

(No Model.)

C. C. THOMPSON.

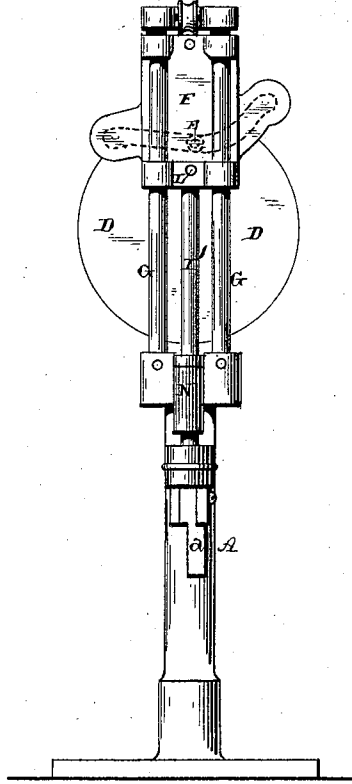
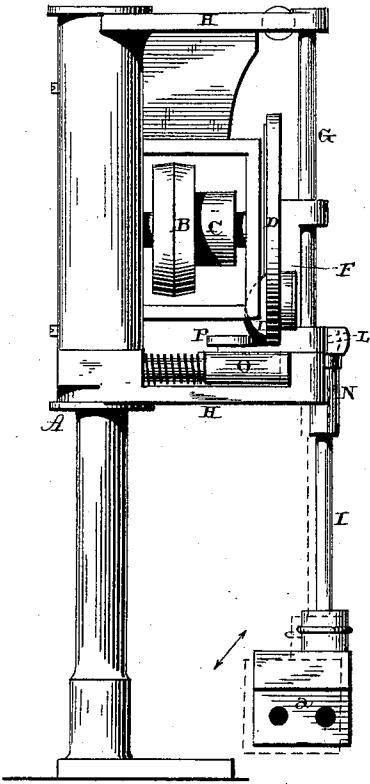
MACHINE FOR FORMING POTTERY AND GLASS WARE AND FINISHING
OR TURNING THE SAME.

No. 319,760.

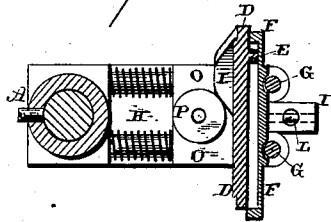
Patented June 9, 1885.

7/24. 1.

7/24. 2.



7/24. 3.



—Witnesses.—

L. T. Gardner
H. C. Youngs,

—Inventor—

C. C. Thompson,
per J. A. Lehmann,
att'y.

UNITED STATES PATENT OFFICE.

CASSIUS C. THOMPSON, OF EAST LIVERPOOL, OHIO.

MACHINE FOR FORMING POTTERY AND GLASSWARE AND FINISHING OR TURNING THE SAME.

SPECIFICATION forming part of Letters Patent No. 319,760, dated June 9, 1885.

Application filed April 16, 1885. (No model.)

To all whom it may concern:

Be it known that I, CASSIUS C. THOMPSON, of East Liverpool, in the county of Columbiana and State of Ohio, have invented certain new and useful Improvements in Machines for Forming Pottery and Glassware and Finishing or Turning the Same; 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 an improvement in machines for making pottery, glassware, and articles of all kinds from soft plastic materials which are capable of being molded; and it consists in, first, the combination of a driving-shaft with a suitable pulley or pulleys and an operating-wheel, which is provided with a stud or projection, which operates the slide to which the rod carrying the shaping-tools is connected; second, the combination of a driving-shaft provided with a pulley or pulleys and an operating-wheel having a stud or projection upon one side and a cam upon the other, with a sliding spring-actuated frame, which is provided with a projection or friction-wheel for the cam upon the operating-wheel to bear against, and to which the spring-actuated frame is connected, and the rod to which the shaping-tools are secured at its lower end; third, the combination of the driving-shaft provided with suitable pulley or pulleys and an operating-wheel provided with a stud or projection upon one side for operating the slide, and with a cam upon the other side, with a spring-actuated frame, which is provided with a projection or friction-wheel for the cam to strike against, and to which the rod carrying the shaping-tools is fastened, a guiding pin or stud which causes the rod carrying the tools to have a slightly ascending and descending lateral movement while in operation, all of which will be more fully described hereinafter.

The object of my invention is to provide a machine for forming articles having both straight and bellied surfaces from clay, glass, paper-pulp, and all similar plastic materials which are capable of being molded, and to so construct the parts to which the shaping-tools

are secured that the tools will have both a reciprocating and a downwardly and an upwardly lateral movement in forming the article which is being made, for the purpose of preventing the material which is being shaped from being injured at its bottom by the shaping-tools as they are drawn backward after having been moved laterally, for the purpose of forming the swell or concavo-convex in the article.

Figure 1 is a side elevation of a machine embodying my invention. Fig. 2 is an edge view of the same. Fig. 3 is an enlarged detail view.

A represents a suitable frame-work, of any desired shape or construction that may be preferred. Journaled in this frame is a suitable driving-shaft, upon which are formed the two pulleys B C, for the purpose of driving the machine at different rates of speed. Upon the outer end of this driving-shaft is secured the operating-wheel D, which has a stud or projection, E, upon its outer side, for the purpose of operating the slide F, which moves vertically upon the two guiding-rods G. These guiding-rods connect the two horizontal portions H of the frame-work A together, and serve simply to guide the slide vertically in its movements. In the inner side of this slide is formed a groove, in which the stud or projection catches, and which groove is shaped, as shown, so that the slide is not moved after it has reached its lowest point during a portion of the revolution of the operating-wheel, as will be more fully described later on.

