(No Model.)

C. KELLOGG.

INGOT MOLD.

No. 395,061. Patented Dec. 25, 1888.

Fig. 3.

Fig. 1

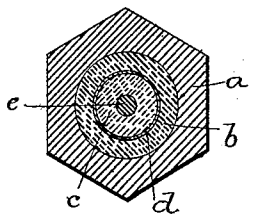
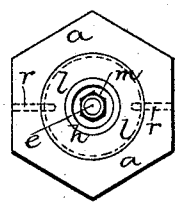
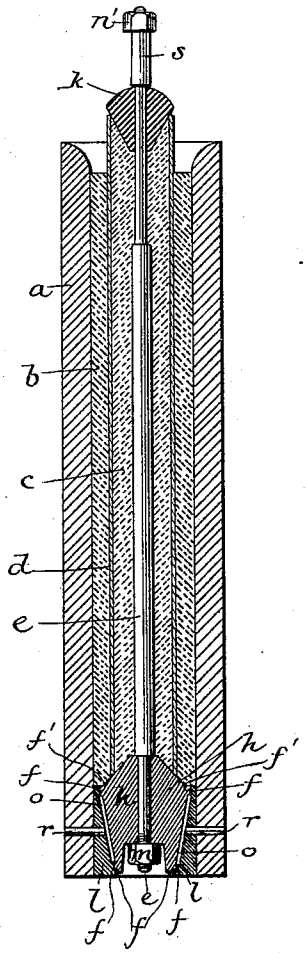


Fig. 2





Attest.

Sidney P. Hollingsworth

Chas. Evans.

Inventor.

Chas. Kellogg.

Per Whittlesey & Sons

Attorney

N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

CHARLES KELLOGG, OF BUFFALO, NEW YORK.

INGOT-MOLD.

SPECIFICATION forming part of Letters Patent No. 395,061, dated December 25, 1888.

Application filed March 22, 1888. Serial No. 268,167. (No model.)

To all whom it may concern:

Be it known that I, CHARLES KELLOGG, of Buffalo, in the county of Erie and State of New York, have invented new and useful Improvements in Ingot-Molds, of which the following is a specification.

The invention has reference to a mold for casting hollow ingots of steel. Specifically, it relates to improvements in the molds used for making the said ingots.

The objects of the invention are to insure perfect centering of the core, to facilitate placing the core in the flask, and to make it self-supporting therein.

In the accompanying drawings, Figure 1 represents a transverse section of my improved ingot-mold filled with metal; Fig. 2, a plan of the bottom of the same; Fig. 3, a vertical longitudinal section of the mold, taken through the center thereof.

Referring to the drawings, the flask *a* is made in the usual manner of cast-iron. The bottom of the flask is closed by a two-part bottom, one part being fixed in the flask and the other connected with the core. The fixed part *l* is annular, and it is inserted in the lower part of the flask, where it is held by pins *r r*, passed laterally through the walls of the flask. The opening through the part *l* is conical, and adjacent to the upper and lower edges the surface is formed into fillets *f f*. The part *h* is a double conical plug, the lower cone being the counterpart of the conical opening in part *l*. The fillets *f f* thereon are placed in the same relative position on the surface of the plug, so that when the latter is inserted in the opening the fillets meet and form a tight joint. The part *h* is placed on the lower end of the core stem or bar *e*, a hole being made through the plug or part at the center and the stem being reduced to form a shoulder. The part *h* is held on the stem by a nut, *n*, screwed on the end of the stem, where it projects through the bottom of the said part, a counterbore being formed into which the nut is seated, whereby the nut and stem end are prevented from projecting below the bottom of the flask. The upper or top portion of part *h* is also conical and forms the plug for the lower end of the core-shell.

The core is composed of a cylindrical metallic shell, *d*, and a sand filling, *c*, in the usual manner, the stem or bar *e* being passed through the center with the ends projecting out of the shell. The core is exactly centered by clamping it on the stem between the upper or top cone of the plug *h*, and another conical plug, *k*, at the opposite end, also placed on the stem and held by a sleeve, *s*, and nut *n'*. It will thus be seen that the core can be exactly centered by the stem as the plugs which are entered into the shell, when forced into the same by means of the nuts force the shell to take position where the stem will form the longitudinal axis, the conical sides of the said plugs acting against the ends of the shell and preventing the latter from getting out of line or parallelism with the stem.

The centering of the core with respect to the stem and the conical plug that forms the part *h* of the drag being thus assured, the centering of the plug within the flask is easily effected, since when placed therein the conical part of the plug falls directly in the conical opening of part *l*, and thus centers the core; thereby also the core is held in the flask and supported in its place.

The mold, annulus, and conical plugs are preferably made of iron; but this is not intended to exclude other suitable material for the molds and the parts thereof when employed in molding articles from cast-steel.

I claim—

1. A core for ingot-molds, composed of the following parts, in combination: the core-shell and its filling, the core-stem, and conical plugs placed in opposite ends of the shell and clamped therein and to the core-stem for the purpose of fastening the core on the stem and centering it, substantially as specified.

2. In cores for ingot-molds, the combination, with the core-shell, of a stem passed through the said shell and conical plugs placed on or over the ends of the stem and inserted in the opposite ends of the core-shell, and means for forcing and holding said plugs in the shell for the purpose of centering the core and clamping it rigidly in its centered position to the stem, substantially as specified.

3. In combination with the core and core-stem of conical plugs placed over the ends of

the stem and clamped into the ends of the core-shell, the bottom plug having a conical extension that forms the movable part of the bottom of the flask, the said part having the same center as the core, so that when placed in the flask it centers the core in the flask, substantially as specified.

4. The combination, with the flask of an ingot-mold, of a two-part bottom, one part, *l*, being annular and provided with a conical opening, and the other, *h*, a solid double conical plug, the lower cone fitting into the annular part, and the upper cone forming one of the cones by which the core and stem are fastened together, a stem passed through the double conical plug, a core, and a conical plug inserted in the upper end of the core-shell over the stem, and means of clamping the core, core-stem, and plugs together, substantially as specified.

CHARLES KELLOGG.

Witnesses:
FREDK. HAYNES,
WILTON C. DONN.