No. 622,746.

Patented Apr. 11, 1899.

W. M. WOLCOTT.

MANUFACTURE OF POTTERY.

(Application filed Mar. 14, 1898.)

(No Model.)

2 Sheets—Sheet 1.

FIG. 1.

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(No Model.) 2 Sheets—Sheet 2.

FIG. 2.

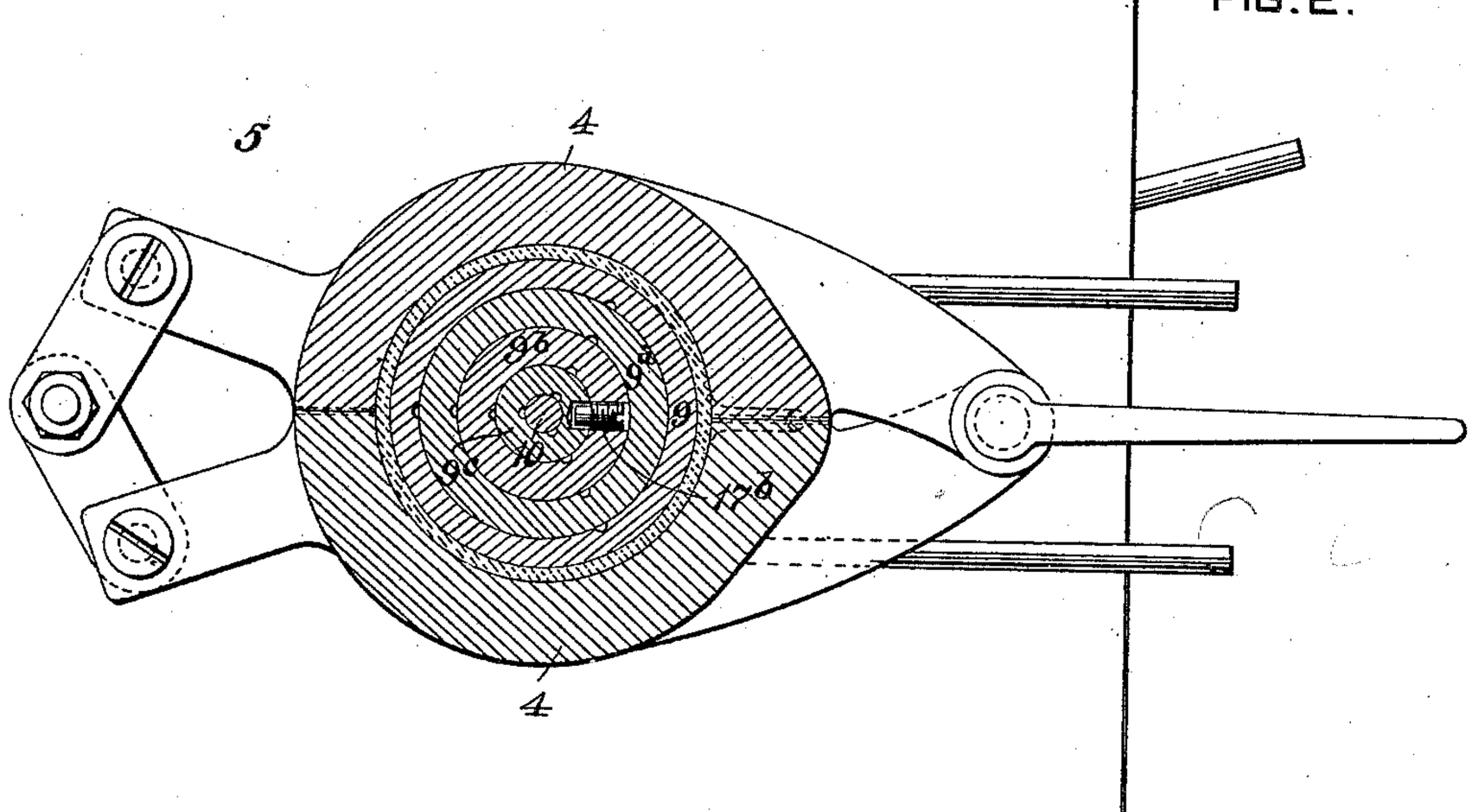


FIG. 3.

