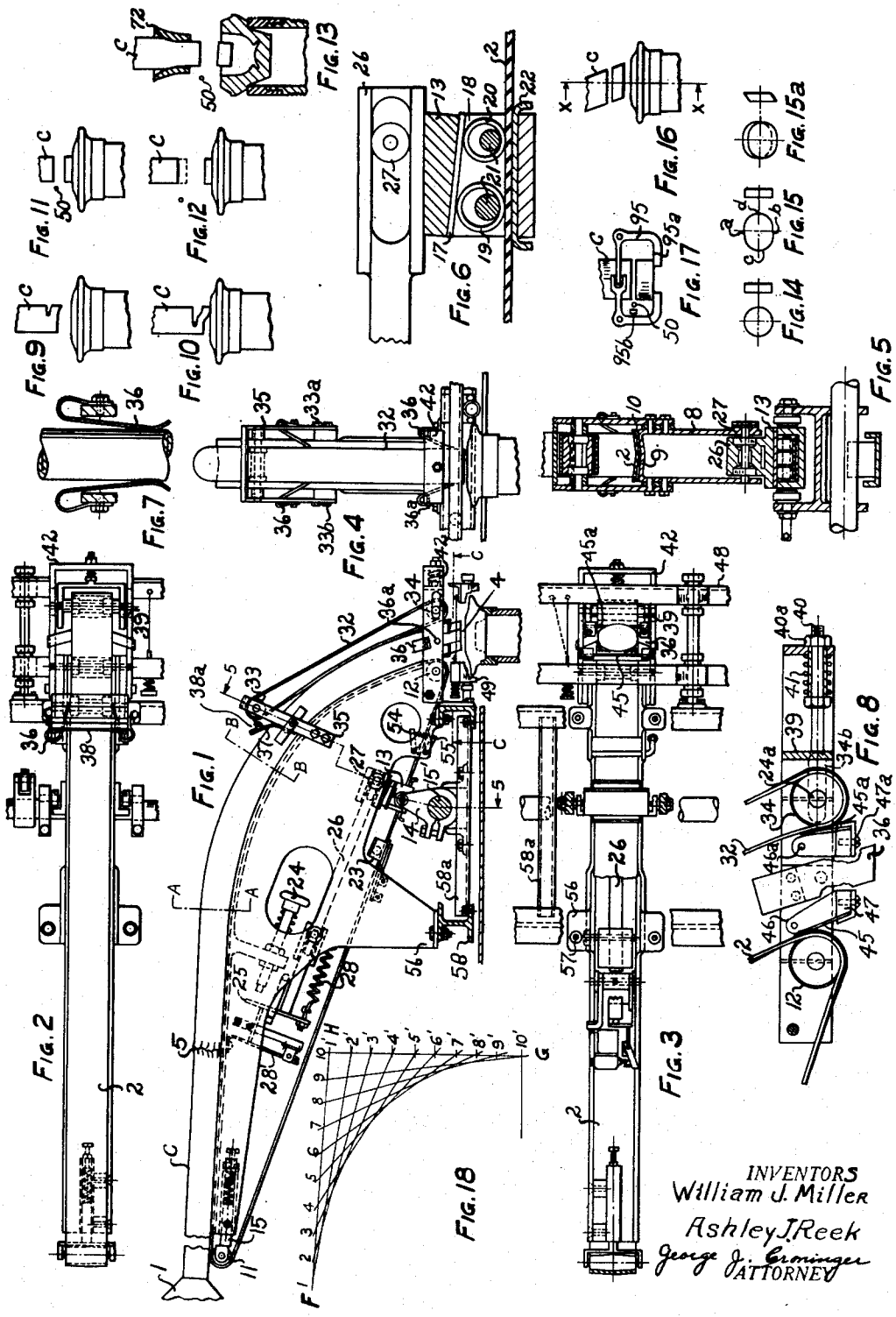
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METHOD AND APPARATUS FOR THE MANUFACTURE OF POTTERY WARE

