2 Sheets—Sheet 1.

J. H. HELM.

Furnace for Heating Links.

No. 200,394. Patented Feb. 19, 1878.

fig. 1.

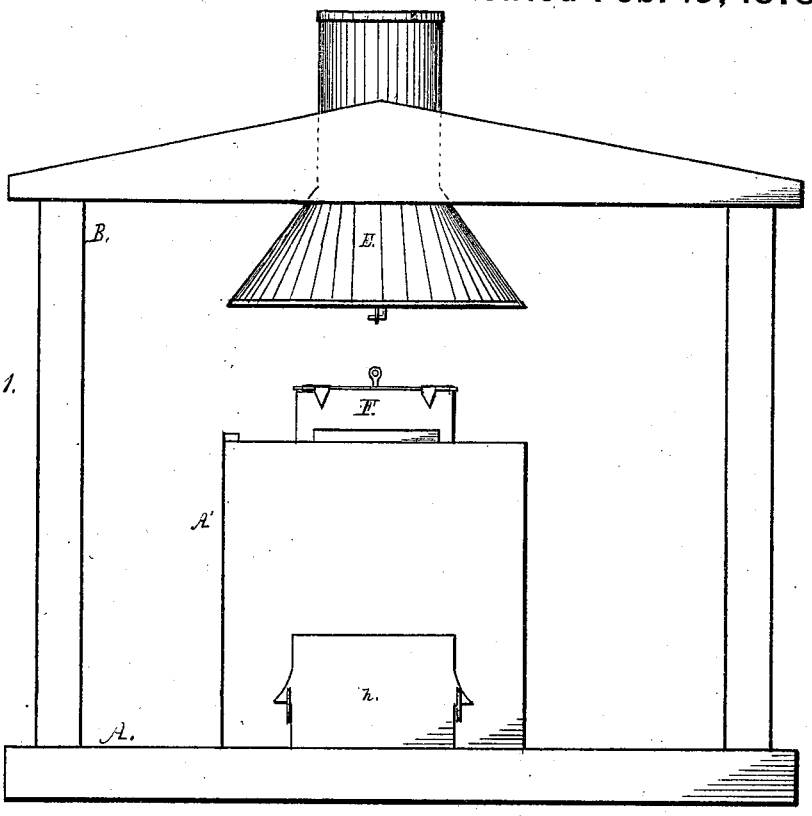
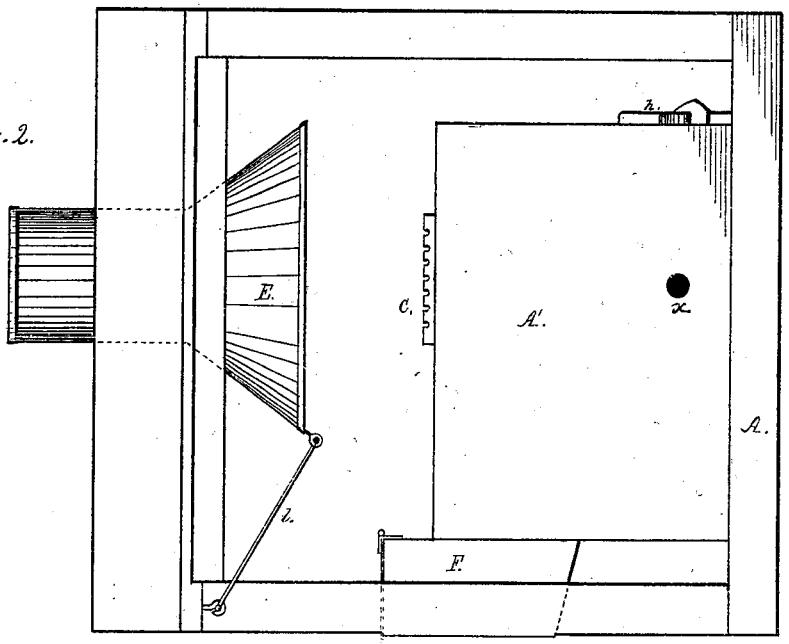


fig. 2.



Witnesses.
L. L. Johnston
A. C. Johnston

Inventor.
J. Henry Helm

2 Sheets—Sheet 2.

J. H. HELM.

Furnace for Heating Links.

