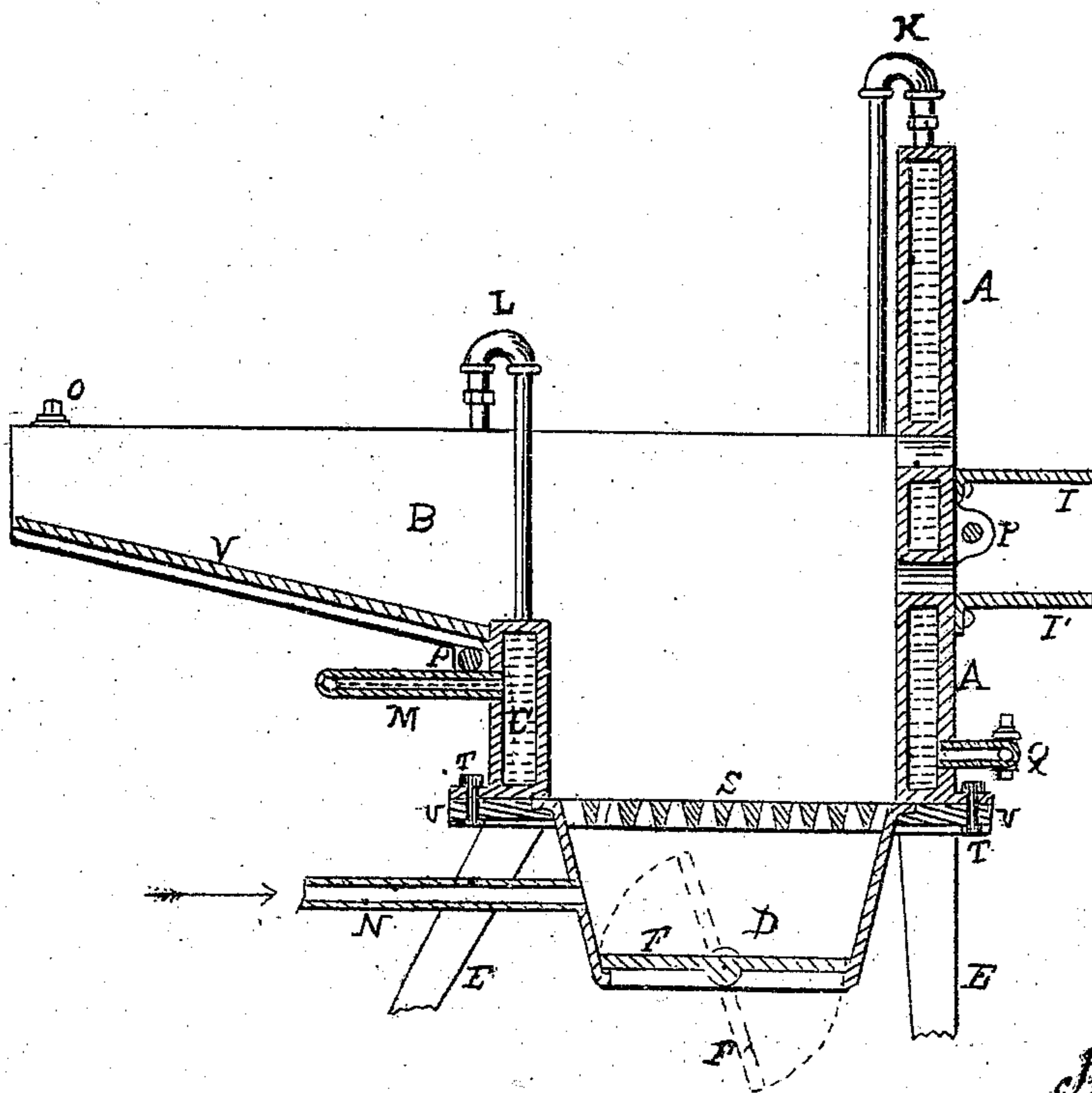