Filed Aug. 21, 1939 2 Sheets-Sheet 1



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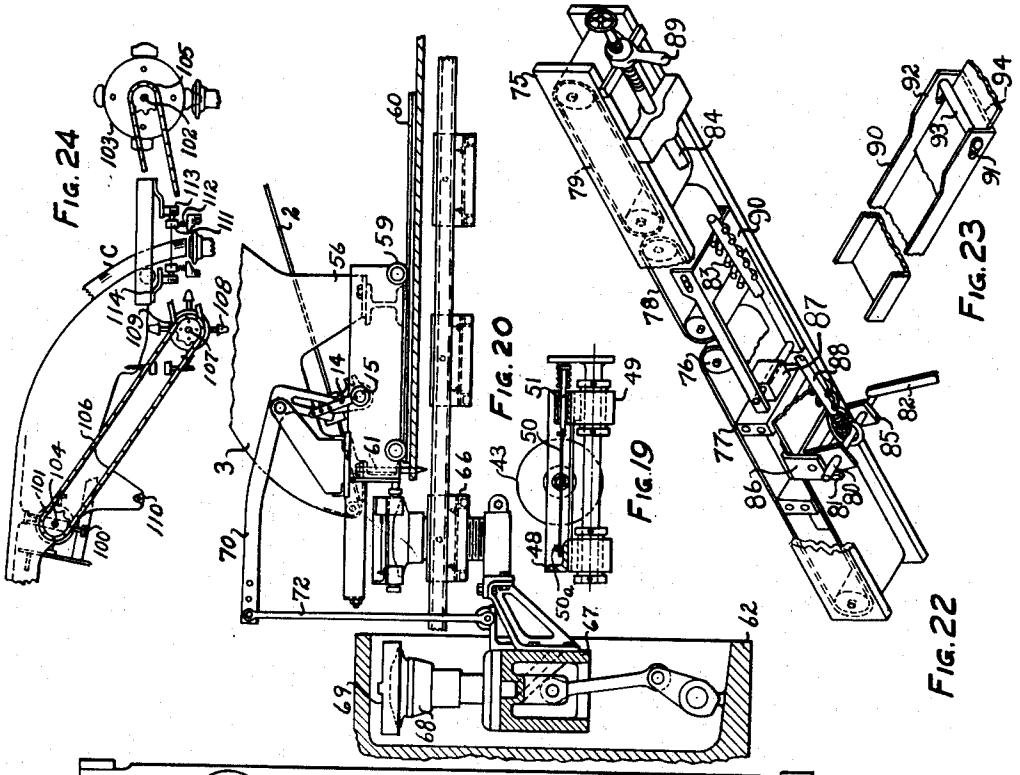


FIG. 24 FIG. 20 FIG. 19 FIG. 23 FIG. 22

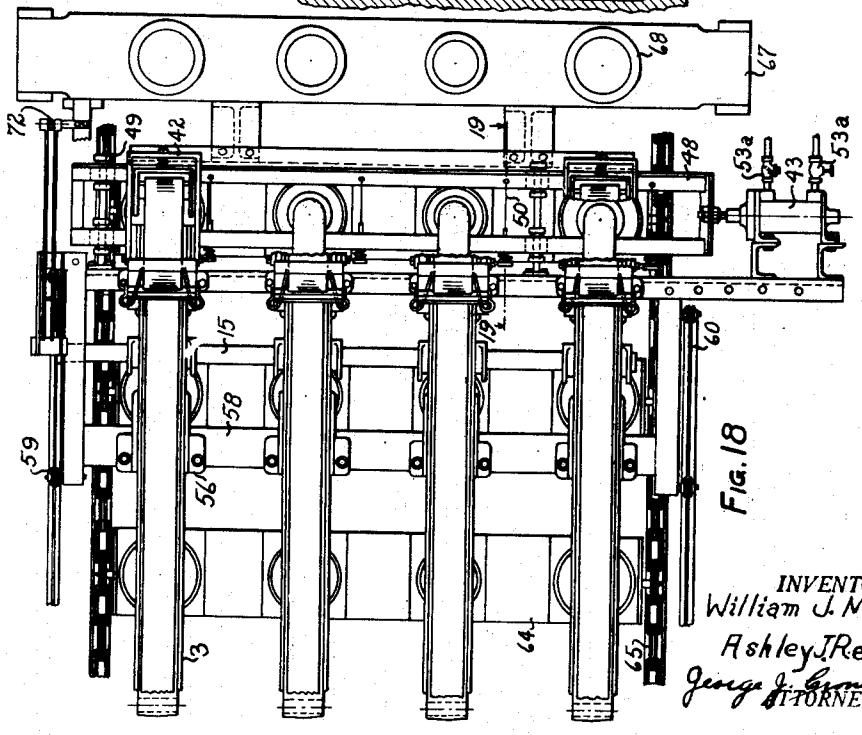


FIG. 18

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METHOD AND APPARATUS FOR THE MANUFACTURE OF POTTERY WARE

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25 Claims. (Cl. 25—22)

This invention relates to methods and apparatus for the manufacture of pottery and more particularly to the feeding and forming of mold charges from which jiggered potteryware is made.

This invention proposes to feed and form charges without substantial variation in the requisite amount of material of the mold charge and without faulty distribution of the material contained therein, improper deposition or location thereof on the molding surface, air entrapment between the charge and molding surface and, lastly, wastage of material.

The principal object of this invention is to provide new and improved methods of feeding and forming mold charges particularly adapted to rapid automatic charge production, together with new and improved mold charging apparatus, simple in construction and efficient in operation.

Among the novel characteristics of our invention may be mentioned the following:

The provision of a feeder arranged to deliver the material in a column containing a multiple of mold charges to a segregation point without producing changes in grain structure, such as would detrimentally affect the fabricating, drying and firing behavior of the material.

