A. K. Hay,

Glass Furnace.

No. 35,314. Patented May 20, 1862.

Fig: 1

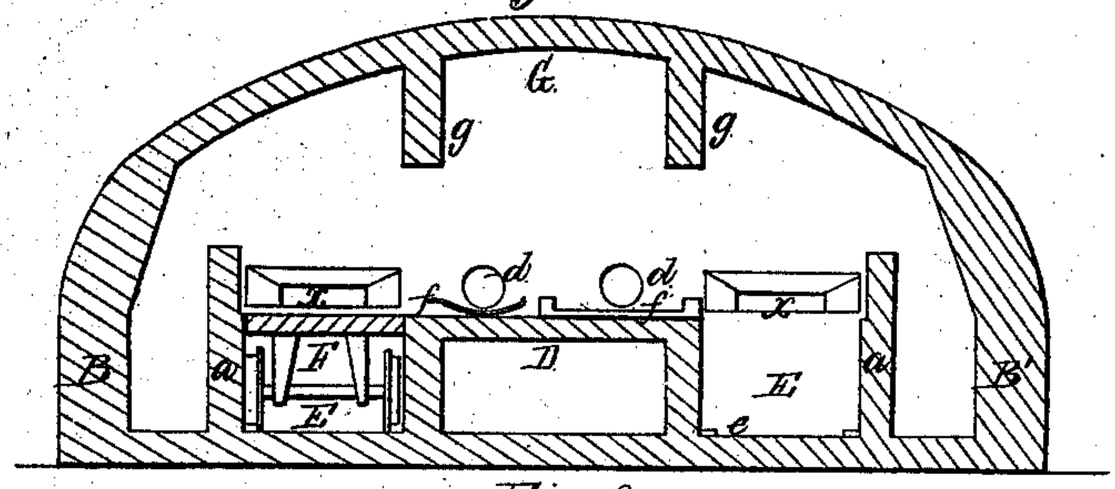


Fig: 2

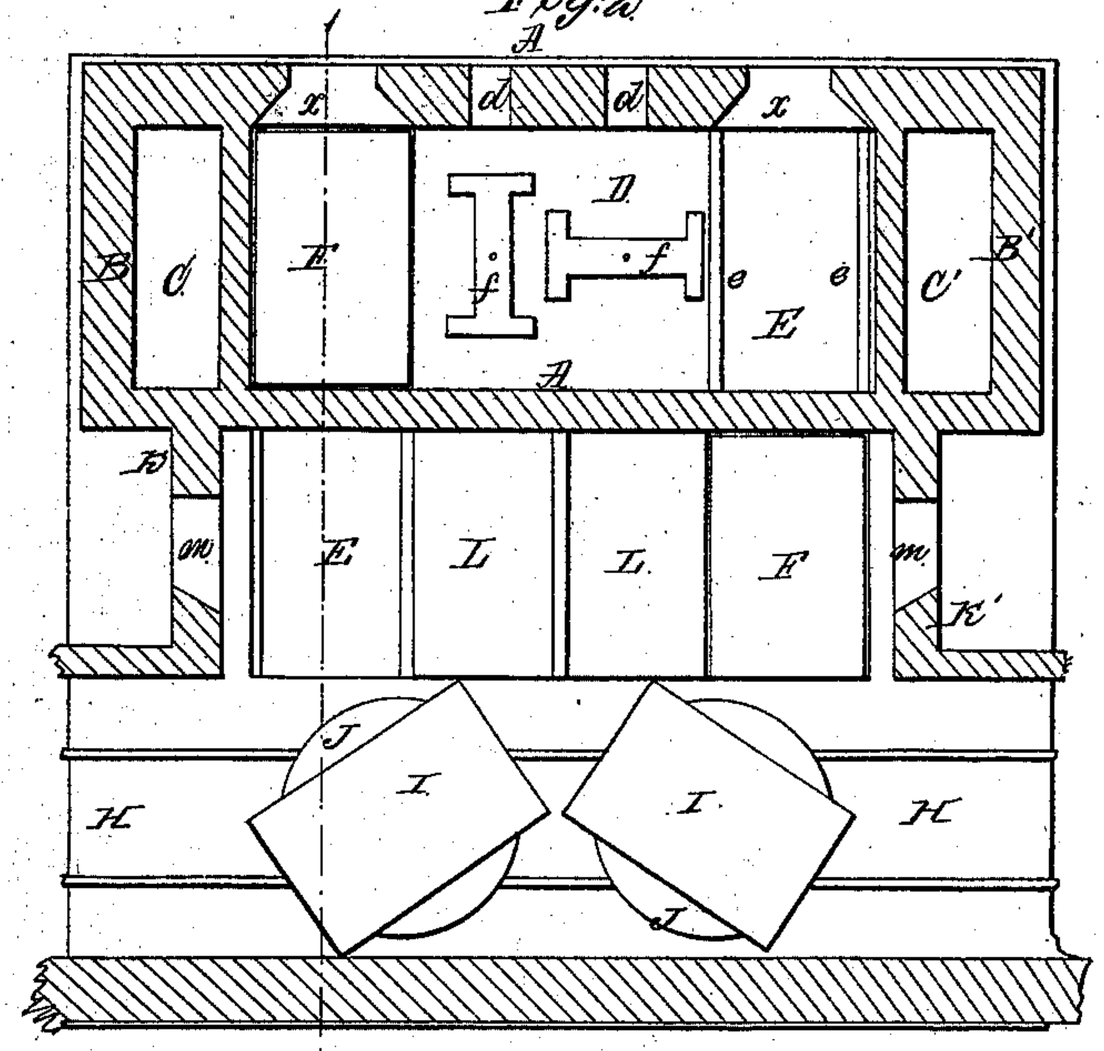
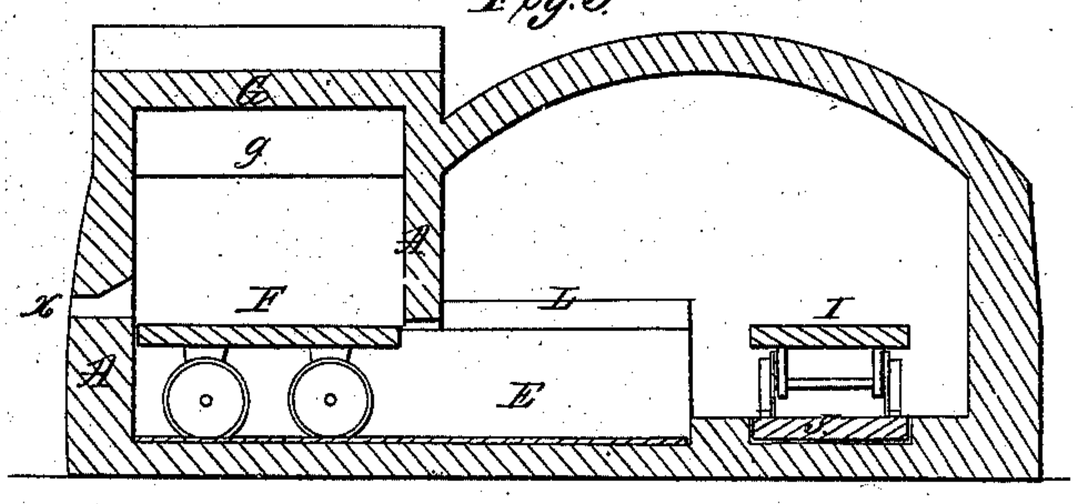


Fig: 3



Witnesses:
Charles E. Foster
G. Howson.

Inventor.
A. K. Hay.
by
Henry Howson

UNITED STATES PATENT OFFICE.

ANDREW K. HAY, OF WINSLOW, NEW JERSEY.

IMPROVEMENT IN GLASS-FURNACES.

Specification forming part of Letters Patent No. **35,314**, dated May 20, 1862.

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 I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My invention relates to an improved construction of furnaces for heating and flattening severed cylinders of glass and for annealing the flattened plates.

