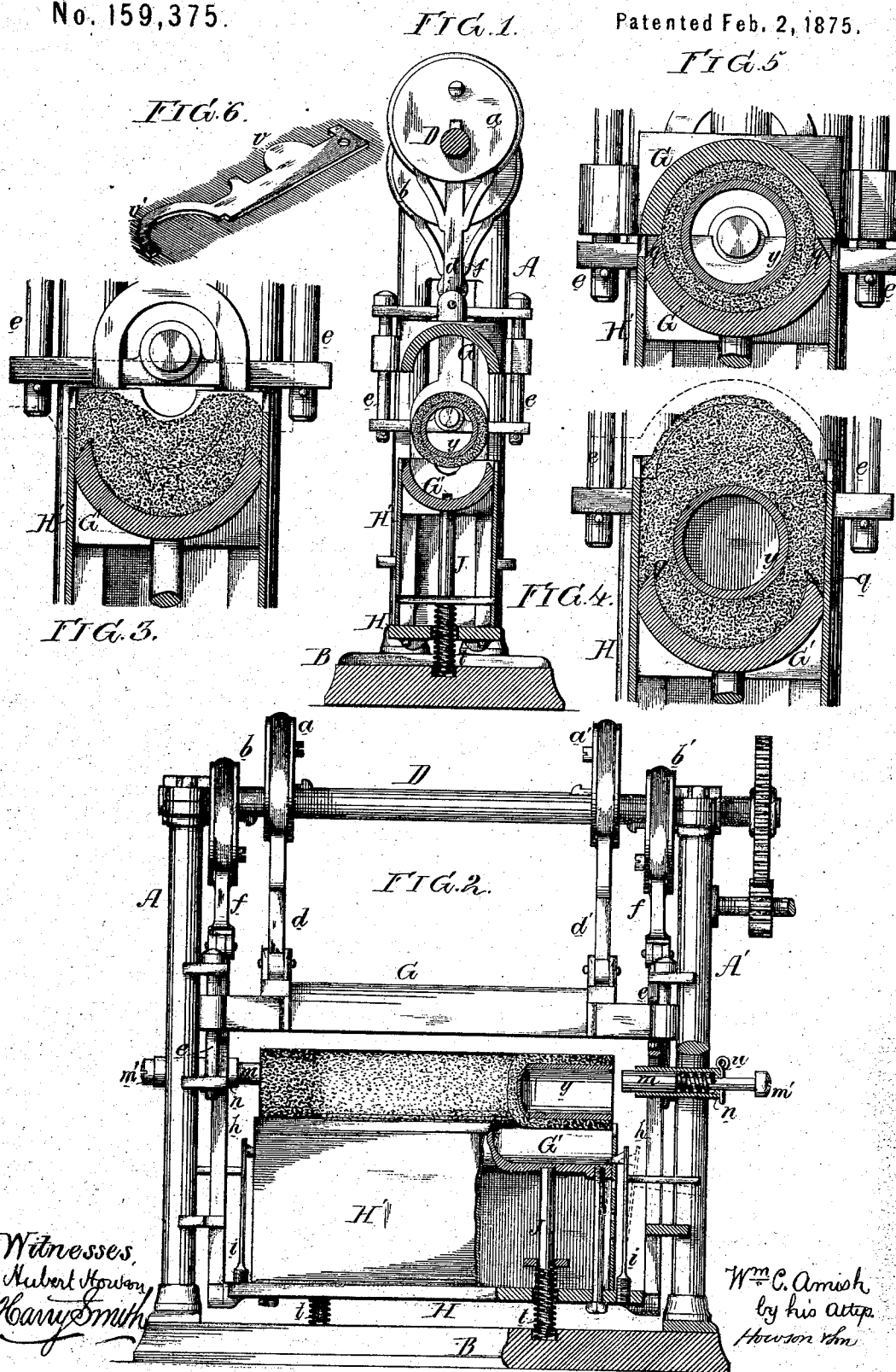


W. C. AMISH.
Core-Forming Machine.

No. 159,375.

Patented Feb. 2, 1875.



Witnesses,
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Harry Smith

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by his atty.
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UNITED STATES PATENT OFFICE.

WILLIAM C. AMISH, OF HAINESPORT, NEW JERSEY.

IMPROVEMENT IN CORE-FORMING MACHINES.

Specification forming part of Letters Patent No. 159,375, dated February 2, 1875; application filed November 9, 1874.

