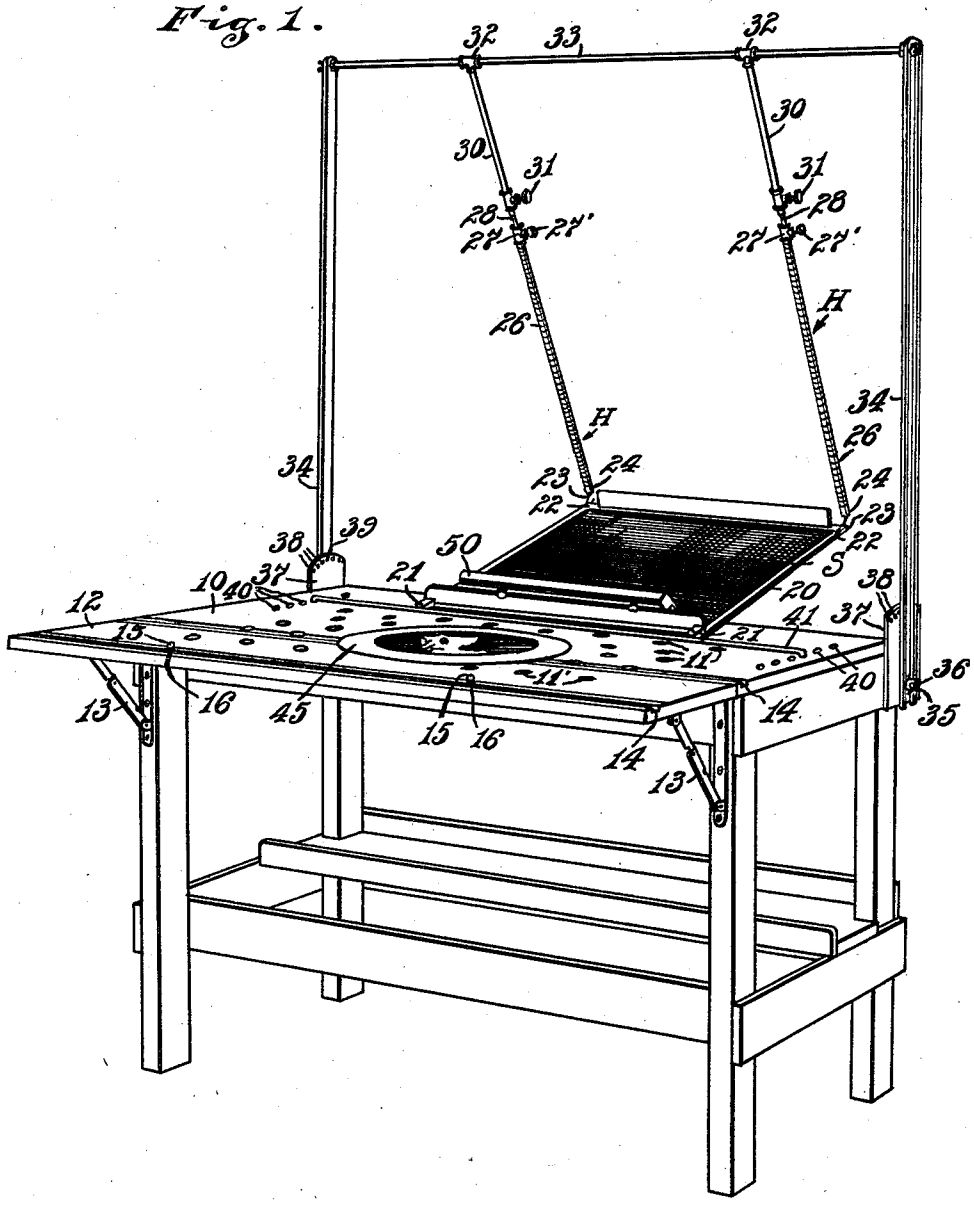
April 19, 1938. C. A. WULF 2,114,973

APPARATUS FOR PIGMENTING SURFACES

Filed Dec. 13, 1935 2 Sheets-Sheet 1

Fig. 1.



