Aug. 4, 1931. R. Z. HOPKINS ET AL 1,817,147

SPRAY STENCIL

Original Filed Aug. 10, 1929

Fig. 1

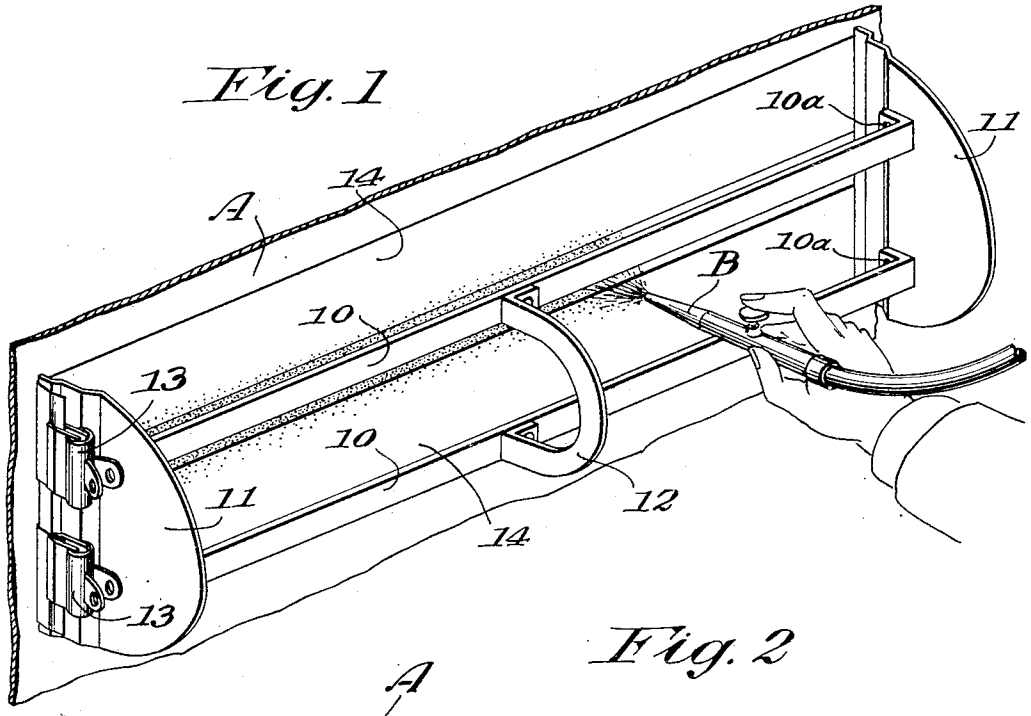


Fig. 2

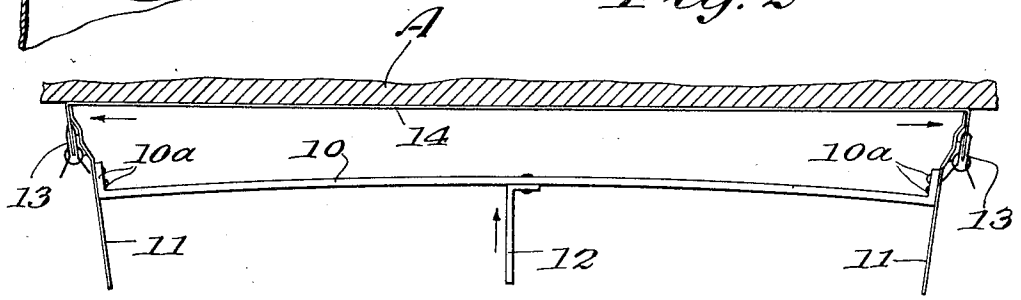
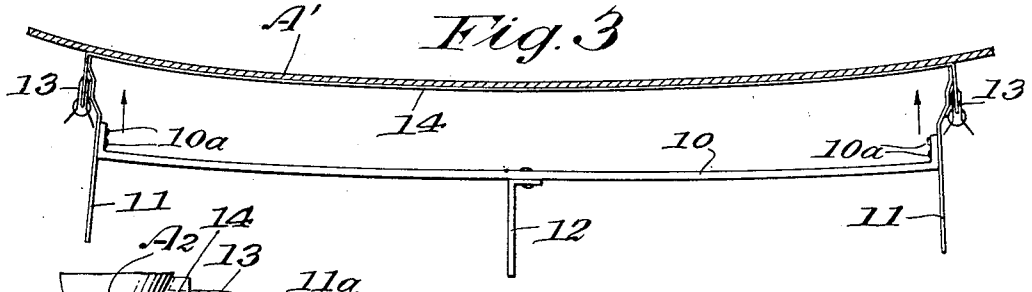


Fig. 3



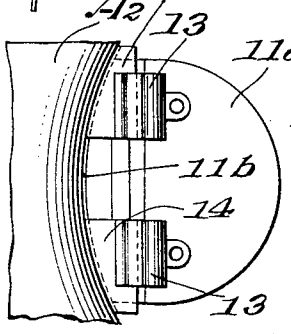


Fig. 4

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UNITED STATES PATENT OFFICE

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SPRAY STENCIL

Application filed August 10, 1929, Serial No. 384,834. Renewed July 11, 1930.

