Dec. 23, 1930. C. F. KENNEDY 1,786,347

METHOD AND APPARATUS FOR STENCILING ON CLOTH

Filed Dec. 20, 1929

Fig. 2.

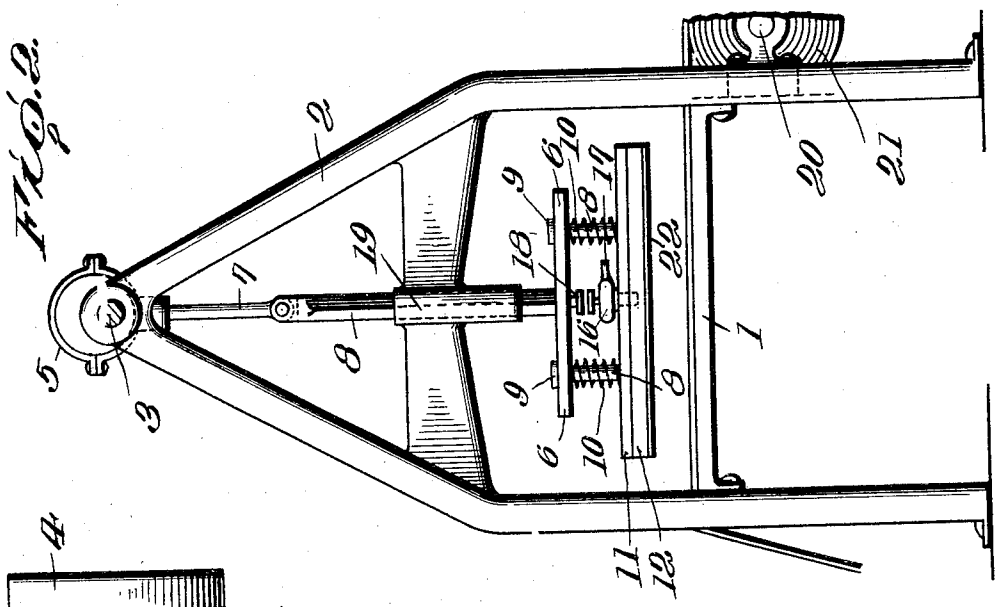


Fig. 1.

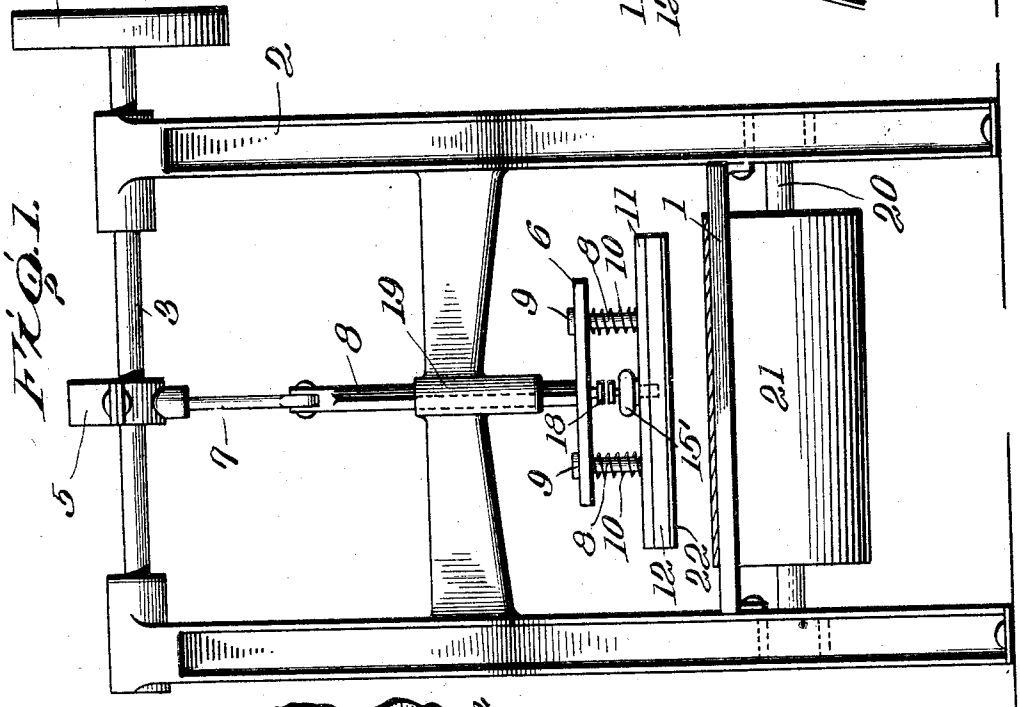
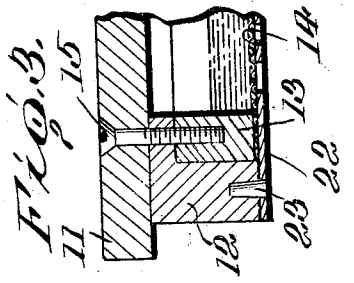


Fig. 3.



