No. 629,756. Patented July 25, 1899.

# J. H. DAVIS.

## APPARATUS FOR PAINTING.

(Application filed Oct. 3, 1898.)

(No Model.)

Fig. 1.

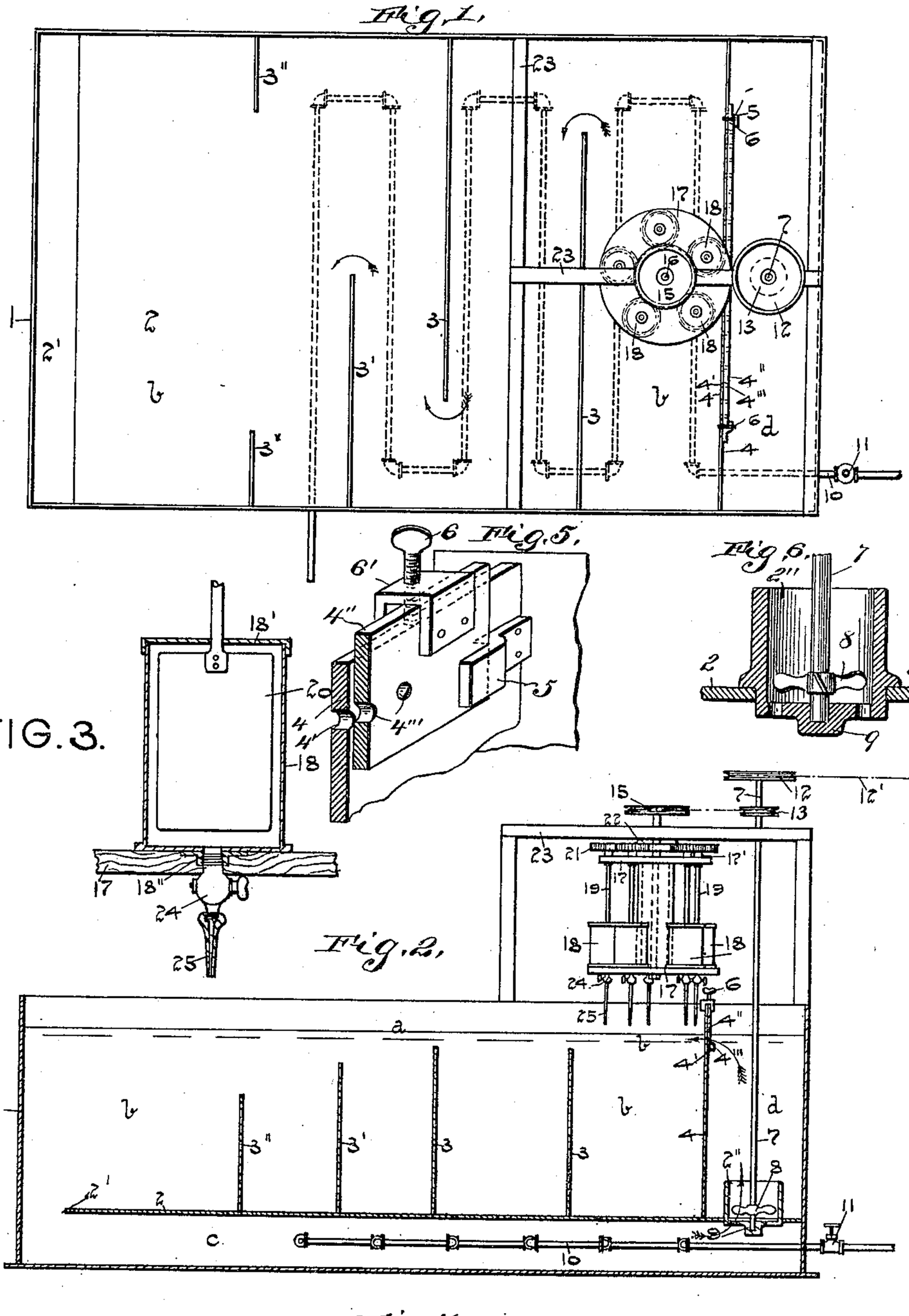



FIG. 3.

Fig. 5.



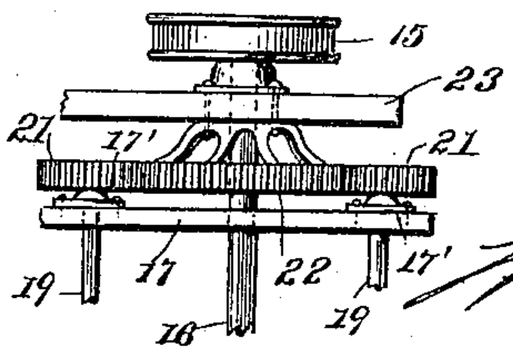

Fig. 6.




Fig. 2.




Fig. 4.




WITNESSES:

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BY

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# UNITED STATES PATENT OFFICE.

JOHN H. DAVIS, OF CHICAGO, ILLINOIS, ASSIGNOR OF TWO-THIRDS TO LORENZO L. MERRIMAN, ALBERT E. JESSURUN, AND WILLIAM R. RUMMLER, OF SAME PLACE.