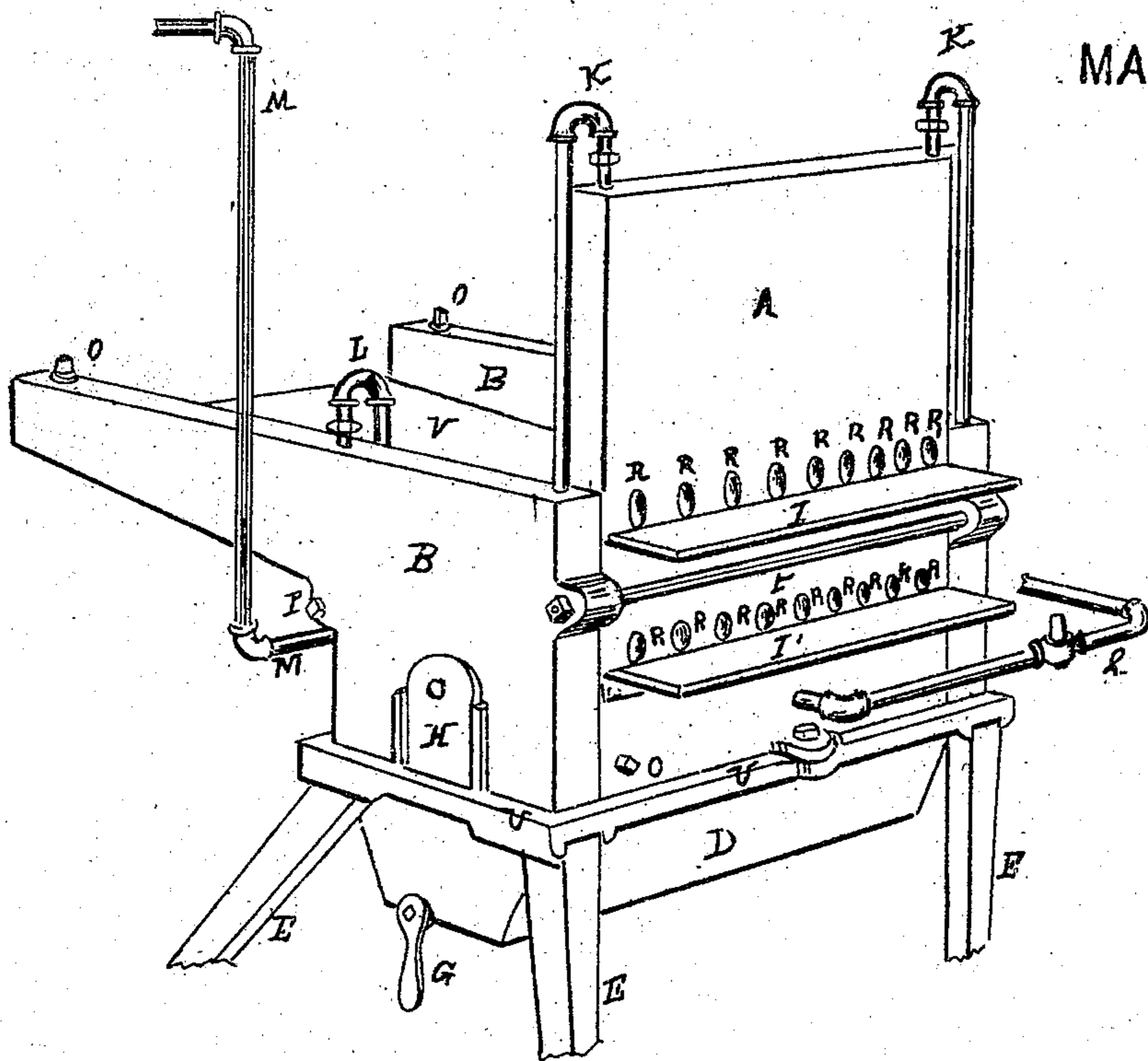


