

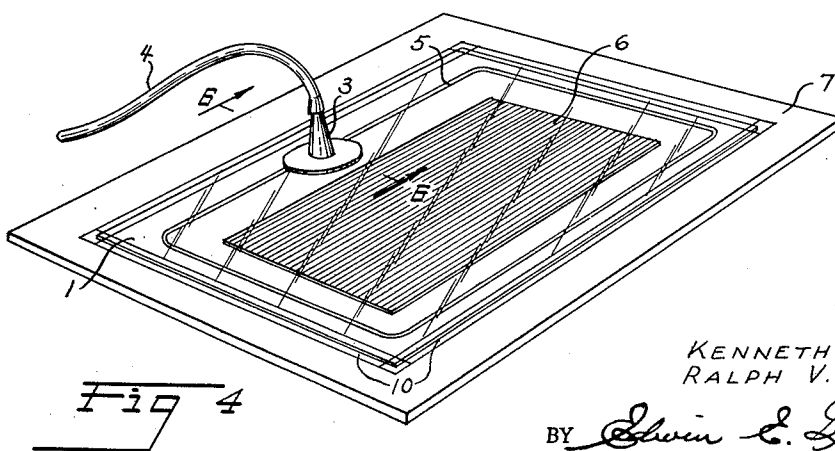
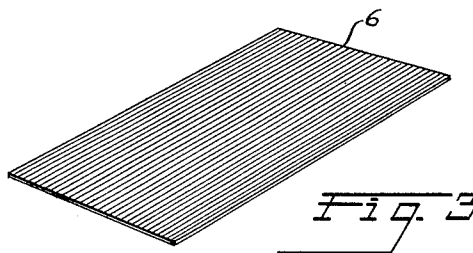
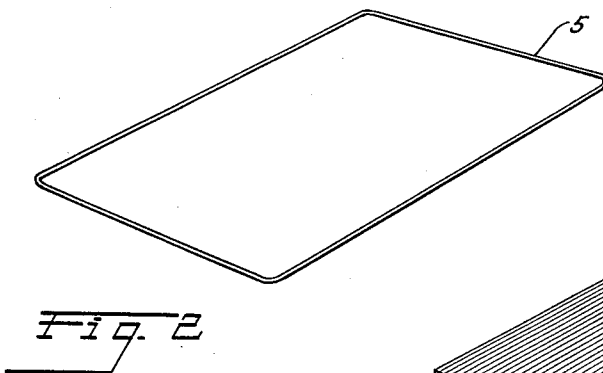
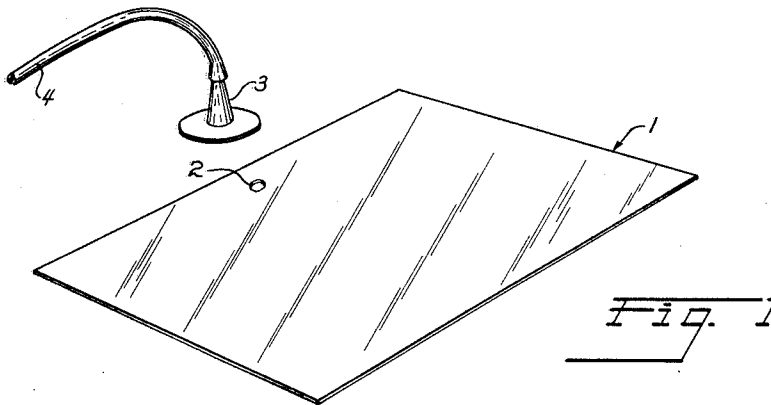
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K. A. OTT ETAL
VACUUM SUPPORT

