

A. K. Hay,
Glass Furnace,
No. 11,893,
Patented Nov. 7, 1854.

Fig. 2

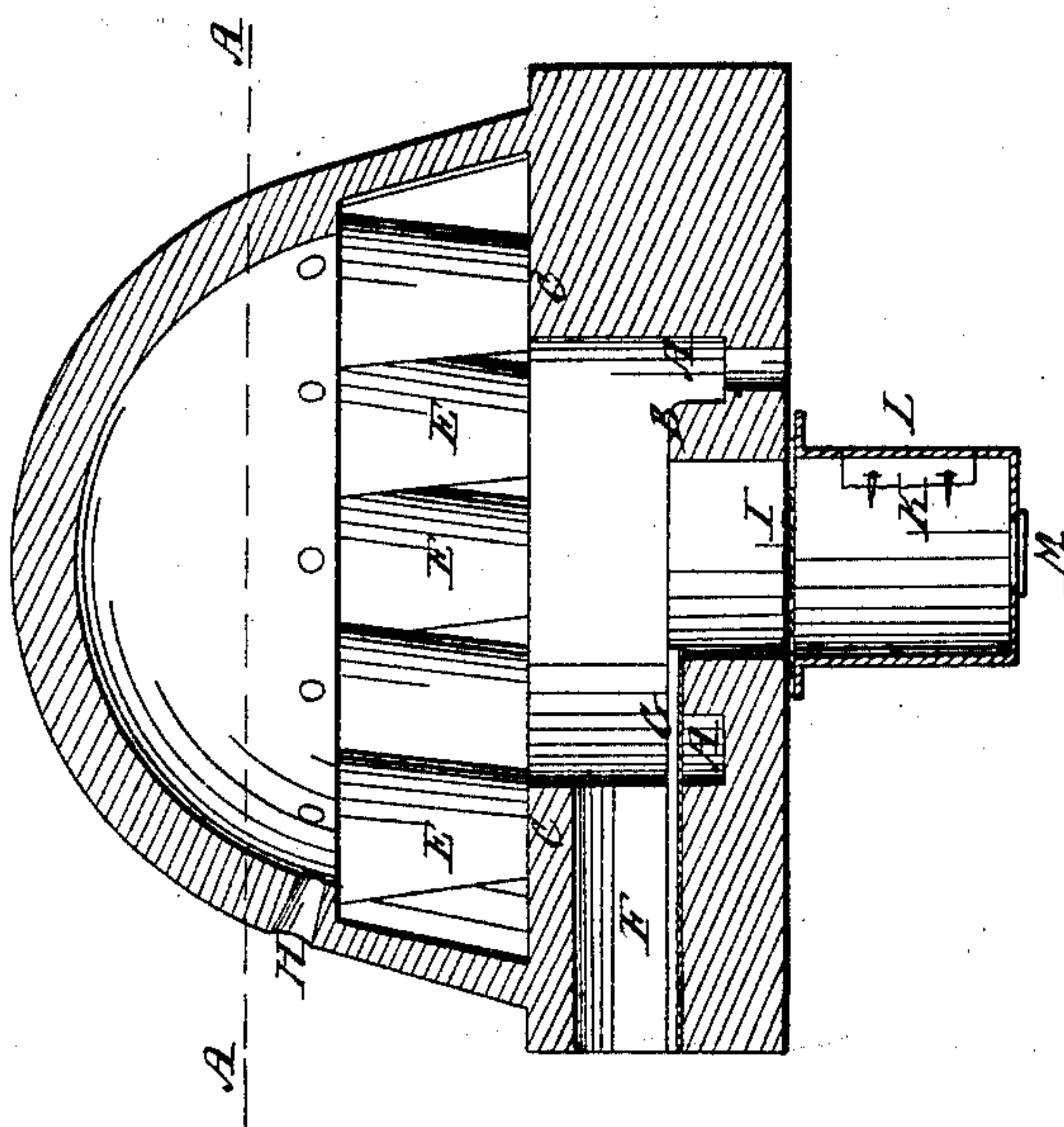
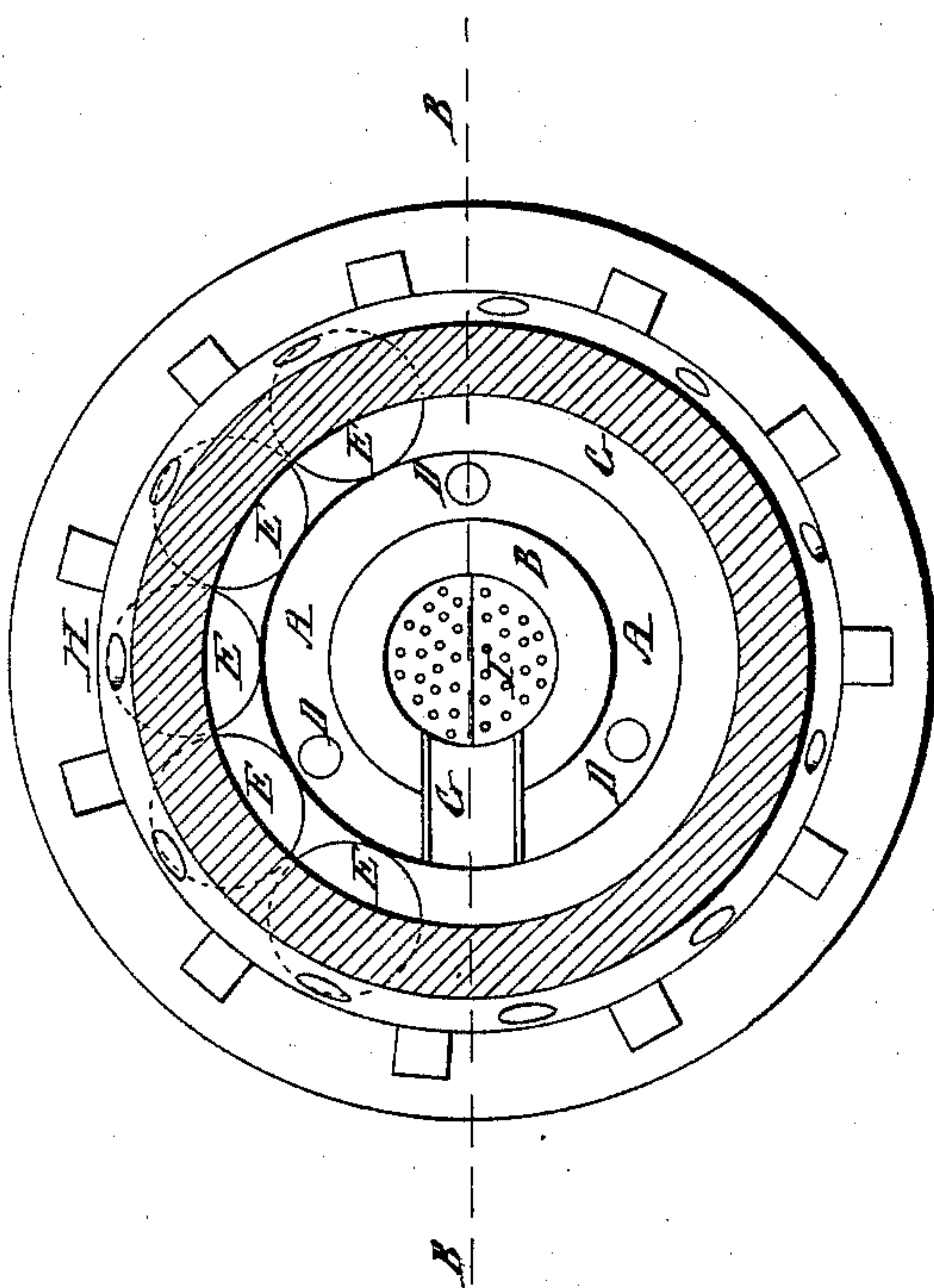