This invention relates to spray stencils for use in applying stripes or ornamental lines or areas to surfaces and is designed particularly for use in connection with the painting of automobile bodies and similar articles with areas of contrasting colors.

In accordance with present day methods of painting automobile bodies or other surfaces, to produce areas of contrasting color, the usual practice is to cover the surface with paper a trifle smaller than the area desired, together with special adhesive tape which overlaps the edges of the paper and engages the surface to be painted and then to spray on the paint. The application of the paper and tape requires considerable time and labor and it is impossible to obtain a perfectly sharp or straight edge. The edges being irregular, it becomes necessary, in order to give the striped area a clean-cut and neat appearance, to employ "touch-up" men who are experts in drawing lines with a brush and who demand high wages. These men complete and perfect the work done by the spray-gun. By using our device, several groups of trained men are eliminated such, for example, as the tape cutters, the tape and paper appliers, the paper and tape removers, and the "touch-up" men. It will be understood, therefore, that it is the purpose of our invention to accomplish the painting of a surface in a more efficient and perfect manner than heretofore, and to reduce the cost of painting automobile bodies. With the stencil of our invention it is possible to employ cheap labor, for it does not require skilled workmen to apply stripes with our stencil.

These results are obtained in part by providing a stencil, with which it is possible to paint a strip or area having sharp, clean-cut, regular edges, on either a flat or curved surface, or surfaces of different shapes, the construction of the stencil being such that it is capable of conforming to the shape of the surface to be striped; and in part by providing a stencil in which detachable and adjustable shields or strips are used, whereby it is possible to vary the size or area of the space to be painted, together with means for maintaining the shields in intimate contact with the work.

Other objects of the invention will appear from the following description and appended claims when taken in connection with the accompanying drawings, in which

Fig. 1 is a perspective view of the spray stencil of this invention applied to a flat surface.

Fig. 2 is a top plan view of the stencil of Fig. 1.

Fig. 3 is a top plan view of the stencil applied to a convex surface having a longitudinal curve.

Fig. 4 is an end elevation of a modified form of stencil adapted particularly for use in connection with concave transversely curved surfaces.

Before explaining in detail the present invention, it is to be understood that the invention is not limited in its application to the details of construction and arrangement of parts illustrated in the accompanying drawings, since the invention is capable of other embodiments and of being practised or carried out in various ways. Also it is to be understood that the phraseology or terminology employed herein is for the purpose of description and not of limitation, and it is not intended to limit the invention beyond the terms of the several claims hereto appended as considered in view of the prior art and the requirements thereof.

Referring now to the drawings, A represents a section of an automobile panel having a flat surface to be striped. The spray stencil of our invention comprises a frame including parallel spaced flexible spreader bars 10 having angularly bent end portions 10*a* to which are attached in any suitable manner, such as by rivets, end plates 11. These plates may be of any suitable shape and as shown in Figs. 1 to 3 inclusive are substantially semi-circular having front straight edges. The spreader bars 10 are preferably interconnected by means of a substantially U-shaped member 12 which serves as a handle for the stencil and also as means to permit pressure to be applied to the spreader bars to cause them to flex as

hereinafter fully described. The end plates 11 carry on their outer faces adjacent their front edges, clamps or clips 13 which are attached to the plates in any suitable manner. The plates 11 are made, preferably, of thin metal, such as aluminum and serve as flexible or yieldable supports for the clips 13. These clamps are provided for the purpose of detachably and adjustably supporting strips or shields 14 which may be of paper or equivalent material, such as cloth or very thin metal. As shown these strips 14 extend between the end plates 11 and cover their front edges. The strips may be of any desired width and are spaced apart as shown in Fig. 1 to provide an area or space between them. When the device is in use the frame of the spray stencil does not come in contact with the surface of the work due to the fact that the strips or shields 14 are interposed between the work and the edges of the end plates 11, so that there is no possibility of the stencil frame marring the surface of the work.

After the strips 14 have been clamped to the end plates 11 and the size of the area to be painted has been determined by adjusting the marginal edges of the strips, the operator applies the frame to the surface of the work by grasping the handle 12 and pressing the stencil toward the work. Pressure upon the handle 12 bends the spreader bars 10 and causes the paper strips 14 to assume the shape of the surface against which the stencil is pressed and the yielding supports for the paper clips hold the paper taut while it hugs the flat surface, as shown in Fig. 2. The stencil may be applied to a convex surface, such as that shown in Fig. 3, by grasping the end shields 11 and pressing them against the work. Thus, the spreader bars 10 assume a curved position substantially like that of the convex curvature of the work. If the stencil is a relatively short one, the operator may grasp an end plate 11 in each of his hands and hold the stencil in place while the second operator uses the spray gun B to paint the area between the strips 14. If, however, the stencil is a relatively large and long one, the use of two operators to hold the stencil in place is necessary, one of which may at the same time spray the paint on to the surface. A third operator whose job it is to spray the paint, may be employed, if desired. In Fig. 3 it will be seen that by pressing the end plates 11 against the surface A′ the yieldingly supported clips 13 have a tendency to be drawn toward each other. As explained above, while the stencil is in use, the paper is caused to hug the surface of the work, and when the spray gun B is turned on the velocity of the air and paint material from the gun strikes the paper strips blowing them against the surface and sealing the edges thereof regardless of the shape of the surface.