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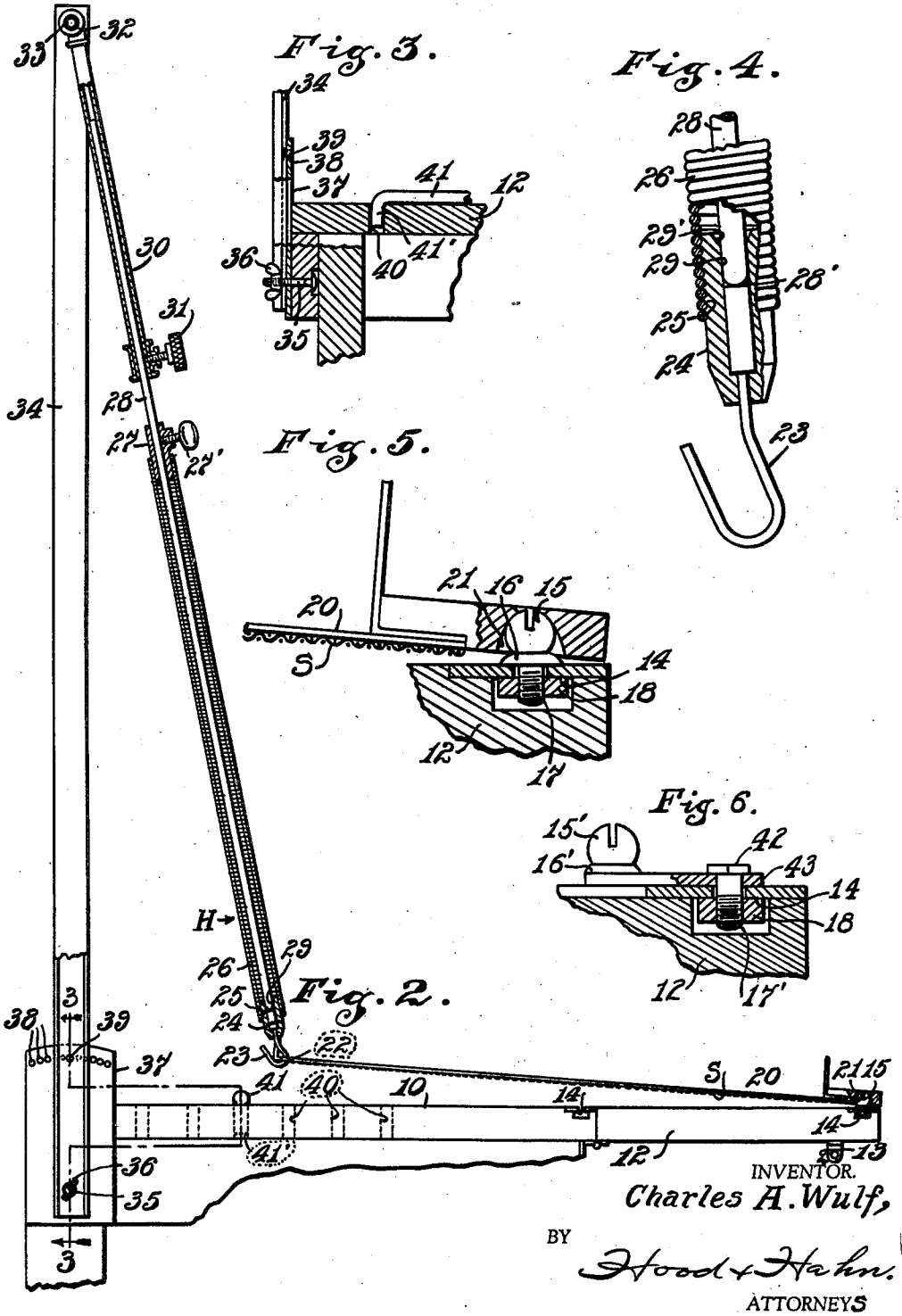
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2,114,973

APPARATUS FOR PIGMENTING SURFACES

Charles A. Wulf, Indianapolis, Ind., assignor to The Ceramic Process Company, Beaver Falls, Pa., a corporation of Pennsylvania

Application December 13, 1935, Serial No. 54,203

12 Claims. (Cl. 101—126)

The object of my invention is to provide improved means to facilitate the manipulation of screen stencils in the application of pigments, in desired patterns, to receiving surfaces, whereby the operation may be performed rapidly and without danger of injuring the stencil.

My present apparatus contemplates the utilization of a work-receiving and holding table of the general character disclosed and claimed in my Patent 2,064,284, December 15, 1936, and the stencil disclosed and claimed in my Patent 2,018,989, October 29, 1935, but it will be understood that these elements may be varied in detail without departing from my present invention.