3,066,592

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2 Sheets-Sheet 1



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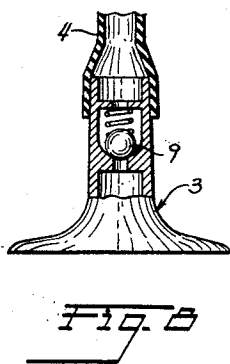
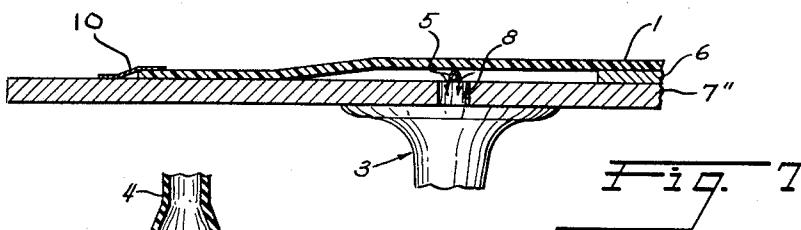
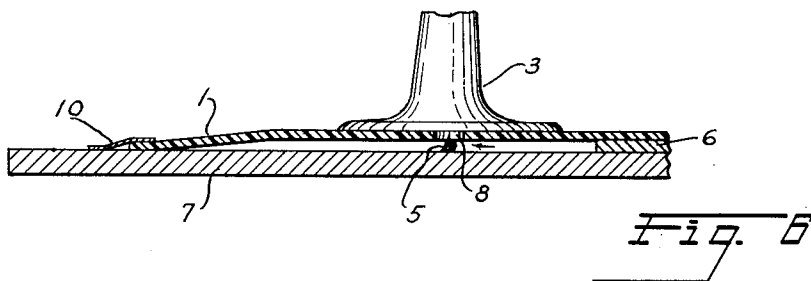
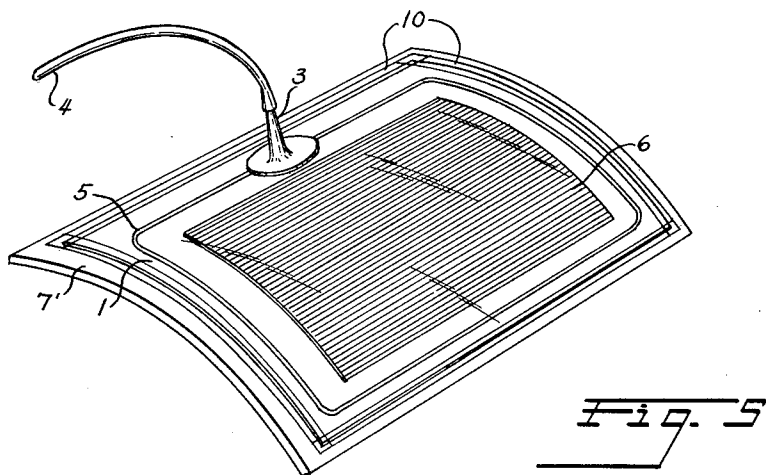
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2 Sheets-Sheet 2



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3,066,592

VACUUM SUPPORT

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3 Claims. (Cl. 95—76)

This invention relates to an improved apparatus for preparing surfaces and, more particularly, curved sections or segments of a cylindrical form that will be subsequently transferred to a printing press roll and, which will enable the plate maker to expeditiously obtain registration for multicolor printing.

Heretofore, images of an irregularly shaped design that is to be engraved upon the printing surface of a cylinder have been reproduced upon a flexible film, and the image area or that portion of the film upon which the image is reproduced is made equal in length to an aliquot part of the circumference of the cylinder and in width to a fraction of the length of the printing surface of the cylinder. The surface of the cylinder or segmental portion of the cylinder is coated with a light sensitive substance and the film is positioned thereon with the image area over a portion of its sensitized surface.

One of the difficulties prior to the present invention has been in making intimate contact with the underlying sensitized surface in order to have an undistorted transfer when the sensitized surface is subjected to the actions of light to create a reproduction of the design upon the sensitized surface of the cylinder, or the segmental portion thereof. As is well-known in the photogravure art, after the design on the flexible film has been thus formed on the sensitized surface of the curved plate or cylinder, it is developed and otherwise treated to form an acid-resist after which the cylinder is rotated in a corrosive bath to etch out the cylinder or section exposed by the affected area of the sensitized surface. Subsequently, this cylinder is cleaned to remove the unaffected portions of the light sensitive substance, after which it is ready for printing purposes.

One of the principal objects of this invention is to provide a simplified apparatus for predeterminedately and positively positioning the flexible film, bearing the design that is to be later transferred, in sequence, to the sensitized surfaces of the various curved sections, onto a curved or flat plate.

Still another object of the invention is to provide an improved association of elements to apply suction to a transparent acetate overlay sheet preparatory to affixing the design film to the sensitized plate.

A further object of the invention is to provide an improved element attachable to the transparent acetate overlay sheet and its sensitized carrier plate.

These and other objects and advantages to be derived from the utilization of the method and means illustrated in the drawings attached and described herein will become apparent to those skilled in the art.

