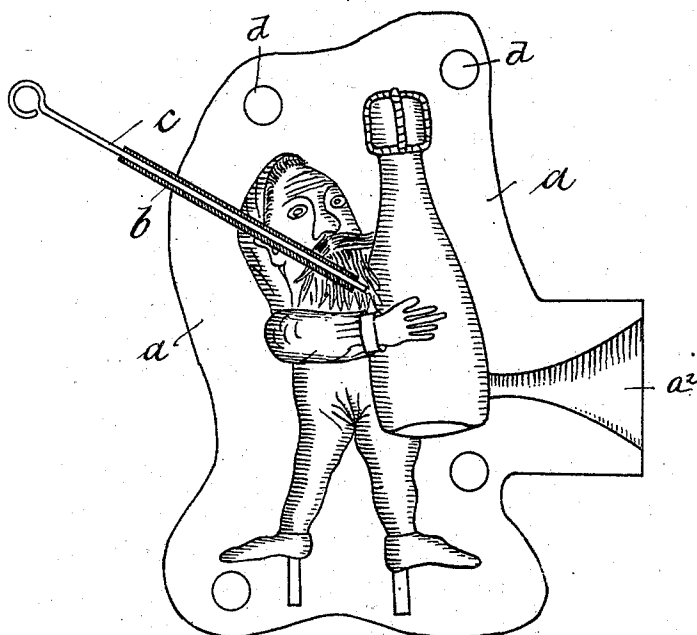


(No Model.)

H. MESSING.
MOLD FOR CASTING HOLLOW ARTICLES.

No. 570,324.

Patented Oct. 27, 1896.



Witnesses

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UNITED STATES PATENT OFFICE.

HEINRICH MESSING, OF OFFENBACH, GERMANY.

MOLD FOR CASTING HOLLOW ARTICLES.

SPECIFICATION forming part of Letters Patent No. 570,324, dated October 27, 1896.

Application filed June 8, 1895. Serial No. 552,096. (No model.) Patented in France April 22, 1895, No. 246,804, and in Germany August 19, 1895, No. 83,385.

To all whom it may concern:

Be it known that I, HEINRICH MESSING, a subject of the Emperor of Germany, and a resident of Offenbach, near Frankfort-on-the-Main, Germany, have invented certain new and useful Improvements in Casting, (patented in Germany August 19, 1895, No. 83,385, and in France April 22, 1895, No. 246,804,) of which the following is a specification.

This invention relates to the manufacture of hollow thin castings.

The usual process adopted in producing hollow castings without the assistance of a core, known as the "instantaneous overturning process," is carried out (as is well known) by pouring the metal or material to form the casting into the mold and then overturning the mold so that its inlet-orifice or "gate" is downward, the said mold being at the same time shaken, whereupon the inner fluid portion of the cast metal or material (as it has not then solidified) issues from the said inlet-orifice or gate and consequently leaves a space in the interior of the casting. The disadvantage of this method is that in order to allow this issue of the cast metal or material it is necessary to provide a very wide orifice or gate in the mold, as otherwise the metal or material would not be able to pass the current of inflowing air, and in all cases the inflow of air by the same orifice as that by which the metal or material is to issue offers a serious impediment to the outflow of the metal or material. It has also been found that while the metal or material is escaping from the mold the external air has a tendency to force its way through the points connecting the sections of which the mold is composed, thereby occasioning the formation of bubbles and flaws in the casting. Owing to these drawbacks hitherto as much as sixty per cent. of metal or material has been wasted in the performance of this process.

The object of this invention is to overcome these objections. According to this invention air is, during the overturning process, caused to pass into the interior of the casting at one part or at more than one part thereof, thereby equalizing the pressure between the interior of the said casting and the external atmosphere. This can be effected by arranging at

any convenient point of the mold, say opposite the casting-orifice or gate, a port or channel commencing at the outside of the mold and extending as far as is practicable inward, this port or channel being kept closed during the casting operation, but being opened as soon as "overturning" is proceeded with. When open, it affords free access of air to the interior of the cast liquid metal or material without encountering any impediment or obstruction, and as no difference of pressure between the interior of the casting and the outer atmosphere then exists there is nothing to cause any tendency on the part of the external air to penetrate the walls of the mold at the joints and to form bubbles within it, so that a faultless and flawless thin casting is obtained.

For the purposes of this invention a small tube of steel, brass, &c., may be embedded in grooves facing each other and formed one in each of the two sections or parts of the mold. This tube extends into the interior of the mold and is closed by means of a wire or any other suitable plug. When overturning is performed, the wire or plug is removed to open the tube for air to pass through.

In the case of comparatively large castings any suitable number of such tubes or channels leading to the interior of the mold may be provided.

This invention offers the further advantage that very thin-walled castings can be produced, because metal can flow out very rapidly and does not remain at rest long enough to solidify in too thick a layer, and therefore a considerable economy in metal is effected.

The accompanying drawing shows the interior face of one section of a mold arranged according to my invention, *a* being a section of the mold provided with a gate *a*², *b* the tube leading into the interior of the mold, and *c* the wire or plug which closes temporarily the tube *b*, but which is withdrawn when the mold is overturned. At convenient places the face of the section *a* is provided with the usual lugs *d*, which engage corresponding recesses in the opposing face of the other section, thereby insuring the proper alinement of the sections when brought together.

In operation the mold is turned to bring the

mouth of the gate upward, and after the wire
c or whatever other means is employed is ad-
justed to close the air-port the molten metal
is poured into the gate and enters the mold.

5 That portion of the metal which comes into
contact with the sides of the mold hardens
more rapidly than the remainder, and after the
hardened metal reaches the required thick-
ness the mold is overturned, that is, the mouth
10 of the gate is turned downward, allowing all
that portion of the metal in the mold which
is in a molten state to run out through the
gate. Simultaneously with the overturning
of the mold the air-port is opened, and as the
15 metal runs out of the mold its place is taken
by air which enters through said port.

I claim—

1. A mold for casting hollow bodies pro-
vided with a gate and with one or more air-

channels extending from the exterior of the 20
mold and projecting into the interior of the
mold and means for closing the air-channels,
substantially as described.

2. A mold for casting hollow bodies pro- 25
vided with a gate and an opening formed sub-
stantially opposite the gate, a tube extending
through said opening from the exterior and
projecting into the interior of the mold, and
means for closing the passage of the tube, sub-
stantially as described. 30

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

HEINRICH MESSING.

Witnesses:

FRANZ HAPLACHER,
ADOLPH SCHIELE.