E. J. KELLY.

Core for Casting Ingot-Mold.

No. 207,285. Patented Aug. 20, 1878.

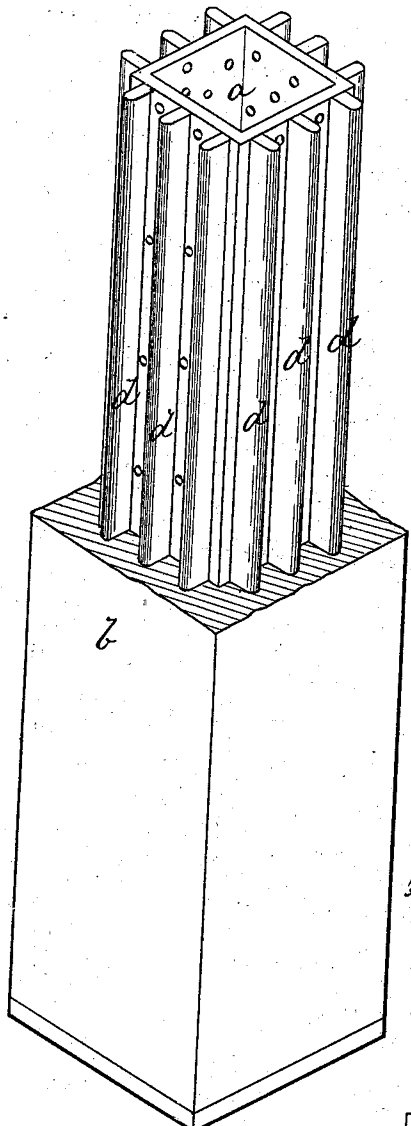

Fig. 1.

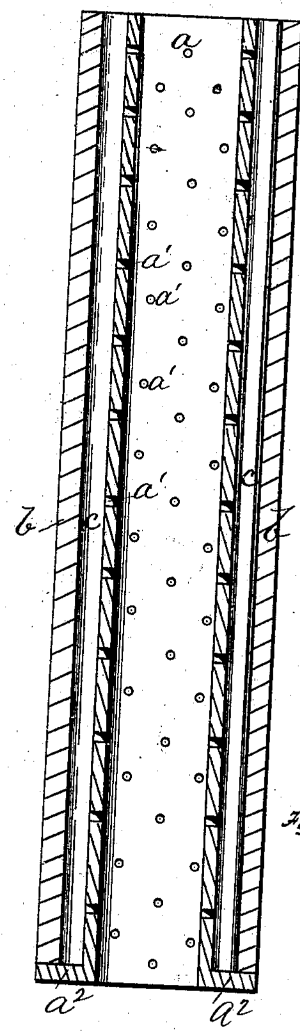

Fig. 2.

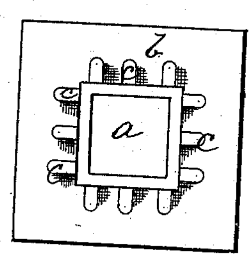

Fig. 3.

Witnesses

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UNITED STATES PATENT OFFICE.

EDWARD J. KELLY, OF ALLEGHENY, PENNSYLVANIA, ASSIGNOR TO HIMSELF AND WILSON MILLER, OF SAME PLACE.

IMPROVEMENT IN CORES FOR CASTING INGOT-MOLDS.

Specification forming part of Letters Patent No. **207,285**, dated August 20, 1878; application filed May 24, 1878.

To all whom it may concern:

Be it known that I, EDWARD J. KELLY, of Allegheny city, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Cores for Casting Ingot-Molds, Pipes, and similar hollow articles; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawing, forming part of this specification, in which—

Figure 1 is an elevation, partly in section, of devices embodying my invention. Fig. 2 is a longitudinal section, and Fig. 3 an end view, of the same.

Like letters refer to like parts wherever they occur.

My invention relates to the construction of cores for casting ingot-molds, pipes, and similar hollow articles.

At present in the casting of ingot-molds, pipes, &c., the cores most generally employed are composed of rigid metallic centers, incased with a compact covering of core material; and such cores are objectionable, first, because they resist the contraction of the metal and have a tendency to strain the casting; and, secondly, because of the great force required to drive out the core, for which latter purpose, in the case of ingots, the strokes of two thirty-pound sledges, or powerful screws with twelve-foot lever, are frequently demanded.

Less frequently collapsible cores are employed, or cores formed of expansible sections, covered by an outer coating of core material, the objections to which are their cost, complicated construction, and liability to get out of order or become inoperative.

The object of the present invention is to obtain a simple, inexpensive, and efficient core, which can be readily removed from the casting.

I will now proceed to describe my invention, so that others skilled in the art to which it appertains may apply the same.

In the drawing, *a* indicates the metallic center of a compound core. Such center is a light hollow casting, perforated, as at a^1, for the purposes of venting the mold, and provided at one end with a flange, a^2, for the support of the incasing core material.

b represents the core material incasing the metallic section *a*, said material being formed with a series of channels or cavities, *c*, extending longitudinally of the core and arranged next to or near the metallic barrel *a*.

The cavities *c* should be of such general form as will facilitate the cracking or breaking of the core material *b* into sections when the casting contracts in cooling, the form shown being well adapted for the purpose, though I do not desire or expect to be limited thereby.

In molding the core a series of bars or patterns, *d*, will be arranged within the core-box around the metallic shell or section *a*, and the core material rammed about the metallic shell *a* and bars *d* in the usual manner, after which the bars *d* may be withdrawn and the core dried or baked in the ordinary way of preparing similar cores.

The general form given to such cores will, of course, be that adapted to the article to be cast, and the cores will be employed in the usual manner.

The casting in contracting crushes the core material *b* into sections, first relieving the casting of strain and insuring more solid and perfect castings; and, secondly, releasing the core itself, so that it will drop out when the mold is lifted, or can be easily driven out by a slight blow from a sledge.

Having thus set forth the nature and advantages of my invention, what I claim, and desire to secure by Letters Patent, is—

The compound core composed of the hollow perforated metallic core-center and the outer covering of core material channeled, substantially as and for the purpose specified.

In testimony whereof I, the said EDWARD J. KELLY, have hereunto set my hand.

EDWARD J. KELLY.

Witnesses:

F. W. RITTER, Jr.,

A. C. JOHNSTON.