

March 31, 1925.

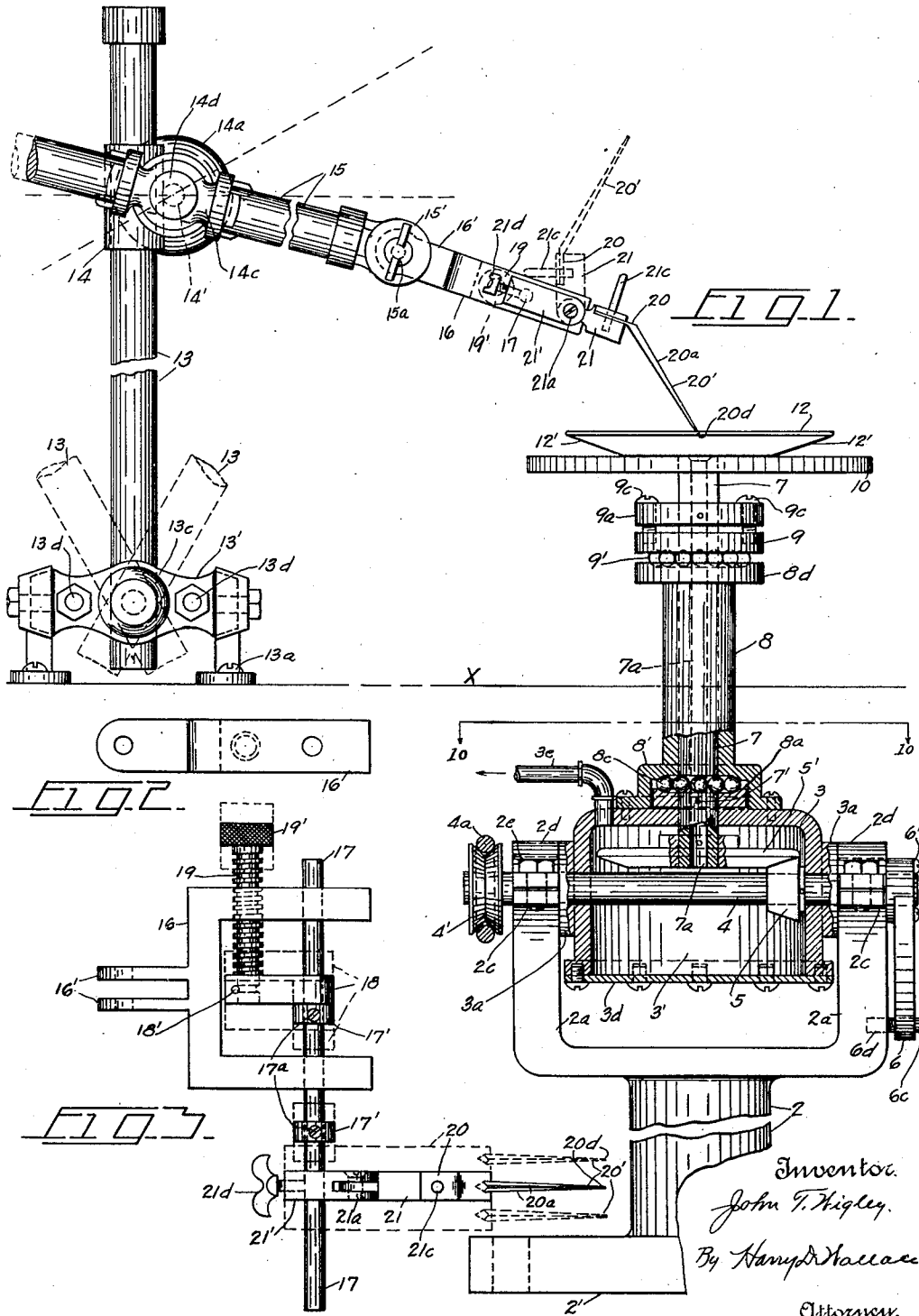
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J. T. WIGLEY

