R. W. THOMPSON.

MACHINE FOR CASTING METALS.

APPLICATION FILED DEC. 29, 1919.

1,377,372. Patented May 10, 1921.

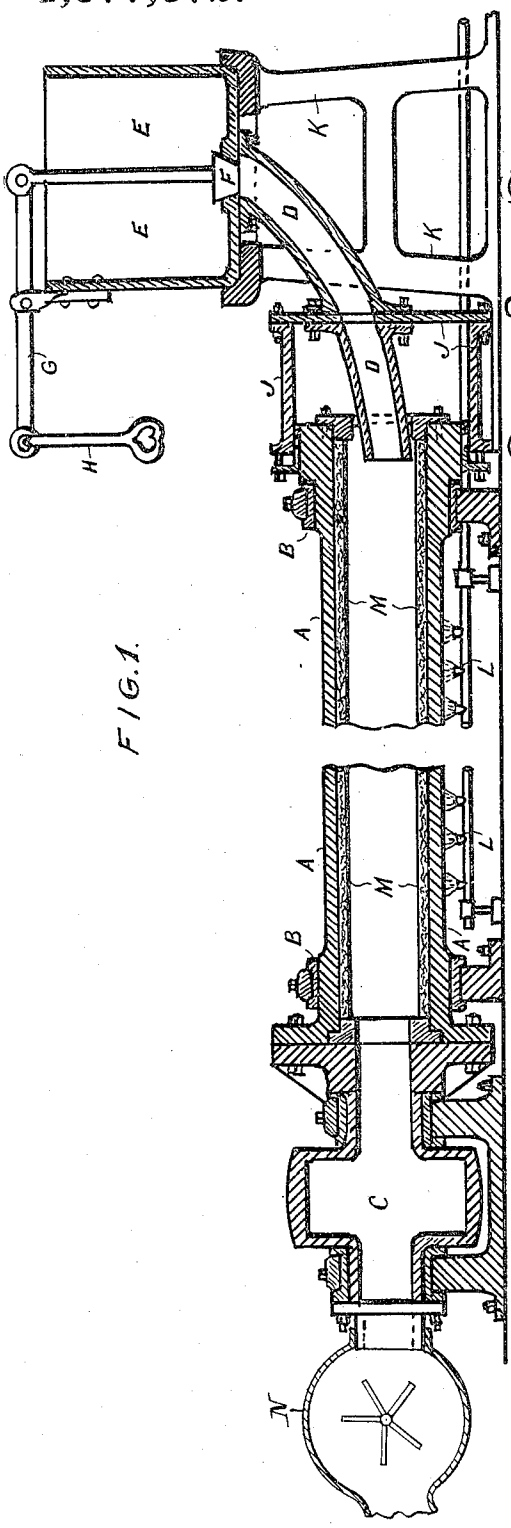


FIG. 1.

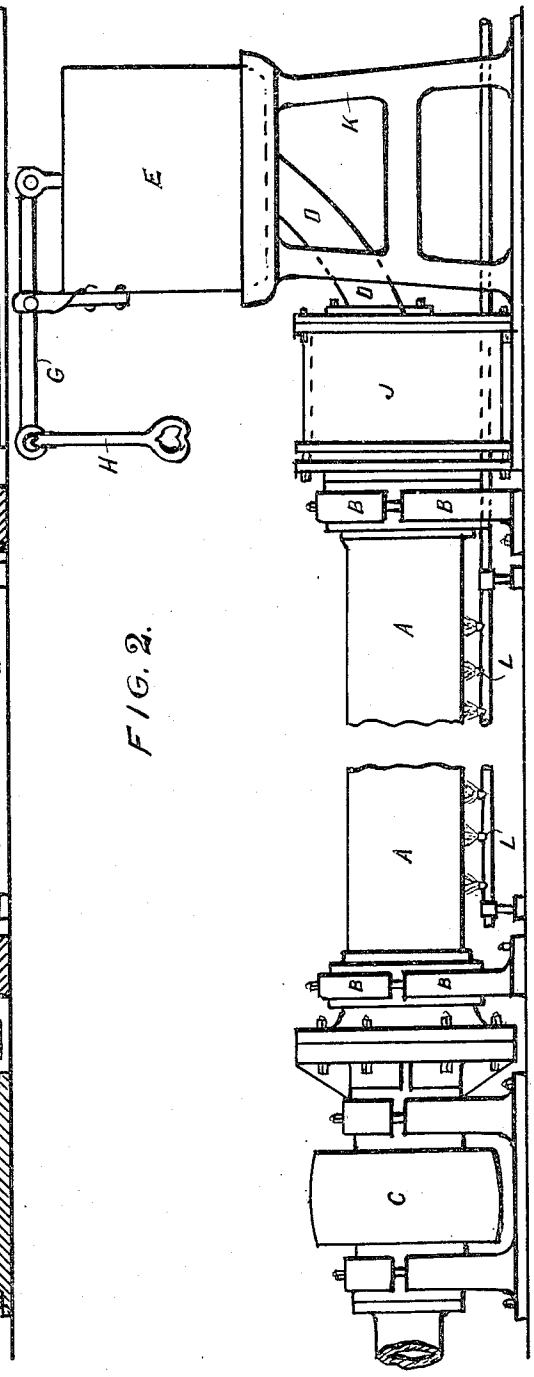


FIG. 2.