The endwise feeding of a column of clay along a curvilinear path with the end face of the column approaching the segregating position in a substantially horizontal plane together with the provision of means for preventing settling, bulging or separation of the column or movement thereof relative to the conveying means.

The provision of means for accurately locating the charge of material on the molding surface previous to partial or complete segregation thereof; means for segregating charges from the column alternately in opposite directions; means for preventing the angular dislocation of the column at the segregating position due to the drag of the segregating means, and means for varying the speed of segregation and the volume of material contained in the charge whilst the mechanism is in operation or at rest.

Provisions for applying the charge to the mold when partly segregated to thereby progressively deposit the material on the molding surface and avoid winded bats together with provisions for varying the area of the charge in contact with the mold prior to complete severance.

The provision of means for separating the column of clay from the conveying mechanism and regulating the angle of approach to the segregating position. The provision of means for cleaning the conveying means of residual material to thereby prevent fouling of drive mechanism and contamination of fresh columns of clay.

The provision of means for regulating the position of a bank of feeders or a single feeder relative to the feeding position in the form of a carriage shiftable to uncover the segregating position for repair or inspection purposes together with drive means permitting such shifting or readjustment without requiring the disconnection thereof.

The provision of improved segregating mechanism adjustable to segregate charges at various speeds having means for quickly and easily replacing worn out segregating instrumentalities.

The present invention is applicable for use in connection with manual, semi-automatic or fully automatic, diversified, or non-diversified production machinery and processes.

In the drawings,

Fig. 1 is a side elevation of the preferred embodiment of my invention.

Fig. 2 is a top plan view of the apparatus shown in Fig. 1, and Fig. 3 is a bottom plan view thereof.

Fig. 4 is a front elevation of the apparatus shown in Fig. 1 and Fig. 5 is a section taken on the line 5—5 of Fig. 1.

Fig. 6 is an enlarged detail view of a belt grappling mechanism used for advancing the clay conveyor.

Fig. 7 is a detail view of devices for guiding and centering the clay.

Fig. 8 is a detail view of mechanism for detaching the clay column from the belts.

Figs. 9, 10, 11 and 12 illustrate in four views the sequence of operations in segregating and depositing a charge of clay on a flat ware mold facing in the direction of Fig. 4.

Fig. 13 illustrates the operation of segregating and depositing a charge of clay in a hollow ware mold.

Figs. 14, 15 and 15a illustrate in three views cross sections of the clay column C in Fig. 1 taken respectively, reading from the left, on lines A—A, B—B and C—C.

Fig. 16 is an elevation of the mold shown in Fig. 1 with a charge of clay thereon illustrating the position of the charge relative to the center line of the mold and the charge.

Fig. 17 illustrates mechanism for supporting the charge whilst and after it is segregated, this mechanism being particularly adapted for charging cup or deep cavity mold where it is desired.

Fig. 18 is a top plan view of the feeding station of a multiple line mass producing pottery machine incorporating the present feeder improvements.

Fig. 19 is a section taken on the line 19—19 of Fig. 18.

Fig. 20 is a side elevation of the machinery shown in Fig. 18.

The clay or ceramic material from which the charges are made issues from the nozzle of an extrusion machine 1 in a column C of predetermined and preferably circular cross section containing a multiple of mold charges. The column

may be fed directly onto the belt 2 of the feeder 3 and transported in uninterrupted length to the mold charging position 4, providing the rate of extrusion is uniform and equal to the rate of linear consumption, or the column may be segregated at the mouth of the extrusion machine in billets or slugs of predetermined length and manually deposited on the belt 2, the lengths of material being welded together as at 5 by hand. A single extrusion machine may be used in this event with a multiple of feeders.

We prefer to transport the extruded length of clay endwise and downwardly toward a charge segregating position preferably along a curvilinear path. Any curve which will not produce effects detrimental to the fabricating, drying and firing behavior of the clay from stretching and compression may be utilized, and therefore, we do not wish to limit ourselves to a particular curve classification.

From the line A—A rearwardly, or to the left, in Fig. 1 is the loading zone where clay is applied and the belt preferably travels there along at an incline or along a line which is a projection of the angle of interruption of curvature at A—A so as to avoid any sharp bend. The angle of interruption may be predominately horizontal, as illustrated, or predominately vertical. Where the plane of the loading surface is predominately vertical the weight of the clay column will assist the drive in overcoming friction drag between the conveyor belt and its supporting surface and thus facilitate the forward travel thereof.

The frame of the feeder 3 comprises two side members 8 connected lengthwise along the upper marginal edge by a web 9, Fig. 5, having a guide plate 10 for the belt 2 fastened thereto having a radius of cross sectional curvature slightly greater than that of the clay column. The belt is drawn sufficiently tight between crowned rollers 11 and 12 so that the upper run fits the lengthwise and crosswise curvature of the guide plate. Roller 11, at the rear end of the frame, has an adjustable take-up and tensioning mounting 15, and roller 12 has a fixed mounting at the front end.