Fig. 1



UNITED STATES PATENT OFFICE.

A. K. HAY, OF WINSLOW, NEW JERSEY.

GLASS-FURNACE.

Specification of Letters Patent No. 11,893, dated November 7, 1854.

To all whom it may concern:

Be it known that I, ANDREW K. HAY, of Winslow, in the county of Camden and State of New Jersey, have invented an Improvement in Glass-Furnaces, and that the following is a full, clear, and exact description of the principle or character which distinguishes it from all other things before known, and of the usual manner of making, modifying, and using the same, reference being had to the accompanying drawings, of which—

Figure 1 is a plan of the furnace with the dome removed above the line A A of Fig. 2 for showing the interior of the furnace. Fig. 2 is a vertical section taken through B B of Fig. 1.

My invention consists in an improved furnace for using anthracite coal with a blast by which I save a large amount of fuel and at the same time prevent the melted glass from running onto and deadening or smothering the fire.

The introduction of anthracite coal as a fuel in the manufacture of glass is of recent date and although very economical yet from my own experience therein I have observed a very great loss of heat in the present mode as conducted according to the patent of Hay and Brookfield in which the fire grates are at the sides or ends of the furnace and remote from the pots. By adopting the circular arrangement as herein set forth the fire is in the center and nearer the pots and a larger number of pots can be used than on any other plan. The central position of the fire has been before essayed with other kinds of fuel, but in such form as to be highly objectionable and entirely impracticable for anthracite coal. In such cases the fire chamber has been so situated in relation to the crucibles and sieges or benches that when a crucible broke (not an uncommon occurrence) the melted glass run upon the fire and put it out or checked it to such

an extent that the furnace had to be cleared out and the whole melt lost. The glass also sometimes overflowing from the pots and that scattered by the pipes of the blowers, fell upon the fire and deadened it. These evils I entirely obviate by my improvement which consists in making a circular trench A around the fire pot B and between it and the sieges or bench C. If any crucible should break or glass overflow it will be seen that it will run into the trench from which it may be taken out through the openings D, D. The crucibles E, E, are shown in their places upon the sieges and it will be seen that they are all equally exposed to the fire. The fire pot being to some extent insulated, the heat which would have otherwise been absorbed by contact with the sieges, is saved, and at the same time the crucibles receive a larger amount of radiated heat than under any other plan. Thus the heat is economized from four sources viz—the central position of the fire, the prevention of loss by conduction, the increased radiation and keeping the melted glass away from the fire. The furnace is fed through aperture F from which there is a trunk or bridge G running across the trench to the top of the fire pot. The glass is taken from the crucible through the hole H there being one or more to each pot. The fire grate is seen at I below which is the trunk K for receiving the blast. When the melt is finished the fire is tended through doors or manholes L in this trunk and the ashes are discharged through the trap door M.

I do not claim a central fire pot in glass furnaces, but I do claim the trench around the same and between it and the sieges for the purposes herein set forth.

A. K. HAY.

Witnesses:

T. CAMPBELL,
CHAS. H. UPTON,