MEANS FOR APPLYING COLOR STRIPES

Filed June 4, 1924

4 Sheets-Sheet 1



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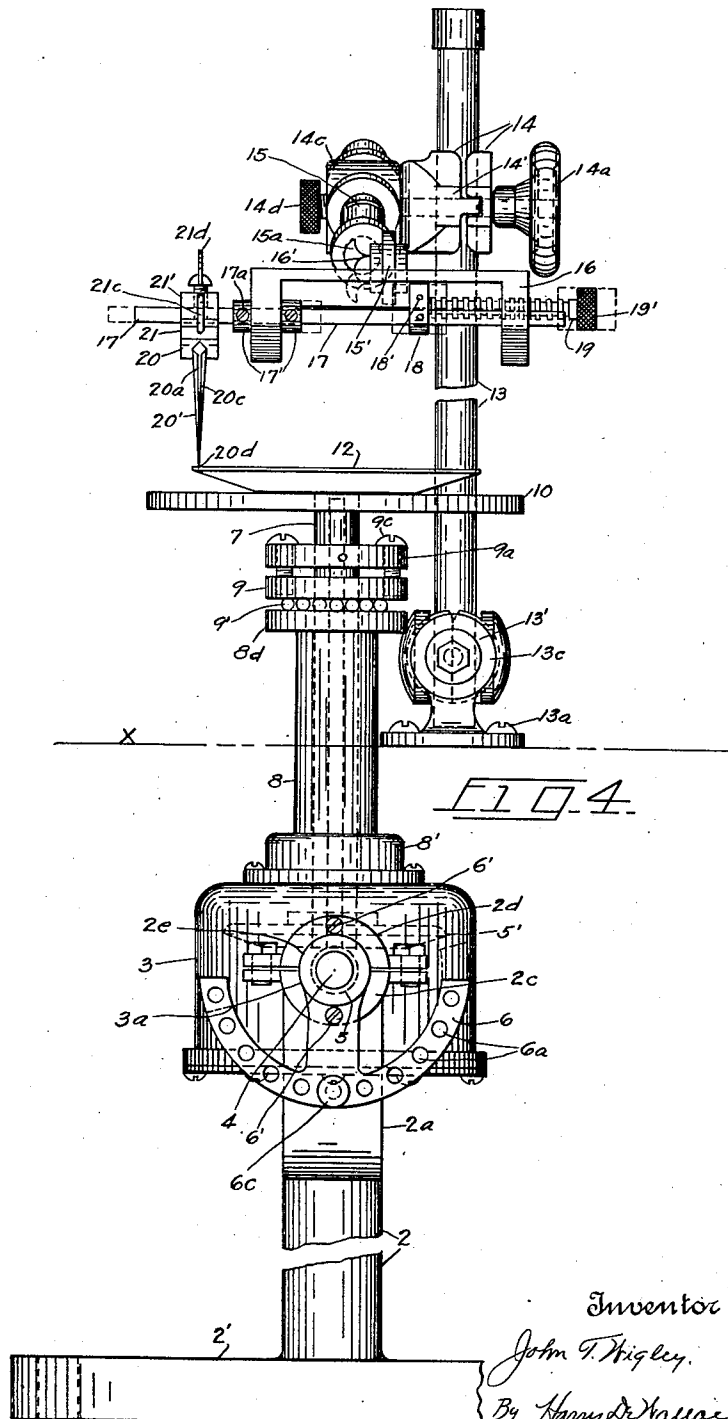
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MEANS FOR APPLYING COLOR STRIPES