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UNITED STATES PATENT OFFICE

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METHOD AND APPARATUS FOR STENCILING ON CLOTH

Application filed December 20, 1929. Serial No. 415,479.

This invention relates to a method and apparatus for stenciling on cloth and the object of the invention is to provide a method of stenciling on cloth which is automatic in operation and which is performed by apparatus of simple construction.

Another object of the invention is to provide a method for stenciling on cloth in which the several steps are performed simply and expeditiously.

Another object of the invention is to provide an apparatus for stenciling on cloth which embodies pneumatic means for carrying out the steps of the method performed thereby.

Another object of the invention is to provide a paint holder for a stenciling apparatus from which the paint can be fed by pneumatic means.

I accomplished the above, and other objects of the invention which will be apparent as the description proceeds, by means of the apparatus shown in the accompanying drawings in which:

Figure 1 is a front elevation of the apparatus embodying my invention;

Figure 2 is a side elevation of the apparatus shown in Figure 1; and

Figure 3 is a vertical section through my improved paint container, partly broken away.

On the drawings, in which like reference characters indicate like parts on all of the figures thereof, 1 indicates the table support for the main parts of the apparatus. 2 indicates the overhead support for the operating shaft 3 which is rotated by means of a suitable pulley 4 or similar mechanism. Secured to the shaft 3 and operated thereby is a cam 5.

The cam 5 is adapted to elevate and lower a guide plate 6 through the medium of a connecting rod 7 and a supporting rod 8.

The guide plate 6 is formed with openings therethrough, preferably four in number and located at the four corners thereof, in which openings are loosely mounted the rods 8 carrying at their upper ends stop elements 9 whereby the separation of the guide plate and the rods is prevented. Surrounding the rods are tension springs 10 which tend to hold the guide plate in its upper-most position.

Secured to the lower ends of the rods is a metal plate 11 which metal plate forms the top of the paint container. The stencil paint container comprises a frame 12 of wood which has inserted in the lower portion thereof a frame of brass 13. Attached to this frame is a sheet of brass wire cloth 14 which forms the bottom of the paint container. Preferably shellac is used for attaching the wire cloth to the wooden and metal frames. The metal top plate 11 is secured to the frames 12 and 13 in an airtight manner by means of screws or similar devices.

Extending through the metal plate 11, which forms the top of the paint container, is a pipe 15 (shown in dotted lines in Figure 1) having secured to the upper part thereof a valve casing 16. The valve casing 16 is adapted to be connected to a pipe 17 which communicates with a source of air pressure. The valve casing contains therein a three-way valve which is operated by means of a downwardly projecting finger 18 on the guide plate 6.

A sleeve 19 is provided on the overhead support 2 in which slides the rod 8 whereby as it reciprocates in a vertical direction the various cooperating parts are maintained in proper alignment.

Mounted on the support 1 is a bar 20 for the cloth holding roll 21 which is fed between the supporting table and the paint container. On the front of the table may be mounted a knife for cutting off a strip of the cloth after the stenciling operation.

While I have shown the cloth roll as mounted beneath the table, it is apparent that it might be mounted above the same or in any other desired location relatively to the table and the other parts of the apparatus.

In carrying out my improved stenciling method by means of my improved apparatus, the roll of cloth is placed upon the rod and a portion fed over the table until it is in proper position for the performance of the stenciling operation. A stencil 22 provided with dowel pins 23 which are adapted to be inserted in dowel holes in the frame 12 is then

secured to the frame 12. As is apparent, the frame 12 may be provided with a series of such dowel holes so as to accommodate stencils of different sizes.

The cloth being positioned on the table and the stencil on the bottom of the paint container, the shaft 3 is then started rotating, whereupon the cam 5 causes the rod 8 to descend carrying with it the guide plate 6 and the paint container until the latter rests upon the cloth. Further downward movement of the rod moves the plate 6 downwardly on the rods 8 against the tension of the springs 10. When the finger 18 reaches its first operating position, the valve will be turned to establish communication between the air pressure tank and the interior of the paint container. The air pressure thus forces the paint through the brass screen bottom of the container and through the stencil which is positioned thereon.