The lower return portion of the belt travels in a straight line and is driven in this zone by a shiftable clutch 13, Figs. 5 and 6, intermittently actuated by rocker arm 14 and adjustably clamped on shaft 15'. The clutch includes a member 17 having a throat 18 with converging upper and lower walls through which the belt 2 is reeved under a set of large diameter floating tubular rollers 19 and a smaller set 20, located at the large and small end of throat respectively, but held in individual substantial relative association by lengths of round rod 21. As the rocker arm 14 is rotated to the left, Fig. 1, the rollers shift to the right and wedge against the sloping roof of the throat 18, thereby pinching the belt against friction surface 22 to grip and move it. This causes the column of clay to advance a predetermined distance toward the segregating position. To prevent back travel of the belt upon return movement of the clutch 13, a stop clutch 23 is provided of the same construction as clutch 13, except it has only one set of rollers and is permanently attached to the feeder frame.

The volume of material contained in the charge is regulated by an adjustable screw 24. The screw controls the limit of travel of the clutch 13 to the right, Fig. 1, (and hence the point of commencement of the belt advancing stroke) through engagement with a stop member 25, fastened to the rear end of the frame 26 on which the clutch is mounted. The frame 26 is shaped like an I-beam at the ends and rides on sets of rollers 27 journaled in the feeder frame. It is shifted to the right, Fig. 1, by spring 28. 28' is a counter.

In the zone of curvature, commencing at or about the line B—B Fig. 1, the clay column C is preferably engaged and supported on the upper side by a belt 32, which travels between crowned rollers 33 and 34. This belt helps support the column in the downward path to the segregating position and prevents it from raising off the lower belt and buckling.

The degree of pressure exerted will depend on how easily the column will bend and how tightly it must be pressed between the belts to prevent slipping, such factors as normal adhesion being taken into consideration. It is desired, however, not to press the column so hard as to cause deformation in any harmful degree.

In order to adjust the belt to columns of different dimension, and also to tension it, the upper roller 33 is mounted in a frame 35 adjustably attached to the feeder frame by studs 33*a* and 33*b* so that it may be raised and lowered and swung in an arc.

The lower roller 34 is adjustable toward and away from belt 2 and it may also float so as to relieve any excess back pressure on the column. Sometimes the welds 5 are oversize and it is better to have the belt yield than to distort the column. The roller shaft 24*a* is located in slots 34*b* in the outer frame 42 and has a yoke 39 attached thereto inside the frame. This yoke is adjustable back and forth by means of screw 40 and nut 40*a* and a spring 41 encompassing the screw and bearing against the inside of the frame allows the entire yoke 39 and roller 34 to float rearwardly.

The clay column is guided and supported laterally by flexible strips of metal 36, Figs. 4 and 7, attached to roller frames 35 and 42. The extremities thereof are turned outwardly so as to prevent gouging and they are adjustable inwardly by screws 36*a*.

Blades 45 and 45*a*, Fig. 8, are provided for detaching the column of clay from belts 2 and 32 and together with lower guides 36 support the column directly above the segregating position. Support at this point is desirable in order to provide the necessary stabilization and resistance to cutting and also to prevent the segregating wire from dragging the end of the column off center. Should the weld between columns be defective, these blades together with the guides 36 will prevent detached ends from dropping onto the mold. Where the loading zone is horizontal or substantially so, the weight of the portion of the column occupying this zone is either not imposed on blades 45 and 45*a* and lower guides 36 at all or is only slightly imposed, depending on the degree of inclination.

The blades 45 and 45*a* are mounted in holders 46 and secured thereto by blocks 47 which are tightened by screws 47*a*. The holders for blade 45 are pivotally mounted at 46*a* on each side of the frame 42 so that the angle of the blade relative to belt 2 may be adjusted. The holders for blade 45*a* are mounted on and are shiftable with yoke 39 (see Fig. 3). It is desired that the leading edge of each blade engage each respective belt along the crown of rollers 12 and 34 or slightly thereabove. It will be noted that in passing over the crown of the rollers the lateral

curvature of each belt is reversed, thereby tending to draw each belt away from the column of clay along the lateral edges, thereby assisting in stripping the belts from the column, the blades completing the work. It is also desired that the pivots 46a be so positioned that the blades may be swung about a center defined by the point of contact of each blade with its respective belt.

Means are provided for cleaning each belt of residual clay to prevent drying out of the material and surface contamination of the column and also to prevent fouling of the clutch for actuating belt 2. Each cleaner comprises a blade 38 and a holder therefor, there being a collecting pocket 38a for the scrapings. One of these devices is mounted on the frame 35 on flexible supporting members 37 and a pair thereof designated 54 and 55 are disposed directly ahead of the clutch 13, Fig. 1, and on opposite sides thereof. These last two cleaners are pressed against the belt by coil springs.

