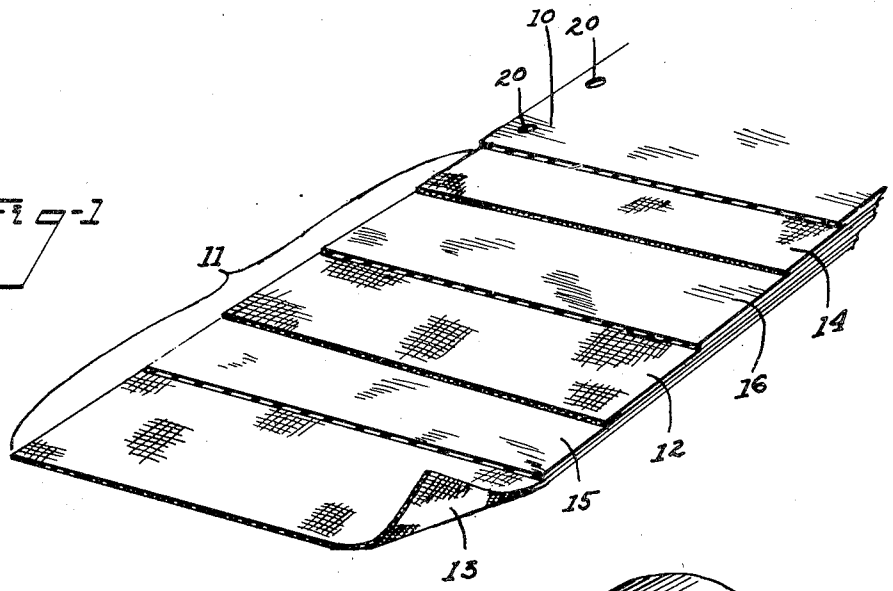
Nov. 29, 1949 L. R. LILES ET AL 2,489,791

PRINTER'S BLANKET

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Fig-1



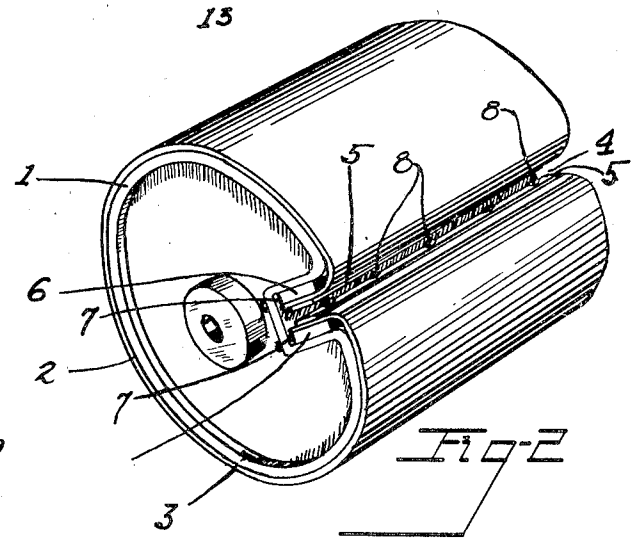


Fig-2

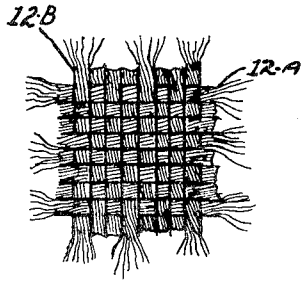


Fig-3

Inventors
Lewis R. Liles
Edgar W. Chapman
By
E. E. Winkler
Atty

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PRINTER'S BLANKET

Lewis R. Liles, Cuyahoga Falls, and Edgar W. Chapman, Akron, Ohio, assignors to The B. F. Goodrich Company, New York, N. Y., a corporation of New York

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6 Claims. (Cl. 154—54.5)

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This invention relates to printers' blankets and is especially useful in the manufacture of blankets for offset printing.

Heretofore difficulty has been experienced in providing an offset blanket which was free from stretch and which at the same time provides the proper surface for taking the ink, the proper resilience required in printing, and the uniform flexibility necessary to permit mounting of the blanket about a cylindrical platen. Some of these difficulties have also been experienced in the manufacture of printers' blankets other than the offset type.