In the devices disclosed in the above-mentioned applications the stencil is pivotally supported on a horizontal axis at the frame side most remote from the operator and is swung upwardly and rearwardly, following each pigment application, to a rest position to permit the removal of the article (generally a plate) upon which the pigment has been placed, and the placing of a new article upon the work table in position to receive pigment.

In the operation of such a device the operator, endeavoring to speed operations, occasionally punctures the stencil with a corner of the receiving plate, thereby ruining the stencil. Considerable care must also be exercised in moving the stencil to its elevated rest position and the necessary care slows operation.

In my present apparatus I have provided supports for the stencil of such character that the stencil may be moved very rapidly to and from active position with a minimum of care and the screen, when in inactive position, is entirely out of line of any probable movement of the pigment-receiving articles.

The accompanying drawings illustrate an embodiment of my invention.

Fig. 1 is a perspective with the stencil in inactive position;

Fig. 2 is a side elevation with the stencil in active position;

Fig. 3 a fragmentary section, on a larger scale, on line 3—3 of Fig. 2;

Fig. 4 a fragmentary section, on the scale of Fig. 3, of the lower end of one of the spring hangers for the stencil;

Fig. 5 a fragmentary section, on the scale of Fig. 3, of one of the stencils and one anchorage; and

Fig. 6 is a fragmentary section of another form of anchorage.

In the drawings 10 indicates a work-receiving table provided with a plurality of perforations 11 to receive holding magnets (not shown) as described in my application, Serial Number 709,312. The forward, or operator, edge of table 10 is supplemented by a hinged leaf 12, also perforated at 11', and supported in extended position by adjustable braces 13.

At the operator edges of table 10 and leaf 12 I provide an undercut guide way 14 adapted to receive two anchor pins, each comprising a spherical head 15, flange 16, threaded shank 17 and nut 18, capable of adjustable positioning, as will be readily understood.

The stencil screen S is carried by a frame 20, preferably of the character specified in my application Serial Number 720,913 whereby the frame is horizontally rigid and vertically flexible.

At the rearward, or operator, edge frame 20, at each corner, is provided with a socket 21 adapted to receive and swivel upon a head 15. At its forward corners, frame 21 is provided with perforations or eyes 22 to receive the hooks 23 of swinging adjustable spring hangers H.

The hook 23 is carried by a cylindrical head 24, upon which is secured (conveniently by threads 25) the lower end of spring 26, the upper end of said spring being secured to a collar 27 slidably mounted upon a rod 28 which extends downwardly through spring 26 and separably into a pocket 29 in head 24. Collar 27 is provided with a clamping screw 27'.

The upper end of pocket 29 is outwardly flared, as indicated at 29' and the lower end of rod 28 is tapered or rounded, as indicated at 28', to facilitate telescopic association. When the spring is collapsed the lower end of rod 28 enters pocket 29 so that the spring may not be laterally flexed in the region of junction of rod 28 and head 24. This arrangement has been found useful in preventing spring breakage.

The upper end of rod 28 is slidably mounted in a tube 30 and held in adjusted position by screw 31. The upper end of tube 30 is provided with a transverse hinge eye 32 rotatably and slidably mounted on cross rod 33 secured to the upper ends of the two uprights 34 arranged at the remote corners of table 10. Each upright 34 is pivoted at its lower end upon a bolt 35 provided with a clamping nut 36, conveniently of the "butterfly" type. Each upright 34 swings alongside a plate 37 provided with an arcuate series of perforations 38, concentric with bolt 35, adapted to receive a pin 39 carried by the upright, the arrangement being such that the uprights may be swung about bolts 35 to accommodate stencils of different sizes.

By adjusting rod 28 in tube 30, maximum elevation of the remote edge of the stencil is determined, and by adjusting collar 27 on rod 28 spring tension tending to raise the remote edge of the stencil is determined.

Table 10, along its sides in the region adjacent

the remote edge, is provided with two series of transversely alined holes 40 adapted to receive the down-turned ends 41' of a stop-bar 41.

The parts being in the positions shown in Fig. 1 and a pigment-receiving plate 45 having been positioned on the table, the operator lifts the near edge of the stencil frame from behind stop bar 41 and places sockets 21 over heads 15. Ink being deposited on the stencil near its remote edge, the operator places a squeegee 50 behind the ink; then bears down to stress springs 26 and bring the stencil down to the work; and then draws the ink over and through the stencil upon the work, the remote parts of the stencil, behind the squeegee, being progressively raised by the springs.

