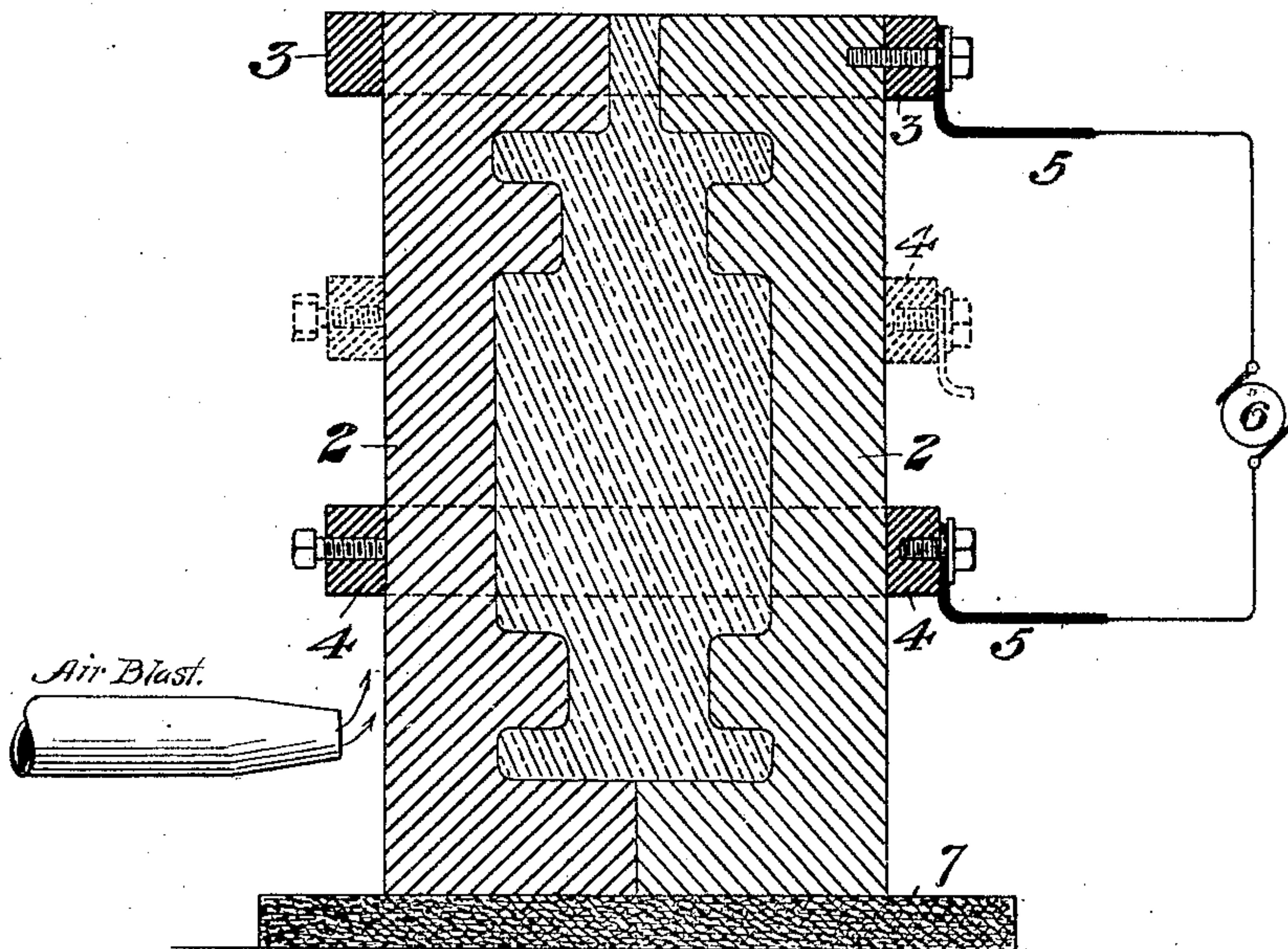


(No Model.)

A. E. HUNT.  
MANUFACTURE OF CASTINGS.

No. 575,115.

Patented Jan. 12, 1897.



WITNESSES

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# UNITED STATES PATENT OFFICE.

ALFRED E. HUNT, OF PITTSBURG, PENNSYLVANIA.