Further movement of the operating finger 18 cuts off communication between the air pressure tank and the interior of the container and establishes communication between the interior of the container and the atmosphere. Continued rotation of the shaft returns the cam to inoperative position whereupon the spring 10 surrounding the rods 8 restore the guide plate 6 to its upper position thereby closing the valve.

The pipe 15 is preferably provided with four outlets extending in radial directions on the interior of the paint container whereby the paint is distributed evenly over the bottom thereof and through the stencil.

The valve which provides communication between the air pressure tank and the interior of the box is preferably of the three-way type so that when communication between the air pressure tank and the box is cut off, the interior of the box will be opened to the atmosphere and the excess pressure therein relieved.

It is apparent that the entire apparatus could be operated by pneumatic pressure, in which case the cloth supporting roll could be caused to ascend to contact with the paint container; continued upward movement of the table and the container would be against the tension of the springs 10 until the valve opening finger 18 had performed its several functions. In such a modification, the pneumatic operating means would be connected in the valve casing 16.

It is to be noted that my improved method differs materially from coating methods in which paint is sprayed on to a surface by means of an air gun, and this marked difference is due in part to the fact that air pressure of about one-half to one pound is sufficient for the successful performance of my improved apparatus and method.

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

1. A method of stenciling on fabric which comprises the steps of placing paint in a pervious bottomed paint container which is impervious to paint at normal pressure, locating a stencil beneath said pervious bottom and pneumatically forcing paint from the container through the pervious bottom and the stencil on to fabric positioned there beneath.

2. In an apparatus for stenciling on cloth, a support for a strip of cloth, a paint container above said support said paint container having a pervious bottom member impervious to paint at atmospheric pressure, said support and said paint container being relatively movable in a vertical direction to approach and recede from each other, a stencil adapted to be positioned between said paint container and said support and means for admitting air pressure to said container for forcing the paint from the container through the bottom and stencil.

3. In an apparatus for stenciling on cloth, a support for a strip of cloth, a paint container vertically movable above said support to contact with said cloth, said paint container having a pervious bottom which is impervious to paint at normal pressure, a stencil adapted to be positioned against said pervious bottom and pneumatic means for forcing the point in the container through the pervious bottom and the stencil on to the cloth.

4. In an apparatus for stenciling on cloth, a support for a strip of cloth, a paint container vertically movable above said support to contact with said cloth, said paint container having a pervious bottom impervious to the passage of paint at normal pressure and an airtight cover, a source of air pressure, and means adapted to establish communication between the interior of said paint container and said source of air pressure.

5. In an apparatus for stenciling on cloth, a support for a strip of cloth, a paint container mounted to reciprocate in a vertical direction above said support, a source of air pressure, means adapted to establish communication between the interior of said paint container and said source of air pressure, means for reciprocating said container, said last named means operating said first named means.

6. In an apparatus for stenciling on cloth, a support for a strip of cloth, a paint container movably mounted above said support, said container having an air tight cover and a pervious bottom, a source of air pressure, a valved pipe leading from the interior of said paint container to the source of air pressure, means for moving said container toward and away from said support and means oper-

ated by said first named means for operating said valve.

7. In an apparatus for stenciling on cloth, a support for a strip of cloth, a paint container mounted to reciprocate above said support, said container having a pervious bottom, a source of air pressure, a pipe between the interior of said container and said source of air pressure, a three way valve in said pipe, means relatively movable with respect to said container for operating said valve, and means for reciprocating said container and moving said first named means.

8. A paint container for use in a pneumatic stenciling apparatus, said container having a pervious bottom of uniform fine-meshed material which is impervious to paint at normal pressure and means for supporting a stencil against said pervious bottom.

9. A paint container for use with an apparatus for stenciling on cloth, said container comprising an exterior non-metallic frame, an inner metal frame, a wire cloth bottom secured to said metal frame, and a metal top adapted to be secured to the non-metallic frame in an air tight manner.

10. A paint container for use with a pneumatic stenciling apparatus, a frame constituting the sides of the container, a pervious bottom for said container and means on said container frame whereby stencils of varying sizes may be supported against said pervious bottom.

In testimony whereof I hereunto affix my signature.

CHAS. F. KENNEDY.