The base 56, Fig. 3, of the feeder frame has oversize screw holes 57 to enable lateral and longitudinal adjustment thereof relative to support angles 58 of a support carriage. This permits adjustment of the position of the end face of the clay column relative to the vertical axis of the mold. The angles 58 are connected by cross channels 58a forming a frame which is mounted on grooved wheels 59, Fig. 1, running on tracks 60 so that the entire feeder may be moved back to provide access to dies, chucks, and segregating means. Indexing pins 61 lock the frame one or more forward operating positions.

The mechanism for segregating the charges comprises a frame 48 made up of spaced parallel bars reciprocably mounted on rollers 49. One or more cutting wires 50 are held between the bars, one end of the wire being attached to a stationary binding post 50a (see Fig. 19) and the other end to a quick change tensioning device comprising a spring pressed push rod 51 with a hooked terminus for the looped end of the wire. The frame reciprocates once to every two reciprocations of the clutch 13, thereby cutting a charge in each direction. The frame is actuated by an air motor 43 through an adjustable timed valve (not shown) in synchronism with the pottery making functions of machine. Check and adjustable by-pass valves 53a enable the cutting speed to be regulated while the driving connection subsists.

Referring to Fig. 1, the clay column as it issues from the extrusion machine is substantially circular in cross section as shown in Fig. 14. At or about the zone B—B, Fig. 1, the column may tend to flatten on the top *a* and bottom *b* sides as shown in Fig. 15, this being due partly to natural stretching and compression and to the incidental compressive effort of the belt 32. This indicates an adjustment in distribution of material has taken or is taking place in negotiating the bend. We have found that such readjustment is not detrimental to the fabricating, drying or firing behavior of the clay. A charge of clay cut off at this point and deposited on the center of distribution of a circular flat ware mold would however have insufficient brim spread in the zones *a* and *b* and over-spread at *c* and *d*, thus producing a faulty bat when pressed out, or in other words, the bat or blank would be short on two sides and long on the other two.

To correct this inequality of distribution, since it is the object to obtain a charge so proportioned and of such volume that when deposited on the center of distribution of the mold, it will flow evenly under the press and reliably fill all exposed portions of the molding surface, the following steps are taken. The column at or about the zone of segregation is projected at an angle to the vertical and the segregating wire is passed therethrough crosswise of the long axis, preferably in a horizontal plane (see Figs. 1 to 5 inclusive), which produces a charge appearing in elevation, (see Fig. 15*a*) as a rhomboid parallelogram whose adjacent sides are not equal and whose angles are not right angles. Looking at the charge from the top, (see Fig. 15*a*), there is substantially the same amount of material in each of the four quadrants and the distribution of material in each is very nearly in proportion. The charge is found to meet practical requirements and to spread uniformly and reliably fill the mold. Due to passing through the guides 43 and 44, the sides *a* and *b* may become flattened but this makes very little difference, we have found, in distribution. The guides can be formed or adjusted to minimize such flattening.

With the material thus distributed in the charge, it is desirable to locate the same properly on the mold. The end of the column should be positioned so that the vertical center line of the mold and the charge corresponds. This center line is shown by the line X—X in Fig. 16.

In the feeding of charges of clay to flat ware molds, Figs. 11 and 14, it is preferred that the elevation of the mold commence at or about the time the segregating wire first contacts with the outer circumference of the column and as the wire proceeds deeper the sheared portion begins to sag, (Fig. 9). The mold contacts the sagged edge of the slice (Fig. 10), elevates it, and progressive contact with the mold face ensuses as severance progresses. Final severance comes when the slice has been elevated into adjacency but not in contact with the end face of the column.

Once the rim of the charge contacts the mold, it adheres thereto and the remainder falls reliably into predetermined position and, furthermore, such adhesion helps in stabilizing the column and resisting the tendency of the cutting wire to drag the column off center. Progressive contact with mold expels air, thus allowing the clay to intimately contact the mold surface and make a good capillary bond. By cutting on the reverse stroke, the danger of dragging the column to one side from repeated cutting in one direction is eliminated.

When charging hollow ware molds with clay, it is preferred to deposit the charge in the bottom of the mold with the flat bottom side of the charge down, as illustrated in Fig. 13. If desired, charges may be produced by projecting the column at an angle and cutting off horizontally, or the column may be restored to circular proportion by means of a reshaping collar 72, which is of funnel-like proportions and cut off horizontally thereby producing circular charges.

In order to make the charges fall flat without turning over or striking on the rim, the cutting wire 50 is actuated at high velocity; this may be accomplished by proper regulation of the air motor or by other suitable means. The charge may also be caused to drop flat against the mold by means of the apparatus shown in Fig. 17 which comprises a pair of interconnected swinging brackets 95 having a charge receiving surface 95a disposed directly below the end face of the column of clay. After the wire has passed through the clay and the charge has fallen onto

the seat, the wire, or a bar 95b travelling there ahead of strikes one of the brackets, pushing it outwardly and causing it to open thereby dropping the charge into the mold. The brackets are suspended from the frame 42, Fig. 8, and may be closed by gravity or by a spring. The clearance between the center edge of the brackets can be large so that the charge will sag in the central portion and when released will contact the mold first in this zone thereby pushing out the air as the brim zone settles.

