June 25, 1946. E. A. SPRIGG 2,402,706

FLEXIBLE IMPRESSION MEMBER

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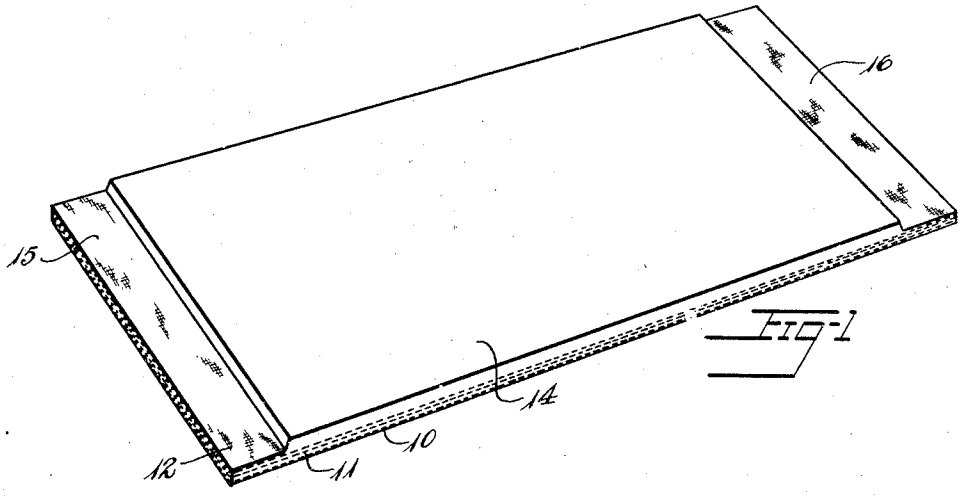


Fig-1

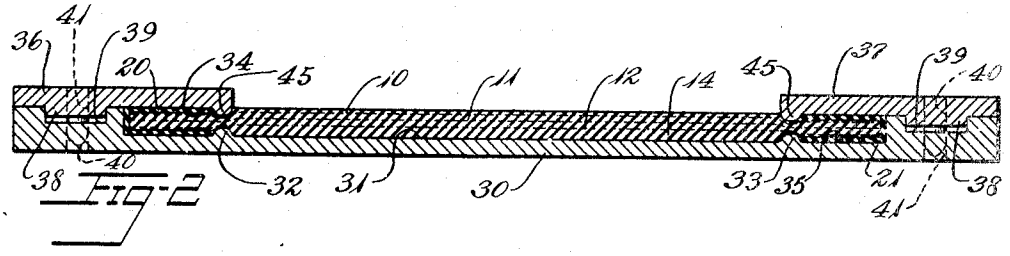


Fig-2

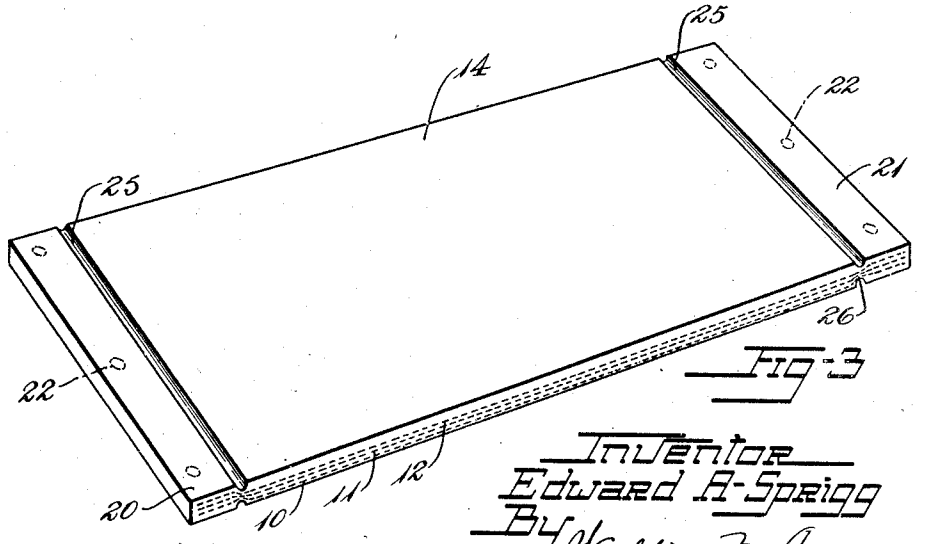


Fig-3

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FLEXIBLE IMPRESSION MEMBER

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8 Claims. (Cl. 101—415.1)

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This invention relates to flexible impression members, such as offset blankets, draw sheets, and printers' blankets such as are used on lithographing and printing presses in the graphic reproduction industry, and more especially to the fastening thereof.

