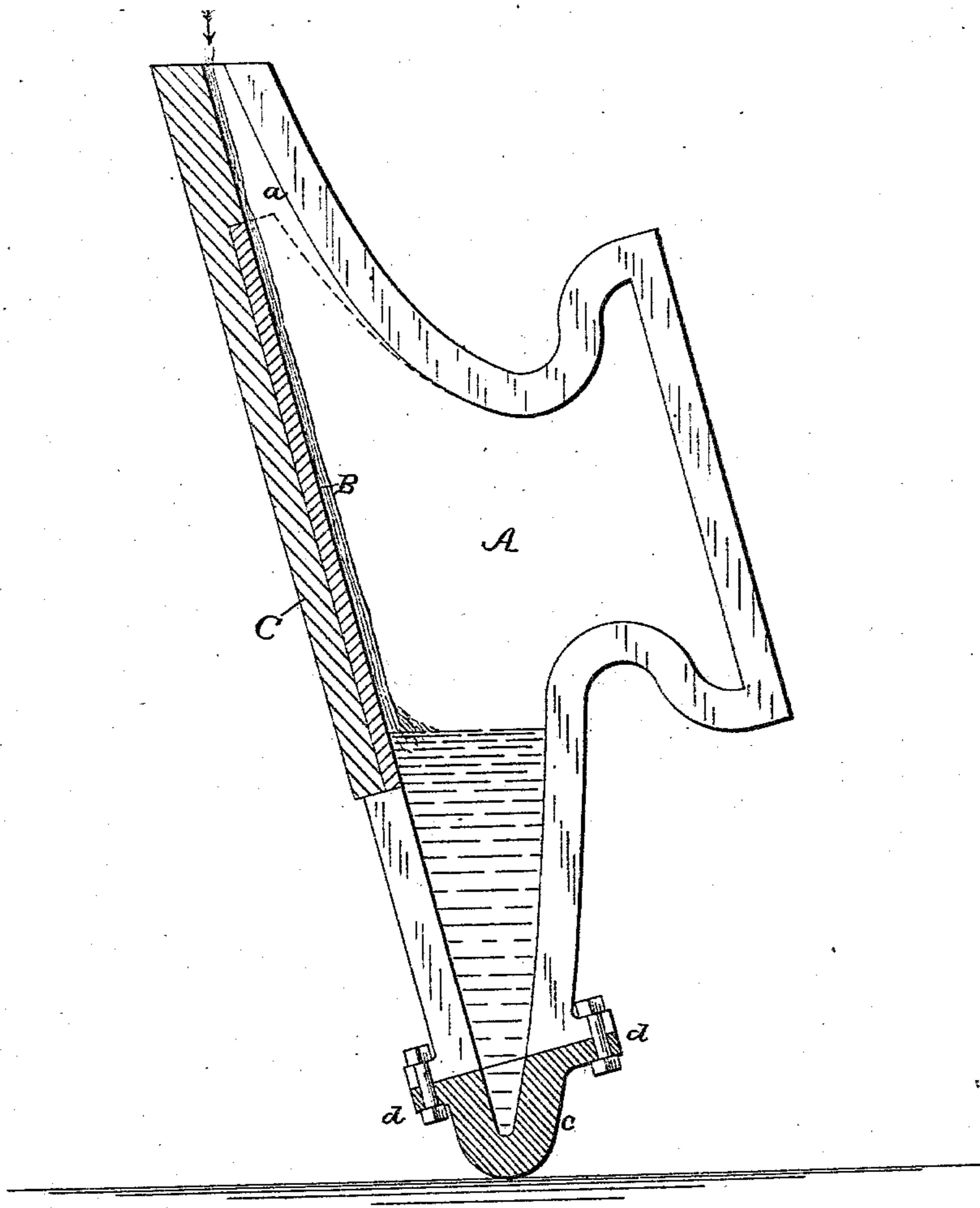


(No Model.)

W. C. McCARTHY.
MANUFACTURE OF ANVILS.

No. 286,459.

Patented Oct. 9, 1883.



Witnesses:-
Jos. B. Connolly
Thomas J. Patterson

William C. McCarthy
by Connolly Bros & McFike
Attorneys.

UNITED STATES PATENT OFFICE.

WILLIAM C. McCARTHY, OF PITTSBURG, PENNSYLVANIA.

MANUFACTURE OF ANVILS.

SPECIFICATION forming part of Letters Patent No. 286,459, dated October 9, 1883.

Application filed October 21, 1882. (No model.)

To all whom it may concern:

Be it known that I, WM. C. McCARTHY, of
Pittsburg, in the county of Allegheny and
State of Pennsylvania, have invented certain
5 new and useful Improvements in the Manu-
facture of Anvils; and I do hereby declare
that the following is a full, clear, and exact
description of the invention, which will enable
others skilled in the art to which it appertains
10 to make and use the same, reference being had
to the accompanying drawing, which forms a
part of this specification, in which is shown
a side elevation of the two-part mold I use,
the view being taken with one section of the
15 mold removed and partly in section, and
illustrating the position of the mold and the
steel face during the pouring operation.