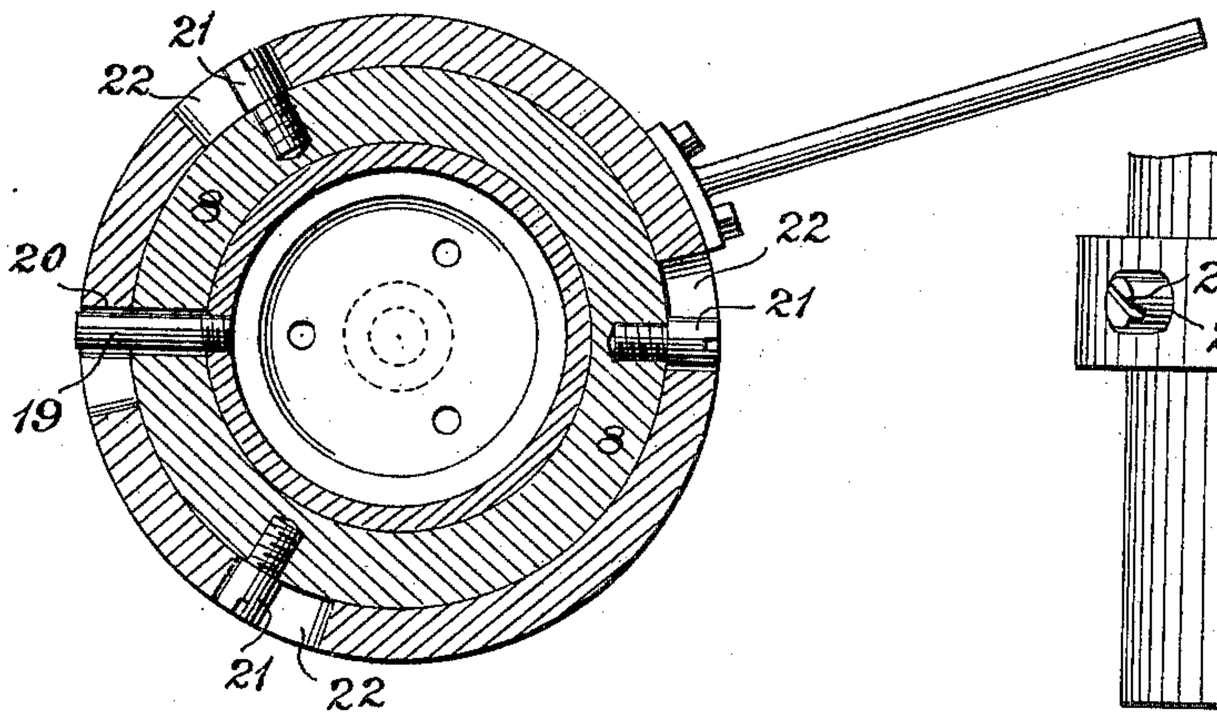
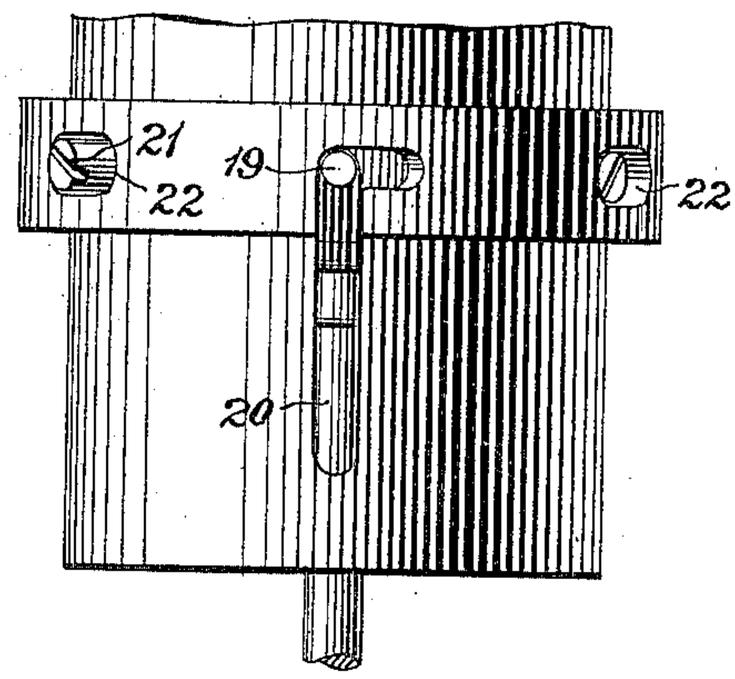


FIG. 4.