To all whom it may concern:

Be it known that I, WILLIAM C. AMISH, of Hainesport, Burlington county, New Jersey, have invented certain Improvements in Core-Forming Machines, of which the following is a specification:

The object of my invention is to rapidly make true and compact cores, to be used in the molding and casting of pipes and other hollow articles; and this object I attain in the manner and by the mechanism which I will now proceed to describe, reference being had to the accompanying drawing, in which—

Figure 1 is a vertical section of the machine for making cores; Fig. 2, a front view, partly in section; Figs. 3, 4, and 5, sectional views of the mode of forming the core; and Fig. 6, a perspective view of the instrument for arranging the sand prior to compression.

To suitable bearings in opposite end frames, A and A', secured to a base, B, is adapted a shaft, D, which carries four eccentrics, *a a'* and *b b'*. To the eccentrics *a a'* are connected, by rods *d d'*, the upper former, G, which is, in the present instance, of the semi-tubular shape illustrated in the drawing, and which is guided by vertical rods *e*, secured to the standards A and A'. The eccentrics *b* and *b'* are connected, by rods *f f'*, to guided rods *h*, and the lower ends of the latter are secured to a plate, H, carrying a box, H', within which is the lower former, G'.

Before proceeding with a more minute description of the mechanism, I may here remark that by the combined action of the upper and lower formers, G and G', a body of sand is compressed to a core-barrel, *y*, thereby making a compact and true core, which, in the present instance, as illustrated in the drawing, is such as would be required in molding and casting an ordinary plain pipe.

The lower former, G', is of the segmental sectional form best observed in the enlarged views, Figs. 3, 4, and 5, and is secured permanently to the plate H, the box H' fitting snugly to this former, but so as to slide freely on the same, the box being supported on springs *t*, so that it can be made to assume the different positions described hereafter, and these springs being coiled around rods J and resting on the base B. At each end of the box H' is a spring-

catch, *i*, the point of which enters a hole in the box, the two catches thus serving to maintain the same in the position to which it may have been adjusted. To each of the end frames A A' is secured a tube, *n*, containing a pin, *m*, which can be retracted by manipulating the continuation *m'* of the said pin, on releasing which it will be forced outward from the tube by a spring contained within the same, unless prevented by a transverse pin, *u*.

The mode of operating the above-described mechanism is as follows: By turning the shaft D the upper and lower formers are moved apart from each other to the utmost extent permitted by the eccentrics, and the box H' is adjusted to the position shown in Fig. 3, and into the lower former is deposited the sand in a comparatively loose mass, after which the tool shown in Fig. 6 is applied to this mass of sand, so as to remove therefrom all that is superfluous, the edge of the tool, with the round projection *v* downward, being placed on the edge of the box, and passed from end to end of the same, so as to make in the mass of sand a concave channel corresponding with the said rounded projection. Projections on the tool, Fig. 6, adapted to the edge of the box, serve to guide the former and to insure the proper position of the channel, which is shown by dotted lines in Fig. 6. The box G' is now elevated to the position shown in Fig. 4, and the core-barrel *y* is placed in the channel in the sand, and additional sand placed in a loose mass in the box H', and over the core-barrel; and the superfluous sand is then removed by using the end *v'* of the tool, Fig. 6, by passing it longitudinally over the sand and along the edge of the box, and leaving a rounded mass of sand of the same form as the concave end *v'* of the tool. By turning the shaft D the two formers are now made to approach each other, and to compress the sand tightly to the core-barrel, as shown in Fig. 5, the sharp edges *q q* of the lower former cutting through the sand, and insuring the absolute contact of the formers with each other, so that the core-barrel must be clothed with a compact and true tubular mass of sand, (see Fig. 6,) the superfluous sand outside the sharp cutting-edges *q q* of the lower former being forced by the beveled edges of the same outward

over the upper edge of the box H'. The pins *m m'* are now released, and enter the opposite ends of the core-barrel, so as to support the core when the two formers are moved apart from each other. The core may now be dredged with the usual blacking-powder used by molders, and again subjected to the action of the formers, which will impart a perfectly smooth surface to the core, after which the latter may be removed from the machine, preparatory to the formation of another core, in the manner described above.

It will be understood that the mechanism described may be applied to the formation of cores of different shapes, the formers being made to accord with the cores to be produced.

I claim as my invention—

1. The formers G and G', one or both of

which have sharp edges, in combination with the box H', containing the lower former, and having a movement independent of the said lower former, all as set forth.

2. The combination of the two formers G G' with movable pins *m m'*, for supporting the core when the said formers are caused to recede from each other.

3. The combination of the plate H, spring-catches *i*, and box H' with springs adapted to the catches, as described.

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

WILLIAM C. AMISH.

Witnesses:

THEODORE H. RISDON,

FRANKLIN B. LEVIS.