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4 Sheets-Sheet 2



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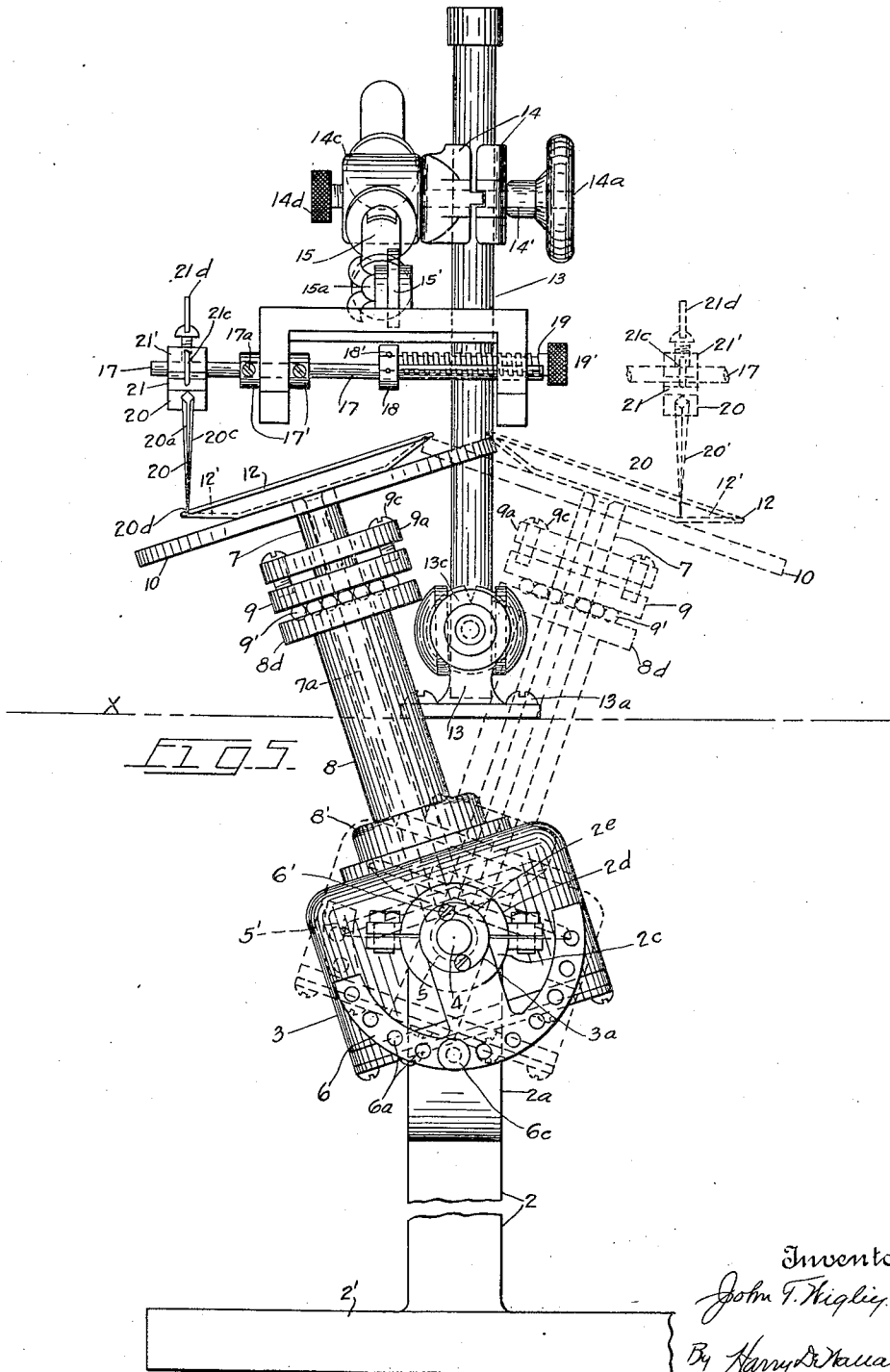
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MEANS FOR APPLYING COLOR STRIPES

