H. W. BARNUM.

Apparatus for Casting Metal.

No. 211,953. Patented Feb. 4, 1879.

Fig: 1.

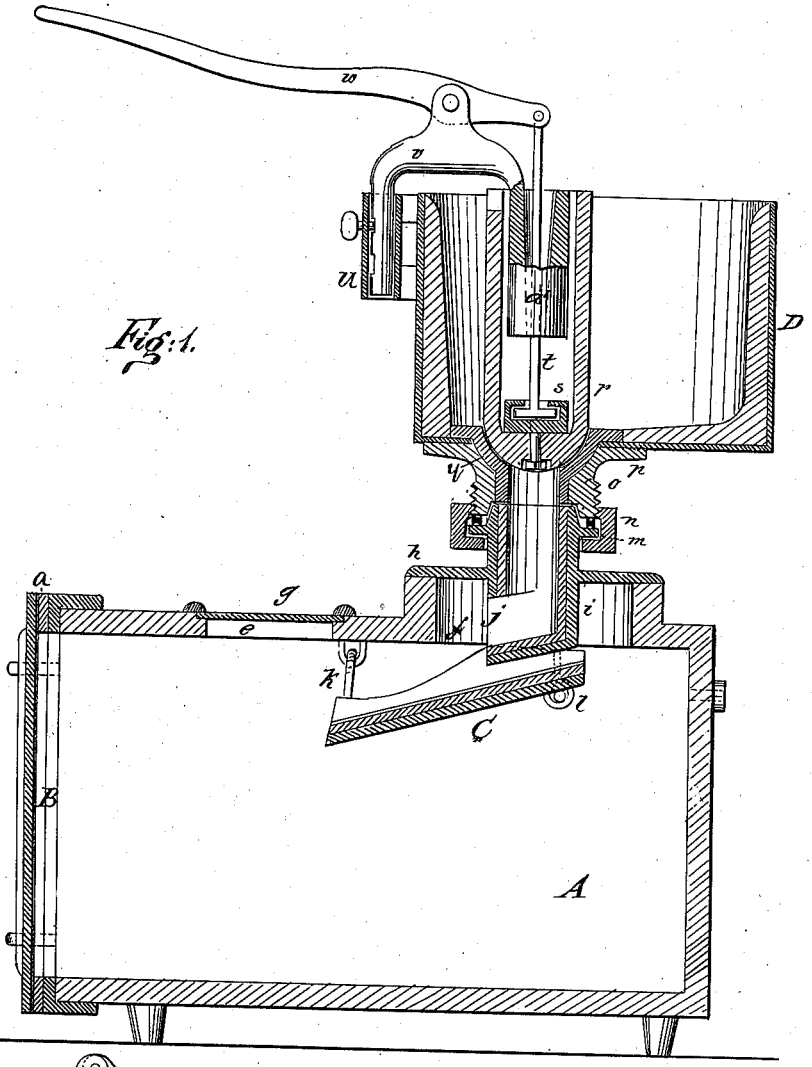
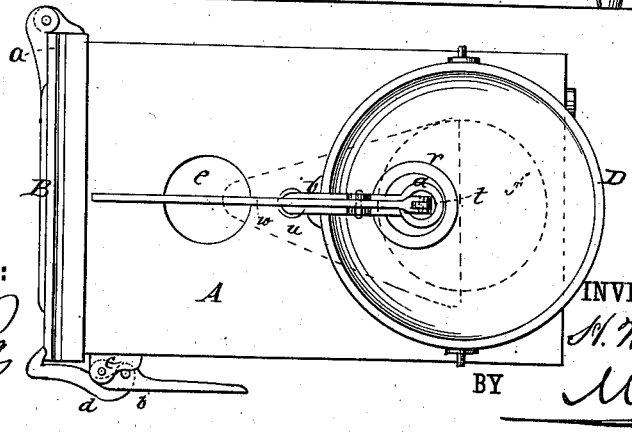


Fig: 2.



WITNESSES:

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HORACE W. BARNUM, OF OMAHA, NEBRASKA.