In the process of lithography by the offset method, flexible blankets of rubber or other rubber-like material reinforced by fabric have been retained about the cylinder of the press under tension, the ends of the blankets having been secured by metal clamping or reinforcing bars bolted to the ends of the blankets. As the bars have been clamped against the deformable printing surface layer of the blanket, some distortion of the face at the ends of the blanket has occurred. Furthermore, as the surface of the blankets are deformable and a considerable tension, in the neighborhood of fifty pounds to the linear inch of blanket width, must be applied, and as the bars have been held by bolts passing through the blanket at spaced-apart intervals, the blankets have tended to creep between the bolts, sometimes causing the tension to be uneven and the blanket to be torn loose, especially near its side margins where a lateral narrowing of the belt under tension has introduced a lateral stress in addition to the longitudinal stress. These problems, or some of them, have been present also in the use of draw sheets and printers' blankets.

The principal objects of the present invention are to provide effective anchorage of the impression member at all positions across its ends, to prevent tearing out of the impression member at the bolt holes, to provide anchorage without compression of the printing face, and to provide an impression member having integral fastening elements.

These and other objects will appear from the following description and the accompanying drawing.

Of the drawing:

Fig. 1 is a perspective view of an impression member, such as an offset blanket prepared for forming the securing means thereon.

Fig. 2 is a cross-sectional view of a mold with the offset blanket constructed in accordance with and embodying the invention.

Fig. 3 is a perspective view of the completed blanket.

In the illustrative embodiment of the invention, with reference especially to Fig. 3, the impression member or blanket comprises a flexible base of parallel plies 10, 11, 12 of substantially straight-laid square-woven fabric and a working face layer 14 of rubber or other deformable rubber-like material having the desired properties for receiving lithographic ink. The blankets may be about .062" to .075" thick of which the face layer may be about .025" to .030" thick. The layers are all vulcanized together to provide a blanket of substantially uniform thickness. For securing the ends of the blanket, the working face layer 14 is removed across a narrow zone at each end of the blanket as seen in Fig. 1 to provide ends 15, 16 of reduced thickness preferably having the fabric layer 12 exposed thereacross. End reinforcements 20, 21 of stiff plastic material, are then molded about the exposed fabric ends, and holes 22 for securing bolts, to secure the blanket to the cylinder of the press may be formed therein by the molding operation or drilled after the molding operation.

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For forming the molded ends, a plastic material which can be molded against and adhered to the textile fabric base and preferably also the rubber-like material where there is contact and which will be rigid at room temperatures may be employed. Such plastic material may be either of a thermoplastic or thermosetting nature, but thermosetting materials are preferred as they are less likely to be accidently deformed after molding. Suitable thermosetting materials include phenol aldehyde resins, alkyd resins, amine-aldehyde resins, hard rubber especially when made of synthetic rubber, and compositions of these materials. Suitable thermoplastics include cellulose esters, vinyl resins, acrylic resins, lac, and compositions thereof. Compositions of any of these materials may contain stiffening or reinforcing pigments, such as fibers, wood flour, mineral wool, or the like, as well as suitable coloring and mineral pigments.

Preferably a groove 25 is provided between the flexible impression face of the blanket and the stiff reinforcing molded portions and a similar groove 26 may be formed in the opposite face of the blanket to provide a zone of increased flexibility between the printing portion of the blanket and its securing ends. This contributes to the uniformity of stresses in the working face of the blanket when tension is applied to the ends.

