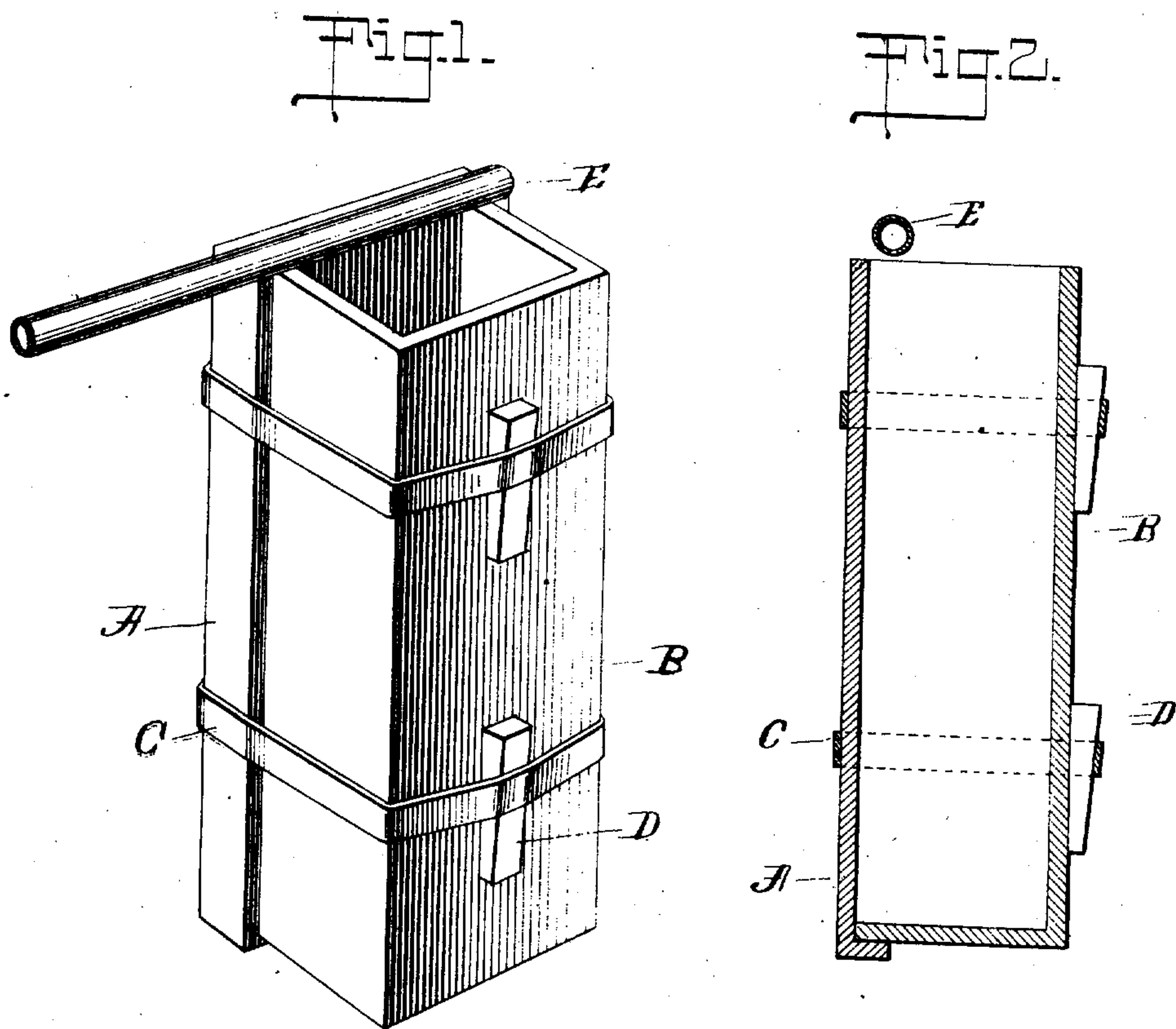


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 METHOD OF CASTING METAL.
 APPLICATION FILED APR. 28, 1908. RENEWED APR. 9, 1910.
 974,934. Patented Nov. 8, 1910.



