

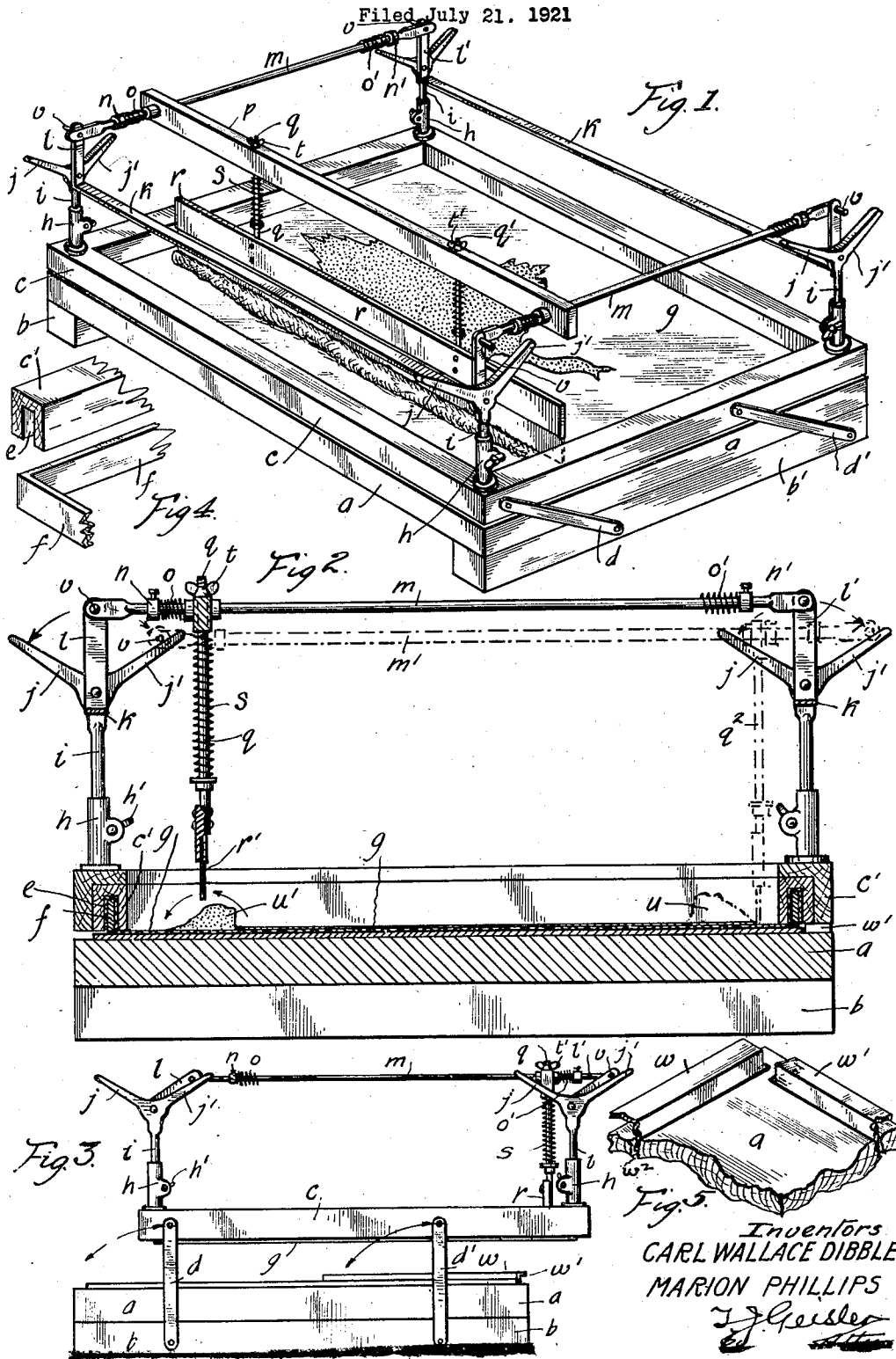
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STENCILING MACHINE

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TO E. D. HOWE.

STENCILING MACHINE.

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To all whom it may concern:

Be it known that we, CARL WALLACE DIBBLE and MARION PHILLIPS, citizens of the United States, and residents of the city of Portland, county of Multnomah, and State of Oregon, have invented a certain new and useful Improvement in Stenciling Machines, of which the following is a specification.

