace by the aid of the drawings.

A is the outer shell of the furnace, constructed either round, square, or other form in its transverse section, and with arches, *a a*, for working, and for the introduction and removal of the pots when necessary. B is the dome within which the pots C C are arranged, constructed with arches *b b*, to correspond with the arches *a a* of the outer shell or cone, A. The pots C C are constructed like the covered pots commonly used for melting flint-glass, and may be of any size, and they are arranged one opposite each arch, in the manner which is usual in the melting-furnace, their mouths *d d* being within the arches *b b*. The arches *b b* are closed and luted in the usual manner after the insertion of the pots. The fire from the eye *c* of the furnace circulates under the dome among and around the pots, and the smoke and gaseous products of combustion pass off to the chimney E by flues *d d*, formed on one side of each arch *a*, the said flues receiving the smoke and gases at the bottoms of the arches and delivering them above the dome. The fuel used may be of any kind.

In a furnace thus constructed the mouth *d* of each pot constitutes what is termed a "glory-hole," and each pot can be used for the manipulation and finishing of all kinds of glassware with a very superior result, as the covered pots protect the glass perfectly from the smoke, fumes, and dust of the furnace.

e e are the ventilating and cooling flues provided in the shell A, and opening in the exterior thereof, as shown in Fig. 1. The lower openings, 3 3, of these flues are near the floor of the house, and the upper ones, 4 4, are at such a height as to be above the roof of the house. The roof is, however, not shown in the drawings. The upward draft in these flues, induced by the heat of the shell, causes the heated and impure air to escape from the house by means of the said flues, and the air so escaping cools the shell in some degree.

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

The employment, for the finishing of glassware, of a furnace and pots, substantially as herein described.

JOHN L. GILLILAND.

Witnesses:

THOS. S. J. DOUGLAS,

GEO. W. REED.