My invention relates to the manufacture of
anvils; and it has for its object the provision
20 of means whereby a perfect welding of the
steel working-face to the body of the anvil is
assured.

The customary method of manufacturing
cast anvils is as follows: The steel working-
25 face is laid flat on the bottom of the mold,
the sinking-head or opening through which
the molten metal is poured being at the top
of said mold, or that portion where the bot-
tom of the anvil is formed when the casting
30 is complete. An opening is left at that por-
tion of the mold wherein the end of the horn
is formed, and through such opening the
molten metal is allowed to waste for some
time after the operation of pouring has been
35 commenced. The object of allowing the metal
to waste out at the point of the horn is to as-
sure a sufficient heating of the steel face-plate,
as if the metal were to be merely poured down
on the plate the latter would be apt to cool
40 the iron in contact with it and refuse to form
a perfect weld. This method is objectionable,
for the reason that it necessitates the remelt-
ing of the metal which is allowed to waste, and
which would only be permissible where a cheap
45 material—such as cast-iron—is used.

My invention consists in setting the mold,
which is of the ordinary or any suitable form,
but without the customary waste-orifice, in
such manner that the steel face-plate will be
50 inclined and the molten metal will run over
such plate on being poured into the mold,

heating the same and preparing it for a per-
fect weld, which takes place when the metal
again comes into contact with it as the mold
becomes filled up.

Referring to the accompanying drawing, A
represents the mold in which the casting is
made. This mold is divided longitudinally
into two halves, one of which is shown in the
drawing, the other being removed. These 60
two sections have a portion of one of their
sides cut away, so that when joined together
there will be an opening at that portion of the
mold where the working-face of the anvil is
formed, said opening being closed by a plate, 65
C, which is cut away on its inner surface, as
shown, to receive the steel face-plate B. The
lower end or point of the mold consists of a
cap, c, which is bolted to the two sections of
the body. The mold is set at an incline, or 70
nearly upright, as shown, with that portion
in which the horn is formed at the bottom
and the hanging end at the top.

B represents the steel face-plate. The plate
B is heated before being placed in the mold, 75
and when in position is inclined from the
perpendicular. The sinking-head is above
the upper end of the plate, and the orifice of
the sinking-head enlarges gradually until it
merges into the mold-cavity. At the point a 80
the mold is somewhat larger than is necessary
to complete a perfectly-formed anvil. When
the casting has been completed, this enlarge-
ment of the mold leaves a superfluous amount
of metal at the hanging end, (or at the horn 85
end when the casting is made from that end,) which is
hammered down or compressed after the casting
has been completed, rendering such part denser than it would be if the casting
were made in completed form. 90

The mold is set upright for two reasons:
first, in order that the molten metal may come
in contact with the steel face twice before ad-
hering to the same—i. e., on its downward
passage, and on rising up in the mold as the 95
same is filled; second, that the anvil-horn
may be compressed by the weight of the long
column of metal in the hanging end and sink-
ing-head, or vice versa.

The operation of my invention is as follows: 100
The mold having been prepared, the steel face
is heated to a proper degree and placed in

position in the mold. The molten metal is then poured in, passing over the steel plate in its downward passage, and gradually rising upon said plate as the mold is filled. After 5 the mold has been filled, the casting is allowed to cool, and is then removed from the mold, and the enlargement below the sinking-head hammered down or compressed in, so as to give proper form to that part. The gradual 10 taper of the sinking-head prevents the metal from binding therein, which would result in the metal cracking or separating at some point below said sinking-head.

I have found that where the process of casting herein described is carried out by using 15 a chill-mold, (such chill-mold being generally preferable,) the lower end of the mold, or the portion wherein the end of the horn is cast, is gradually burned or roughened by the 20 molten metal, and its usefulness impaired. To obviate this objection I propose to construct the mold with that portion wherein the point of the horn is cast removable, so that it may

be replaced when worn or damaged. In the drawing I have designated such removable 25 portion by the letter *c*, and shown it as secured to the remainder of the mold by suitable fastening devices, *d*.

What I claim as my invention is—

The method of welding steel faces to iron 30 bodies in casting, consisting in placing the face in the mold and the mold in an inclined position, and pouring the molten metal from above, so as to cause it to flow downwardly over the face, and as it fills the mold to rise 35 over the face again, whereby there is no waste of metal, and the plate is fused sufficiently to weld in cooling, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in 40 presence of two witnesses.

WM. C. MCCARTHY.

Witnesses:

D. E. DAVIS,
JOS. B. CONNOLLY.