In Fig. 18, we have shown a plurality of feeders mounted in transverse spaced relation on the frame 62 of a large mass producing machine wherein the molds are conveyed on open bottom trays 64 suspended between chains 65 to the feeding position and are there elevated by chucks 66 and crosshead 67 for charging. Chucks 68 are for bringing the charged jigger molds into cooperation with a former 69, Fig. 20. The size of the mobile frame 58 in this case is increased to accommodate a plurality of feeders and all are operated by the crosshead 67 through rocker shaft 15. Rocker arm 14 is oscillated by bellcrank 70 pivoted on carriage 58 and link 72 pivotally attached to the crosshead 67. Obviously, the frame 58 can be shifted while the feeder operating connection subsists. As the crosshead 67 descends, the rocker arm 14 is rotated to the right, thereby advancing the belt 2 of each feeder one division.

The feeder chuck may be of hollow construction so that the extra charge segregated at the feed position may fall therethrough, due to the omission of the mold, into a salvage receptacle.

With reference to Fig. 1, in which the belt 32 is shown as an idler, it is to be understood that it may be driven in synchronism with belt 2 by running a chain between the shafts on which rollers 12 and 33 are mounted. Moreover, various degrees of resistance to travel may be imposed on belt 32 by applying an adjustable friction drag to roller 33 or the shaft on which it is mounted. It is understood that other means may be substituted for belt 32 such as a continuous guide strip bent to the curvature of the clay column and anchored at each end or, in case the clay is sufficiently adhesive and will follow the curve without separating from belt 2, it may not be necessary to apply support along the outer curvature.

In regard to Fig. 3 and the segregating wire 50, it is understood that this wire may operate from various angular positions as shown in dotted line. By experimentation, the best angle for any particular size and consistency of clay may be found. The less there is concentration of force on the column of clay in cutting off the charge, the less opportunity for dragging the column off center.

Having thus described our invention, what we claim is:

1. Apparatus for producing pottery mold charges from a column composed of preformed lengths of plastic material which includes supporting means for said plastic material adapted to embrace and hold a portion of the length in upright or substantially upright position at least whilst in the zone of approach to a segregation point and undersupport the weight of the remainder of the column thereabove in substantially horizontal position so that the end of the column undergoing segregation will not be subjected to the weight of the undersupported portion, means for segregating charges of plastic material from the lowermost end of said column and means for progressing said column in endwise fashion toward the segregating point.

2. In combination with a mold and a support therefor, apparatus for producing pottery mold charges from a solid column of clay composed of extruded lengths of limber plastic material including supporting means for said column having a zone of approach to a segregating position inclined steeply to the horizontal so that the lowermost end of the length of material faces the molding surface of the mold at the segregating position, and a substantially horizontal portion supporting the weight of the length of material above a portion of the segregating position, means for segregating charges of plastic material across the long axis of the lowermost end of the column and means for progressing said column in endwise fashion into the range of operation of the segregating means.

3. Apparatus for producing pottery mold charges from preformed length of plastic material including means for progressing said length endwise in a downwardly direction along a curvilinear path toward a point of charge segregation said means having a loading zone which is a projection of the angle of interruption of the upper end of said curvilinear portion, means for supporting said length during its progress along said path and means for segregating charges of plastic material from the lowermost end thereof.

4. Apparatus for producing pottery mold charges from extruded length of plastic material which includes means for progressing said length endwise and in a downwardly direction along a curvilinear path toward a point of charge segregation, means for guiding said length during such progress, means for supporting the weight of said column above said point of charge segregation and means for segregating charges of plastic material.

5. Apparatus for forming pottery mold charges from extruded length of plastic material including a conveyor for transporting said length toward a point of charge segregation said length normally adhering to said conveyor said conveyor travelling along a curvilinear path approaching the segregating position at an incline to the horizontal, means for detaching said length from the said conveyor adjacent the segregating position and means for segregating charges of plastic material from said length.

6. Apparatus for producing pottery mold charges from extruded length of plastic material including means for conveying said length along a path having a downwardly curving portion leading to a segregating position, said length of material being inclined to the horizontal at such position, means for segregating plastic material charges therefrom together with means for regulating the volume of plastic material contained in the charge.

7. In combination with a jigger mold and a support therefor, mechanism for producing mold charges including means for conveying a column of plastic material endwise in a downwardly direction toward a point of charge segregation along a curvilinear path, means for segregating charges of plastic material therefrom and means operable on the lower end of the column for varying the position of the endface of said column relative to the molding surface of the mold for centering the charge of clay on the said molding surface.

8. In a clay feeder, a conveyor for transporting clay in column form to a point of charge segregation, means movable therewith supporting said

column in zones other than those engaged by the conveyor, together with means for disengaging said column of clay from said means and said conveyor prior to segregation.

