

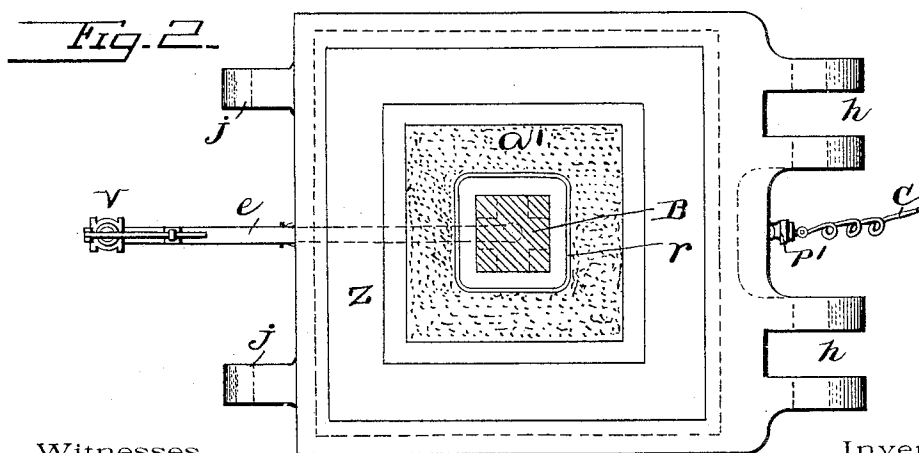
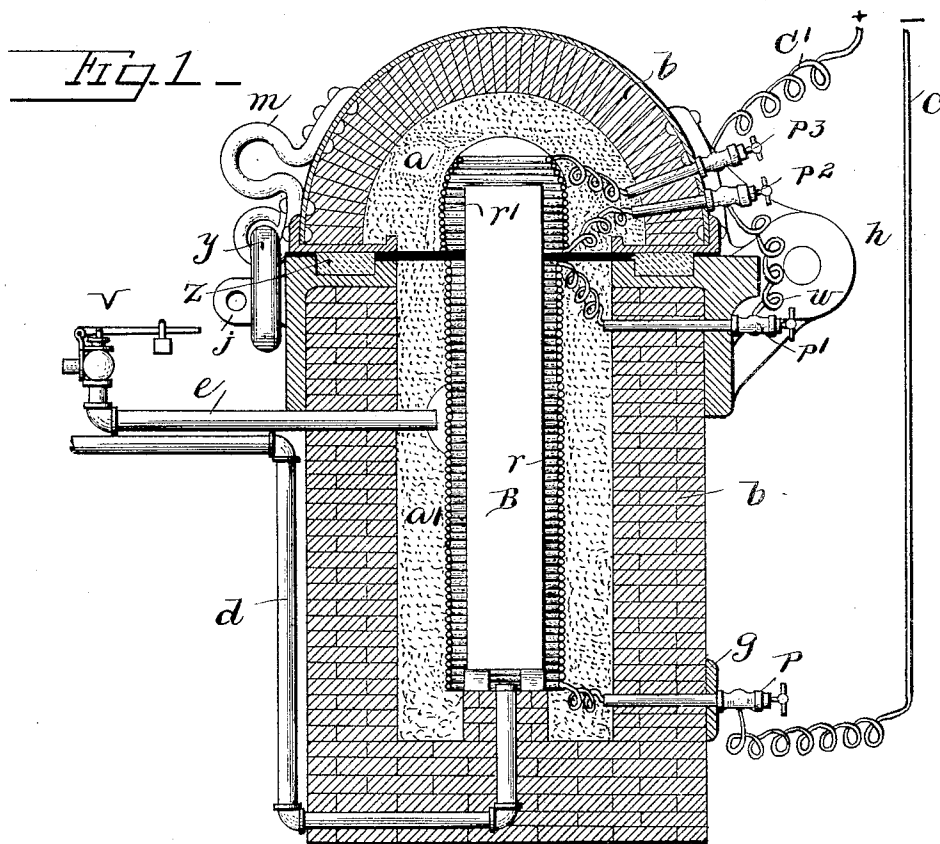
(No Model.)

A. J. MOXHAM.

APPARATUS FOR HEATING BLOOMS OR OTHER ARTICLES OF METAL.

No. 579,597.

Patented Mar. 30, 1897.



Witnesses.

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ARTHUR J. MOXHAM, OF JOHNSTOWN, PENNSYLVANIA.

APPARATUS FOR HEATING BLOOMS OR OTHER ARTICLES OF METAL.

SPECIFICATION forming part of Letters Patent No. 579,597, dated March 30, 1897.

Application filed November 4, 1890. Serial No. 370,359. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR J. MOXHAM, a subject of the Queen of Great Britain, residing at Johnstown, county of Cambria and State of Pennsylvania, have invented a new and useful Improvement in Apparatus for Heating Blooms or other Articles of Metal, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form a part of this specification.