Upon the inner side of the operating-wheel is formed a cam, I, which is not necessarily brought into play while straight goods are being made, but which is used in making bellied goods. When straight goods are being made, and by which is meant goods having straight inner surfaces, in contradistinction to those having curved surfaces, only a reciprocating movement is necessary in forming the goods; but where goods are being made having curved surfaces of any kind the forming-tools must be given a compound movement. For this purpose the rod I', which has the tool-holder secured to its lower end, is loosely connected at its upper end to the lower edge of the slide by means of an inclined pin or stud, L, so that the tool-holder can be given both a vertical

and a lateral movement at the same time. This rod I' is made to pass through the guide N, which is formed upon the end of the sliding spring-actuated frame O, upon the top of which is formed the stud or frictional wheel P, for the cam upon the operating-wheel to strike against. This sliding spring-actuated frame is placed upon suitable horizontal guides, and remains stationary, except when the cam upon the operating-wheel strikes against the stud or projection formed upon its top, for the purpose of pushing it sidewise the width of the cam. When this frame is pushed sidewise by the cam on the operating-wheel, the guide N upon its end is moved laterally with the frame for the purpose of forcing the upper end of the rod I' downward upon the inclined pin or stud which passes through its upper end.

The tool-holder is made to constantly reciprocate while the operating-wheel is in motion, for the purpose of causing the forming-tools to enter the mold and force back the material out of which the article is to be formed, and when the sliding frame is moved inwardly by the cam upon the operating-wheel the tools are given both a vertical and a lateral movement at the same time.

For the purpose of allowing the sliding frame to be moved or not, according to the kind of goods being made, the frictional wheel, against which the cam on the operating-wheel is made to strike, is made removable from the sliding frame, so that the cam will not move the sliding frame except when the friction-wheel is in position. When the sliding frame is not moved by the cam on the operating-wheel, the shaping-tools have no other than simply a vertical movement. Where only straight goods are being formed, a compound movement is not desired, and hence the sliding frame is not necessary to be used; but it can be brought into play, if so desired.

When the sliding frame is brought into use, just as the shaping-tools have nearly reached the length of their stroke toward the bottom of the implement being formed the cam upon the operating-wheel begins to move the sliding frame, and then the shaping-tools begin to move laterally at the same time that they are moved vertically. While thus moving both vertically and laterally the bottom of the implement is being formed, and after having been formed the tool begins to rise upward and backward at the same time, so as to prevent the tools from tearing the surface of the plastic material which is being worked. This compound movement enables the curved surface of the implement to be formed at the same time. When the shaping-tool first descends upon the material which is being worked, it forces the material back against the sides of the mold at the bottom, and then the tool begins to move laterally for the purpose of forming the curved surface, and then, after having formed this curved surface, the tool returns to its vertical position, so that it can

be drawn upward and out of the mouth. The pin or stud which passes through the head of the rod I', being placed at an inclination, as above stated, causes the shaping-tool to first sink downward as the sliding frame is moved laterally by the cam upon the operating-wheel, and then as the sliding frame returns to position it forces the rod outward and upward at the same time. If the shaping-tool had simply a sidewise movement in connection with its vertical play, it would tear the material in the bottom of the vessel which is being formed, whereas, by giving the tool both a vertical and a downwardly and upwardly lateral movement the bottom is formed as smoothly and evenly as any other part.

The tool-holder *a* upon the bottom of the rod I' may consist simply of a flat plate, which is held in position by means of set-screws or any other similar devices, and to which plate the forming or shaping tools are secured in any suitable manner.

After the article has been formed by the machine as above described it is removed, partially dried, and then brought back, either to the same or another machine of the same construction, to be finished. The article is placed upon the revolving head or disk, which is generally used, in an inverted position, and then shaping-tools are attached to the tool-holder, of such a shape that they will go over the outer surface of the article and give it a suitable finish. Thus it will be seen that the same machine is made to both form the article and then finish it afterward.

Having thus described my invention, I claim—

1. The combination of the frame, the driving-shaft provided with pulleys, the operating-wheel provided with a stud or projection, a grooved slide, and the rod carrying the shaping-tools, substantially as shown.

2. The combination of the frame, the driving-shaft provided with suitable pulleys, the operating-wheel provided with a stud or projection for moving the slide vertically, and a cam with a sliding spring-actuated frame, to which the outer end of the rod I', carrying the shaping-tools, is secured, substantially as described.

3. The combination of the driving-shaft provided with suitable pulleys, the operating-wheel provided with a stud or projection for moving the slide, and an inclined pin or projection which passes through the upper end of the rod I', carrying the shaping-tools, with a spring-actuated frame having a guide upon the end through which the rod I' passes, and provided with a stud or friction-wheel against which the cam on the driving-wheel bears for the purpose of moving the frame, substantially as set forth.

4. In a machine for forming articles from plastic material, the combination of a revolving operating-wheel for giving the rod which carries the shaping-tools a vertical movement with a sidewise-sliding frame which causes

the rod I' to move laterally at the same time that it is moving both upward and downward at the lower end of its stroke, substantially as specified.

- 5 5. In a machine for forming vessels from plastic material, the combination of an operating-wheel for moving the rod which carries the shaping-tools vertically, a sliding endwise-moving frame for moving the rod laterally,
10 and an inclined stud or projection for moving

the rod downwardly and upwardly at the same time that it is moving laterally, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

CASSIUS C. THOMPSON.

Witnesses:

F. A. LEHMANN,

L. F. GARDNER.