Our invention relates to the art of stenciling a design in one or more colors on a flat surface. Heretofore this work was done by hand and required a skilled operator, and hence was more or less costly work. This was true even when working with a single color, because the inexperienced or careless operator might inadvertently lift part of the stencil from the surface being stencilled and so cause a ragged edge in the applied color. Furthermore, the color is applied thru the stencil by means of a squeegee and if this is pressed with too much force on the surface too little color is applied thru the stencil, and on the other hand, if the pressure of the squeegee is too light, too much color is applied, either of which effects has a tendency to spoil the design. Furthermore, if a number of the same posters are to be produced it is essential that there be uniformity in the artistic finish which is almost impossible if the work is done by hand, except by a skilled operator, permitted to take all the time required for assuring uniform excellence in the results.

Therefore the object of our invention is to provide a dependable machine which will do the work described uniformly well, and with dispatch, thus assuring artistic results, and reducing the cost of labor and time required in the production. Furthermore, hand work is limited as to size of the sign or poster which can be stencilled, while with the use of a machine the latter can be adapted to any size.

We attain our object by a machine provided with means for holding the stencil in place over the surface on which the colors, one or more, are to be applied, and with means for mechanically applying or drawing the squeegee across the stencil, first in one direction, then in the reverse direction, said means being adapted to lift the squeegee off the stencil at the end of each stroke in one direction and then replacing the squeegee for making the return stroke;

thus causing the squeegee to jump over that section of the stencil carrying a batch of the paint to be applied, in order to spread the paint first in one direction and then in the opposite direction over the stencil.

We also provide means for regulating and adjusting the pressure of the squeegee upon the stencil.

The details of the devices embodied in our machine are illustrated in the accompanying drawings, and hereinafter fully described.

Fig. 1 shows a perspective view of our stenciling machine; as here shown the stenciling squeegee is supposed to have reached the end of its stroke in the direction from right to left, and is being automatically lifted over the batch of paint, as mentioned, and as indicated by the arrows in Figs. 1 and 2, so as to be reseated on the stencil on the opposite side of the batch of paint for drawing the squeegee back across the stencil, in the direction from left to right;

Fig. 2 is a cross section, more or less diagrammatic, illustrating in part structural details, and the operation of our device;

Fig. 3 is a smaller scaled end view of our machine illustrating how the frame holding the stencil may be lifted off the base to remove the card board or material which has been stencilled, and put other material in its place; and

Figs. 4 and 5 are details of the means provided for guiding the placing of the card board or other material to be stencilled with respect to the stencil, and of means for fastening the stencil in the upper movable frame of our machine.

The base *a* may be mounted on cleats as *b*. On the base *a* is mounted a rectangular frame *c* by toggle arms *d* and *d'*, adapted, as apparent, to lift said frame when moved in one direction, off the base *a* and to reseal the same again when moved in the reverse direction.

In the frame *c* is secured a frame member *c'* also of rectangular form and provided with a groove *e*. In the latter is inserted a stencil clamping frame *f*, also of rectangular form. The stencil *g* is secured in place by placing the same on the stencil securing frame member *f*, and then inserting the latter in the groove *e* of the frame member *c'*. The details of construction of these parts are more clearly shown in Fig. 4.

On the corners of the frame *c* are mounted sockets *h* for adjustably supporting posts *i* made at their upper ends with diverging arms *j* and *j'* constituting stops. To provide rigidity the posts *i* are connected in pairs by brace rods *k*, as more clearly shown in Fig. 1. The adjustment of the posts *i* may be provided for by slotting the socket *h* so that the opposite walls thereof may be drawn together by thumb screws *h'* inserted in the ears of said sockets. Toggle-arms *l* and *l'* are pivoted to the upper ends of the posts *i* at each end of the frame, and these toggle-arms are connected by rods *m*, *m'*, the ends of which are pivoted to said toggle arms.

On each of the rods *m* are mounted adjustable collars *n* and *n'*, said collars *n*, *n'* carrying bumper springs, *o* and *o'*. A bar *p* is slidably mounted on the rods *m*, *m'*, and carries pendent, vertically adjustable rods *q*, *q'*, to the lower ends of which is fastened the squeegee *r*. The arrangement of the latter parts is such that the pressure with which the squeegee *r* is held down is regulated by the tension given to the coil spring *s* on the rods *q*, *q'*, the springs being tensioned by the adjustment of the wing nuts *t* threaded on the upper extremities of said rods *q* and *q'*.