WITNESSES:

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UNITED STATES PATENT OFFICE.

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MANUFACTURE OF POTTERY.

SPECIFICATION forming part of Letters Patent No. 622,746, dated April 11, 1899.

Application filed March 14, 1898. Serial No. 673,749. (No model.)

To all whom it may concern:

Be it known that I, WILLIE M. WOLCOTT, a citizen of the United States, residing at East Liverpool, in the county of Columbiana and State of Ohio, have invented or discovered certain new and useful Improvements in the Manufacture of Pottery, of which improvements the following is a specification.

The invention described herein relates to certain improvements in machines for the manufacture of articles of pottery, such as cups, bowls, &c. Although many attempts have heretofore been made for the manufacture of such articles in presses, they have been unsuccessful for one reason or another, so that the old hand method is still almost universally used. The most general cause of failure is the adherence of the walls of the article to the walls of the shaping-matrix, thereby preventing the separation of the articles from the walls of the matrix without injury.

The object of the present invention is to provide for a progressive admission of air to destroy the vacuum causing the adherence of the article to the matrix-walls and the successive removal of portions of the matrix, while maintaining a support for the article adjacent to the portions from which the mold is removed.

The invention is hereinafter more fully described and claimed.

In the accompanying drawings, forming a part of this specification, Figure 1 is a sectional elevation of my improved molding apparatus. Figs. 2 and 3 are sectional plan views, the plane of section being indicated by the lines II II and III III, respectively, of Fig. 1; and Fig. 4 is a detail view showing the mechanism for locking the plunger in raised position.

In the practice of my invention suitably-tempered clay is placed in the feeding-cylinder 1 and is forced therefrom by a piston 2, through the nozzle 3, into a matrix formed by a sectional mold and a sectional core. The mold is formed in two or more sections 4, hinged together and supported by a suitable bed or table 5. The table and feed-cylinder are arranged in such relation to each other that when the mold-sections are closed together they will inclose the nozzle 3 of the feed-cylinder. It is preferred to lock the mold and feed-cylinder together, and to that end the nozzle is provided with a projecting collar or lugs 6, which will engage a corresponding groove or recesses in the mold-sections when the latter are closed.

The table is provided with an upwardly-projecting annular flange 7, around which the mold-sections close, and within the flange an opening is formed, through which projects the core forming part of the matrix. A guiding-cylinder 8 is secured to the under side of the table with its axis in line with the axis of the opening through the table. The core, which is adapted to be moved up and down in the guiding-cylinder, consists of a series of concentric annular sections 9 9^a 9^b, &c., and a central core-section 10. The outer section 9 is secured at its lower end to a follower 11, so as to be positively shifted thereby. Each of these sections is provided with an internal shoulder 12, formed recessing the lower portions of each section and adapted to form a bearing for the upper end of a spring 13, which bears at its lower end against a shoulder 14^a in the lower end of the next adjacent section. The several sections 9 9^a, &c., are provided at their upper ends with seats 15 15^a, &c., formed by internally beveling the ends of the sections, and the internal sections 9 9^a are provided with outwardly-projecting heads 16^a 16^b, &c., having their under sides suitably shaped to closely fit against the seats 15 15^a, &c. The core-section is provided with a conical head 10^a, adapted to fit upon the seat of the inclosing annular section. These heads are normally held in contact with their seats by the springs 13 13^a, &c. Ordinarily the internal sections will be caused to move down with the external section, or in due succession thereafter, by the springs 13 13^a, &c., as they bear against the upper shoulder of one section and the lower shoulder of the next section. In order to insure the withdrawal of the internal sections in case of excessive adherence to the internal wall of the article, each section is provided with one or more pins 17 17^a, &c., the ends of which project into elongated recesses or slots in the next adjacent section. These recesses or slots are made of such a length as to permit sufficient independent movement of each section to slightly separate the heads 16^a 16^b, &c., from their seats. While it is

preferred to employ springs to hold the heads 16ª, &c., against their seats, it will be readily understood that the weight of the internal sections will generally insure the proper seating of the heads.

The follower 11 can be pulled down to remove the core from the article by a treadle or other suitable mechanism connected to the rod 11ª. In order to hold the core in operative position within the mold, a ring 18 is arranged outside of the guide-cylinder and is connected to the core or follower by a pin 19, projecting through an angular slot 20 in the cylinder, as shown in Figs. 1 and 4. The ring is held from movement longitudinal of the cylinder, but with a freedom of movement around it by pins 21, passing through slots 22 in the ring and secured in the cylinder.