The near edge of the stencil frame is then separated from the anchor heads 15 and the frame shoved back to the position shown in Fig. 1 where it is entirely out of the line of any probable movements of withdrawal of the pigmented plate or placement of a new plate for pigmentation.

The adjustability of uprights 34, of the hangers H, of rod 41, of table leaf 12, and of anchorages 15—18, facilitates the rapid manipulation of stencils of various sizes.

Daily use of the above described apparatus in commercial operations has demonstrated that the pigmentation of plates has been very materially speeded and cheapened thereby and that previous losses by stencil puncture have been eliminated.

The anchorage disclosed in Fig. 5 permits, of course, adjustment of the screen frame transversely of the table; but it permits no adjustment thereof toward or away from the operator. In Fig. 6, I have shown a modified form of anchorage wherein a clamping screw 17', having a head 42, engages the nut 18 within the guideway 14. Said clamping screw has swingably mounted thereon an arm 43, the outer end of which carries an anchor pin comprising a spherical head 15' and flange 16'.

Obviously, this construction permits adjustment of the screen frame toward or away from the operator.

I claim as my invention:

1. The combination, with a work-receiving table, of a flexible stencil, anchorage means adjacent the near edge of the table for the separable reception of the near edge of the stencil, depending swingable spring means for supporting the remote edge of the stencil, an elevated support for said spring means, and a stencil stop carried by the table near its remote edge behind which the near edge of the stencil may be placed.

2. Apparatus of the character specified in claim 1 wherein the elevated support for the spring means comprises a pair of uprights adjustably swingable upon a horizontal axis.

3. Apparatus of the character specified in claim 1 wherein the spring means for supporting the remote edge of the stencil comprises, a tube and rod adjustably telescopically associated, a spring sleeved over said rod with its upper end slidably adjustable on said rod, and a stencil-engaging member carried by the lower end of the spring.

4. Apparatus of the character specified in claim 1 wherein the spring means for supporting the remote edge of the stencil comprises, a tube and rod adjustably telescopically associated, a spring sleeved over said rod with its upper end slidably adjustable on said rod, and a stencil-engaging member carried by the lower end of the spring and telescopically associable with the lower end of the rod when the spring is collapsed.

5. A stencil support comprising a pair of adjustably telescopically associated members, a spring telescopically associated with one of said members with one end adjustably anchored thereon, and a stencil-engaging element carried by the free end of the spring and telescopically associable with the member upon which the spring is anchored when the spring is collapsed.

6. The combination, with a work-receiving table, of a flexible stencil, anchorage means adjacent the near edge of the table for the separable reception of the near edge of the stencil to support said near edge normally spaced from the table, depending swingable spring means for supporting the remote edge of the stencil, and an elevated support for said spring means, the said support and depending means being so proportioned as to permit the near edge of the stencil to be shifted laterally away from the operator to a position adjacent the rear edge of the table.

7. Apparatus of the character specified in claim 6 wherein the elevated support for the spring means comprises a pair of uprights adjustably swingable upon a horizontal axis.

8. Apparatus of the character specified in claim 6 wherein the spring means for supporting the remote edge of the stencil comprises a tube and rod adjustably telescopically associated, a spring sleeved over said rod with its upper end slidably adjustable on said rod, and a stencil engaging member carried by the lower end of the spring.

9. Apparatus of the character specified in claim 6 wherein the spring means for supporting the remote edge of the stencil comprises a tube and rod adjustably telescopically associated, a spring sleeved over said rod with its upper end slidably adjustable on said rod, and a stencil-engaging member carried by the lower end of the spring and telescopically associable with the lower end of the rod when the spring is collapsed.

10. The combination with a work-receiving table, of a flexible stencil, anchorage means adjacent the near edge of the table for the separable reception of the near edge of the stencil, and a spring support for the remote edge of the stencil movable laterally toward and from the anchorage edge of the table to permit the near edge of the stencil to be shifted to a position adjacent the far edge of the table.

11. The combination with a work-receiving table, of a stencil, anchorage means adjacent the near edge of the table for the separable reception of the near edge of the stencil, said anchorage means comprising a carrier and a pivotal support therefor having an axis normal to the table, and a spring support for the remote edge of the stencil movable laterally toward and from the anchorage edge of the table.

12. A stencil support comprising a pair of adjustably telescopically associated members, a pivotal suspension for one end of one of said members, a spiral spring telescopically associated with the other of said members and longitudinally adjustably anchored thereon, and a stencil engaging element carried by the lower end of said spring.

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