Jan. 9, 1951 H. STRASSER 2,537,922

FIXING OF HANDLES AND OTHER FITTINGS TO POTTERY ARTICLES

Filed Feb. 19, 1948

3 Sheets-Sheet 1

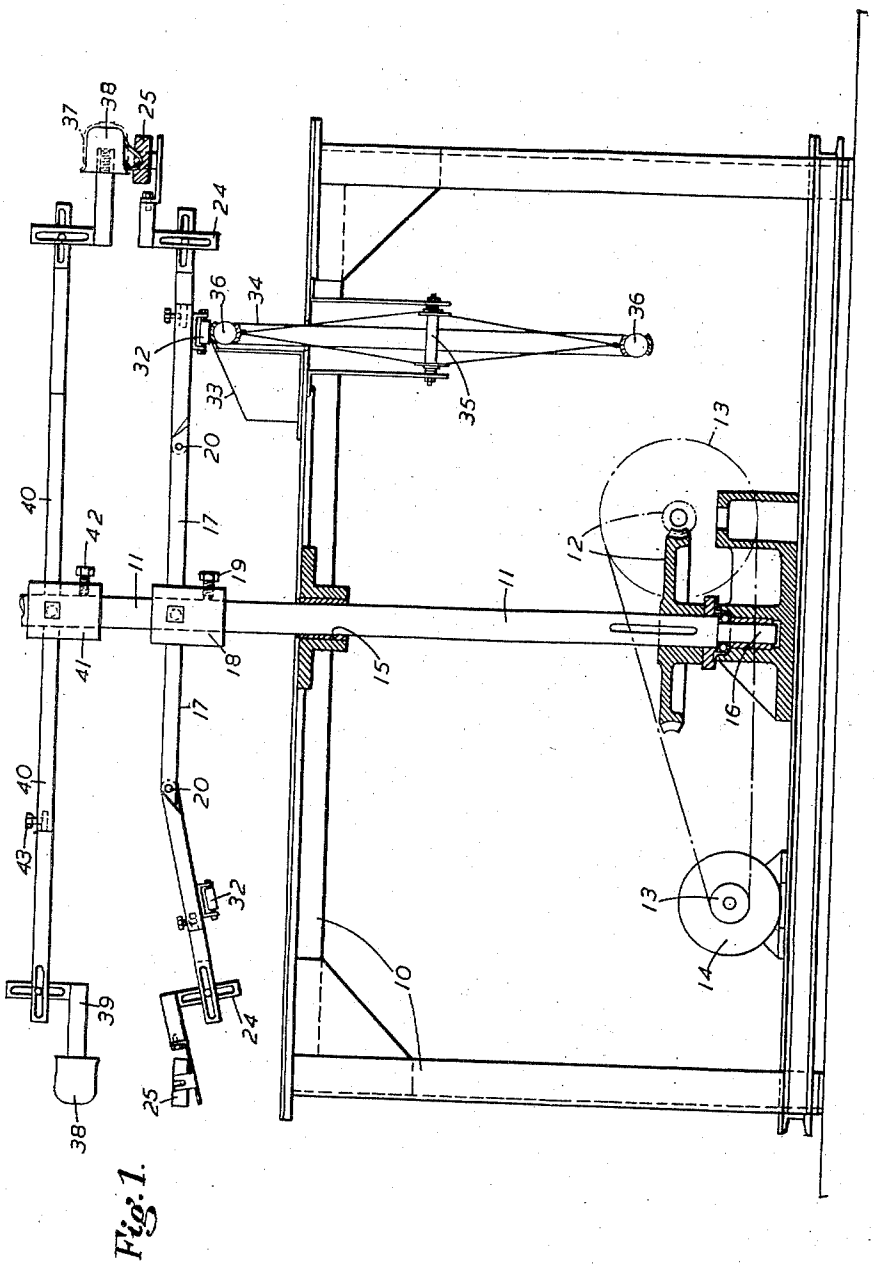


Fig. 1.