## APPARATUS FOR PAINTING.

SPECIFICATION forming part of Letters Patent No. 629,756, dated July 25, 1899.

Application filed October 3, 1898. Serial No. 692,473. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN H. DAVIS, a citizen of the United States of America, and a resident of the city of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Apparatus for Painting, of which the following is a specification.

My invention relates to the method and apparatus for painting described in my application for Letters Patent, filed April 4, 1898, Serial No. 676,340, allowed August 23, 1898.

The main objects of my present invention are to provide for applying a coating of mottled or variegated color or design and to provide improved means for inducing and regulating the flow of the supporting liquid. I accomplish these objects by the device illustrated in the accompanying drawings, in which—

Figure 1 is a top plan of an apparatus constructed according to my invention. Fig. 2 is an elevation of same, partly in section. Fig. 3 is a detail partly sectional view of one of the pots 18. Fig. 4 is an enlarged view of the wheel 22, showing its connection to the frame 23 and the wheels 21, omitting the two front wheels 21 shown in Fig. 2. Fig. 5 is a perspective view showing the partition 4 and slide 4″ in vertical section. Fig. 6 is an enlarged detail view of the fan 8 and parts adjoining same in vertical section, as shown in Fig. 2.

The apparatus shown consists, mainly, of the tank 1, with the partitions therein, the fan or pumping apparatus 8, and the paint or pigment feeding or distributing apparatus comprising the parts 13 to 25, inclusive.

The tank 1 is divided by the false bottom 2 and the partition 4 into compartments *b*, *c*, and *d*, communicating through the ports 2′, 2″, and 4′. The compartments *c* and *d* together form an auxiliary compartment through which the supporting liquid is carried, so as to induce a current of same in the main compartment *b*. The fan 8 is located in the port or sleeve 2″ and is rigid on the shaft 7, which is journaled in the frame 23 and in the bearing 9. The frame 23 is rigid on the tank. The shaft 7 has a pulley 12 rigidly mounted thereon, which through the belt 12′, connecting with suitable power, drives the shaft 7 and operates the fan 8, so as to pump the paint-supporting fluid from the compartment *c* through the compartments *d* and *b*.

The surface line of the supporting fluid is represented by *a*. The flow through the ports 4′ is regulated by the slide 4″, which has ports 4‴ therein normally registering with the ports 4′. The slide 4″ operates in the guides 5 and is raised or lowered by the thumb-screws 6, which are seated in the members 6′, secured to the upper end of the slide 4″, and rest upon the top of the partition 4. The slide 4″ is a flat piece held against the partition 4 by the guides 5 and perforated uniformly with the partition 4. By turning the screws 6 the slide may be raised, so that the ports or perforations 4‴ in same will only partly overlap the perforations 4′ in the partition, and thus permit but little flow of the liquid through same. A pulley 13 is rigidly mounted on the shaft 7, and through the pulley 15, which is rigid on the shaft 16, revolves the frame 17, which is also rigid on the shaft 16. The shaft 16 is journaled in the frame 23. The frame 17 consists of an upper and lower platform, both rigidly mounted on the shaft 16. Between said platforms said frame supports a series of pots or vessels 18 for holding different paints or pigments. Each of these has a face-plate 18″ rigidly secured to the bottom and is removably held in proper place on the frame 17 by means of a cock 24, threaded into the face-plate. A tapering tube 25 is threaded to each cock 24. The pots have removable covers 18′ and have therein the paddles or stirrers 20. Each stirrer 20 is rigidly secured to a shaft 19, which is slidingly journaled in a bearing 17′ in the upper part of the frame 17. A gear-wheel 21 is rigidly mounted on the upper end of each shaft 19 and meshes with a central gear-wheel 22, which is rigidly fastened to the frame 23.

When the frame 17 is revolved, the gear-wheel 22, turning the same, will, through the wheels 21 and shafts 19, revolve the stirrers 20.

To remove the pots 18, the cock 24 is first

unscrewed and the shaft 19 is then raised in its bearing 17′ until the stirrer 20 is above the pot. The latter may then be replaced by another pot containing a different pigment.

The compartment *b* is divided by transverse partitions 3, 3′, and 3″, extending part way across the tank and alternating, so as to give the current of liquid a winding direction. These partitions extend up nearly to the surface of the supporting liquid. The purpose of causing the winding current is to more thoroughly intermingle the different pigments that are fed upon the supporting fluid from the pots 18. The end of the tank toward the port 2′ is free from these partitions for a considerable distance, this being the end where the articles to be painted are dipped or brought in contact with the film of paint formed on the surface of the supporting fluid.

A steam-pipe 10 is preferably provided in the bottom of the tank, controlled by the valve 11, for heating the fluid to about the desired temperature. I have obtained the best results by keeping this fluid at a temperature of about 98° Fahrenheit. The speed of the current will be controlled both by the speed at which the fan-pump 8 is driven and by the slide 4″.