IMPROVEMENT IN APPARATUS FOR CASTING METALS.

Specification forming part of Letters Patent No. **211,953**, dated February 4, 1879; application filed May 25, 1878.

To all whom it may concern:

Be it known that I, HORACE W. BARNUM, of Omaha, in the county of Douglas and State of Nebraska, have invented a new and useful Improvement in Apparatus for Casting Metals, of which the following is a specification:

Figure 1 is a vertical section of my improved apparatus. Fig. 2 is a plan view of the same.

Similar letters of reference indicate corresponding parts.

The object of my invention is to extract injurious gases from the metal before it enters the mold.

The invention consists in combining a fan-shaped spout with the vacuum-chamber, as hereinafter described.

In the drawings, A is a chamber for containing the mold. It is provided with an air-tight door, B, that closes the entire end of the chamber, and has a rubber packing, *a*, which forms an air-tight joint between the door and the end of the chamber.

A lever, *b*, is fulcrumed between ears *c* that project from the side of the chamber, and is jointed to a hook, *d*, that is capable of engaging the edge of the door.

When the door is closed the hook is drawn by means of the lever until the joint between the lever and hook falls inside of the line of the pivot. In this manner the packing around the door is compressed and made tight, and the fastener is locked.

In the top of the chamber there are two openings, *e f*. The opening *e* is closed by a glass disk, *g*, and the opening *f* is closed by a disk, *h*, through the center of which passes a short vertical tube, *i*, having a lateral spout, *j*, for delivering the melted metal to a fan-shaped spout, C, that is suspended from the top of the chamber by hooks *k l*. This spout has upon its upper surface corrugations that radiate from the smaller end thereof. Both the spout C and the tube *i* are lined with a wash of fire-clay or other refractory material. The tube *i* has a collar or flange, *m*, and is surrounded by an internally threaded and recessed collar *n*.

To the upper end of the tube *i* is fitted a neck, *o*, which is threaded externally to receive the collar *n*, by which it is firmly coupled to the pipe *i*.

A packing-ring is placed between the neck *o* and flange *m*. The neck *o* has a flange, *p*, upon which rests a pot, D, which is lined with fire-clay, and communicates through the neck *o* with the tube *i*.

In the upper part of the neck-opening there is a plumbago valve-seat, *y*, to which is fitted a valve, *r*. The upper portion of the valve *r* is tubular and extends to the top of the pot D.

In the bottom of the tubular part of the valve there is a socket, *s*, for receiving the head of the rod *t*, by which the valve is operated.

To the side of the pot D a socket, *u*, is secured for receiving the support *v* of the lever *w*. To one end of the support there is a sleeve, *a'*, which extends downward into the tubular portion of the valve *r* and forms a guide for the valve. The valve-rod *t* extends upward through the sleeve *a'*, and is attached to the shorter arm of the lever *w*. The longer arm of the lever extends over the chamber A in convenient position to be reached by the operator.

The operation of casting is as follows: The mold being placed in the chamber A the pot D is filled with melted metal, and placed by means of suitable apparatus upon the tube *i*, and secured by the collar *n*. A vacuum is then produced in the chamber by any of the well-known means, and the metal is allowed to escape from the pot by raising the valve and run over the spout C into the mold. The metal is thus spread out so that the gases may be readily extracted.

By viewing the mold through the glass disk *g* it will be known when the mold is filled.

By this process the gas and air are extracted from the metal before it enters the mold, thereby insuring solid castings.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination of the fan-shaped spout

with the vacuum-chamber for spreading the melted metal, substantially as shown and described.

2. The vacuum-chamber A, connected with the pot D by a tube, *h i j m*, collar *n*, neck *o y*, and valve *r*, all constructed and arranged substantially as and for the purpose described.

3. The combination of the tubular valve *r*, having the bottom socket, *s*, the rod and lever *t w*, the pot D, having socket *u*, and the support *v*, having tube *a'*, as and for the purpose set forth.

HORACE WILFORD BARNUM.

Witnesses:

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