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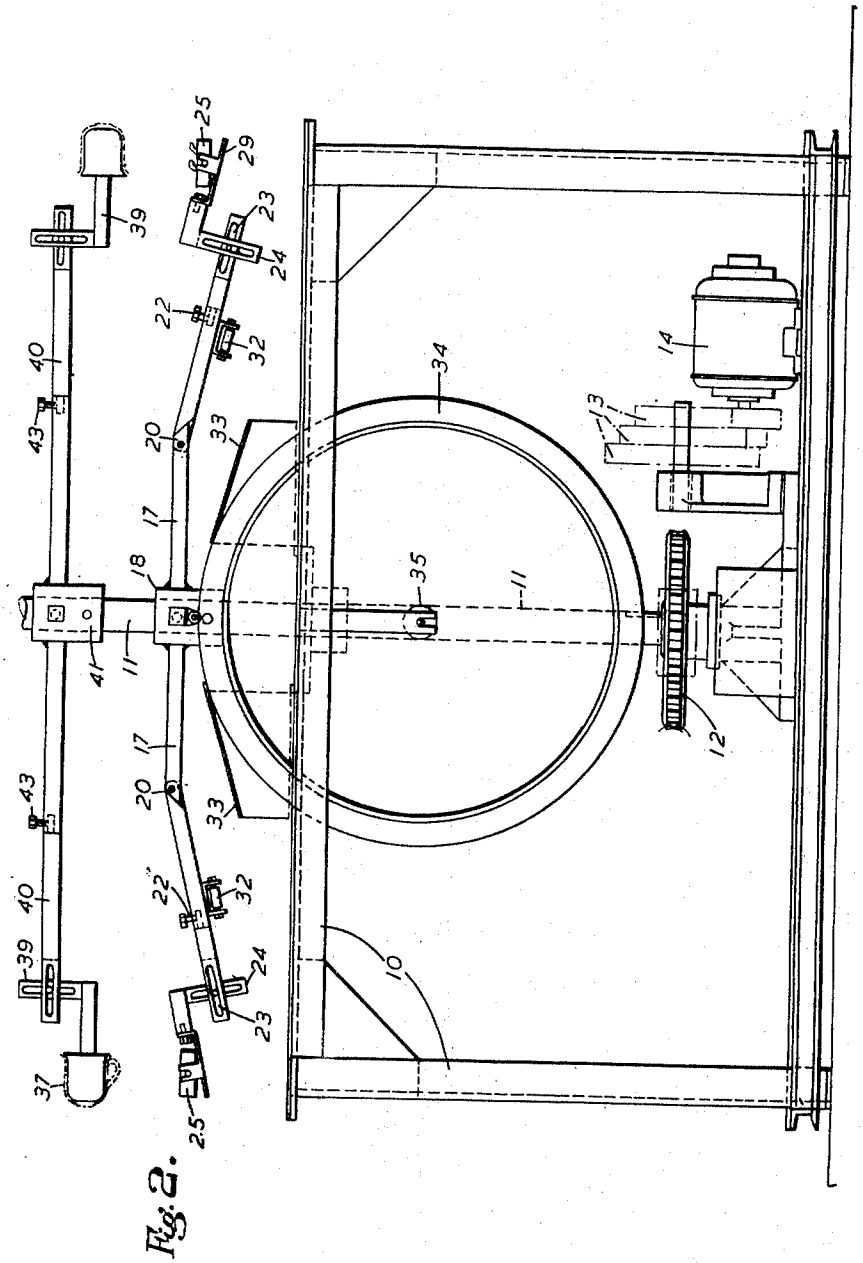


Fig. 2.

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Fig. 3.

