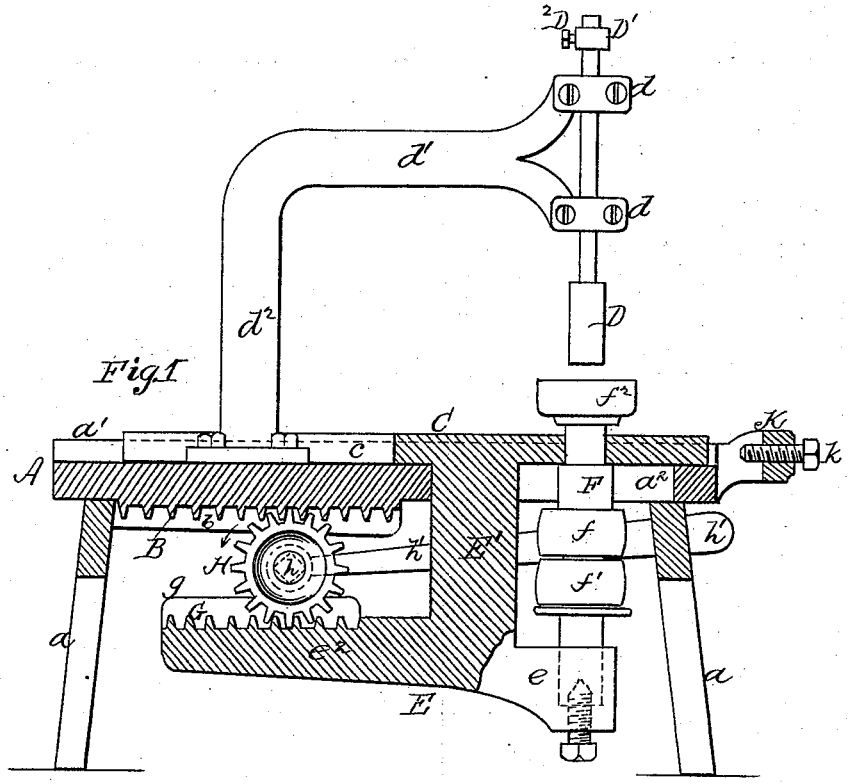
J. C. CLIME.
Crucible Machine.

No. 208,960. Patented Oct. 15, 1878.

Fig. 1



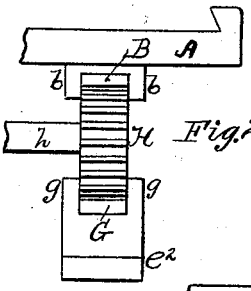


Fig. 2

Fig. 3

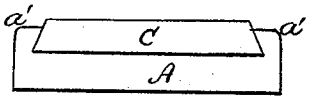
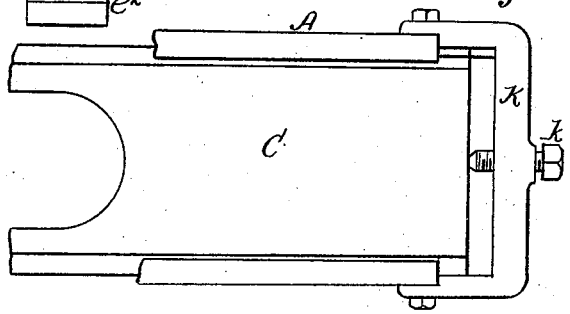


Fig. 4



WITNESSES:
Francis Blayney.
James Robinson

INVENTOR
John C. Clime

UNITED STATES PATENT OFFICE.

JOHN C. CLIME, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN CRUCIBLE-MACHINES.

Specification forming part of Letters Patent No. **208,960**, dated October 15, 1878; application filed September 13, 1878.

To all whom it may concern:

Be it known that I, JOHN C. CLIME, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Machines for Making Plumbago and other Crucibles; 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 a part of this specification, in which—

Figure 1 is a longitudinal vertical section; and Figs. 2, 3, and 4 are detail views.

My invention has for its object to provide a new and improved machine for manufacturing plumbago and other crucibles, having relation to the following points: First, to the provision of means whereby the pot or crucible is moved to and from the former; second, to the provision of means for imparting a reciprocating motion to the mold-box, so as to cause the same to approach to and recede from the former, while at the same time said box has a rotary movement around said former; third, to the provision of a sliding former having fixed bearings, and a reciprocating mold-box which has a revolving motion around said former.

My invention accordingly consists of a main frame, supporting the former, and also a sliding frame, in which is journaled a vertical shaft, having secured thereto the driving-pulleys and mold-box. Said frame is provided with a rack, which is directly opposite another rack attached to the stationary frame of the machine. Between said racks, and meshing therewith, is placed a gear-wheel, provided with a handle or lever, by means of which said wheel is partially rotated, thereby moving the pot or crucible to and from the former. Said wheel has no shaft-bearings, but has a circumferential bearing on both of said racks, so that it revolves on and moves along the same as it imparts a reciprocating motion to the sliding frame.

