D. EYNON.

Heating-Furnaces for Metals.

No. 151,581. Patented June 2, 1874.

FIG. 1.

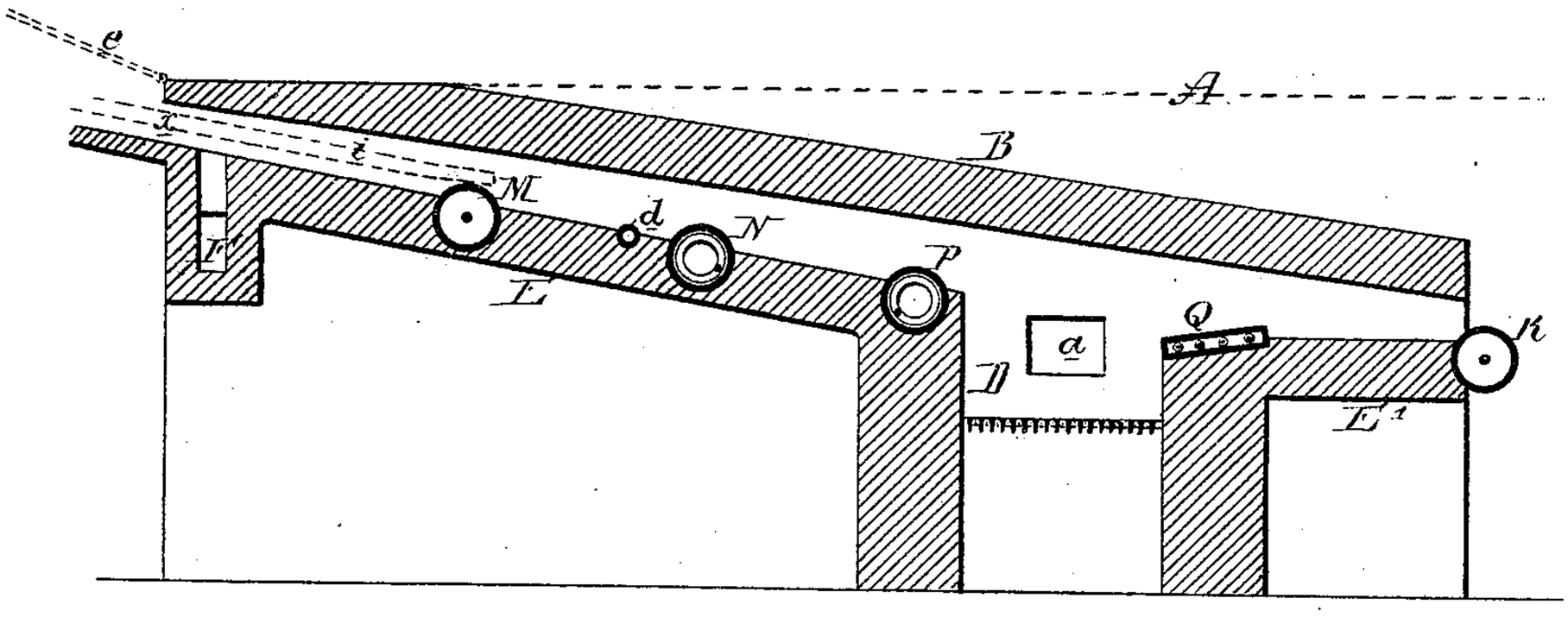
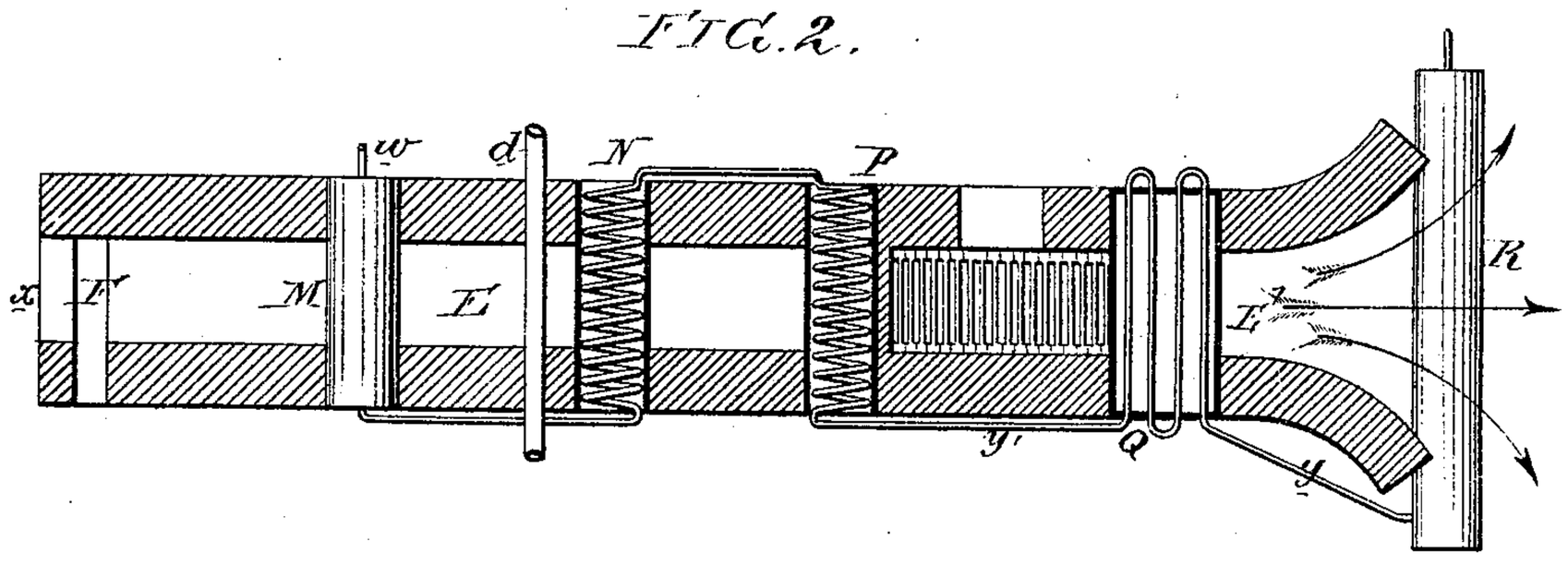