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4 Sheets-Sheet 3



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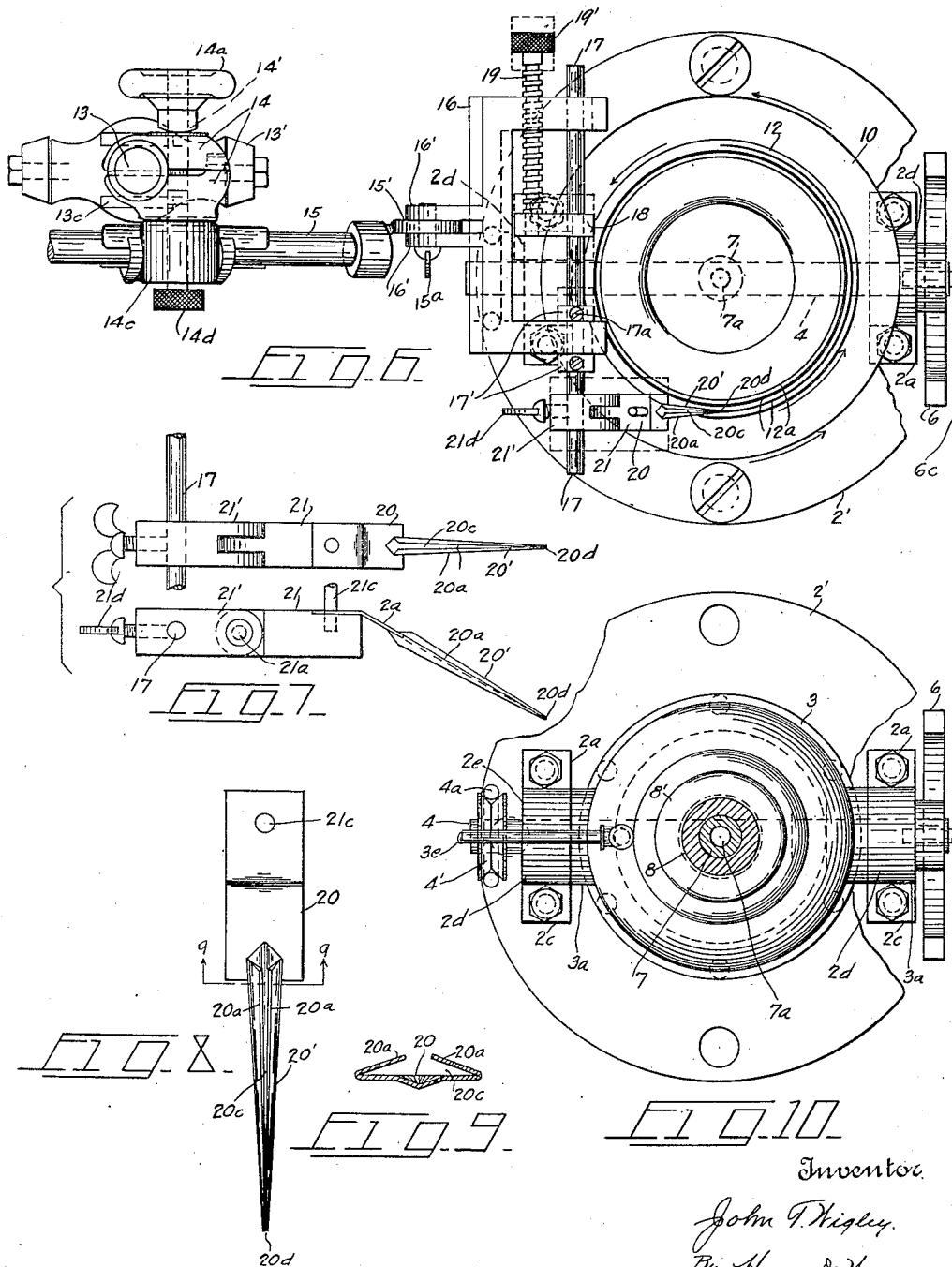
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MEANS FOR APPLYING COLOR STRIPES

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4 Sheets-Sheet 4



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Patented Mar. 31, 1925.

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UNITED STATES PATENT OFFICE.

JOHN T. WIGLEY, OF SYRACUSE, NEW YORK.

MEANS FOR APPLYING COLOR STRIPES.

Application filed June 4, 1924. Serial No. 717,854.