The purpose of the described arrangement of our machine is to cause the latter to operate as follows: Assuming that the stencil has been secured in the frame *c* as mentioned, a batch of paint, as diagrammatically illustrated by *u* in Fig. 2, is applied to the stencil, and the bar *p* is slid along on the rods *m*, *m'* until it strikes the bumper springs carried by the adjustable collars *n* and *n'*, said bumper springs functioning to absorb the shock of the impact of the bar *p* with the collars *n* or *n'*. The further sliding movement of the bar *p* being thus arrested by the collar *n* or *n'*, the bar will thereupon carry the rods *m*, *m'* with it, and in so doing swing the toggle-arms *l* and *l'* in one direction or the other. The toggle-arms are provided with a pin *v* adapted to strike against one or the other of the arms *j*, *j'* of the posts *i* thereby limiting the drop of the rods *q*, *q'* carrying the squeegee *r*. It will be assumed that in the first place the arms *q* and *q'* are positioned as indicated by the dotted outlines *q*² in Fig. 2, thus causing the squeegee to bear on the stencil, on one side of the batch of paint *u*. The bar *p* will now be moved to the left, thereby carrying the batch of paint *u* in front of it over the stencil. During said movement of the bar *p* it will come in contact with the bumper springs *o* of the collars *n*. Said rods *m*, *m'*, at this instance are positioned as shown by the dotted outline *m'* in Fig. 2; but the further movement of the bar *p* to the left will cause

a rotary motion of the arms *l*, *l'*, lifting the stop pins *v* from the arm *j'* of the post *i*, to the arm *j* of the latter, and in so doing lifting the squeegee *r* from one side of the batch of paint to the opposite side thereof; the squeegee being then again lowered on to the stencil, the bar *p* may be moved back in the opposite direction on the rods *m*, *m'* for the purpose of making a second paint-applying stroke by the squeegee across the stencil; said paint applying strokes being repeated as the circumstances may require.

The frame *c* is then lifted off the base *a*, the card board or other material on which the design has been stenciled is removed, and another piece is substituted.

In order to facilitate the registration of the card board, or material, with the stencil we provide depressible guides *w*, *w'* which may consist of angular pieces depressible in slots *w*² of the base, and normally held in projecting position by springs for example. Fig. 5 is sufficient to suggest the construction of said guides *w*, *w'*; and it will be apparent that their arrangement is such that when the frame *c* is lifted off the base they project above the base, and thus provide the abutments against which two sides of the material to be imprinted with the design may be placed, and when the frame *c* is then lowered on the base—thereby clamping the material in place—the guides will be depressed out of the way into the base.

We claim:

1. A stenciling device comprising, a base, means for stretching a stencil over the base, a squeegee, means for carrying said squeegee over the stencil, and means cooperating with said carrying-means adapted to jump the squeegee forward over a section of said stencil at the end of the movement of said carrying means.

2. A stenciling device comprising, a base, means for stretching a stencil over the base, a squeegee, means for carrying said squeegee to and fro over the stencil, and means cooperating with said carrying-means adapted to jump the squeegee forward over a section of said stencil at the end of the movement of said carrying means in either direction.

3. A stenciling device comprising, a stencil carrier, a squeegee, means for carrying said squeegee over the stencil, and means cooperating with said carrying means adapted to jump the squeegee forward over a section of said stencil at the end of the movement of said carrying means.

4. A stenciling device comprising, a base, stencil mounting means on the base, a squeegee, a carrier for the squeegee movable over the stencil, and means operable to move the squeegee in an arcuate path

from and back onto the stencil thereby to jump the squeegee over a section of the stencil.

5 5. A stenciling device comprising, a base, stencil mounting means on the base, a squeegee, a carrier for the squeegee movable over the stencil, means for causing the squeegee to bear on the stencil with pressure, means operable to move the squeegee in an arcuate path from and back onto the stencil thereby to jump the squeegee over a section of the stencil.

10 6. A stenciling device comprising, a base, stencil mounting means on the base, a squeegee, a carrier for the squeegee movable over the stencil, means for causing the squeegee to bear on the stencil, with variable pressure, and means operable to move the squeegee in an arcuate path from and back onto the stencil thereby to jump the squeegee over a section of the stencil.