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METHOD OF CASTING METAL.

974,934.

Specification of Letters Patent.

Patented Nov. 8, 1910.

Application filed April 28, 1908, Serial No. 429,751. Renewed April 9, 1910. Serial No. 554,529.

To all whom it may concern:

Be it known that I, CHARLES H. UPSON, a citizen of the United States, and a resident of Waterbury, in the county of New Haven and State of Connecticut, have made and invented certain new and useful Improvements in Methods of Casting Metal, of which the following is a specification.

My invention relates to an improved method of pouring, casting or molding bars, ingots, or articles of brass and other metals.

The method now in common use is to utilize or employ a sectional mold, the sections being held together in their proper relative positions by means of metal bands or rings surrounding the same, and wedges located between said bands and molds, or by means of bolts, the top of the mold being open to allow the metal to be poured into the same, the bottom of the mold containing a removable plug to permit the bar or casting to be removed after the metal has properly set or cooled, the molds being first thoroughly oiled, and set or placed in an upright position. In casting the ingots or bars in these molds, the heat of the molten metal causes the air and gases to expand, and in so doing, most of such air and gas will escape out and through the molten metal and top of the mold. Frequently, however, a part of such will remain in the metal, due to the fact that the volume thereof is so small that it is insufficient to force a passage through the metal, the pocketed or confined air and gas causing the formation of pin holes in the metal, and necessitating in all instances, the overhauling of the bars or castings in machines provided with scrapers or knives, to remove the rough exterior surfaces thereof, in order to determine the perfect and the imperfect bars.

I have found by experiment that increasing the volume or supply of air to the molten metal while pouring the same into the mold, overcomes all danger of the formation of these pin holes, the air being supplied under

pressure from any suitable source, the increased volume thereof rendering it capable of forcing its way out through the soft metal, and resulting in a solid, smooth and homogeneous casting.

This process, it will of course be understood, is not in any way limited to any peculiar type or shape of mold, it being applicable to any and all the different forms thereof; nor do I limit my invention to the quantity or volume of air to be supplied, it being simply necessary to force a current thereof from the top of the mold to the bottom during the time the metal or mixture is being poured, thereby supplying a sufficient volume to permit of its escape and the escape of the gases which would otherwise be confined in the metal.

For the sake of illustration, I have shown in the accompanying drawing an ordinary form of mold wherein—

Fig. I is a perspective view of the same, and Fig. II a vertical sectional view.

As before stated, this mold consists of the two sections A—B held together in their proper relative positions by means of the metal bands or straps C, the latter being tightened by means of the wedges D, the top of said mold being open and the bottom thereof closed. Over the open top of the mold is located the pipe E connected with any suitable source of air under pressure, that portion of the pipe extending over and above the mold being perforated in order to deliver the air into the mold as the metal is poured therein.

I am aware that others have attempted to effect the same result by the use of de-oxidizing gases as for instance, by injecting into the mold ordinary illuminating gas, such freeing the mold and metal of the oxygen therein. Such methods, however, are quite the reverse of the one hereinabove described, as instead of freeing the metal of oxygen, it is my aim and purpose to supply this gas thereto in order that there may be a sufficient

quantity of oxygen, or air containing the oxygen, to unite with the gas or gases already present to render them inflammable.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is:—

1. The method hereinbefore described of casting metal, consisting in supplying air under pressure to the metal while pouring the same.

2. The method hereinbefore described of

casting metal, consisting in forcing air under pressure into a mold simultaneously with the pouring of the molten metal therein.

Signed at Waterville, borough of Waterbury, in the county of New Haven and State of Connecticut, this 25th day of April, A. D. 1908.

CHARLES H. UPSON.

Witnesses:

H. L. ELLS,
E. A. FRENCH.