To all whom it may concern:

Be it known that I, JOHN T. WIGLEY, a citizen of the United States, residing at Syracuse, in the county of Onondaga and State of New York, have invented certain new and useful Improvements in Means for Applying Color Stripes, of which the following is a specification.

This invention relates to apparatus designed for use by decorators of china, crockery, and the like, by means of which color stripes may be applied to various wares mechanically.

The object of the invention is to provide a novel device for applying circular color stripes to flat, angular or curved surfaces, which consists of a power-driven table, by means of which the articles to be decorated are supported and rotated at suitable speeds during the striping operations. A further object is to provide novel means for tilting and holding the ware-support at different angles, for facilitating the striping of angular surfaces. A further object is to provide a vacuum chamber, which communicates with the rotatable work-table and supplies suction, for supplementing the normal pressure of, and for holding the crockery and dishes truly concentric to the table, thereby preventing displacement or shifting of the ware due to centrifugal force caused by the rotation of the table. A further object is to provide a gauge by which the ware-supporting table may be set and held at the proper angles for effecting the striping of curved and angular surfaces. A further object is to provide a gravitative metal brush or tool of novel construction for applying the colors for decorating the ware; the said tool being arranged to bear lightly on the work, and being hinged for automatically applying stripes at different levels. A further object is to provide a novel support for the brush, comprising a number of connecting and co-acting parts, which are arranged for universal movements relatively to the work-table, as well as to each other, and by means of which the striping pen may be raised, lowered and moved laterally relatively to the rotating table and the ware. And a further object is to provide mechanical means for supporting and rotating, and also for striping crockery and other articles, which allows the operators the free use of their hands for adjusting and attending the machines, renders the striping more accu-

ately and readily effected, and besides facilitates quantity production at greatly reduced cost.

I attain these objects by the means set forth in the detailed description which follows, and as illustrated by the accompanying drawings, in which—

Figure 1 is a partial side elevation and partial vertical section of the complete apparatus. Fig. 2 is an end elevation of the forked holder which supports the striping tool. Fig. 3 is a top-plan view of the holder and tool. Fig. 4 is a front side elevation of the apparatus shown in Fig. 1. Fig. 5 is a front elevation of the device; showing by full and dotted lines the manner of inclining the work-supporting table for performing certain work. Fig. 6 is a top-plan view of the apparatus shown in Fig. 1. Fig. 7 is respectively a top face and a side view of the striping brush and its hinged support. Fig. 8 is an enlarged top face view of the striping brush. Fig. 9 is a cross-section, taken on line 9—9 of Fig. 8. And Fig. 10 is a horizontal section, taken on line 10—10 of Fig. 1.

In the drawings, 2 represents a pedestal, having an enlarged foot-flange 2' at its lower end, and a fork comprising arms 2^a at its top end. The free ends of the arms 2^a are formed with pillow-blocks 2^c, which with caps 2^d constitute alining bearings 2^e, for rotatably supporting a hollow cylindrical body 3, whose interior comprises a vacuum chamber 3'; the body 3 having oppositely facing gudgeons 3^a, which are journaled in the bearings 2^e. The journals 3^a are bored axially to receive a shaft 4, which passes through the body 3 and rotates in the said journals. Inside the chamber 3' the shaft 4 is fitted with a bevel pinion 5 which drives a larger bevel-gear 5' and on one outer end of said shaft is mounted a sheave 4', which may be driven by a motor or other suitable power (not shown), by means of a belt 4^a. At the opposite end of shaft 4, an anchor-like gauge 6 is concentrically mounted on the outer end of the corresponding journal 3^a, by screws 6'. The gauge 6 is provided with a number of regularly spaced plain holes 6^a, to receive a screw 6^b, which is threaded into the adjacent arm 2^a, as at 6^d, for holding the body 3 in the various adjusted positions, as shown in Figs. 4 and 5. The open bottom of the body 3 is sealed by a plate 3^d. The vacuum in cham-

