(No Model.)

G. A. BOWEN.

MACHINE FOR MAKING SAND CORES.

No. 365,724. Patented June 28, 1887.

Fig. 1.

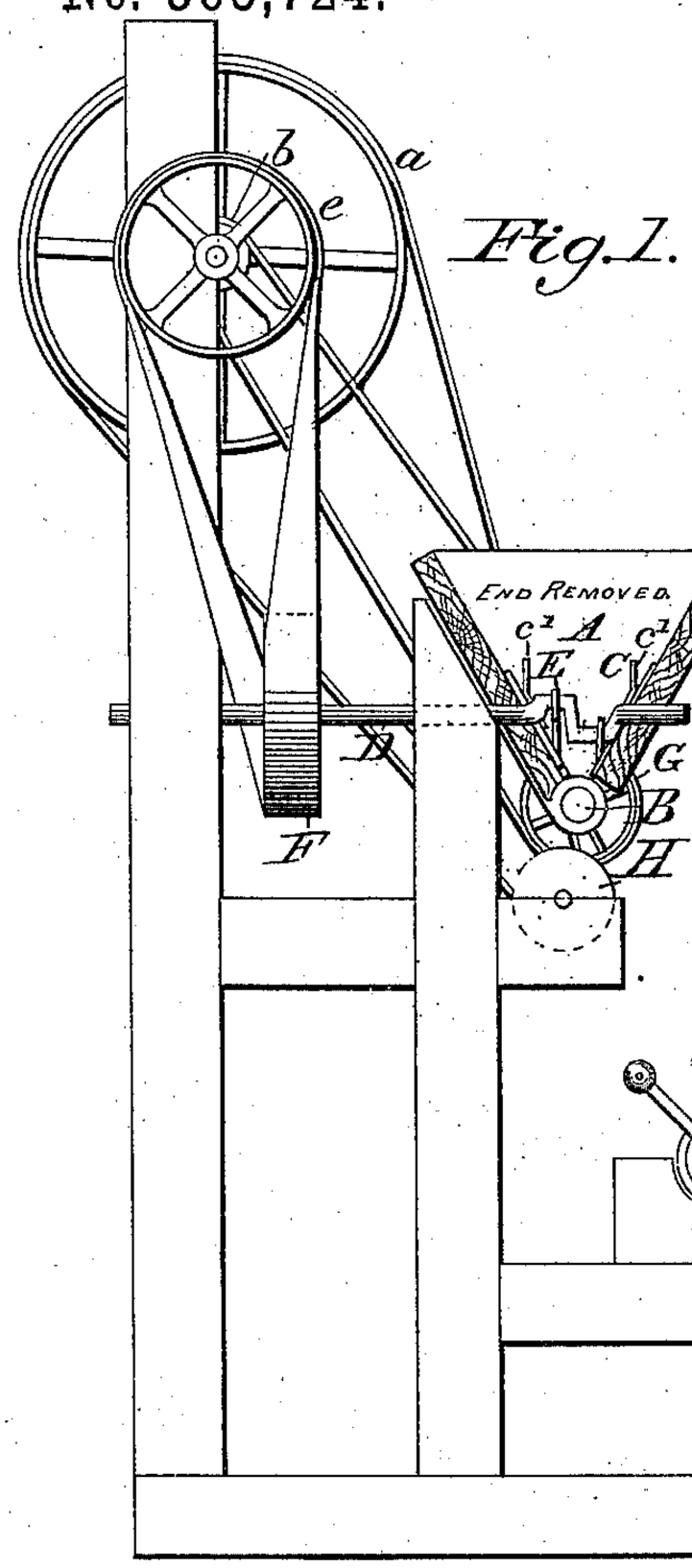


Fig. 2

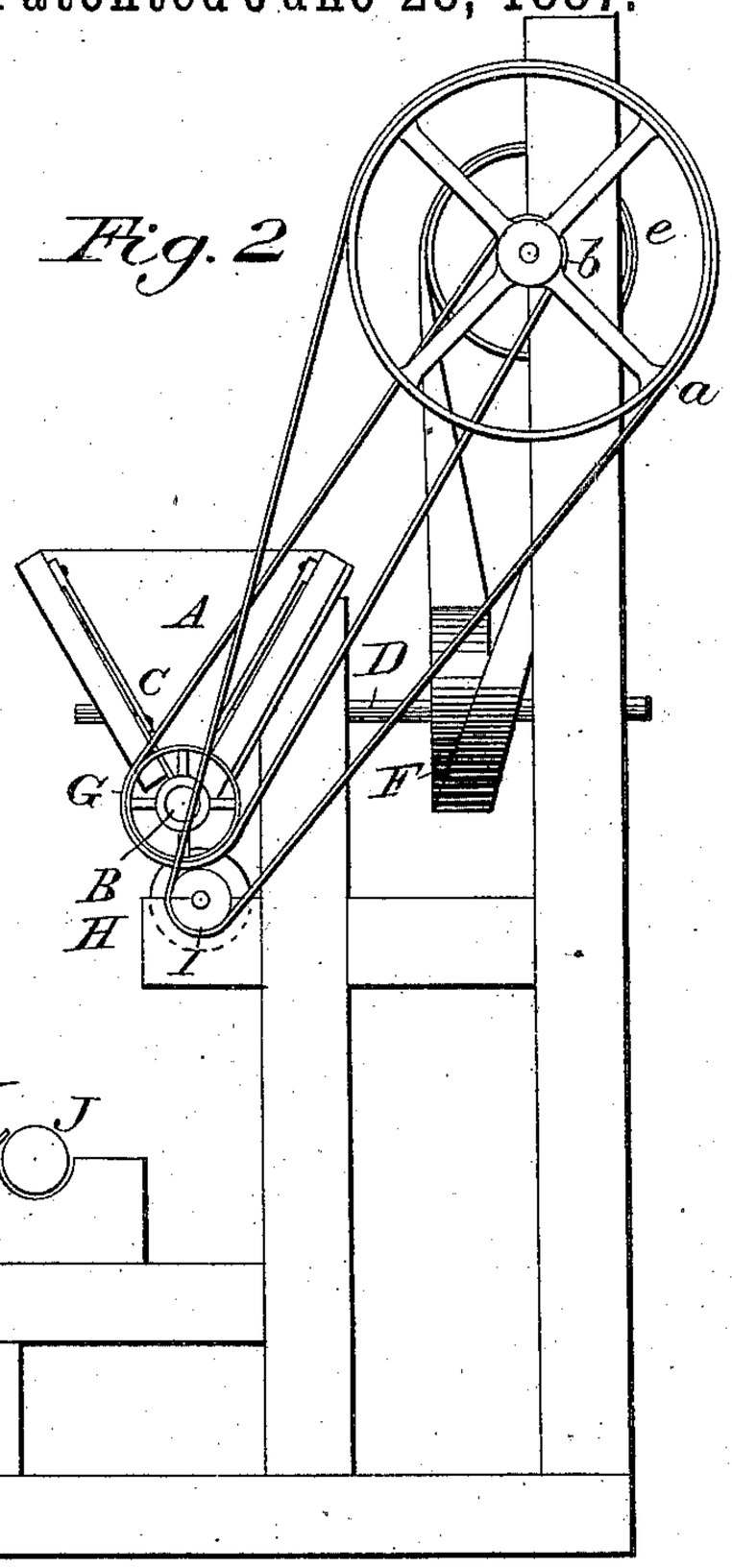
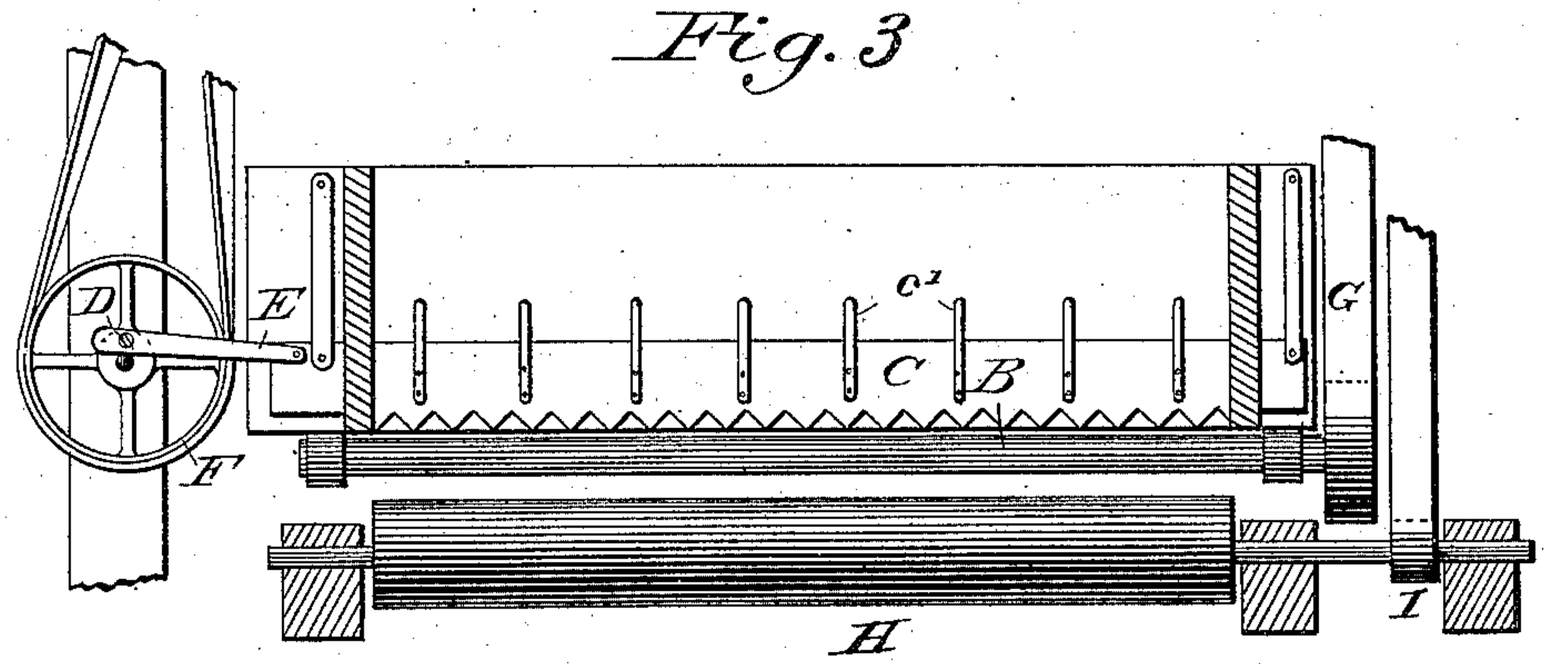


