(No Model.)

J. J. HOGAN.

RIBBED CYLINDER PATTERN.

No. 416,333. Patented Dec. 3, 1889.

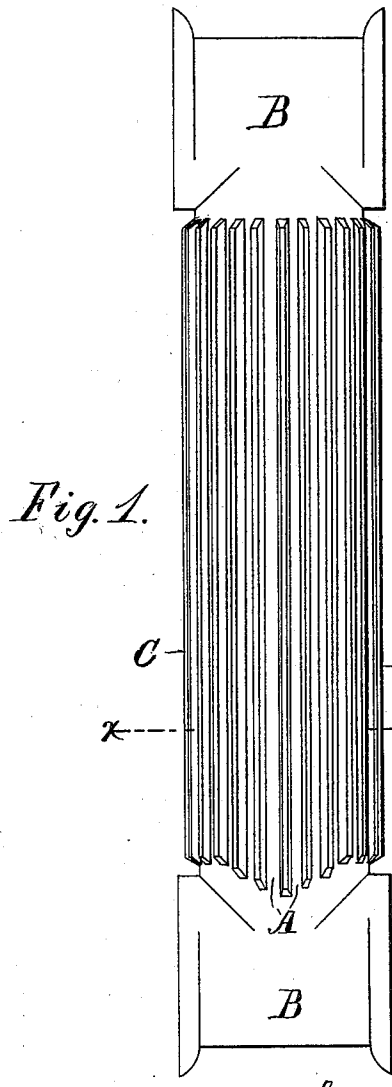


Fig. 1.

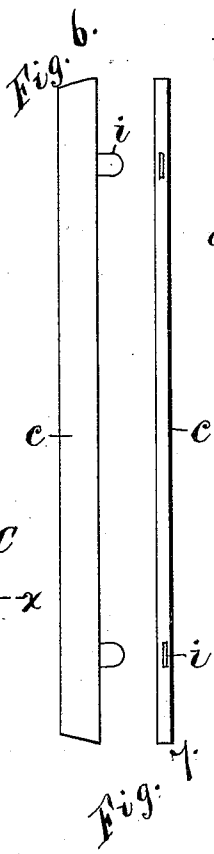


Fig. 6.

Fig. 7.

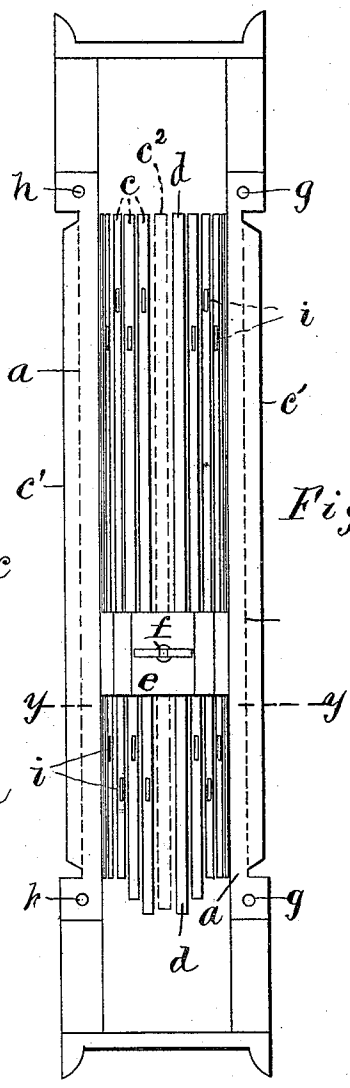


Fig. 3.

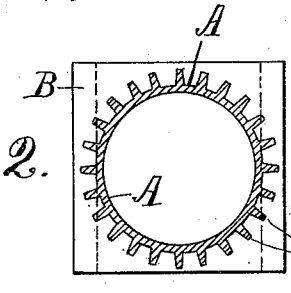
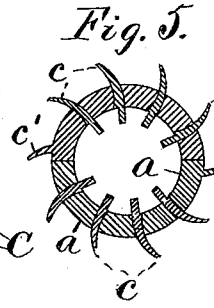


Fig. 2.

Fig. 5.



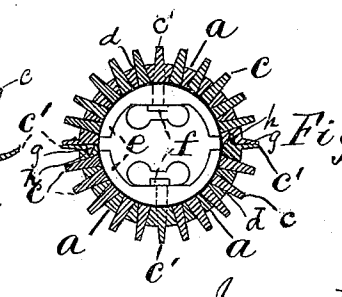


Fig. 4.

Attest:
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F. C. Fischer.

Inventor.
J. J. Hogan, per
Crane & Miller, Attys.

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

UNITED STATES PATENT OFFICE.

JOHN J. HOGAN, OF NEW YORK, N. Y., ASSIGNOR TO THE HOGAN ENGINEERING COMPANY, OF SAME PLACE.

RIBBED-CYLINDER PATTERN.

SPECIFICATION forming part of Letters Patent No. 416,333, dated December 3, 1889.

Application filed December 4, 1888. Serial No. 292,640½. (No model.)

