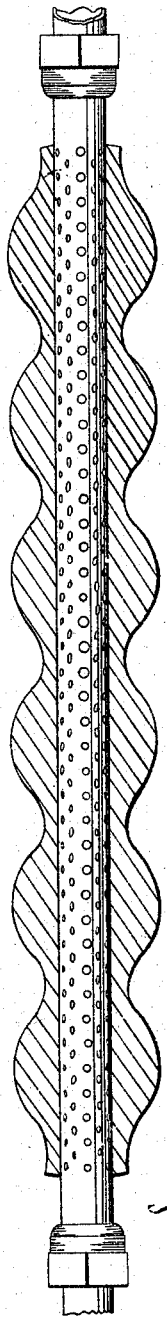
J. HARRISON, Jr.

MODE OF MAKING AND VENTING CORES FOR CASTINGS.

No. 49,264. Patented Aug. 8, 1865.



Witnesses:

Wm. Poultney

Chas. G. Harrison.

Inventor:

Joseph J. Harrison Jr.

UNITED STATES PATENT OFFICE.

JOSEPH HARRISON, JR., OF PHILADELPHIA, PENNSYLVANIA.

IMPROVED MODE OF MAKING AND VENTING CORES FOR CASTINGS.

Specification forming part of Letters Patent No. **49,264**, dated August 8, 1865.

To all whom it may concern:

Be it known that I, JOSEPH HARRISON, Jr., of the city of Philadelphia and State of Pennsylvania, have invented a new and Improved Method of Venting Cores or Molds to be used in the Casting of Iron or other Metal, and to enable others skilled in the art to make and use the same, I do declare that the following is a full and exact description, to wit:

The nature of my invention consists in forming cores of moist sand or other material for pipes or other castings in the usual manner, on a perforated tube or other form of any desired length or shape, said tube or other form to have certain attachments, hereinafter to be described, so that the effect of a vacuum may be availed of to strengthen the core at the moment of casting, and at the same time to rapidly take away from the core the gases generated by the molten metal, thus preventing the tendency to blowing or making imperfect work.

The drawing shows a perforated tube adapted to casting a pipe made up of a series of spheres, upon which is formed the core, (colored yellow.) By any of the ordinary means one or both ends of the tube may be attached to an air-pump or to a vacuum-chamber placed at a convenient distance from the mold. When the casting is to be poured the air-pump is to be first started, or the connection opened with the vacuum, and as the metal rises under and around the core the gases that are generated by the heat of the metal from the material of which the core is made will be conveyed by the effect of the vacuum into the tube and thence discharged by the air-pump or made to occupy the empty space in the vacuum-chamber, much more effectually venting the core than when the gases are taken off in the ordinary manner, while at the same time, in consequence of the partial vacuum which takes place throughout the whole length of the core, the sand forming the core is relieved of the pressure at or near its center, the pressure of the atmosphere being against its external surface, and the whole core being much strenghtened a better class of casting is the result.

I also intend to apply the same mode of venting and strengthening molds or other forms made of sand or other material for the purpose of making castings, where such molds or forms might not be properly called cores.

I am aware that a patent has been granted to Julian Bernard from the British Patent Office, under date April 25, 1853, No. 995, for a method of exhausting molds for molten metal or plastic materials—such as gutta-percha and the like—by means of a vacuum for the purpose of obtaining a more correct product from the mold; but it will be seen on reference to the specification of said Bernard, and comparing it with the above description of my invention, that the two methods have entirely different aims. In the case of Bernard I infer that his molds are made of metal or other solid material, and his whole object is to exhaust the cavity of the mold by means of a vacuum while the plastic material is being run into the cavity. In my case I make no effort to exhaust the cavity of the mold, but leave it, in the usual manner, open to the external air. My cores or molds are made of porous moist sand, or similar material, and my object is to convey away by means of a vacuum the gases that are always generated in such material as my cores or molds are made of whenever molten metal is run into the cavity of the mold.

What I claim as my invention, and desire to secure by Letters Patent, is—

The mode of making, using, and venting cores or molds for castings, as above described, for the purpose of strengthening them when made of weak, moist sand or similar material, and for the better venting the same by availing of a vacuum, as above described, when the molten metal is poured into the molds.

JOSEPH HARRISON, JR.

Witnesses:

WM. POULTERN,

W. H. HARRISON.