FIG. 2.



Witnesses,

E. H. Eckfeldt
Hubert Howson

David Eynon
by his Attys.
Howson and Son.

UNITED STATES PATENT OFFICE.

DAVID EYNON, OF POUGHKEEPSIE, NEW YORK.

IMPROVEMENT IN HEATING-FURNACES FOR METALS.

Specification forming part of Letters Patent No. **151,581**, dated June 2, 1874; application filed April 14, 1874.

To all whom it may concern:

Be it known that I, DAVID EYNON, of Poughkeepsie, county of Dutchess, State of New York, have invented Improvements in Heating-Furnaces, of which the following is a specification:

My invention relates to improvements in heating-furnaces situated between rolls and a spike-machine or other forging-machine, in order that the bars of iron direct from the rolls may be forced by the same into and through the furnace to the forging-machine, the bar being thus maintained throughout at a proper heat for conversion into spikes or other forgings. An example of a furnace for this purpose is shown in my Patent No. 120,254, October 26, 1871.

The main object of my present improvement is to construct a furnace the bed of which cannot be injured by the bars which pass through it on their way from the rolls to the forging-machines—an object which I accomplish in the manner illustrated in the vertical section, Figure 1, and plan view, Fig. 2, of the accompanying drawing.

The dotted line A represents the floor of the furnace; B, the inclined roof of the same; D, the fire-place, to which fuel is introduced through an opening, *a*, furnished with a suitable door. The fire-place D is situated between the opposite ends of the furnace, by preference nearer to the rear than to the front end, as shown in the drawing. E is the bed of the furnace, at the front end of the fire-place, and E′ the bed at the rear of the furnace. The bar *i*, direct from the rolls, and shown by dotted lines, is forced by the latter into the mouth *x* of the furnace, and downward over a cylinder, M, containing water, over the cylinders N and P, containing spiral water-tubes, across the fire-place, onto and across the inclined box Q, through which water circulates, and over the cylinder R to the machine, by which it is converted into spikes or other forgings. The tops of the cylinders M, N, and P are each one about one and a half inch above the bed of the furnace, so as to maintain the bars free from contact with the same, and thus prevent the rapid wearing away of the said bed. The same remarks will apply to the box Q and cylinder R as regards the bed E′.

The manner in which a circulation of water is maintained through the several cylinders and box Q will be readily understood by reference to Fig. 2. Water is admitted to the cylinder R, from which it passes through a tube, *y*, to the box Q, and after circulating through this box the water is conveyed through a tube, *y*, to a coil in the cylinder P, which communicates with a coil in the cylinder N, the latter coil communicating with the cylinder M, whence the water escapes through the outlet-pipe *w*. The several cylinders and box Q are thus maintained in a comparatively cool condition. A flue, F, is situated near the front end of the furnace, for carrying off the products of combustion to any adjoining chimney; but this flue may be so contracted that when the furnace is in active operation its whole interior is filled from end to end with flame, which maintains the bars at the proper heat. A pipe, *d*, enters the furnace at the point shown, for the introduction of a blast of cold air, by which unconsumed products of combustion from the fire-place may be ignited. At the mouth of the furnace I hinge a door, *c*, (shown by dotted lines,) which can be elevated as long as the bars have to pass directly from the rolls into the furnace, the door being lowered to the level of the mill-floor when the use of the furnace is not required.

It will be noticed that the water-box Q is inclined downward, so that the bar, in its rapid course across the fire-place, may strike the inclined face of the box, although it may be slightly bent downward in crossing the said fire-place, which, consequently, does not interrupt the proper progress of the bar. The outlet-opening at the rear of the furnace is made flaring, as shown in Fig. 2, so that the bars escaping therefrom may be directed to different forging-machines in the courses pointed out by the arrows.

I claim as my invention—

1. The within-described furnace, having a fire-place, D, between its opposite ends, an inclined bed, E, on one side of the furnace, and bed E′ on the opposite side, all as set forth.

2. The combination of the bed E of the furnace with any desired number of water-cylinders, M, N, and P, arranged in respect to the bed as set forth, for the purpose specified.

3. The combination of the fire-place D with the inclined water-box Q.

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

DAVID EYNON.

Witnesses:

EDWIN MARSHALL,

R. F. WILKINSON.