ber 3' may be maintained by any suitable pump (not shown), by means of a pipe 3^e. The gear 5' is rigid on an upright shaft 7, which passes through an opening in the top of the body 3, and thence through the expanded lower end 8' of a tubular support 8, the said end comprising one member of a ball-bearing; the opposite member thereof consisting of a collar 8^a, and between said members balls 8^c are disposed. The collar 8^a is rigid on shaft 7, by a pin 7'. The top end 8^d of the support 8 comprises the lower member of another ball-bearing, the upper member thereof consisting of a ring 9, between which and the member 8^d, balls 9' are disposed. The two ball-bearings are adjustable relatively to each other and proper spacing and tension of the parts may be effected, by means of a ring 9^a, which is pinned to shaft 7, and screws 9^c which are threaded into the ring 9, as shown in Figs. 1, 4, and 5. Upon the top end of shaft 7 is rigidly mounted the circular work table or platform 10, which supports the articles, as 12, to be decorated or striped. The parts 3, 6, 8, and 10 are all swingable on the pivot 4, as one part, for tilting the table 10 in opposite directions, as shown in Fig. 5, preferably for bringing angular or curved surfaces, as 12', of the ware, substantially to the horizontal plane during the striping operations.

The table 10 is arranged to be constantly rotated, preferably at a speed low enough to prevent the displacement or shifting of the ware 12 from its proper position (concentric to shaft 7) and the consequent distorting of the circular stripes 12^a, which must also be concentric to the common axis of the shaft 7 and the ware 12, as best seen in Fig. 6. In practice, the safe speed of the table 10 usually falls between 15 and 25 revolutions per minute. To further insure the positive holding of the ware 12 concentric to the table 10, I make use of the vacuum, and for this purpose, the shaft 7 is hollow throughout, thus providing a free passage 7^a, which extends from the top surface of the table 10, to the bottom side of the gear 5'. By this arrangement, a strong suction is exerted between the meeting faces of the table 10 and the ware 12, for assisting gravity to hold the ware in place. Ordinarily, when the table 10 is being operated horizontally, as shown in Figs. 1 and 4, the ware 12, unless exceptionally light, will retain its proper position without the vacuum; but the vacuum is preferably employed whenever the table is operated at inclinations as shown in Fig. 5. The line *x* intermediate the body 3 and the table 10, represents the level of the usual factory work-bench, which in the present showing serves as the principal support for the striping mechanism, which will now be described in detail:

13 represents a normally upright standard, preferably a tube, which is adjustably supported by a bracket 13', the latter being secured to the bench *x* by screws 13^a. The bracket 13' is provided with a ball-and-socket arrangement, indicated at 13^c, by means of which the standard may be inclined at different angles to the vertical, as shown by dotted lines in Fig. 1. The standard may be held rigid in any desired position relatively to the bracket by clamping bolts 13^d. The standard is fitted with a clamp 14, which is controlled by a screw 14', having a circular handle 14^a. This clamp may be moved along as well as around the standard, in a well-known manner. One member of the clamp 14 pivotally supports a sleeve 14^c, in which a rod or tube 15 is slidably and rotatably mounted, and the said rod may be held rigid after adjustments, by means of a screw 14^d. The forward end of the rod 15 is formed with a perforated lug 15', which is pivotally disposed between perforated lugs 16' of a forked member 16, whereby the said member may be raised or lowered without disturbing the adjustment of the rod. The parts 15'—16' are arranged to be held when adjusted, by a thumb-screw 15^a. The arms of the member 16 are bored correspondingly, to receive a shaft or rod 17, both ends of the latter preferably extending beyond the said arms, to provide a considerable range of endwise adjustment of the shaft. 18 represents a lever or part, which is rigidly mounted on the shaft 17, between the arms of the fork 16, by which the shaft may be moved lengthwise. Near its free end the lever 18 is perforated to receive the plain end of a screw 19, the said screw being swiveled in the lever, by means of a pin 18'. The screw 19 extends outwardly through a threaded hole in one arm of the member 16, and its outer end has a knurled head 19' for manipulating the screw. The full and dotted lines in Figs. 3, 4, and 6, show the manner of adjusting the shaft 17, by the rotation of screw 19. At the opposite sides of the other arm of member 16, the shaft 17 is fitted with adjustable stop-collars 17', by which the longitudinal movements of the shaft may be regulated and limited; the said collars being held in place by screws 17^a.