20 7. In a stenciling device, a base, stencil mounting means on the base, a squeegee, a carrier for the squeegee movable to and fro over the stencil, and means operable to move the squeegee in an arcuate path from and back onto the stencil at the end of each travel of the carrier in one direction, thereby to jump the squeegee over a section of the stencil.

30 8. A stenciling device comprising, a base, stencil mounting means on the base, a squeegee, a carrier for the squeegee movable to and fro over the stencil, means for causing the squeegee to bear on the stencil, with variable, yielding pressure, and means operable to move the squeegee in an arcuate path from and back onto the stencil at the end of each travel of the carrier in one direction, thereby to jump the squeegee over a section of the stencil.

40 9. A stenciling device comprising, a stencil carrier, posts mounted on said carrier, toggle arms pivoted to the upper ends of said post for arcuate movement in vertical planes, parallel horizontal rods carried by said toggle-arms, a bar slidably mounted on said rods, a squeegee carried by said bar, stops located to limit the sliding movement of said bar on said rods in either direction, thereby to cause the further movement of said bar, after abutting with said stops, to rotate said toggle-arms and thus jump the squeegee forward over a section of the stencil.

50 10. A stenciling device comprising, a stencil carrier, posts mounted on said carrier, toggle-arms pivoted to the upper ends of said post for arcuate movement in vertical planes, parallel horizontal rods carried by said toggle-arms, a bar slidably mounted on said rods, a squeegee, means for supporting the squeegee from said bar and adapted to cause the latter to bear with yielding pressure on the stencil, stops provided with

shock absorbing means located to limit the sliding movement of said bar on said rods in either direction, thereby to cause the further movement of said bar, after abutting with said stops, to rotate said toggle-arms and thus jump the squeegee forward over a section of the stencil.

70 11. A stenciling device comprising, a stencil carrier, posts mounted on said carrier, toggle-arms pivoted to the upper ends of said post for arcuate movement in vertical planes, parallel horizontal rods carried by said toggle-arms, a bar slidably mounted on said rods, a squeegee, means for supporting the squeegee from said bar and adapted to cause the latter to bear with yielding pressure on the stencil, stops located to limit the sliding movement of said bar on said rods in either direction, thereby to cause the further movement of said bar, after abutting with said stops, to rotate said toggle-arms and thus jump the squeegee forward over a section of the stencil.

80 12. A stenciling device comprising, a stencil carrier, posts mounted on said carrier, toggle-arms pivoted to the upper ends of said post for arcuate movement in vertical planes, parallel horizontal rods carried by said toggle-arms, a bar slidably mounted on said rods, a squeegee, adjustable means for supporting the squeegee from said bar and adapted to cause the latter to bear with variable yielding pressure on the stencil, stops located to limit the sliding movement of said bar on said rods in either direction, thereby to cause the further movement of said bar, after abutting with said stops, to rotate said toggle-arms and thus jump the squeegee forward over a section of the stencil.

100 13. A stenciling device comprising, a stencil carrier, adjustable posts mounted on said carrier, toggle-arms pivoted to the upper ends of said post for arcuate movement in vertical planes, parallel horizontal rods carried by said toggle arms, a bar slidably mounted on said rods, a squeegee carried by said bar, stops located to limit the sliding movement of said bar on said rods in either direction, thereby to cause the further movement of said bar, after abutting with said stops, to rotate said toggle-arms and thus jump the squeegee forward over a section of the stencil.

110 14. A stenciling device comprising, a base, a stencil carrier movably connected with the base, posts mounted on said carrier, toggle-arms pivoted to the upper ends of said post for arcuate movement in vertical planes, parallel horizontal rods carried by said toggle-arms, a bar slidably mounted on said rods, a squeegee carried by said bar, stops located to limit the sliding movement of said bar on said rods in either direction, thereby to cause the further movement of said bar,

after abutting with said stops, to rotate said toggle-arms and thus jump the squeegee forward over a section of the stencil.

- 5 15. A stenciling device comprising, a base, a stencil carrier movably connected with the base, means for registering the material to be stencilled with the stencil, posts mounted on said carrier, toggle-arms pivoted to the upper ends of said post for arcuate movement in vertical planes, parallel horizontal
10 rods carried by said toggle-arms, a bar slid-

ably mounted on said rods, a squeegee carried by said bar, stops located to limit the sliding movement of said bar on said rods in either direction, thereby to cause the further movement of said bar, after abutting with said stops, to rotate said toggle-arms and thus jump the squeegee forward over a section of the stencil. 15

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