In the offset printing process, an offset blanket having an impression face is drawn tightly about a cylindrical platen and the ends of the blanket are clamped to the platen by metal clamp strips and bolts passing through the clamp strips and the ends of the blanket. Cylindrical printing plates are mounted on a roller so as to have rolling engagement with the face of the blanket to transfer an ink impression thereto. The material to be printed is passed in sheet form in contact with the inked blanket and lifts the ink from the blanket. The printing process is continuous so that the printing plates contact intermittently with the deposited impression on the blanket and any shifting of the blanket such as would occur by stretching of the blanket would result in a smudged impression requiring the press to be stopped and the blanket cleaned. It has been found that where a press stands idle over night, shifting of the blanket due to stretch usually results and requires cleaning and adjustment of the blanket before continuing use.

It has been found necessary to employ a blanket of considerable flexibility so that it accommodates itself perfectly to the supporting cylinder and attempts heretofore to utilize a blanket containing relatively nonstretchable sheet or woven metallic materials have unduly stiffened the blanket and destroyed its flexibility. Blankets reinforced heretofore with cellulosic fabrics such as cotton or rayon have had the objection of being unduly stretchable.

The tensioning of the blankets tends to shear the blanket between the attaching apertures therein and the ends of the blanket so that high resistance to shear is required at the ends of the blanket while at the same time uniformity of flexibility is required of the blanket from end to end.

Furthermore, it is desirable for the maker to supply blanket material in long lengths from which the blankets are cut for use, requiring uniformity of construction throughout a roll of blanket material.

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The principal objects of the present invention are to avoid stretch of the blanket without interfering with the desirable flexibility and resilience, and to provide resistance to shear about fastening means with resistance to stretch.

These and other objects will be apparent from the following description and the accompanying drawings.

Of the drawings,

Fig. 1 shows a perspective view of a portion of an offset blanket constructed in accordance with and embodying the invention, the blanket being broken away in steps to show its construction.

Fig. 2 is a perspective view of a cylindrical press platen having a blanket secured thereabout.

Fig. 3 is a plan view of a portion of a layer of glass fabric.

Referring to the drawings, the numeral 1 designates a blanket cylinder formed with a cylindrical surface 2 for supporting a blanket 3. The cylinder is provided with an axial gap 4 into which the ends of the blanket are turned and secured by metal clamp bars 5, 5, and bolts 8, 8 passing through the bars and the blanket to tension bars 6, 6, which are adapted to be drawn into the gap by screws 7, 7 to tension the blanket. The offset blanket 3 has a printing face or impression layer 10 which is of soft vulcanized rubber or other rubber-like material having the properties of resilience, resistance to the chemical action of ink and solvents used for removing ink, and also the property of being attractive to ink or of being wet thereby. Synthetic rubber compositions and plasticized polymerized vinyl chloride compositions have been found to have desirable properties for this purpose, although compositions of natural rubber or other rubber-like materials may be used for the impression layer. Material suitable for the impression layer is described and identified for example in Patent No. 2,271,125 to A. E. Juve.

For flexibly supporting the printing face without interfering unduly with its flexibility, a backing 11 of woven cellulosic material such as square woven cotton or rayon fabric united by rubber or other rubber-like material is secured to the lower face of the impression layer and at least one layer 12 of the backing is formed of glass in the form of filamentary glass elements 12A spun into substantially inextensible yarns 12B to provide resistance to stretch both laterally and longitudinally of the blanket, and preferably woven to provide a fabric. Such glass material is com-

mercially known as "Fiber glass" and is illustrated in Fig. 3. In the backing shown, a layer 13 of prestretched square woven fabric of cotton or rayon forms the foundation layer and a layer 14 of similar material forms the top layer of the backing and is bonded to the impression layer. The layer 12 of fiber glass is located between the layers 13 and 14 and is separated therefrom and bonded thereto by thin layers 15, 16 of rubber or other rubber-like material which unites the fabric layers to each other through the meshes of the fiber glass and provides a cushioning of the fabric layer which permits bending of the blanket, the rubber-like material permitting longitudinal creep of the layers with respect to each other during bending. While rubber-like materials do not ordinarily adhere readily to materials such as glass, it has been discovered by us that where the glass is of filaments forming spun yarns and woven as a fabric, the adhering of the rubber-like material to the fabric is amply sufficient for the purpose and while glass is ordinarily considered a brittle material, nevertheless in the form of woven filamentary glass elements it is free from brittleness and is highly flexible in all directions while providing great resistance to stretch. All the woven layers have their warp and filler elements extending respectively lengthwise and crosswise of the blanket. The square woven fabric at each side of the fiber glass layer protects it from accidental injury and prevents shear of the blanket about bolt holes while the fiber glass layer provides great resistance to stretch of the blanket. All of the layers of the blanket are adhered to each other and united by vulcanization of the rubber-like material, the layers being assembled and united under pressure by application of heat.