A. ALEXANDER

BOLT HEATING FURNACE.

74970

PATENTED
MAR 3 1868



Witnesses.
J. Snowden
C. Snowden

Inventor.

A. Alexander

United States Patent Office.

ABRAM ALEXANDER, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR TO ALEXANDER BOLT MANUFACTURING COMPANY, OF SAME PLACE.

Letters Patent No. 74,970, dated March 3, 1868.

IMPROVED FURNACE FOR HEATING BOLT-BLANKS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, ABRAM ALEXANDER, of the city of Pittsburg, in the county of Allegheny, and State of Pennsylvania, have invented certain Improvements in Bolt-Blanks Heating-Furnace; and I do hereby declare that the following is a full and exact description thereof, reference being to the accompanying drawings forming part of this specification, in which—

Figure 1 represents a perspective view of my improved furnace for heating bolt-blanks; and

Figure 2 is a sectional elevation of the same through the line *x x*.

This invention relates to an improved furnace in which blanks for making bolts are heated to the proper degree for forming the head thereon, and the improvement consists in the construction and use of a furnace made of the assemblage of cast-iron boxes, or sides, cast hollow, through which water is circulated, thereby dispensing entirely with the brick lining generally used.

Description.

U is a bed-plate or frame resting on proper legs or stands E E E E, and on which are fastened the sides A, B, B, and C of the furnace proper. All these sides are cast hollow, or if made of sheet iron are made water-tight and double in the way of boxes. The shape and size of the furnace are of course varied to suit the peculiar kind of bolts to be heated in the furnace. S is the grate upon which the fuel is to rest. D is the ash-pit and air-box, closed at bottom by the trap F, which is made to pivot, as indicated by F', in dotted lines fig. 2, but a slide trap or hinged door may be used and answer the same purpose. N is the pipe through which the air is forced into the box D, as indicated by the arrow, fig. 2. The front side, A, is provided with a double row of holes, R R R, &c., one above the other, and on a level with the lower part of the said holes R R R, the shelves I I' are fastened. P P are bolts, which unite the four sides of the furnace together; and V is an apron or shelf, upon which the fuel is thrown previous to being fed to the furnace.

My drawing represents a single furnace, but two sides like A can be placed opposite to each other, the coal being fed by an apron on one of the sides B, and thus double the amount of bolt-blanks may be heated in the furnace, and it may thus supply two machines with blanks. H is a door for stirring the fire. G is the handle for working the trap F. O O O are plugs for cleaning out the hollow sides and draining off the water at pleasure. Q, K, L, and M are water-pipes, united by fittings and couplings to the sides A, B B, and C, in the manner clearly shown by my drawings, that is, so as to conduct the water from one to the other, and to cause it to circulate through said sides.

Operation.

Water is admitted by the pipe Q into the side A, through which it circulates, going out by the two pipes K and K into the two sides B and B. From thence through the pipes L and L, the water enters the back box C, and out through the pipe M, to be discharged at any convenient place. The fuel is thrown on the apron V, and a fire is kindled in the furnace on the grate S. When the fire requires replenishing, the heated fuel is raked from the apron V into the furnace, and a new supply of fuel may be placed on the said apron V, to be heated by the lost heat, and kept ready for use when required. The blanks for making bolts, or bolts without heads, are placed upon the two shelves I I', and are partly thrust through the holes R R R, &c., into the furnace. The blanks of the lower row on the shelf I' are of course heated first, and are taken out as fast as wanted to be headed in the bolt-machine. Every time a bolt-blank is taken away from one of the holes in the lower row, one from the upper row of holes is taken and thrust in its place, and a cold bolt-blank is put in the hole left free on the upper row by the taking down of the blanks. In this manner the fire is never cooled by the introduction of cold bolt-blanks in the place where the heat has to be kept up to that degree required to bring up the blanks to proper heat, and the lost heat of the fire is employed to bring the temperature of the cold bolt-blanks in the upper row preparatory to bringing them down to the row below, as stated above.

My construction of furnace is then quite economical in point of fuel used, besides a saving of labor, which is considerable, as no clinkers will form nor stick to the sides of the furnace.

Although I have given to my furnace the name of bolt-heating furnace, it is evident that it is adapted to heating iron for manufacturing other articles than bolts proper. Pins, spikes, rivets, and in fact all small or large work requiring that the heat of the iron be applied in one place, when the other part is kept handy for the workmen to handle, may be worked in my improved furnace, with marked advantages over other contrivances now in use.

Claims.

1. The bolt-blanks heating-furnace herein described, composed of a combination of a certain number of hollow castings or boxes forming the sides of the said furnace.
2. The side A, having two or more rows of holes R R R, &c., and shelves I I', &c., arranged and used for the purpose set forth.
3. Circulating water through the hollow sides of a furnace for heating bolt-blanks, for the purpose of dispensing with the fire-brick lining therein.
4. In combination with the hollow cast sides or hollow made sides, the pipes Q, K K, L L, and M, arranged substantially in the manner and for the purpose specified.
5. In furnaces for heating bolt-blanks, the apron V, in combination with one or two of the sides of the furnace, for the purpose set forth.

Witnesses:

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