9. In apparatus for manufacturing potteryware, mold conveying means having molds thereon arranged to be brought by the movement of the carrier into charging position, means for charging said molds with clay comprising a plurality of feeders operable to convey slugs of clay in column form endwise and in downwardly direction along a path having a downwardly curved portion to a position where the lowermost ends of said columns are directly over said molds, means for segregating charges of clay from said columns, each feeder having means for adjusting the volume of clay contained in the charge.

10. In apparatus for manufacturing pottery ware, a mold conveying means having molds thereon arranged to be brought by the carrier into a charging position, means for forming charges comprising a plurality of mechanisms for transporting clay in column form along a curvilinear path endwise and in a downwardly direction toward a point of charge segregation above said molds, segregating means, a carriage for supporting all of said mechanisms, said carriage being shiftable relative to the segregating position, and drive means for actuating said mechanisms and said segregating means.

11. In the manufacture of potteryware, the method which consists in preparing a column of plastic material and conveying the same endwise along a curvilinear path and downwardly toward a point of charge segregation and deforming the same whilst enroute, restoring the column circumferentially to proportional shape and then segregating clay charges therefrom by cutting said column crosswise of the long axis.

12. In the manufacture of pottery ware on molds, the method which consists in advancing a column of clay slugs endwise along a path having a downwardly curving portion toward a segregation point with the end of the column facing the mold at the segregating position, segregating charges therefrom crosswise of the long axis of the column, positioning a mold thereunder so that the brim of the segregated portion of the charge will contact the mold before severance is completed and thereafter completing the segregation so that the charge will progressively contact the surface of the mold as said charge is severed.

13. In combination, mold conveying means for transporting pottery molds to feeding and forming positions, apparatus for producing clay charges from a solid column of clay composed of one or more extruded lengths of clay the combination which comprises, supporting means for said column having a substantially horizontal portion connected to a curved portion which lead downwardly to a mold charge feeding position located above the mold conveying means, means for progressing the column along the path formed by said support, means adjacent the lowermost end of the column for supporting the column directly above the segregating position, a portion of the column projecting therebeyond toward the mold and means for segregating charges of clay from the lowermost end of the column.

14. In combination, mold conveying means for transporting pottery molds in successive order to feeding and forming positions, an extrusion machine for extruding plastic clay, apparatus for producing clay charges from a solid column of clay composed of one or more extruded lengths of clay, supporting means for said column having a loading portion where a portion of the column is undersupported along the length thereof connected to a downwardly extending delivery portion where the weight of the remainder of the column is vertically disposed, means engageable with the column adjacent the lowermost end thereof providing support for the vertical portion of the column and means for segregating charges of clay from the lowermost end of the vertical portion of the column, said column being periodically replenished by adding additional lengths of clay extruded by the extrusion machine to the column in the zone of the loading portion of the supporting means.

15. In combination, mold conveying means for transporting pottery molds in successive order to feeding and forming positions, an extrusion machine for extruding plastic clay apparatus for producing clay charges from a solid column of clay composed of one or more extruded lengths of clay, having supporting means for said column forming a path along which the column is moved in endwise fashion in a horizontal direction and then downwardly toward a point of charge segregation, means for progressing the column along the aforesaid path, means capable of altering the cross section of the column disposed adjacent the lowermost end of the column and means for severing charges of clay from the lowermost end of the column which are deposited by gravity on the molds successively presented to the feeding position.

16. In apparatus for feeding clay to molds in the manufacture of potteryware, the combination which comprises, means for advancing a line of molds to feeding and forming positions, supporting means for a solid column of clay having a loading portion lying in a substantially horizontal plane and a delivery portion extending in a downwardly direction toward a segregating point directly over the line of molds, means for progressing the clay along the path thus afforded by the support, a horizontally movable cutting wire for cutting slices of clay from the lowermost end of the column, successive slices of clay thus produced being disposed on successive molds presented at the feeding position and means for supporting the lower end of the column above the cutting wire against axial displacement.

17. In the manufacture of potteryware, the method of feeding clay to ware forming molds which comprises, progressing a column of clay composed of one or more extruded lengths of clay along a path having a downwardly curving portion toward a segregating position whilst supporting the column and confining the same to said path, moving molds in succession into a position below the lowermost end of the column and periodically slicing charges of clay from the lowermost end of the column which are deposited on the molds and periodically replenishing the column without adding weight to the vertical portion thereof by joining lengths of extruded clay of like proportions to the trailing end of the column and supporting these added lengths in a horizontal position at the time they are joined thereto.

18. A method of effecting uniform lineal progression of a column of clay in endwise fashion downwardly toward a segregating position where measured charges of clay are periodically sliced therefrom which comprises, supporting the posterior portion of the column so as to remove all or a portion of the weight of this portion of the

column from the anterior portion of the column, undersupporting the weight of the anterior portion of the column and moving the entire column as a unit under controlled pressure and periodically adding other lengths of clay of like proportions to the posterior end of the original column, these lengths being likewise supported so as to remove the weight thereof from the anterior end of the column.