If too much paint accumulates in the tank toward the dipping end, being the end of the tank at the left of the drawings, the pump or fan 8 may be reversed for a time until this condition is remedied.

In general the operation of the apparatus is as follows: The pots 18 are first supplied with paint in liquid form. The power is then applied through the belt 12′, operating the fan 8 through the shaft 7, thus causing a flow of the liquid upwardly through the port 2″ and thence through the ports 4‴ and 4′. A surface current is thus caused in the tank in a direction away from the partition 4. At the same time the frame 17 is revolved with its shaft 16 through the pulleys 15 and 13. The rotation of the frame 17 causes an independent rotation of the stirrers 20 through the gear-wheels 21 and 22. The paint flows through the tubes 25 and through their rotation is scattered in drops upon the surface of the flowing supporting liquid. The film of paint formed upon the surface of the supporting liquid is carried toward the end of the tank opposite the paint-feeding device and the articles to be coated are there brought in contact with said film. The part of the film removed as a coating by the articles treated is replaced by that at the rear, the same being steadily advanced through the flow of the supporting liquid.

It is plain that the effect of scattering paints of different colors by uniform motion upon the surface of a supporting liquid having a winding or swirling current will be the formation of a film or coating which will be mottled or variegated throughout, but of the same general character. The general character and design of the coating will be controlled by the speed of the current, the speed at which the pots 18 rotate or travel with the frame 17, and by the size of the drops of paint leaving the pots. The latter are controlled both by the operation of the cocks 24 and the size of the tubes 25. The latter can be replaced by others of different size.

It will be plain that a different form of pump may be substituted for the fan-pump 8 and that the form of tank and form of paint-feeding device may be altered in numerous ways without departing from the spirit of my invention.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. An apparatus for applying paint and similar coatings, comprising a tank for containing the supporting liquid; a traveling feeder at one end of the tank adapted to contain and distribute the paint upon the supporting liquid; and means adapted to induce a current in said liquid toward the other end of the tank.

2. An apparatus for applying paint and similar coatings, comprising a tank for containing the supporting liquid; a traveling feeder at one end of the tank carrying a plurality of receptacles adapted to contain different paints, and distribute same upon the supporting liquid; and means adapted to induce a current in said liquid toward the other end of the tank.

3. An apparatus for applying paint and similar coatings, comprising a tank for containing the supporting liquid; a revolving feeder at one end of the tank adapted to contain and distribute the paint upon the supporting liquid; and means adapted to induce a current in said liquid toward the other end of said tank.

4. An apparatus for applying paints and similar coatings, comprising a tank for containing the supporting liquid; a traveling feeder at one end of the tank adapted to contain and distribute the paint upon the supporting liquid; and means adapted to induce a current in said liquid toward the other end of the tank.

5. An apparatus for applying paints and similar coatings, comprising a tank for containing the supporting liquid; and of suitable form for guiding the supporting liquid in a winding current; a traveling feeder at one end of the tank adapted to contain and distribute the paint upon the supporting liquid; and means adapted to induce a current in said liquid toward the other end of the tank.

6. An apparatus for applying paint and similar coatings, comprising a tank for containing the supporting liquid; and of suitable form for guiding the supporting liquid in a winding current; a traveling feeder at one end of the tank carrying a plurality of receptacles adapted to contain different paints, and distribute same upon the supporting liquid; and means adapted to induce a current in said liquid toward the other end of the tank.

7. An apparatus for applying paint and similar coatings, comprising a tank for containing the supporting liquid; and of suitable form for guiding the supporting liquid in a winding current; a revolving feeder at one end of the tank adapted to contain and distribute the paint upon the supporting liquid; and means adapted to induce a current in said liquid toward the other end of the tank.

8. An apparatus for applying paint and similar coatings comprising a tank for containing the supporting liquid; and of suitable form for guiding the supporting liquid in a winding current; a revolving feeder at one end of the tank carrying a plurality of receptacles adapted to contain different paints, and distribute same upon the supporting liquid; and means adapted to induce a current in said liquid toward the other end of the tank.

9. An apparatus for applying paint and similar coatings, comprising a tank for containing the supporting liquid, having a main compartment; an auxiliary compartment communicating with opposite ends of the main compartment; means at one end of the main compartment adapted to feed the paint upon the supporting liquid; and a pump adapted to induce a flow of the supporting liquid through said auxiliary compartment, so as to produce a surface current in the main compartment, in a direction away from said place of feeding.

10. An apparatus for applying paint and similar coatings comprising a tank for containing the supporting liquid, having a main compartment; an auxiliary compartment communicating with opposite ends of the main compartment; means at one end of the main compartment adapted to feed the paint upon the supporting liquid; and a fan-pump adapted to induce a flow of the supporting liquid through said auxiliary compartment, so as to produce a surface current in the main compartment, in a direction away from said place of feeding, and whereby said current may be reversed.

Signed by me, at Chicago, Illinois, this 28th day of September, 1898.

JOHN H. DAVIS.

Witnesses:
WM. R. RUMMLER,
ALFRED MELTZER.