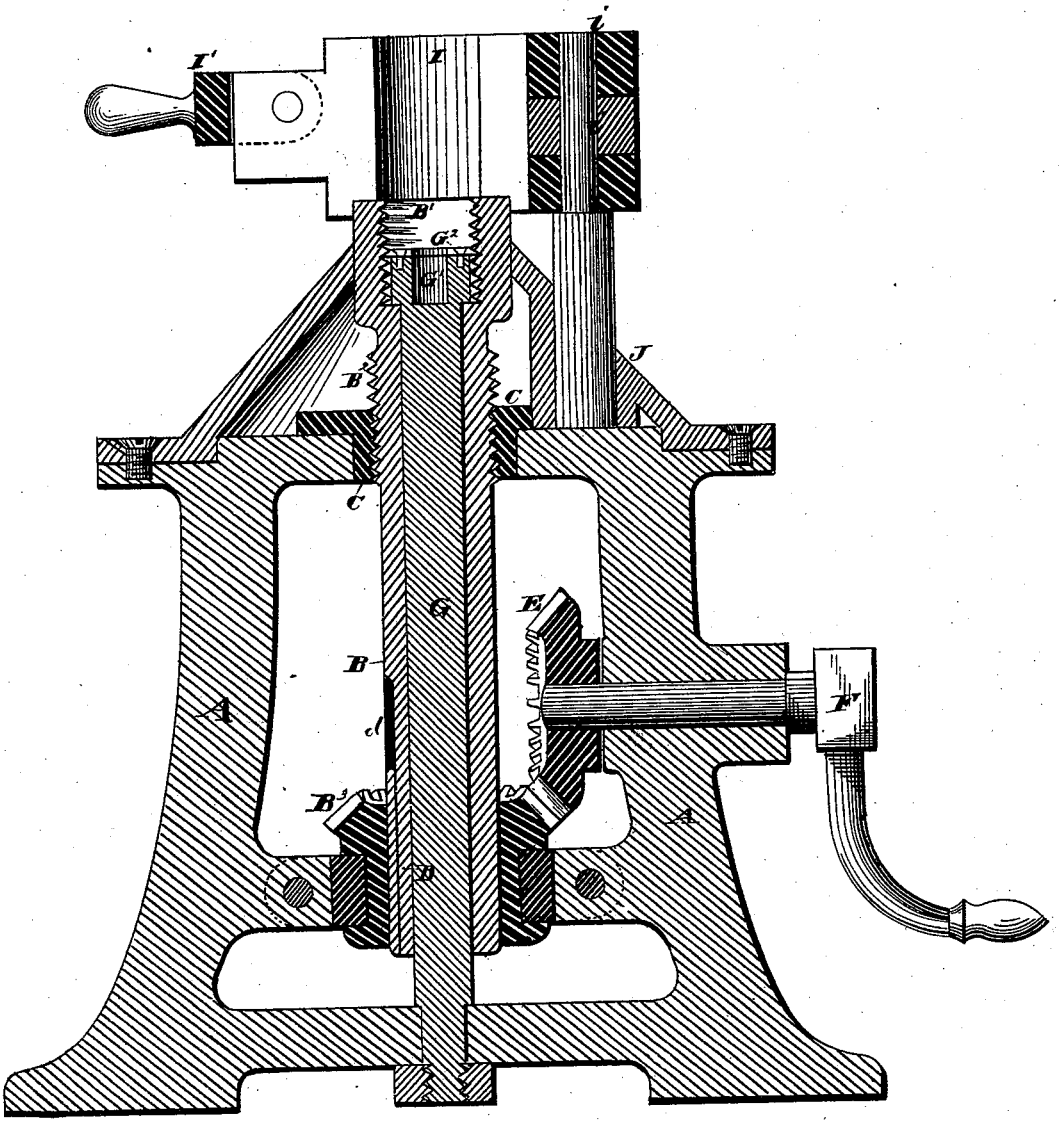
2 Sheets—Sheet 1.

G. COWING.

Machine for Making Cores.

No. 209,551. Patented Nov. 5, 1878.

Fig. 1.



WITNESSES

Ed. L. Nottingham

A. W. Bright.

INVENTOR

Geo. Cowing,

By Dewgett and Dewgett.