To all whom it may concern:

Be it known that I, JOHN J. HOGAN, a citizen of the United States, residing in the city, county, and State of New York, have invented certain new and useful Improvements in Ribbed-Cylinder Patterns, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

The object of this invention is to furnish a convenient means of molding ribbed cylinders, such as the columns or sections used in the construction of steam and water radiators; and the invention involves the use of a hollow shell having a circumferential series of slots extended through the same and a series of pieces projected through such slots to be retracted at the close of the molding operation to facilitate the removal of the pattern from the mold. Where a circumferential series of radial slots is employed, the circumferential series of pieces projected through such slots are not parallel and cannot, therefore, be joined together by a common carrier, so as to retract simultaneously within the pattern. The pieces may, however, be made independent of one another and locked within the shell by a suitable clamp adapted to hold the ribs in place until they are fully molded, the mold being then opened and the pattern divided to remove the clamp and withdraw the ribs separately. At the close of the molding operation the extension of the ribs into the sand would hold the opposite halves of the pattern firmly therein until the mold was opened and the ribs retracted. The opening of the mold would divide the pattern and expose its interior, when the clamp could be removed and the separate ribs retracted through the slots, after which the cylindrical shell could be readily lifted from the mold.

The invention is shown in the annexed drawings, in which—

Figure 1 is a side view of a cylindrical radiator-column provided with transverse heads at its opposite ends, and longitudinal ribs projected at intervals from the whole of the cylindrical body. Fig. 2 is a transverse section of the same on line *x x* in Fig. 1. Fig. 3 is an inside view of one-half of a pattern to mold such radiator-column. Fig. 4 is a transverse section of two such half-patterns on line *y y* in Fig. 3, and Fig. 5 is a transverse section of an alternative construction. Fig. 6 is a side view of one of the tongues *c* detached from the pattern, and Fig. 7 is a view of the inner edge of the same.

In Figs. 1 and 2, A is the cylindrical body of the column, B the transverse heads, and C the longitudinal ribs. The pattern for molding the same is constructed with the hollow cylindrical shell *a*, provided with longitudinal radial slots *d*, in which are inserted longitudinal tongues *c*, which project beyond the exterior of the shell sufficiently to form the desired ribs. The shell is formed with integral tongues *c'* at the extreme bottom and at the opposite top edges, as such ribs would readily lift from the sand without retraction. The intermediate tongues, however, operate to lock the pattern into the sand when molded; but being formed separate from the shell and loosely inserted in the longitudinal slots *d*, they may be readily retracted, while the sand is firmly held by the cylindrical surface of the shell and the mold thus completed without much rapping or shaking of the pattern to loosen it therein.

To hold the tongues in place in the slots, a clamp *e*, of semicircular shape, is shown fitted to the interior of the shell, and the inner faces of the tongues are constructed to be flush with the inside of the shell, so that the clamp when secured in place by the screw *f* operates to hold all the tongues in position for molding.

The column is shown in Fig. 2 of cylindrical form, and the pattern is constructed with two semi-cylindrical halves, as shown in Fig. 4, only one of the halves being shown in Fig. 3. The two halves are held in line by dowels *g*, fitted in holes *h*.

The method of molding such pattern is well known, and consists in burying one half the pattern in the sand and ramming the sand around the tongues *c*. The other half of the pattern would then be applied to the half already molded, and, the "cope" of the mold being applied to the "bed" the sand would be rammed about the upper half of the pattern.

The separation of the cope from the bed

when the molding was completed would divide the pattern into halves, and thus expose its interior to give access to the clamp and tongues. The clamp could then be readily removed from each half of the pattern and the tongues retracted separately through their slots, lifters *i* being formed upon the tongues to serve as handles when withdrawing them from the slots, as is clearly shown in the detached views of a single tongue in Figs. 6 and 7, and in Fig. 5, where the clamp is omitted to clearly show the lifters upon all the tongues *c*.

In Fig. 6 one of the tongues is shown formed with beveled ends, which greatly facilitates its removal from the slot by permitting one end to be lifted out without reference to the other, whereas a tongue with square ends would require to be retracted with great care parallel to the shell of the pattern until it was wholly clear from the slot. The slots are also shown tapered in cross-section in Fig. 4 and the tongues beveled to fit the same upon their opposite sides, partly to facilitate the removal of the tongues from the slots and partly to form a positive bearing for the tongue in the slot when its wider edge is flush with the inner surface of the shell. By such construction the clamp may be constructed without reference to the number of tongues to merely fit the interior of the shell, and then operates effectively to hold all the tongues firmly in the slots, as desired.

In Fig. 5 the slots and tongues are shown of curved transverse section, by which construction curved tongues may be readily retracted within the hollow shell of the pattern and curved ribs be formed upon the exterior of the casting with the same facility as straight radial projections.

As the clamp shown is semi-cylindrical in profile, it is obvious that a cylindrical block fitted to the inside of the shell would operate as a clamp without any fastening-screw.

I hereby disclaim my patent application, No. 276,202, filed June 6, 1888, for foundry-pattern.

Having thus set forth my invention, what I claim herein is—

1. A pattern consisting in the cylindrical shell *a*, divided to expose its interior and formed with a series of radial longitudinal slots *d* and with a series of longitudinal tongues *c*, fitted to such slots and projected from the exterior of the pattern, and held in place during the molding operation by a clamp, as and for the purpose set forth.

2. A pattern consisting in the cylindrical shell *a*, divided to expose its interior and formed with a series of radial longitudinal tapered slots and with a series of tapered longitudinal tongues fitted to such slots, with their inner edges flush with the inside of the shell and their outer edges projected from its exterior, and a semi-cylindrical clamp fitted to the interior of the shell and pressed upon the inner edges of the tongues, as and for the purpose set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

JOHN J. HOGAN.

Witnesses:
GILBERT S. MCGLOIN,
JAMES W. GALLAGHER.