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UNITED STATES PATENT OFFICE.

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MACHINE FOR CASTING METALS.

1,377,372. Specification of Letters Patent. Patented May 10, 1921.

Application filed December 29, 1919. Serial No. 347,913.

To all whom it may concern:

Be it known that I, RALPH WILLMETT THOMPSON, a subject of the King of Great Britain and Ireland, residing at 178 Ferry road, Leith, county of Midlothian, Scotland, have invented new and useful Improvements in or Relating to Machines for Casting Metals, of which the following is a specification.

My said invention relates to centrifugal casting machines of the type in which the external casing of the mold is divided longitudinally into two or more parts, and has for its object to provide means whereby castings varying in diameter can be made while still retaining the same external casing of the mold, and so that the casting approaches very closely to what would be obtained in the sand or loam type of molding.

In carrying out my invention, the external rotating tubular casing of the mold is supported in suitable bearings, and driven from any convenient source. One end of the external rotating casing is connected to the driving shaft, while the other end is in communication with a tank or tanks. The driving shaft is preferably made tubular and communicates with an exhauster, while the opposite end of the casing may be hermetically sealed, so that air can, when desired, be withdrawn from the casing so as to form a vacuum or partial vacuum therein.

When a casting is to be made, the external rotating tubular casing is provided with an internal liner, consisting of sand, clay, cement and water, known as "slurry." The "slurry" on flowing into the external casing, is converted by centrifugal action into a liner, which forms the mold for the metal casting.

In order that my said invention and the manner of performing the same may be properly understood, I hereunto append a sheet of explanatory drawings to be hereinafter referred to in describing my invention.

Figure 1 is a sectional side elevation, and Fig. 2 is a side elevation of the improved casting machine. In these drawings the same reference letters are used to mark the same or like parts wherever they are repeated.

As shown in the drawings, the casting machine consists of an external casing A supported for rotation in suitable bearings B, and at one end is coupled to a tubular shaft having a driving pulley C thereon, and there is arranged in connection with it an exhauster N so that air can be withdrawn from the mold, while the other end of the casing A is in communication, through a nozzle or pipe D, with a tank E, containing the molten metal to form the casting.

The tank E containing the molten metal has formed in its underside a port, said port being controlled by a plug or valve F, operated by a lever G, and a handle H, the latter being external to the tank. The nozzle D, whereby the molten metal is transferred from the tank E to the mold, is preferably made in two parts, one part positioned within a stuffing box J detachably connected to, but forming an air-tight joint with the casing A, while the other part is positioned outside of the stuffing box. The nozzle D, tank E and stuffing box J are supported on an adjustable stand K, so that, when desired, these parts, after being disconnected from the casing A, can readily be withdrawn therefrom.

If desired, external heat may be applied to the rotating casing A, for example, by a series of Bunsen burners L.

When a casting is to be made, the difference between the external diameter of said casting and the internal diameter of the external rotating casing A, is made up as follows: "Slurry," that is a mixture of sand, clay, cement and water, contained in a receptacle, flows by gravity into the rotating casing A, and is converted by centrifugal action into a liner M, whose internal diameter corresponds to the external diameter of the proposed casting. A smooth internal surface may be imparted to the liner M by means of scrapers or the like, and after the material has set with or without the application of heat, the molten metal to form the casting is run in, whereby a casting closely resembling that obtained from sand, or loam, molding is obtained.

The object of longitudinally dividing the external rotating casing A is to facilitate the removal of the mold, or liner, and the casting.

What I claim is:—

A centrifugal metal casting machine, comprising a hollow rotatable member, an air-tight gland at one end of said member, a tank supported above said member and provided with a valve-controlled opening in its bottom, a nozzle communicating with said

opening and passing through said gland into communication with said rotatable member, a hollow shaft mounted for rotation at the opposite end of said rotatable member, said shaft and rotatable member having means for securing them together with their interior walls in concentric relation, means carried by said shaft for imparting rotation thereto, and means in communication with the free end of the shaft for creating a vacuum in said shaft and hollow member.

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

RALPH WILLMETT THOMPSON.

Witnesses:

GEORGE PATTERSON,

WILLIAM BAXTER.