In the accompanying drawings illustrating the invention, in the several figures of which like parts are similarly designated:

FIGURE 1 is a perspective view of a transparent acetate apertured overlay sheet shown lying adjacent to a suction means;

FIGURE 2 is a perspective view of a continuous perimetral element forming a part of the invention;

FIGURE 3 is a perspective view of the film bearing the design to be transferred to a sensitized plate;

FIGURE 4 illustrates a flat sensitized plate with the aforementioned elements positioned thereon;

FIGURE 5 is similar to FIGURE 4 except that a curved sensitized plate is illustrated;

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FIGURE 6 is a sectional view of the suction applying means positioned on a portion of a plate;

FIGURE 7 is a modified embodiment with the suction means illustrated as positioned beneath the sensitized plate; and

FIGURE 8 is an alternative type of suction cup including a valve means.

The transparent acetate overlay sheet 1 is provided with an aperture 2 suitably positioned relative to one of its edges for a purpose that will become apparent hereinafter.

A suction cup 3 is attached to a hose 4 leading to a vacuum-forming means not shown in the drawings.

With reference to FIG. 2 there is illustrated a continuous perimetral element which in cross-section has a relatively thin diameter. For the purposes intended, it has been found that a cord made of nylon is appropriate. However, the cord may be of any suitable material that is of sufficient area so that it will not permit the acetate sheet and suction cup to be drawn down against the metal plate. The reason for this will become apparent as the specification progresses. A filamentous cord or like body would fulfill the requirements of this invention since it is permissible that the vacuum be gradually removed from the entire area beneath the acetate sheet.

In FIG. 3 there is shown a flexible film 6 to which the design that is to be transferred to the sensitized plate has been previously applied.

In FIG. 4 there is illustrated a sensitized flat plate 7 on which is positioned the continuous perimetral element 5. Also shown in FIG. 4 is the flexible design bearing film 6 properly placed on the plate preparatory for subjecting the assembly to a light for the design transfer. Over the film 6 and continuous perimetral element 5 is placed the acetate sheet 1 with the aperture therein arranged relative to the continuous perimetral element 5, as shown in FIG. 6. As illustrated in FIGS. 4-7 the acetate overlay sheet 1 is secured to the metal base members 7 and 7' by means of Scotch tape or any other suitable fastening medium of this type. Thereafter, the suction cup 3, together with its vacuum hose, is placed over the aperture and all air within the chamber formed by the flat plate, the continuous perimetral element and the overlay sheet is withdrawn. Insofar as the assembly is concerned, FIGS. 4 and 5 are substantially identical except for the shape of the two base members 7 and 7'. Base member 7 is to be used on usual flat work for printing therefrom and member 7' is to be attached to the circumference of a printing cylinder in any well-known manner.

In FIG. 6 there is illustrated a fragmentary section of the base member 7, film 6 and acetate overlay sheet 1. The continuous perimetral element is shown in section at 5 with a suction cup 3 positioned thereover. It will be noted that the perforation in the acetate overlay sheet is coordinated with the suction cup in an appropriate manner so that when a hose 4 (not shown in this FIG.) is attached to the upper end of said suction cup, air may be extracted from the chamber as explained hereinbefore.

The additional embodiment of the invention shown in FIG. 7 differentiates from that illustrated in the previous views only in that the base member 7'' is provided with an aperture 8 and the suction cup is attached to the lower surface of the flat base member, as shown. Obviously, this same arrangement for removing air from the chamber of the assembly can be applied to a curved plate as well as one that is flat.

In FIG. 8 there is illustrated an alternative form of suction cup comprising a spring pressed ball valve 9. This type of valve for preventing leakage of atmospheric air back into the support assembly is merely representative of a valve means and it is to be understood that any suit-

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able valve is contemplated to be within the scope of this concept.

Various changes and modifications are considered to be within the principle of the invention and the scope of the following claims.

What we claim is:

1. A vacuum support assembly including a base member, a continuous perimetral filamentous element positioned thereon and defining a space within its boundary for the reception of a film to be processed, an impervious sheet element lying upon the perimetral element, a chamber being thereby defined by the base, the perimetral element and the impervious sheet, an aperture through said impervious sheet communicating with said chamber and a conduit communicating with said aperture on the side of the said impervious element opposite the base, said conduit adapted to be connected to a source of vacuum and said perimetral element being arranged to intersect the aperture in said impervious sheet.

2. A vacuum support assembly, including a perforate base member, a continuous perimetral filamentous element positioned thereon and defining a space within its

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boundary for the reception of a film to be processed, an impervious sheet element lying upon the perimetral element, a chamber being thereby formed by the base, the perimetral element and the impervious sheet, the perforation in the base member being adapted to be connected to a source of vacuum and said perimetral element being arranged to intersect the perforation in said base.

3. A vacuum support assembly as claimed in claim 2 wherein a connecting element to the vacuum source is provided, comprising a one-way valve element to preclude the passage of atmospheric air from the connecting element into said chamber.

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