No. 200,394. Patented Feb. 19, 1878.

fig. 3.

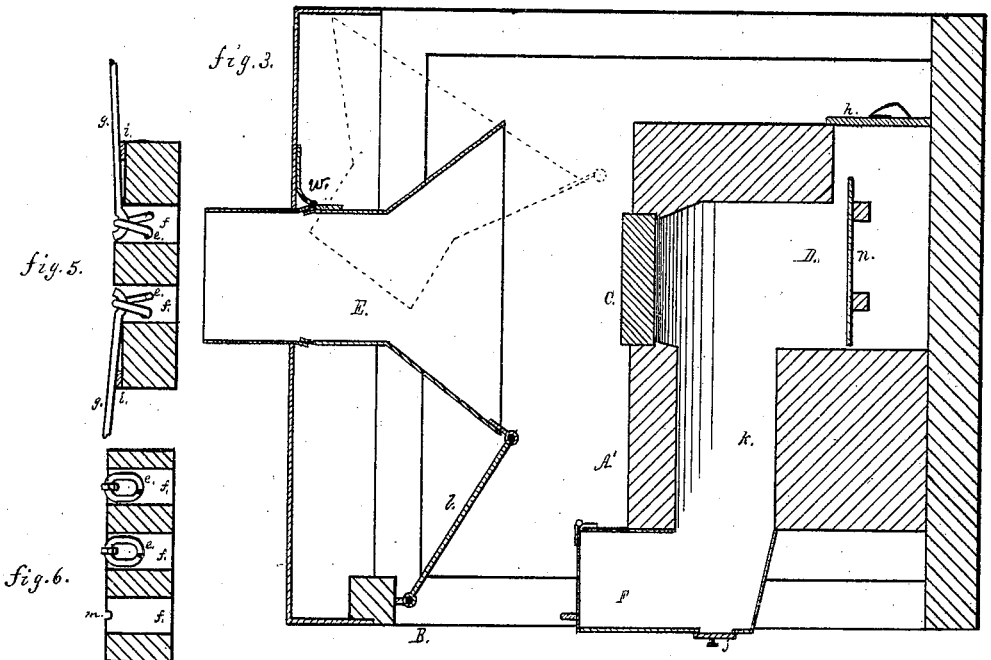


fig. 5.

fig. 6.

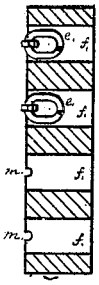
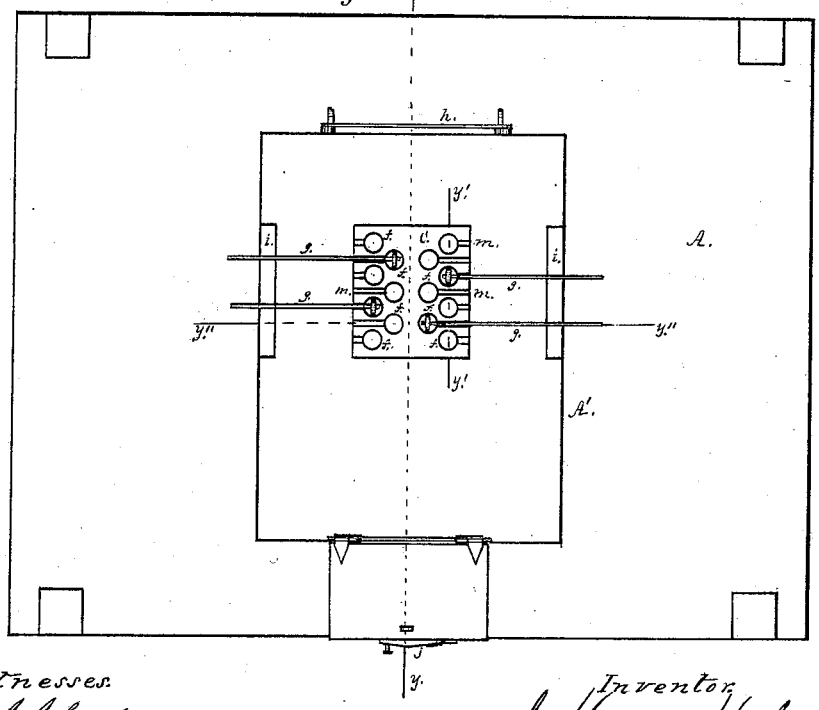


fig. 4.