Fig. 3



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MACHINE FOR MAKING SAND CORES.

SPECIFICATION forming part of Letters Patent No. 365,724, dated June 28, 1887.

Application filed February 5, 1887. Serial No. 226,727. (No model.)

To all whom it may concern:

Be it known that I, GEORGE A. BOWEN, of Medina, in the county of Orleans and the State of New York, have invented an Improvement in Machines for Making Green-Sand Cores for Cast-Iron Pipe and other Metal Castings, of which the following is a full description, reference being had to the accompanying drawings, forming a part of this specification.

Figure 1 is a transverse section. Fig. 2 is an end view. Fig. 3 is a longitudinal section of the hopper, showing the inside distributing plates or feeders.

A represents the end of the hopper, which is a triangular-shaped box converging downward, at the bottom of which is a narrow opening for the discharge of sand. Inside and at the bottom of the hopper is a revolving rod, B, on which and over which the sand is carried to the opening of the hopper. Inside and on either of the inclined sides of the hopper are iron plates C C, one of which has teeth cut in the lower edge somewhat resembling saw-teeth. These plates are connected at one end with a shaft, D, by means of the connecting-rods E. This shaft has a double elbow or eccentric on opposite sides, which, by means of the pulley F, is made to revolve, thereby giving these plates alternate and opposite motions. There are also attached to the plates short rods or pins *c'*, standing in a perpendicular direction upward through the sand in the hopper. The alternate backward and forward motion given to the plates C C by the connecting-rods E from the double crank or elbow on the revolving shaft D stirs the body of sand, prevents packing, and, in combination with the revolving rod B, operated by the pulley G, delivers it freely and evenly through the opening in the hopper.

Directly under the hopper is a plain cylinder, H, which, by means of the pulley I, is made to rapidly revolve, thereby throwing the sand with much force forward and downward as it falls on its face from the hopper above. In front of and somewhat lower than this cylinder is an arbor or core-bar, J, of a suitable size and length to form the required core, supported in proper bearings and supplied with a pulley or crank to give it the requisite rotary motion. *a* and *b* are pulleys on counter-shaft, with belts running to pulley I on cylinder and to pulley G on the hopper-rod. *e* is also a pulley on counter-shaft, with belt running to pulley F on shaft D, for moving alternately the hopper-plates C C.

When the machine is in operation, the sand in the hopper is moved by the alternate motion of the plates C C and the upright rods or posts *c'*, thereto attached, and is sifted upon the revolving rod B, by means of which it is evenly discharged from the hopper and falls upon the rapidly-revolving cylinder H, from which it is thrown forward and downward upon the core-bar J with sufficient force to pack and form the core. In front of this core-bar is an adjustable knife, K, by means of which the core is cut or turned down to the required form and size.

I am aware that winged wheels have been and are now in use to throw sand from the sand box or hopper to the core-bar for forming cores; but the sand falling on the winged wheel strikes the revolving wings at different angles, and is thrown with unequal force, and consequently is so badly scattered that only a small portion falls upon and adheres to the core-bar. The larger part, being scattered, must be taken up and again elevated into the hopper, making much useless labor.

A deflecting or guiding board is sometimes used; but the unequal force given to the sand by the winged wheel causes the sand to pack unequally on the core-bar and often results in imperfection and failure. In my machine the plain cylinder gives a rapid, compact flow of sand with equal force, and with proper adjustment nearly all the sand lodges upon the core-bar. Cores are also made by elevating the hopper and relying upon gravitation or weight of the sand to pack upon the core-bar as it falls; but in my machine more force is gained and more rapid work done. It also admits placing the hopper lower, thus saving much labor consequent upon shoveling the sand into an elevated hopper.

The machine is also constructed in a more compact form by placing the core-bar nearer to the hopper.

Having thus described my invention, what

I claim, and desire to secure by Letters Patent, is—

1. In combination with a hopper, the sliding plates C C, combined with the double elbow or crank shaft D and the connecting-rods E, substantially as and for the purpose described.

2. The combination of the hopper A with the sliding plates C C, the revolving rod B, the cylinder H, and the core-bar J, substantially as and for the purpose described.

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