ATTORNEYS

2 Sheets—Sheet 2.

G. COWING.

Machine for Making Cores.

No. 209,551. Patented Nov. 5, 1878.

Fig. 2.

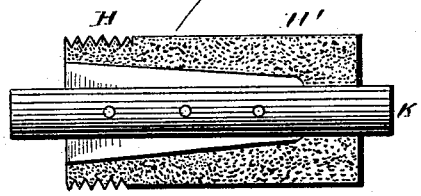
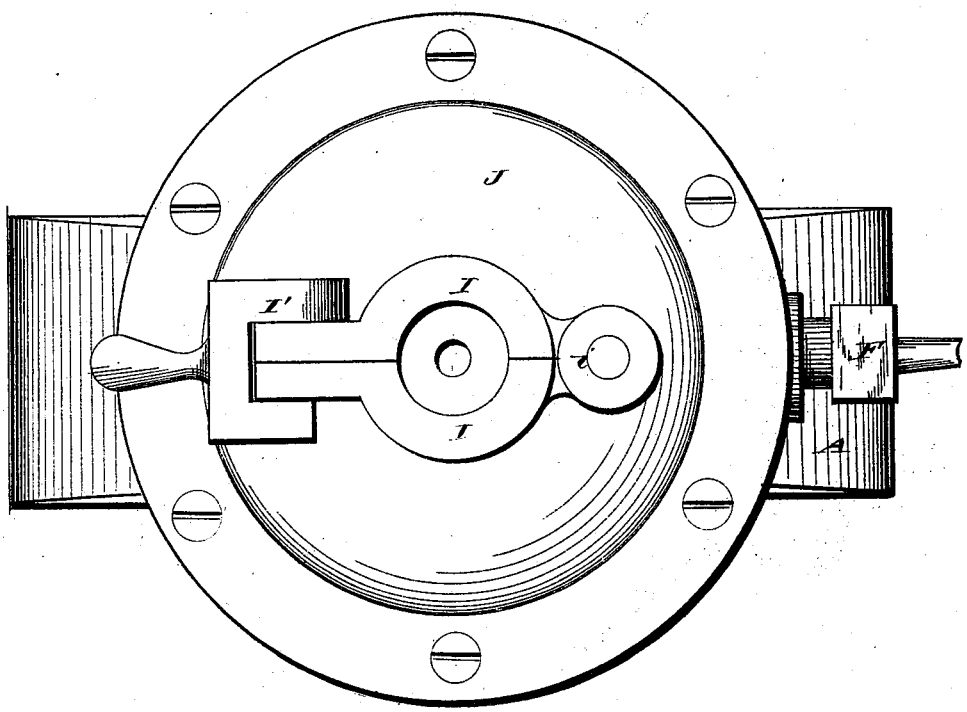


Fig. 3.



WITNESSES

Edw. L. Nottingham

A. W. Bright

INVENTOR

Geo Cowing.

By Legget & Legget

ATTORNEYS

UNITED STATES PATENT OFFICE.

GEORGE COWING, OF CLEVELAND, OHIO.

IMPROVEMENT IN MACHINES FOR MAKING CORES.

Specification forming part of Letters Patent No. **209,551**, dated November 5, 1878; application filed January 12, 1878.

To all whom it may concern:

Be it known that I, GEORGE COWING, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Machinery for Making Cores; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to machinery for making cores for employment for the purpose of making a continuous screw-thread on the interior of a pipe-joint or coupling in the process of casting, though equally applicable in all cases where it is desirable to produce an interior or female thread in casting, as, for instance, in the pipe-openings of steam-radiator bases, and in all kinds of steam, water, gas, and other pipe fittings.

The invention consists in the combination, with a stationary core-supporter and tubular shaft adapted to revolve about the same in vertical adjustment, and provided with a core-forming flask, of a sectional mold formed above the same, the sections of said mold being hinged together and provided with a suitable locking device.

The invention further consists in a shelving or inclined shield formed on the top of the machine and adapted to cover and protect the working parts thereof.

In the drawings, Figure 1 is a sectional view of a machine embodying my invention. Fig. 2 is a separate view of a core and core-print formed by my said machine. Fig. 3 is plan view of my machine.