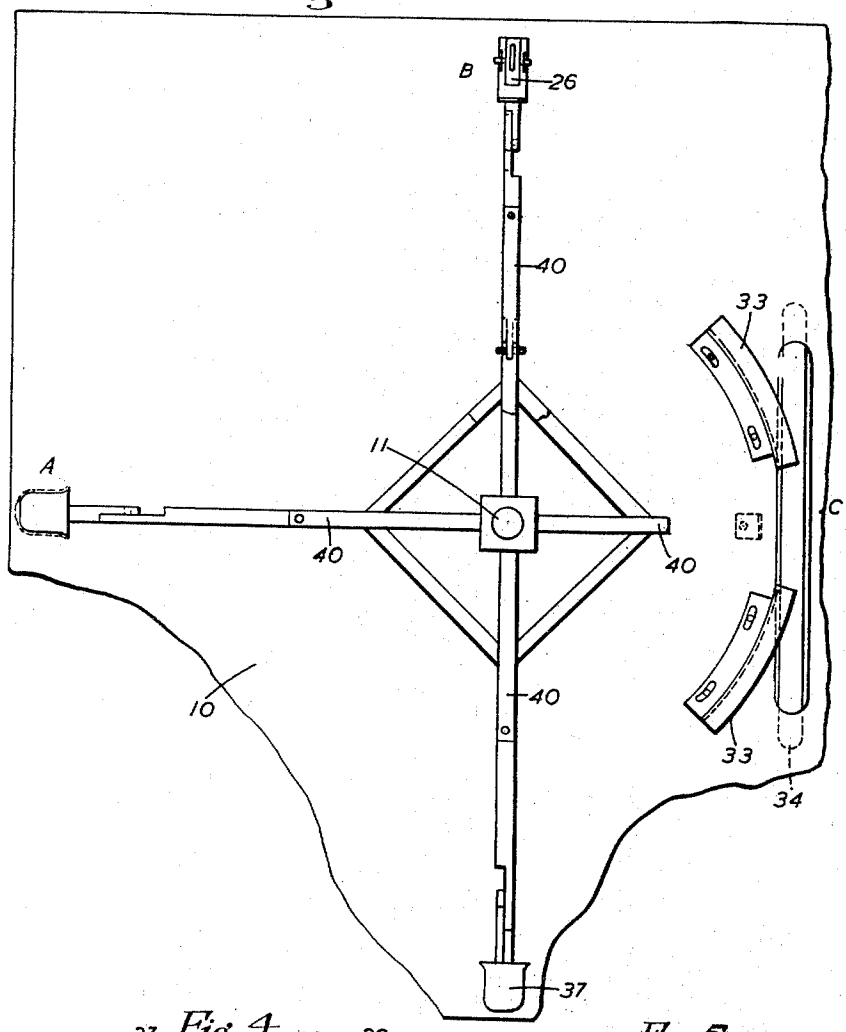


Fig. 4.

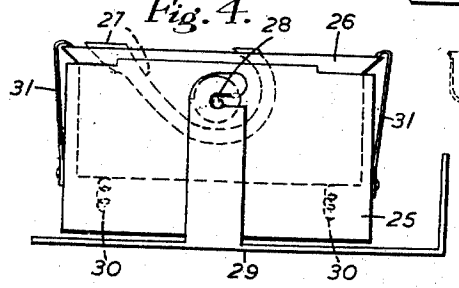
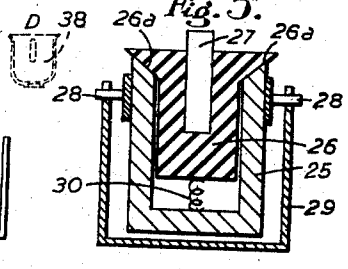


Fig. 5.