My improved furnace is composed of a heating-compartment with two fire-places, a heating-platform, and two pits, an intermediate compartment with two platforms and a continuation of the said pits, and an annealing-compartment, the whole being arranged substantially as described hereinafter, so that the operations of heating, flattening, and annealing may be continuous and rapidly accomplished, and so that the expense of constructing the furnace may be small compared with the extent of work which can be executed in it, and so that fuel may be economized.

In order to enable others skilled in the art to make and use my invention, I will now proceed to describe its construction and operation.

On reference to the accompanying drawings, which form a part of this specification, Figure 1 is a vertical section; Fig. 2, a ground plan of my improved furnace for flattening and annealing glass; and Fig. 3, a transverse section on the line 1 2, Fig. 2.

Similar letters refer to similar parts throughout the several views.

The heating and flattening compartments of my improved furnace is contained within the walls A and A′, and B and B′, Fig. 2, a section of this portion of the furnace being represented by Fig. 1.

C and C′ are the fire-chambers, and D is the brick platform for receiving the cylinders of glass. On each side of this platform is a pit, E, on the bottom of which are laid rails *e e*, for receiving the flanged wheels of trucks F, the fire-proof surfaces of which are level with the platform D, each pit being separated from the adjacent fire-place by a partition-wall, *a*, and the whole being inclosed by the arched top G of the furnace, from the under side of which project the deflectors *g g*, for directing the heat from the fire-places onto the platform D.

H is the annealing portion of the furnace, and consists of a long and narrow covered chamber with rails on the bottom for receiving the flanged wheels of the trucks I I, there being turn-tables J J at the points shown in the drawings, in order that the trucks may be made to assume the angular position illustrated.

Between the heating and annealing portion of the furnace is an intermediate chamber, of which K and K′ are the end walls, this chamber being separated from the heating-chamber by the wall A′, through which are openings of sufficient size to allow the trucks F to pass freely along the pits E and E′ which, with the rails, are continued into the intermediate chamber, the rear of the latter being open to the annealing-furnace.

The cylinders of glass are introduced into the heating-furnace through openings *d d* in the front of the same, and deposited in the first instance on the curved plates *f f*, which are arranged to turn on the platform D. From these plates the cylinders, after being sufficiently heated, are removed to the trucks F, where through an opening, *x*, in the front of the furnace they are flattened out by rubbing with the usual wooden instruments. After this the trucks are pushed along the pits E E into the intermediate chamber, in the walls K and K′ of which are openings *m m*, and through the latter the attendants push the glass from the trucks F F onto the platform L, when the said trucks are at liberty to be returned to the heating portion of the furnace preparatory to receiving another plate of glass. In the meantime the plates on the platform L are removed to the trucks I, the latter by means of the turn-tables J J being caused to assume the angular position illustrated, which permits the attendant to readily effect this removal through the openings *m m* in the wall K and K′. The trucks I, having received the plates of glass, are moved along the annealing portion of the furnace, where the plates of glass are gradually cooled prior to their removal.

It will be seen that by my improved furnace the processes of heating, flattening, and annealing are continuous, three attendants only being necessary, one in front for attending to the heating portion of the furnace, the other two being stationed one in front of each wall K, so as to remove the plates of glass from the trucks F to the platforms L and thence to the trucks I I.

The furnace is cheap as regards its construction, and I have found by practical tests that much less fuel is necessary in proportion to the work executed than in ordinary furnaces as built for the same class of work.

I am aware that glass-furnaces have heretofore been constructed in such a manner that the flattened glass can be removed directly from the heating-furnace to the annealing-furnace by means of trucks. This I do not claim; but

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

The within-described furnace, composed of the heating-compartment with its two fireplaces C and C′, platform D, and two pits, E E, the intermediate compartment with its platforms L L and its continuation of the said pits, and the annealing-compartment H, the whole being arranged substantially as and for the purpose herein set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

A. K. HAY.

Witnesses:
HENRY HOWSON,
C. HOWSON.