## MANUFACTURE OF CASTINGS.

SPECIFICATION forming part of Letters Patent No. 575,115, dated January 12, 1897.

Application filed September 21, 1896. Serial No. 606,471. (No model.)

*To all whom it may concern:*

Be it known that I, ALFRED E. HUNT, of  
Pittsburg, in the county of Allegheny and  
State of Pennsylvania, have invented a new  
5 and useful Improvement in the Manufacture  
of Castings, of which the following is a full,  
clear, and exact description, reference being  
had to the accompanying drawing, which  
shows in vertical section apparatus adapted  
10 to the practice of my invention.

In my process of making castings I heat the  
mold by passage of a current of electricity  
therethrough, so as to bring it to or more  
nearly to the temperature of the molten metal,  
15 and then cool the same progressively toward  
the top or vent of the mold by varying the  
path of the current, assisting the cooling ac-  
tion, if desired, by a cooling liquid or by an  
air-blast. By this method very sound cast-  
20 ings of intricate shape can be produced, even  
from such metal as aluminium, without crack-  
ing or breaking the metal as it solidifies.

The method may be applied to practical  
use in a variety of ways. In the accompa-  
25 nying drawing I show a simple apparatus  
suitable for the purpose and shall now de-  
scribe the same, premising that my inven-  
tion is not limited thereto, but may be modi-  
fied by changing the apparatus and the man-  
30 ner of its use.

In the drawing, 2 represents a mold made  
of material which will conduct electricity and  
has sufficient electrical resistance to cause  
the generation of heat when a current is  
35 passed through it. Cast-iron will serve the  
purpose well.

3 4 are contact-pieces attached to the mold.  
The upper contact 3 may be fixed, and the  
contact 4 is movable along the mold toward  
40 and away from the other.

5 5 are the conductors of an electric cur-  
rent, connected, respectively, with the contacts  
3 and 4 and leading from a suitable electric  
generator 6. The mold is set upon a support  
45 7, of asbestos or other non-conducting mate-  
rial.

The operation of the apparatus is as fol-  
lows: The contact 4 may be set on the mold

at or near the lower portion thereof, and a  
current of electricity is passed through the 50  
circuit, so as to heat the mold to a heat pref-  
erably about that of the molten metal of  
which the casting is to be made. The metal  
is then poured into the mold and the con-  
tact 4 moved toward the contact 3, so as to 55  
shorten the circuit through the mold and mol-  
ten metal and to cause the upper part to be  
heated by the current while the heating in-  
fluence is removed from the lower part. The  
lower part will then cool, and its cooling may 60  
be accelerated by water or an air-blast. The  
contacts may then be caused to approach  
still more, so as to expose more of the lower  
part of the mold to the more rapid cooling,  
and so the operation may be continued until 65  
the casting becomes solid and sufficiently cold  
to prevent unequal shrinking. As the chill-  
ing of the metal progresses slowly from the  
bottom to the top, the casting shrinks in like  
direction and sound castings are produced. 70  
The whole operation is economical and very  
efficient, especially when it is conducted in  
places where electrical energy is cheap.

I do not limit the broader claims of this  
specification to the preheating of the mold by 75  
the current before the metal is poured, since  
such heating may not be begun until the  
metal is poured; nor do I intend to exclude  
from the broader claims the use of apparatus  
wherein, by reason of low conductivity of the 80  
material used for the mold, the current or  
the bulk thereof is caused to pass through the  
metal of the casting, heating it or maintain-  
ing it heated in parts, as above described.

I claim— 85

1. An improvement in the art of casting  
metal which consists in heating the same by  
first passing a current of electricity through  
the conductive material of the mold and sub-  
stantially through the entire length of the 90  
mold, and then progressively shortening the  
portion included in the electrical circuit; sub-  
stantially as described.

2. An improvement in the art of casting  
metal which consists in heating the same by 95  
first passing a current of electricity through



the conductive material of the mold and then excluding the bottom part of the mold only from the circuit, substantially as described.

3. Apparatus for casting metal, the same  
5 comprising a mold of conductive material, an electric circuit in which the mold is included, and contacts on the mold connected with said circuit, one of said contacts being

movable toward the other to vary the length of the mold included in the circuit.

In testimony whereof I have hereunto set my hand.

ALFRED E. HUNT.

Witnesses:

EDITH O. KUESTER,  
G. I. HOLDSHIP.