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UNITED STATES PATENT OFFICE

2,537,922

FIXING OF HANDLES AND OTHER FITTINGS TO POTTERY ARTICLES

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In Great Britain May 31, 1945

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14 Claims. (Cl. 25—22)

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This invention relates to the fixing of handles and similar appendages to pottery articles such as cups. Although machines have been proposed for this purpose, the method still in general use is to apply the handle to the side of the vessel by hand, after the handle ends (in the case of an open handle) or the whole side of the handle (in the case of a block handle) have been coated with slip. The correct positioning of the handle on the article is an operation of some delicacy requiring a considerable degree of skill. This invention is directed to the provision of an improved machine for fitting the handles with uniform accuracy and with greater rapidity.

According to the present invention means such as a chuck for holding the article and means such as a cradle for holding the handle (which term is hereinafter used to include any equivalent appendages) are simultaneously and continuously rotated in spaced relation, and relative movement is applied to them while they are rotating whereby the handle and the article are brought together, whereupon the handle is subjected to light pressure, after which the reverse relative movement is applied whereby the handle holder and the handle are withdrawn from each other leaving the handle adhering to the article.

Referring to the drawings which form a part of this specification:

Figures 1 and 2 are elevations at right angles to each other.

Figure 3 is a plan.

Figures 4 and 5 are respectively an elevation and section of a handle cradle to be described, and are drawn to an enlarged scale.

A portable bench or frame 10 is provided, having mounted in its a central vertical shaft 11 driven by worm reduction gearing 12 and pulleys 13 from an electric motor 14. The worm and worm shaft are indicated only by dotted lines in Figure 2. Any other type of drive and power unit could be used, means being provided for varying the speed of the drive if required. The shaft is carried in bearings 15, 16, and above the bench top it carries four or any other suitable number of radially extending arms 17, adjustably mounted as to height on the shaft by means of a sliding boss 18 and set screw 19. The arms 17 are hinged at 20 so that their outer portion can fall slightly under gravity, and the said outer portions have adjustable dowel joints at 22 to allow for rotary adjustment of the chuck. The outer ends of the arms have pin-and-slot or other adjustable attachments as shown at 23 for brackets 24. The handles are carried at

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the ends of the arms in cradles, which are shown, see especially Figures 4 and 5, in the form of a housing 25 for a block 26 of rubber or the like in which the handle 27 is placed with the ends uppermost and protruding somewhat from the block; in the case of a block handle the whole side would so protrude. The cradle is detachably carried by pivots 28 in open slots in a bracket 29, from which the cradle can easily be lifted and a different shaped one placed in position. The bracket 29 is attached to the bracket 24. The housing 25 and block 26 have splayed upper edges, with inclined faces 26a whereby when the handles are subjected to downward pressure the block of rubber will be downwardly displaced in the housing and its upper edges will be compressed inwards slightly, to grip the handle at this point and so prevent distortion of the handle under pressure. Light coil springs 30 interposed between the bottom of the housing 25 and the underside of the block 26 serve to bring the rubber block upwards again into its original position in order to relieve the grip on the handle, when the latter sticks on to the cup and to open the slot sufficiently for the next handle to be dropped into it. The block is held in position by spring clips 31. Each arm 17 has a roller 32 on its underside, and on the bench top are provided upwardly and downwardly extending ramps 33, up and down which rollers 32 ride, so as to straighten out the arms 17 and lift up the handle cradles as shown at the right hand side of Figure 1. In the frame a curved pneumatic ramp hereinafter referred to as a wheel 34 is mounted on a horizontal axis at 35, either fixed or freely rotatable, the wheel having a pneumatic tyre: an ordinary cycle wheel is suitable: when the wheel is fixed and one part of the tread becomes worn the wheel can be released and rotated to bring another part of the tread into position; the tyre extends a little higher than the top of the ramps, see Figure 2, so that in the interval between leaving the upwardly extending ramp and reaching the downwardly extending one, the roller 32 on the arm will be pressed upwards slightly more, but under the yielding action of the pneumatic tyre. This pressure brings the handle 27 in the cradle up against the side face of a cup or the like 37 carried by a chuck 38 attached to a similar adjustable bracket 39 carried by another arm 40 extending from the central shaft 11 immediately above the hinged arm 17, there being the same number of chuck-carrying arms 40 as handle carrying arms 17, each arranged one directly above the other. The arms 40 are similarly ad-