For molding the reinforcing end in situ about the end of the blanket any suitable type of mold may be employed and either one or both ends may be molded at a time. It is preferred, however, to form both ends at one time by a single mold such as that illustrated in Fig. 2, as the ends may then be kept parallel with each other and the procedure facilitated. As shown, the

mold comprises a bottom plate 30 longer than the blanket and having a flat face 31 for supporting the printing face of the blanket, parallel ribs 32, 33 for engaging the fabric at the ends of the printing face, and molding cavities 34, 35 beyond the ribs for forming the plastic ends. A pair of upper mold plates 36, 37 are provided, each for confining an end of the blanket and the plastic material under pressure. These plates are each provided with a registering rib 38 for engaging a groove 39 of the lower plate and dowel pins 40 for entering dowel holes 41 in the lower plate to position them. The plates 36, 37 are also each formed with a marginal rib 45 adapted to confine the plastic and to form the crease 26 in the blanket.

In forming the molded plastic ends on the blanket, the blanket which has been cut to length and with the fabric exposed at its ends is laid on the lower mold plate without tension and the plastic molding material is placed about the ends of the blanket either in the form of powdered material or in the form of strips laid under and over the blanket ends. The mold, which is heated, is then closed under pressure to mold the plastic material about the ends of the blanket and unite it to the fabric thereof. Only the ends of the mold need be heated, the center portion of the lower mold plate acting merely to support the blanket and to hold the molding portions in parallel alignment. After molding, the mold is cooled and the blanket removed. The holes 22 for receiving screws or bolts are then drilled through the assembled materials, if not already provided in the molding operation. Draw sheets and printers' blankets may have reinforcing fastening members molded about their ends in the same manner.

Due to the stiffness or rigidity of the end reinforcements, and in the case where they are adhered to the fabric portion of the blanket entirely across the ends of the blanket without intervening rubber or other material greatly displaceable under stress, the blanket may be tensioned throughout its width with a high degree of uniformity.

Variations may be made without departing from the scope of the invention as it is defined by the following claims.

I claim:

1. A blanket for graphic reproduction purposes comprising a reinforced body having a deformable impression face and a reinforced end portion for attachment, said end portion being inset at the face of the blanket, and an attaching structure in said inset portion and comprising a stiff reinforcement of plastic material adhered to said body at said inset portion.

2. A blanket for graphic reproduction purposes comprising a reinforced body having a deformable impression face and a reinforced end portion for attachment, said end portion being inset at the face of the blanket, and an attaching structure in said inset portion and comprising a stiff reinforcement of plastic material molded in situ integrally with said body at said inset portion.

3. A flexible impression member for graphic reproduction purposes comprising a flexible fabric reinforced base, a layer of deformable material adhered to said base and providing an impression surface terminating at a position spaced from an end of said base to leave a marginal portion, and an end reinforcement comprising a stiff body of thermosetting plastic material adhered to the flexible base at said marginal portion.

4. An impression member comprising a flexible fabric reinforced base, a layer of deformable vulcanized rubber-like material adhered to said base and providing an impression surface terminating at a position spaced from an end of said base to leave a marginal portion, and an end reinforcement comprising a stiff body of thermosetting plastic material adhered directly to the flexible base at said marginal portion.

5. An offset blanket comprising a flexible base of textile material, a layer of deformable vulcanized rubber-like material adhered to said base to provide an offset impression surface terminating at a position spaced from an end of said base, and an end reinforcement comprising a stiff body of thermosetting plastic material adhered directly to the textile material of said base beyond said impression surface.

6. An offset blanket comprising a strong flexible base of textile material, a layer of deformable vulcanized rubber-like material adhered to said base to provide an offset printing surface terminating at a position spaced from an end of said base, and an end reinforcement comprising a stiff body of thermosetting plastic material adhered directly to the textile material of said base about said base beyond said printing surface.

7. An offset blanket comprising a strong flexible fabric reinforced base, a layer of deformable vulcanized rubber-like material adhered to said base to provide an offset impression surface terminating at a position spaced from an end of said base, and an end reinforcement comprising a stiff body of thermosetting plastic material adhered directly to the flexible base beyond said impression surface, said reinforcement being separated from said printing surface by a groove.

8. An offset blanket comprising a strong flexible base of laminated fabric, a layer of deformable material adhered to said base to provide an offset impression surface terminating at positions short of the ends of the base, and end reinforcements comprising stiff parallel bodies of thermosetting plastic material adhered directly to both sides of said fabric base about the ends thereof and spaced from said impression surface.

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