In using my improved machine the mold is closed around the nozzle or neck 3 and the flange 7 of the table, and the plunger is raised and locked in position in the mold. Properly-tempered clay is then forced into the shaping-matrix. The meeting faces of the mold-section are provided with small grooves to permit of the escape of air while the clay is being forced into the matrix and for the admission of air to destroy the vacuum between the walls of the mold and the article, so that the former may be moved away from the article without injury to the latter. After the mold-sections have been opened the follower 11 is lowered to withdraw the core from the article, which is supported by the flange 7. As the operative face of the section 9 is approximately parallel with the direction it is moved in being withdrawn from the mold, there will be little or no resistance to its movement, and therefore little or no liability of injuring the article. This movement of the section 9 shifts the seat 15 away from the head 16ª of the next section, thereby admitting air to destroy the vacuum between the head 16ª and the walls of the article. The walls of the annular sections are grooved or the sections fit loosely one within the other to permit the inflow of air. As the section is moved down a short distance it will exert a downward pull on the next section 9ª, operating either through the spring 13 or the pin 17. The withdrawal of the section 9ª admits air around the next section to destroy its adherence to the article. The sections are withdrawn in succession in the same manner, air being admitted around each section before any downward movement is imparted to it. It will be observed that as each section is withdrawn the adjacent inner section will support the portion of the wall of the article adjoining that from which a section of the core is being detached. After all the sections of the core have been removed the article is detached by a knife from the material in the neck 3 and removed.

It is characteristic of my invention that the walls of the shaping-matrix are formed by a mold and core each consisting of sections capable of independent movement from the shaped article, so that sections of such walls will support the article while other sections are being detached, and that the matrix is combined with means to force the material thereinto. It is also characteristic of my improvement that such section when moved will afford a vent for the admission of air to destroy the vacuum between the article and the next section.

I claim herein as my invention—

1. In an apparatus for the manufacture of articles from plastic material, a matrix consisting of a mold and core having their walls formed of a series of sections independently movable away from the molded article, in combination with means for forcing the plastic material into the matrix, substantially as set forth.

2. In an apparatus for the manufacture of articles from plastic material, the combination of a sectional mold, a core formed of a series of independently-movable sections, and means for forcing the plastic material into the matrix formed by the mold and core, substantially as set forth.

3. In an apparatus for the manufacture of articles from plastic material, the combination of a mold, a core consisting of a series of independently-movable sections springs arranged to shift the sections to positions where their operative faces form the contour of one of the faces of the article to be shaped and means for withdrawing the sections in succession from the outer section inwardly, substantially as set forth.

4. In an apparatus for the manufacture of articles from plastic material, the combination of a mold, a core consisting of a series of independently-movable sections having their upper ends constructed to form a close joint adjacent to their shaping-walls, springs arranged to shift the sections to positions where their operative faces form the contour of one of the faces of the article to be shaped and means for withdrawing the sections in succession, substantially as set forth.

5. In an apparatus for the manufacture of articles from plastic material, the combination of a mold, a follower, an annular core-section attached to the follower, a series of core-sections interlocking with each other and with the sections connected to the follower in such manner that the outer sections support the adjacent inner sections in positions where their operative faces form the contour of one of the faces of the article to be shaped, and means for shifting the follower, substantially as set forth.

6. In an apparatus for the manufacture of articles from plastic material, the combination of a mold, an outer core-section, a series of intermediate core-sections each provided at their shaping ends with a head overlapping an adjacent outer section, and means for shifting the outer section, substantially as set forth.

7. In an apparatus for the manufacture of

articles from plastic material, the combination of a mold, an outer core-section, a series of intermediate sections, each provided with a head overlapping an adjacent section, shoulders formed on the inner and outer walls respectively of the core-sections, springs interposed between said shoulders, and means for shifting the outer section, substantially as set forth.

8. In an apparatus for the manufacture of articles from plastic material, the combination of a mold, a movable outer core-section, a series of intermediate core-sections, each provided at its outer end with a head overlapping an adjacent outer section, and means for locking the outer section in operative position, substantially as set forth.

In testimony whereof I have hereunto set my hand.

WILLIE M. WOLCOTT.

Witnesses:
D. C. HUGHES,
W. A. HOLT.