justable for height on the central shaft 11 by means of a sliding boss 41 and set screw 42. They also have adjustable dowel joints 43. The parts are adjusted and the pneumatic pressure set so that the handle 27 is brought up to and pressed lightly against the face of the vessel, so that it will adhere but without risk of distortion. The several adjustments provided allow of the parts being set within very fine limits, so as to obtain the best results under varying conditions of clay body, shape of article and handle and so forth. The arrangement shown, in which there are four arms 17 and four arms 40 allows for a convenient sequence of operations in placing the articles on the chucks (see Figure 3) at A, placing the handles in the cradles at B, allowing for the fitting operation at C and removing the cup complete with its handle at D. The speed of rotation may be relatively slow, for instance with four pairs of arms a speed of about five revolutions per minute might be suitable; it should be borne in mind that rotation is continuous so that no time is lost in starting and stopping the machine at each stage of the operations.

For allowing for more speedy change-over from one shape of article to another, each arm 40 instead of carrying a single chuck as shown may instead carry a frame rotatably mounted and capable of being locked in any one of a number of set positions, for example by means of a set screw or spring-loaded plunger and a series of flats or recesses. The frame carries a number of outwardly projecting arms parallel with and grouped radially around the arm 40; for example there may be four or more spaced 90° or other equal angle apart: each of these arms carries in an adjustable manner, for example by means of a similar pin and slot arrangement to that shown for the arm 40, a bracket such as 39 carrying a chuck such as 38. Thus any one of these chucks can be moved into the bottom position ready to co-operate with the handle crade. The four or more secondary arms may each be adjustably mounted in the frame.

Having now described my invention, what I claim as new and desired to secure by Letters Patent is:

1. In a machine for attaching appendages to pottery articles, a drive spindle, a crade for holding the appendage pivotally supported by the spindle for movement therewith, a chuck for holding the pottery article supported by the spindle for movement therewith in spaced relationship to the cradle, means to rotate the spindle whereby the cradle and chuck will move simultaneously through a predetermined path, and cam means disposed concentrically with respect to the axis of rotation of said cradle and in the path of movement of said cradle whereby movement of the cradle toward the high point of the cam means moves the cradle about its pivot toward the chuck so that the appendage and pottery article are brought together and movement of the cradle toward the low point of the cam means moves the cradle about its pivot away from the chuck to leave the appendage adhering to the article.

2. In a machine for securing appendages to pottery articles comprising a spindle, an arm mounted on said spindle, a cradle supported by said arm and adapted to hold an appendage, a second arm supported on the spindle in spaced relationship to the first named arm, a support for the pottery article carried by said second named arm, means to rotate the spindle and arms simultaneously, and cam means disposed concentrically with respect to the axis of rotation of the arms and in the path of movement of the arms whereby movement of one of said arms toward the high point of the cam means will move said arm toward the other of said arms to bring the appendage and pottery article together, and movement of the said arm toward the low point of the cam will move said arm away from the other arm to leave the appendage adhering to the pottery article.

3. A machine as claimed in claim 2 wherein the said cradle and pottery article support are adjustably mounted on the said arms.

4. A machine as claimed in claim 2 wherein the said cam means are a pair of spaced ramps located in the path of movement of the said arms.

5. In a machine for securing appendages to pottery articles, a spindle, an arm mounted on said spindle, an extension pivoted to said arm and normally inclined downwardly with respect to said arm, a cradle supported by said extension and adapted to hold an appendage, a second arm mounted on said spindle in spaced relation to said first named arm, a support for the pottery article carried by said second named arm, means to impart rotary movement to said spindle and arms, ramp means located in the path of movement of said arms and adapted to be engaged by said extension to move said extension upwardly about its pivot whereby the said cradle and pottery article support are brought together, and additional ramp means spaced from said first named ramp means and located in the path of movement of the arms to permit said extension to move downwardly about its pivot whereby the cradle and pottery article support are moved apart, thus leaving the appendage adhering to the pottery article.