In Fig. 3 the device is shown as applied to a convex surface A′ having a longitudinal curve. The operation is the same.

In Fig. 4 there is shown a device similar to that of the preceding figures, wherein the end plates 11*a* have their forward edges convexly curved as shown at 11*b*. This form of end plate is provided particularly to adapt the stencil for use in painting a concave surface such as the transverse curved surface A^2. The device is applied in the same manner as that of the foregoing figures.

From the foregoing it will be seen that we have provided a spray stencil with which flexible strips, such as paper or fabric, or very light metal, may be used for applying paint to surfaces of various curvature. The strips may be used a great many times before it becomes necessary to replace them with new ones, thereby eliminating almost entirely any cost of upkeep. Moreover, the stencil permits the application of painted areas having sharp edges, and is of a character which does not mar the surface of the work to be striped.

We claim:

1. A stencil comprising flexible spreader bars, plates carried at opposite ends of said bars, clips connected with said plates, strips extending between said plates and detachably and adjustably supported by said clips, and means for spreading the end plates apart to draw the strips taut against the surface of the work.

2. A stencil comprising flexible spreader bars, plates carried at opposite ends of said bars, clips connected with said plates, strips extending between said plates and detachably engaging said clips, and means for supporting said stencil and spreading the end plates apart to draw the strips taut against the surface of the work when the device is in use.

3. A stencil comprising spreader bars, plates carried at opposite ends of said bars, clips connected with said plates, strips extending between said plates and detachably supported by said clips, and means for applying equal pressure to said bars to flex the same and cause the end plates to move apart, whereby the strips are drawn taut against the surface of the work.

4. A stencil comprising flexible spreader bars, plates carried at opposite ends of said bars, clips connected with said plates, fabric shields extending between said plates and detachably supported by said clips, and a handle for supporting said stencil and spreading the end plates apart to draw the shields taut against the surface of the work.

5. A stencil comprising flexible spreader bars, plates supported by said bars at oppo-

site ends thereof, clamps carried by said plates, spaced shields extending between the plates and providing an area therebetween, said shields being detachably and adjustably supported by said clamps, and means for spreading the end plates apart to draw the shields taut against the surface of the work.

6. A stencil comprising flexible spreader bars, plates supported by said bars at opposite ends thereof, clamps carried by said plates, spaced fabric strips extending between the plates and providing an area therebetween, said strips being detachably supported by said clamps, and a handle for supporting said stencil and by which pressure may be applied to said bars to flex the same and spread the end plates apart to draw the fabric strips taut against the surface of the work.

7. A stencil comprising a frame having a pair of parallel longitudinal spreader bars, plates supported by said bars at opposite ends thereof, clamps carried by said plates, parallel spaced fabric strips extending between said plates and detachably supported by said clamps, and a handle connected with said spreader bars for supporting the stencil and for moving the end plates apart to draw the fabric strips taut against the surface of the work.

8. A stencil comprising a frame having a pair of parallel spreader bars, plates attached to opposite ends of said bars, strips extending between said plates, means carried by the plates to detachably secure the strips thereto, and means carried by said spreader bars, whereby the bars may be flexed to spread the plates apart and draw the strips taut against the surface of the work.

9. A stencil for bodies or other articles to be painted, comprising a frame, clips at the ends thereof for grasping strips of sheet material and holding them apart, said clips being yieldingly supported to permit them to be drawn toward each other as the strips adjust themselves to the shape of the surface of the body to be stenciled.

10. A stenciling device comprising a flexible stencil member, and a supporting frame having means for holding portions of the stencil and also having means spaced from said stencil member for drawing the stencil member taut against the surface of the work.

11. A stenciling device comprising a flexible stencil member, and a supporting frame having means for holding portions of the stencil and also having flexible means spaced from said stencil member for drawing the stencil member taut against the surface of the work.

12. A stenciling device comprising a flexible stencil member, and a supporting frame having means for detachably holding portions of the stencil and also having spring means spaced from the stencil member for drawing the stencil member taut against the surface of the work.

13. A stenciling device comprising a flexible stencil, and a supporting frame having means for releasably holding portions of the stencil and also having means spaced from the stencil for holding the stencil taut while permitting said stencil to flex to conform to a curvature of the surface of the work.

14. A stenciling device comprising a flexible stencil, and a supporting frame having spring clips for detachably holding portions of the stencil and also having spring bars spaced from the flexible stencil for holding the stencil taut while permitting said stencil to flex to conform to a curvature of the surface of the work.

In testimony whereof we affix our signatures.

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