The striping brush or pen, comprises a relatively thin flat body portion 20, from one end of which extends, preferably at a downwardly pointing angle, a reduced tapering ruling or striping portion 20'. This tapering portion is preferably formed as best seen in Figs. 8 and 9, by folding the lateral edges 20^a, of a relatively sharp V-shaped sheet of metal towards each other, for providing a gradually downwardly diminishing trough 20^c, which is filled with the liquid

or semi-liquid coloring matter, by which the decorative striping is effected. The portion 20' holds a considerable quantity of the coloring liquid, and feeds it, fountain-like, to the surface, by a steady gravitative flow. An important feature of the striping brush 20' consists in keeping the facing edges of the folds 20^a separated throughout their length. By this construction and arrangement, the flow of the color matter is continuous and steady, and inspection and cleaning of the brush are facilitated. The breadths of the stripes, as 12^a, are usually controlled by the degree of bluntness of the extreme tip 20^d of the striper. A stripe may be broadened, when made by a relatively sharp tip, by adjusting the brush laterally, by means of the screw 19 (see Fig. 6). This method is usually followed when both light and heavy lines are applied to the same articles. The striping tool is mounted on a novel holder, which comprises aligning sections 21—21', the sections being hinged together for free vertical movement, by a screw 21^a. The free end of the body 20 of the striping tool is mounted upon the top face of the section 21 of the holder, and is removably held in place by a handle 21^c, one end of the handle being threaded, passes through a hole in the body 20, and screws into a threaded socket of the member 21 (see Figs. 1 and 7). The member 21' is perforated to receive the shaft 17, upon which it is slidable, as well as rotatable, for suitably adjusting the holder and tool independently of the part 16 and its pivot 15^a. The holder 21 may be held rigid to the shaft 17, by means of a thumb-screw 21^d. The member 21 together with the brush 20—20', may be tilted vertically, within a considerable range allowed by the hinge, as shown in Fig. 1. The hinge connection between the members 21—21' is preferably loose enough to allow the brush to gravitate freely towards the ware 12, and the weight of the parts is such that, the touch of the brush upon the surface to be decorated is preferably light, so that the brush may apply the color evenly and consistently, when the table 10 is operated at the proper speeds. By this construction and arrangement, the pressure of the brush 20' upon the ware is always the same, during the striping operations, and may be increased or decreased according to the position of the holder 21—21' relatively to the shaft 17. That is to say, if the holder is disposed at a considerable incline, the pressure at the tip 20^d of the brush will be increased, due to the shifting of the center of gravity of the handle 21^c, in a well-known manner.

Having thus described my invention, what I claim is—

1. A mechanical striper, including a rockable body containing a vacuum chamber, a

rotatable ware support mounted above said chamber, the ware adapted to be held on the support by vacuum, a shaft for rotating the ware support, said shaft forming the axis upon which said chamber and said support are tiltable at different angles, and a gravitative striping tool adjustably positioned above the ware support adapted to apply circular stripes to the ware while the latter is being rotated.

2. A mechanical striping device, comprising a gravitative fountain brush mounted for universal adjustments relatively to a dish or other article to be striped, a rotatable table for supporting the article, a tiltable support for said table, whereby the table may be inclined at different angles for bringing angular surfaces of the article into the striping position, and power-driven means for rotating the table and said article at regulated speeds.

3. A mechanical striping device, including a gravitative fountain brush mounted for universal adjustments relatively to an article to be striped, a rotatable table for supporting the article, a tiltable support for said table, whereby the table may be inclined at different angles for bringing angular surfaces of the article into the striping position, a power-driven mechanism for rotating said table during the striping operations, and a vacuum chamber below said table adapted to supply suction for holding the article on the table while the latter is in motion.