A is a suitable frame-work for supporting the mechanism. It may be of any desired form, though I prefer that it shall be a single casting, since it simplifies and cheapens the construction, while at the same time it insures rigidity and a proper adjustment at all times of the working parts.

B is a tubular shaft, the upper end of which is provided with a screw-tapped head or female screw, B^1, which serves as the flask or former, within which the sand or other core material is packed or rammed, and which serves as the pattern for the thread that is to be formed upon the core. This shaft B is threaded at B^2 on its exterior and tapped at this point through a stationary nut or bearing, C. At another point, B^3, the shaft passes through a gear-wheel, and is connected therewith loosely by a feather, D, and groove *d*, so that as the shaft is turned or driven by means of the gears B^3 and E and the power F the shaft may rise or fall through the medium of the nut B^2 and slide freely by the feather and groove through the gear B^3.

G is a central stem or support within the tubular shaft B. It rises so as to support the core H that is being formed. It is provided also, preferably, with a recess, G^1, for accommodating and holding in proper position a core-arbor, if one is employed.

G^2 is a plate, preferably of iron or steel, which is secured to the top of the central support G, and having a spiral edge which fits into the bottom of the thread B^1 in the shaft B. This plate serves the purpose of so supporting the end of the thread which is to correspond with the inner end of the thread in the finished casting as to prevent it from being broken or injured as the pattern or shaft B is run down or unscrewed therefrom.

I is a two-leaved hinged flask or pattern, which, when closed about the upper end B^1 of the shaft B, forms the cavity in which the core-print H′, formed in one piece continuous with the screw-core H, is fashioned. This core-print H′ and its hinged mold I also serve another very important object, for it is apparent that if no core-print was thus formed to extend beyond the threaded core H the upper end of the thread corresponding with the entrance of the thread in the finished casting would be almost sure to be injured and damaged to such an extent in running off the screw-shaft B from the core as to require that the finished casting should be cut and dressed before its thread could be used. But while the hinged mold I serves to hold the core against turning with the shaft B, it also protects the core-print right down to edge of the screw-core, and the upper thread is then, in turn, supported and protected by the core-print, and

is thus formed perfectly, so as to make in the finished casting a thread which is at once ready for use.

The mold or flask I may be opened about a hinge, *i*, and when closed may be clamped by a suitable device, I′.

J is a conical or shelving shield, which serves to cover the working parts, and, inasmuch as it extends up to the end of the shaft B, all sand, &c., that may fall over the side in the operation of filling and ramming is deflected off out of the way.

The operation is apparent: The mold I is closed upon the end of the shaft B, and, if a core-bar, K, is to be used, it is inserted into the opening G^1 in the end of the support G. The sand or mold ingredients are then introduced and rammed snugly down into the cavity formed around the bar K. When sufficiently rammed, the operator, by turning the crank F, runs the shaft B down, at the same time unscrewing it from the sand-core H. The plate G^2 prevents the lower thread from being broken or damaged, while the core-print and the mold I prevent the upper threads from injury. The clamp I′ is then released and the mold I is opened, thus freeing the core and core-print, after which it may be baked to harden it.

The core-print is shown as cylindrical, though it may be made of any desired sectional form—as square, oval, or polygonal.

These screw-threaded cores may be readily secured by dowels or otherwise, or by the dowel ends of their cores, to plain portions of cores that correspond with the interior unthreaded portions of any kind of water, gas, or steam joints or fittings, and may be employed in like manner wherever female threads are to be formed in castings, as, for instance, in the bases of steam-radiators and other like localities.

What I claim is—

1. The combination, with the stationary core-supporter and tubular shaft adapted to revolve about the same in vertical adjustment, and provided with a core-forming flask, of the sectional mold formed above the same, the sections of said mold being hinged together and provided with a suitable locking device, substantially as set forth.

2. In a machine for making cores, the shelving or inclined shield J, substantially as set forth.

3. The supporting-plate, mounted on the central stem, and of larger diameter than the stem, and having a spiral edge fitting into the bottom of thread B^1, as and for the purpose set forth.

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

GEORGE COWING.

Witnesses:

F. TOUMEY,

W. E. DONNELLY.