6. A machine as claimed in claim 5 wherein a roller supported by said extension engages the said ramp means.

7. A machine as claimed in claim 5 wherein resilient means is located intermediate said ramp means to exert pressure on the appendage.

8. A machine as claimed in claim 5 wherein an extension is pivoted to each end of said arm and said cradle is adjustably mounted on each of said extensions.

9. A machine as claimed in claim 5 wherein each of said arms is adjustably mounted on said spindle.

10. In a machine for fixing appendages to pottery articles, a table, a vertical spindle journaled in said table, radially extending arms secured to said spindle, an extension pivoted to the free end of each arm and normally inclined downwardly from said arm, a cradle supported by each extension and adapted to support an appendage, a corresponding number of radially extending arms secured to said spindle at a point above said first named arms, a pottery article support carried by the free end of said last named arms, means to rotate said spindle and arms simultaneously, a ramp carried by said table and located in the path of movement of said extensions, a roller for each of said extensions adapted to ride up said ramp whereby the extension will move upwardly about its pivot and bring together the appendage and pottery article, resilient means associated with said table and located adjacent said ramp for exerting pressure on said appendage, and an additional ramp located in the path of movement of said extensions down which said roller rides whereby the

extension moves downwardly about its pivot, thus moving the cradle away from the pottery article, leaving the appendage adhering thereto.

11. A machine as claimed in claim 10 wherein said arms are adjustably mounted on the spindle and said cradles adjustably mounted on the extensions.

12. In a machine for securing appendages to pottery articles, a spindle, a support on said spindle, an extension pivoted to the support and normally inclined downwardly with respect to said support, a roller carried by and depending downwardly from said extension, a cradle on said extension adapted to hold an appendage, an arm mounted on said spindle above said support, a chuck for the pottery article on said arm, means to impart rotary movement to said spindle, support and arm, and cam means disposed concentrically with respect to the axis of rotation of the support and arm and in the path of movement of said roller, whereby movement of the roller toward the high point of the cam means moves said extension upwardly about its pivot whereby the cradle and chuck are brought together and movement of the roller toward the low point of the cam means permits said extension to move downwardly about its pivot whereby the cradle and chuck are moved apart, leaving the appendage adhering to the pottery article.

13. In a machine for fixing appendages to pottery articles, a table, a vertical spindle journalled in said table, radially extending supports secured to said spindle, an extension pivoted to each support and normally inclined downwardly from each support, a roller carried by each extension and depending downwardly therefrom, a cradle supported by each extension and adapted to hold an appendage, a corresponding number of radially extending arms secured to the spindle at a point above said radially extending supports, a pottery article chuck carried by each of said radially extending arms, means to rotate said spindle, supports and arms simultaneously, and a cam carried by the table and located concentrically with respect to the axis of rotation of said supports and arms and in the path of movement of said rollers whereby as each roller moves toward the high point of the cam its extension will be moved upwardly about its pivot toward its corresponding arm to bring together the appendage and pottery article and movement of each roller toward the low point of the cam will permit its extension to move downwardly about its pivot, thus moving the cradle away from the chuck, leaving the appendage adhering to the pottery article.

14. A machine for attaching appendages to pottery articles as claimed in claim 12, wherein said appendage cradle includes a housing having an open upper end provided with beveled longitudinal side edges, a resilient block having complemental beveled side edges disposed within said housing, the said block being provided with a recess to receive the appendage with the free ends of the appendage protruding slightly above the resilient block, the beveled edges of the resilient block causing the block to be compressed to grip the appendage to prevent distortion thereof when the appendage and pottery article are brought together.

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