19. In the manufacture of potteryware, the method of feeding charges of clay to ware-forming molds which comprises advancing a vertically extending column of clay slugs in a downward direction to a mold charging station, presenting successive molds beneath the advancing column, severing successive charges of less diameter than that of the ware from the column by transverse cutting and depositing them on the successively presented molds, and maintaining the vertical length and weight of the column constant by supplying clay to the upper end of the column from a horizontal direction.

20. In the manufacture of potteryware, the method of feeding charges of clay to a line of molds presented successively in the charging position, which comprises travelling clay slugs in the form of a column in a downward direction from a horizontal position to the point of segregation and bending the column enroute in order to change the direction of travel from horizontal to vertical and thus present the leading end face of the column to the line of molds, periodically segregating charges of clay from the lower end of the column and depositing the same on the successively presented molds, and supplying clay to the upper end of the column, to compensate for the material in the charges segregated, by periodically adding preformed lengths of clay containing sufficient material for a plurality of charges.

21. In apparatus for supplying clay to a line of pottery molds presented successively to a charging position and on which the clay is formed into pottery ware, the combination of means for support a vertically extending column of clay slugs above the line of molds and from the lower end of which individual pottery ware charges are severed and deposited on the molds successively presented thereto, a horizontally movable segregating wire operable to periodically cut through the column, means for advancing said column at a speed timed with relation to the movement of the cutting wire to provide uniform individual charges at the severing position, and an extrusion machine for periodically supplying preformed lengths of clay containing material for a multiplicity of individual charges that are joined with the upper end of the column and means for supporting the additional lengths of material in a horizontal plane at right angles to the vertically extending column of clay in such fashion that the weight thereof is not imposed on said column when joined thereto.

22. Apparatus for producing pottery mold charges from slugs of plastic ceramic material including means providing a horizontal portion and a curved portion leading downwardly in a vertical direction toward a charge segregating zone, means engaging the outer surface of the column in the curved portion of the path for causing the column to follow the curved portion of the path positioning means through which the lower end of the column passes for locating charges on the center of the molding surface and means operating in periodic fashion for cutting charges of plastic material from the lowermost end of the column.

23. In combination with a mold and a support therefor, apparatus for producing mold charges from a column of clay composed of one or more slugs of plastic ceramic material which includes, means providing a substantially horizontal portion, and a curved portion leading downwardly in a vertical direction toward a charge segregating zone, means for holding the lower portion of the column in predetermined position relative to the mold and means for segregating charges of plastic material from the lowermost end of the column, said charges being deposited directly upon the molding surface of molds presented for charging below the lowermost end of the column.

24. In apparatus for feeding clay to molds in the manufacture of potteryware, the combination which comprises, means for advancing a line of molds to feeding and forming positions, a support for a column of clay slugs located above said line of molds, said support including means for bending the column in order to change the direction of travel thereof from horizontal to vertical and thus present the leading end face of the column to the line of the molds, said support also including a portion occupying a horizontal position for receiving and supporting additional bodies of clay for replenishing the original column, guide means through which the column is pushed arranged to locate the lower end of the column so that charges cut therefrom are centered on the molding surface of the mold, segregating means for slicing through the column located adjacent the lowermost end of the column, means for progressing the column of clay in endwise fashion into the range of operation of the segregating means and means for actuating the segregating means to sever charges of clay which are depositioned on the molding surface of the molds successively presented at the feeding position.

25. In combination, means for moving a line of pottery molds in a substantially horizontal path to a mold charging station, an extrusion machine for extruding clay slugs containing material for several charges and means for producing charges of clay from said slugs and feeding them to the molds in successive order comprising a receiver located above the line of molds capable of supporting a column composed of several of the bodies of clay, having the form of a duct which curves from a horizontal loading portion to a downwardly extending vertical delivery portion and in this manner provides support for the entire column without detrimentally affecting the proportions of the column and enables the leading end of the column to face this mold at the charging station, a cutting wire and means for supporting and moving said cutting wire in a horizontal plane across the leading end of the column to thereby sever slices of clay therefrom, means for progressing the column of clay to the cutting wire against predetermined resistance with movement that is regulated with relation to the movement of the cutting wire, in order that the proportioning of successive charges will be substantially uniform and produced with periodic regularity.

WILLIAM J. MILLER.
ASHLEY J. REEK.

CERTIFICATE OF CORRECTION.

Patent No. 2,301,906. November 10, 1942.

WILLIAM J. MILLER, ET AL.

It is hereby certified that error appears in the above numbered patent requiring correction as follows: In the drawings, Sheet 1, strike out Figure 18, and Sheet 2, strike out Figures 22, 23, and 24; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 5th day of January, A. D. 1943.

Henry Van Arsdale,
Acting Commissioner of Patents.

(Seal)