Witnesses.
A. L. Johnston
A. C. Johnston

Inventor.
J. Henry Helm

UNITED STATES PATENT OFFICE.

J. HENRY HELM, OF ALLEGHENY, ASSIGNOR TO HOWARD MORTON, OF PITTSBURG, PENNSYLVANIA.

IMPROVEMENT IN FURNACES FOR HEATING LINKS.

Specification forming part of Letters Patent No. **200,394**, dated February 19, 1878; application filed July 23, 1877.

To all whom it may concern:

Be it known that I, J. HENRY HELM, of Allegheny, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Furnaces for Heating Links; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My invention relates to an improvement in link-welding furnace; and consists in furnishing the crown of such furnace with a detachable section provided with cells for heating chain-links to a welding degree, and also consists in the peculiar construction of the furnace and its stack with relation to said detachable section of the crown.

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

In the accompanying drawings, which form part of my specification, Figure 1 is an end elevation of the furnace and building in which it is placed. Fig. 2 is a side elevation of the same. Fig. 3 is a vertical section of the same at line *y* of Fig. 4. Fig. 4 is a top view or plan of the furnace.

In the drawings, A represents the ground-floor; B, the building in which the furnace or furnaces are placed. A′ represents the furnace, which is provided with a fire-chamber, D, grate N, fuel-chamber F, and fuel-heating chamber *k*. The fuel-chamber F is provided with a lid and a door, (marked *j*,) which is used for entrance to the lower part of the fuel-chamber for the purpose of pushing forward into the fire-chamber D the heated fuel.

That portion of the fuel which is next to the fire-chamber D is always in a heated condition. By this arrangement of the fuel-chamber and heating-chamber *k*, the fire in chamber D is not cooled down by the addition of fresh fuel, it being a very important matter to have a uniform heat in chamber D; otherwise the heating of the chain-links would not be uniform, and much time would be lost in withdrawing and replacing the links in the operation of examining them as to whether they are or are not heated to the welding-point.

The ash-pit is furnished with a door, *h*, to prevent the outflow of air from the furnace when a blast is employed, which blast is usually applied at the point marked *x*. (Shown in Fig. 2.) Immediately over the detachable section of the crown-piece of the furnace is arranged a bell-mouthed stack, E, which is hinged at *w*, the lower end of which is held in position by a rod, *l*.

When it is necessary to move the detachable section C of the crown of the furnace, the lower portion of the stack may be dropped sidewise, as represented by dotted lines in Fig. 3, by simply unhooking the rod *l*. The detachable section of the crown C is manufactured from a good article of fire-clay, or clays which will stand a great degree of heat. The detachable crown C is provided with a series of cells, *f*, which are plain openings which pass through the detachable crown C. The upper surface of the crown-piece C is furnished with grooves *m*, in which rest the rods *g*, which support the links *e* while being heated. The rods *g* are held at an angle with relation to the cells *f* by means of supports *i*, whereby the link is lowered down into the cells *f*.

By having a detachable crown-piece constructed as hereinbefore described and represented, it can be removed and replaced with ease and facility, and without impairing other parts of the furnace; and by having the detachable crown-piece C, having cells, as hereinbefore described, for the links, and grooves for the rods which support the links while being heated, the links can be heated to the welding degree with great uniformity and rapidity.

The relation of the bell-mouthed stack to the fire-chamber D and detachable crown-piece C is such that the heat is concentrated, and caused to be drawn up through the cells *f*, where the links are heated to the welding degree only at the point of union.

Having thus described the nature, construction, and operation of my improvement, what I claim as of my invention is—

1. In a furnace for heating links, the detachable section C of the crown of the fire-chamber D, said section being provided with grooves and cells, substantially as herein described, and for the purpose set forth.

2. In a furnace for heating links, the de-

tachable section of the crown of the fire-chamber D, in combination with the hinged bell-mouth stack E, substantially as herein described, and for the purpose set forth.

3. In a furnace for heating links, the fuel-chamber F, in combination with the fire-chamber D, detachable section C, and hinged bell-mouth stack E, substantially as herein described, and for the purpose set forth.

J. HENRY HELM.

Witnesses:
A. C. JOHNSTON,
A. J. DAVIS.