4. A mechanical striping device, including a gravitative striping tool mounted for universal adjustments relatively to an article to be striped, a revoluble table for supporting the article, a tiltable support for said table adapted to incline the table at different angles for bringing angular and curved surfaces of the article into the striping position, and a power-driven shaft for rotating the table, said shaft constituting the axis upon which the table and its support may be tilted.

5. A mechanical striping device, including a gravitative fountain pen mounted for universal movements relatively to an article to be striped, a table for supporting the article disposed below but within the range of gravitative movement of the pen, a tiltable table support adapted for positioning the table at different angles for bringing flat, angular and curved surfaces of the article to substantially the horizontal plane for facilitating applying circular stripes, and power-driven means for rotating the table and the article at different angles during the striping operations.

6. In a mechanical striping device, a gravitative striping tool mounted for universal movements, a rotatable table disposed beneath said tool adapted to support china

and other ware during the striping operations, power-driven means for rotating said table for effecting the circular striping of the ware, means for varying the gravitative pressure of said tool upon the ware, and vacuum means for supplementing gravity for holding the ware concentric to the table.

7. Means for applying circular color stripes to crockery and the like including a rotatable disc upon which the crockery may be concentrically mounted, a body for supporting the disc, said body being tiltable in opposite directions for inclining the disc as well as the crockery for facilitating applying concentric stripes to angular and curved surfaces, a power-driven shaft for rotating said disc and the ware, said shaft constituting the axis upon which the disc is tilted, means for applying vacuum at the center of the disc for holding the crockery in place, a gravitative striping tool supported above the disc adapted for universal movements relatively to the disc, and means for adjusting the tool laterally for varying the breadth of the stripes.

8. A mechanical striping device including a rotatable table adapted to support crockery and other ware to be striped, means for rotating said table and the ware, means for tilting the table for bringing angular surfaces of the crockery to the horizontal plane for applying circular stripes to said surfaces, a striping brush mounted for universal movements above the table, and means for varying the breadth of the stripes while the crockery is in motion.

9. In a mechanical striping mechanism, a revoluble table adapted to support crockery and other ware to be striped, means for rotating said table, means for tilting the table in opposite directions for bringing angular and curved surfaces of the ware to a horizontal plane for applying circular stripes to said surfaces, a striping brush positioned above the table, said brush adapted for universal movements relatively to the table, and means for varying the pressure of the brush upon the ware.

10. In a color striping device, the combination with a fountain striping brush mounted for universal movements, and

means for independently controlling the gravitative movements of the brush, of a table located within the range of movement of the brush adapted to support crockery and the like while the brush is applying the stripes, means for rotating the table, means for tilting and holding the table at different angles for bringing angular and curved surfaces of the crockery into the striping position, a gauge for determining the various degrees of inclination of the table and the ware, and power-driven means for rotating said table, one member of said means constituting the axis upon which the table swings.

11. In a mechanical striping device, a pedestal, a hollow body pivoted to the pedestal adapted to be tilted in opposite directions, a power-driven shaft disposed in the line of the tilting axis of said body, a table mounted above the body and operatively connected with said shaft, said table adapted to support articles to be striped, means supplementing gravity for increasing cohesion at the meeting surfaces of the articles and the table for preventing centrifugal shifting of the articles during the rotation of the table, and a gravitative fountain striping brush mounted above the table and adapted for universal movements relatively to the table and the articles carried thereby.

12. In means for applying color stripes to crockery and the like, the combination of a hollow body mounted for tilting in opposite directions, a power-driven shaft passing through said body, a shaft supported by said body at right angles to the first shaft, gears connecting said shafts disposed in said body, a table supported by the second shaft and rotatable thereby, said table being tiltable with the body around the axis of said first shaft, said table adapted to support crockery and the like during the striping operations, a fountain striping brush positioned above said table, means for adjusting the brush for applying circular stripes to the crockery while the latter is being rotated, and independent means for varying the diameters of the circular stripes.

In testimony whereof I affix my signature.

JOHN T. WIGLEY.