My invention consists, essentially, in directly surrounding the article to be treated by a conductor adapted to carry the electric current, which, when the current is passed, heats said article.

My invention is especially applicable to the heating of blooms, and it will be herein described more particularly with reference to the heating of blooms, although it is applicable to the heating of any article desired.

Figure 1 is a side elevation, the larger portion in section, of my improved furnace with appurtenances thereto. Fig. 2 is a plan view of the same with the cover removed.

The outer casing *b* of the furnace is constructed of fire-brick. Within the fire-brick casing *b* is placed a lining of non-conductive infusible material *a'*, such, for instance, as asbestos or magnesia. Embedded in this material *a'* is the coil of wire or other electric conductor *r*, and within and so as to be surrounded by the coil is the bloom *B* to be heated.

The furnace is provided with a cover, as shown in Fig. 1, which is hinged to the main portion of the furnace, as shown at *h*.

m is the handle whereby the cover is lifted or swung upward on its hinge *h*, *y* and *j* being a locking device whereby the cover is secured in its closed position. The joint between the cover and furnace may be packed with non-conductive infusible material *z*. The cover is constructed in the same manner as the body of the furnace—to wit, of an outer casing *b* of fire-brick and an internal lining of non-conductive infusible material *a*, in which is embedded the coil *r*, within which coil and so as to be surrounded by it rests the upper end of the bloom *B*.

The lower end of the bloom *B* rests on a

fire-brick seat-support, and, as may be seen from Fig. 1, the bloom extends upward beyond the body of the furnace and into the cover, so that when the bloom is heated and the cover opened the upper portion of the bloom is exposed above the body of the furnace, so that the crane may be attached to the bloom without any motion of the bloom, thus avoiding the necessity of having interior mechanism.

c is a wire leading from the negative pole of the source of current-supply. This wire is secured to the binding-post on the pipe *p*, so as to be in contact with the wire which passes through said pipe *p* and is connected to the coil *r*. If desired, the wire *c* may pass directly through pipe *p*. This pipe *p* is held in place by the strip *g*, secured to the outer surface of the furnace.

p' is a pipe through which passes a wire, one end being connected to the upper end of the coil *r*. A binding-post connects this wire with a wire *w*, which passes to pipe *p*², the wire which passes through said pipe *p*² being connected to the lower end of coil *r'* in the cover of the furnace. A wire connected to the upper end of coil *r'* passes through pipe *p*² and is connected to wire *c'*, which leads to the positive pole of the source of current-supply. Instead of connecting the coil *r* and coil *r'* in series with the source of current-supply they may be independently connected.

d is a pipe leading from source of gas-supply to the interior of the furnace, through which a reducing-gas may be passed.

e is a pipe leading from the interior of said furnace to the outer air, said pipe being provided with the weighted valve *V*, and through which pipe the inclosed air or gas may pass.

The current being turned on, the coils *r* and *r'* will become highly heated and will in turn heat the bloom. The lining *a'* prevents any loss of electricity, and the influx of gas will prevent the heating of the bloom affecting its composition.

As may be seen, my method has this great advantage that the heat produced is absorbed directly by the article to be heated without the medium of any intervening vessel, and I need only sufficient current strength and conductors to supply as many heat-units as

the bloom will absorb to bring it to the desired temperature and to produce it as rapidly as it is absorbed.

When the bloom is heated to the desired temperature, the current is cut off and the hinged cover opened, when from the fact of the upper portion of the bloom being exposed above the body of the furnace the bloom can be readily removed, as hereinbefore described.

Having now fully described my invention, what I claim, and desire to protect by Letters Patent, is—

1. In an apparatus for heating blooms or other articles of metal, a furnace composed of a body and cover, the outer shell of said furnace being formed of fire-brick or similar material, a lining of non-conductive, infusible material, coils adapted to convey electricity in the body and cover, said coils arranged to directly surround the bloom or other article to be heated, said cover being removable and provided with a space adapted to receive a portion of said bloom so that said bloom can extend beyond the body into said cover, a source of current-supply, and connection be-

tween said source of current-supply and the coils.

2. In an apparatus for heating blooms or other articles of metal, a furnace composed of a body and cover, the outer shell of said furnace being formed of fire-brick or similar material, a lining of non-conductive, infusible material, coils adapted to convey electricity in the body and cover, said coils arranged to directly surround the bloom or other article to be heated, said cover being removable and provided with a space adapted to receive a portion of said bloom so that said bloom can extend beyond the body into said cover, a source of current-supply, and connection between said source of current-supply and the coils, and an infusible, non-conducting packing between said cover and the body of said furnace.

In testimony of which invention I have hereunto set my hand.

ARTHUR J. MOXHAM.

Witnesses:

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A. J. BRYAN.