My invention further consists in the novel construction, combination, and arrangement of parts, as hereinafter more fully set forth.

Referring to the accompanying drawing, A is the main frame of the machine, supported on legs *a a*. Said frame is provided with the dovetail guides a^1 a^1, and has a slot, a^2, in one end, as shown.

B is a rack, secured beneath said frame, and provided on either side thereof with guides or ways *b b*. D is the former, having an up-and-down movement in the fixed bearings *d d* in the overhanging arm d^1, which is supported by the upright d^2, secured, as shown, to the main frame of the machine. C is a supplementary sliding frame, provided with dovetail tenons, which fit into the guides a^1 a^1 on the frame A, and is kept in position thereby. Said frame is provided with a slot or recess, *c*, which forms a passage-way for the upright d^2.

E is an inverted-T-shaped bracket, secured to or made a part of said frame C, the vertical arm E′ of which passes through an elongated slot, a^2, in the main frame.

The short horizontal end *e* of the bracket E forms a bearing for the vertical spindle F, to which is secured the driving-pulleys f f^1 and receptacle f^2 for the mold-box. The long arm e^2 of said bracket E is furnished with a rack, G, on either side of which are ways or guides *g g*, projecting a short distance above the teeth of said rack. This rack and the ways are directly below, and correspond in dimensions and shape with the rack B and its ways *b b*.

H is a gear-wheel, placed between said racks B and G, meshing therein, and held in position thereon by the ways or guides *b* and *g*. Said wheel is provided with a shaft, *h*, on which is secured a handle or lever, *h′*. It will be observed that said wheel H has no shaft-bearings, but finds its support and has its bearings in said racks on its circumferential teeth. The effect of this construction is that a movement of the lever *h′* not only turns the wheel H and slides the frame C toward or from the former D, but causes said wheel to travel along the racks while it is rotating, so that a very slight elevation or depression of the handle or lever *h′* will move the frame C a correspondingly increased distance to or from the former than it would otherwise do if said wheel revolved in fixed bearings.

K is a bracket, secured to or made part of the frame A, and is provided with an adjust-

ing-screw, *k*, for limiting the amount of reciprocation of the frame C with the mold-box f^2 toward the former, to determine the diameter of the crucible.

The operation is as follows: The diameter of the crucible being determined upon, the set-screw *k* is adjusted to limit the movement of the frame C, when, by its forward motion, said determined diameter has been attained. A collar, D^1, adjusted by the screw D^2, regulates the depth to which the former descends into the mold-box to form the thickness of the bottom of the crucible. These two adjustments being made, the clay is placed in the mold-box, of any suitable construction. Power is now applied to the driving-pulleys $f\,f^1$ by a belt, which is driven by a wide-faced pulley attached to a shaft which is parallel with the length of the machine.

The handle *h'* is now elevated, thereby rotating the wheel H in the direction of the arrow, and moving the frame C, and with it the mold-box, toward the former D until the center of the mold-box is nearly or quite beneath the center of the said former, when said movement is discontinued and the former is allowed to descend upon the clay in the mold-box. The latter, revolving at a high rate of speed, soon sinks said former therein, until its further downward movement is arrested by the collar D^1, in which position it fixedly remains until the crucible is finished. The handle *h'* is now again raised, which causes a further forward movement of the frame C toward the set-screw *k*, and advances the mold-box to the former, and causes the clay therein to press against the side of the former, which, by becoming eccentric therewith and the rapid revolution of the mold-box thereabout, causes the same to be increased in diameter, and this increase continues until, by the still further elevation of the handle *h'*, the sliding frame is stopped by the screw *k*, and the thickness and size of the walls of the crucible are attained. The power is then thrown off and the order of the aforesaid movements reversed, and the crucible removed from the mold-box and a fresh charge of clay inserted, when the operation is resumed.

What I claim as my invention is—

1. In a crucible-machine, the combination of a former having a vertical movement in stationary bearings with a rotating mold-box having a reciprocating motion to and from the said former, as set forth.

2. In a crucible-machine, a mold-box revolving around and reciprocating to and from a former, substantially as set forth.

3. In combination with a vertically-moving former in fixed bearings attached to the main frame of the machine, the supplementary sliding frame carrying the revolving mold-box, substantially as shown and described.

4. The combination of the former D, fixed bearings *d*, sliding frame C, vertical spindle F, and mold-box f^2, frame A, and set-screw *k*, substantially as shown and described.

5. In combination with the frame A, the supplementary sliding frame C, the racks B and G, and wheel H, substantially as shown and described.

In testimony that I claim the foregoing I have hereunto set my hand this 4th day of September, 1878.

JOHN C. CLIME.

Witnesses:
J. R. MASSEY,
FRANK H. MASSEY.