In use, the blanket is secured about the cylinder 1 of the press by bolts 8, 8 secured through openings 20 punched at intervals through the ends of the blanket to receive the bolts 8. The use of cotton or other fabric at each face of the layer of fiber glass reinforces the fiber glass against shearing and separating between the bolt holes and the margin of the blanket adjacent thereto.

While only one layer of fiber glass is shown in the illustrative embodiment, one or more such layers may be employed, preferably with all of the layers of fiber glass located between plies of fabric.

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

We claim:

1. A printer's blanket uniform in flexibility and highly stretch-resistant in a direction of the blanket for resisting objectionable deformation in the use thereof, said blanket comprising a resilient impression layer of ink-retainable material having the physical properties of soft, vulcanized rubber resistant to the chemical action of ink materials and solvents, and a flexible backing integral with said impression layer, said backing comprising stretch-resistant material including glass in filamentary form extending along the blanket in said direction thereof.

2. A printer's blanket uniform in flexibility and highly stretch-resistant in a direction of the blanket for resisting objectionable deformation in the use thereof, said blanket comprising a resilient impression layer of ink-retainable material having the physical properties of soft, vulcanized rubber resistant to the chemical action of ink materials and solvents, and a flexible backing integral with said impression layer, said backing comprising stretch-resistant material including glass in filamentary elements twisted together to provide tension members extending along the blanket in said direction thereof.

3. A printer's blanket uniform in flexibility and highly stretch-resistant in a direction of the blanket for resisting objectionable deformation in the use thereof, said blanket comprising a resilient impression layer of ink-retainable material having the physical properties of soft, vulcanized rubber resistant to the chemical action of ink materials and solvents, and a flexible backing integral with said impression layer, said backing comprising stretch-resistant material including glass in filamentary elements twisted together as yarns and woven in fabric form to provide tension members extending along the blanket in said direction thereof.

4. A printer's blanket uniform in flexibility and highly stretch-resistant in a direction of the blanket for resisting objectionable deformation in the use thereof, said blanket comprising a resilient impression layer of ink-retainable material having the physical properties of soft, vulcanized rubber resistant to the chemical action of ink materials and solvents, and a flexible backing integral with said impression layer, said backing comprising stretch-resistant material including glass in filamentary form extending along the the blanket in said direction thereof, and a layer of woven cellulosic material adjaceent said stretch-resistant material and adhered thereto providing resistance of the blanket to shearing stress.

5. A printer's blanket uniform in flexibility and highly stretch-resistant in a direction of the blanket for resisting objectionable deformation in the use thereof, said blanket comprising a resilient impression layer of ink-retainable material having the physical properties of soft, vulcanized rubber resistant to the chemical action of ink materials and solvents, and a flexible backing integral with said impression layer, said backing comprising stretch-resistant material including glass in filamentary form extending along the blanket in said direction thereof and layers of woven cellulosic material above and below said stretch-resistant material and adhered thereto providing resistance of the blanket to shearing stress.

6. A printer's blanket uniform in flexibility and highly stretch-resistant in a direction of the blanket for resisting objectionable deformation in the use thereof, said blanket comprising a resilient impression layer of ink-retainable material having the physical properties of soft, vulcanized rubber resistant to the chemical action of ink materials and solvents, and a flexible backing integral with said impression layer, said backing comprising stretch-resistant material including glass in filamentary form extending along the blanket in said direction thereof and layers of woven cellulosic material above and below said stretch-resistant material and adhered thereto providing resistance of the blanket to shearing stress, said cellulosic material comprising square woven cotton fabric secured to said stretch-resistant material by rubber-like material.

LEWIS R. LILES.
EDGAR W. CHAPMAN.

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