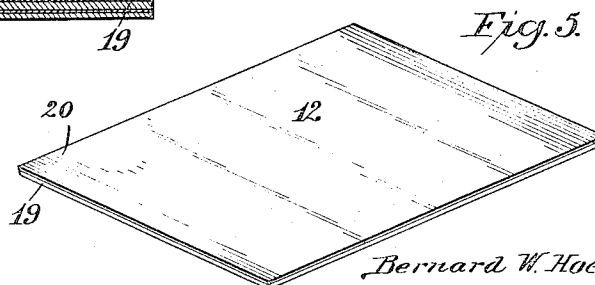
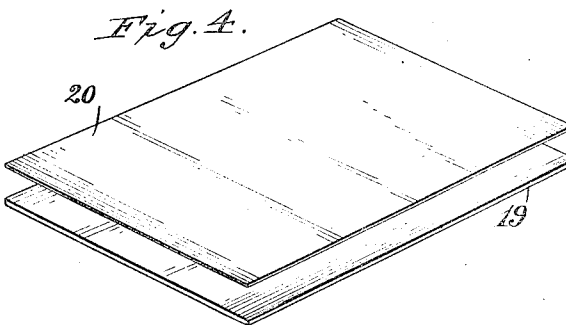
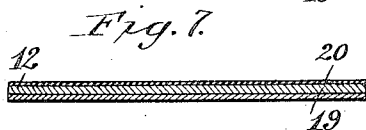
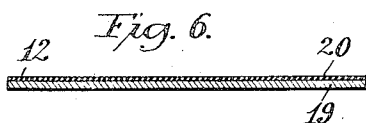
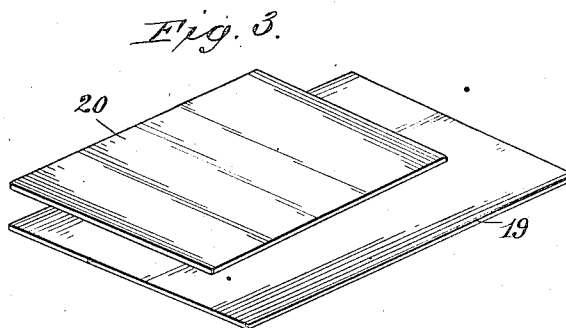
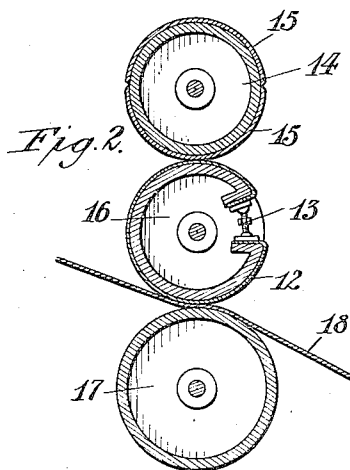
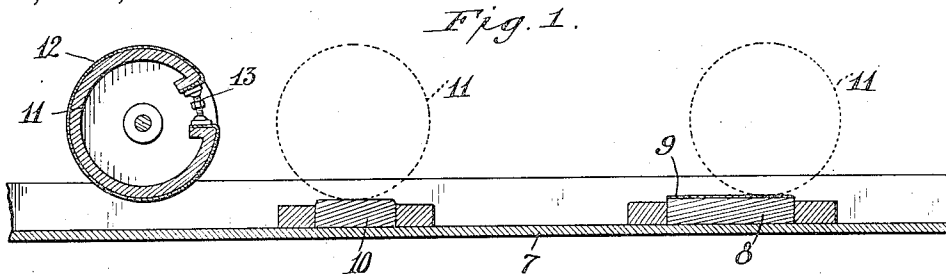


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BLANKET FOR OFFSET PRINTING PRESSES AND METHOD OF MAKING THE SAME.
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1,211,706.

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Witness:
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UNITED STATES PATENT OFFICE

BERNARD W. HOERBELT, OF BUFFALO, NEW YORK.

BLANKET FOR OFFSET-PRINTING PRESSES AND METHOD OF MAKING THE SAME.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, BERNARD W. HOERBELT, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Blankets for Offset-Printing Presses and Methods of Making the Same, of which the following is a specification.

My invention relates to blankets for offset printing presses, and more particularly to rubber covered blankets used for lithographic printing. Blankets of this kind heretofore used were constructed of thin sheets of rubber backed with cotton or other textile material; but material of this nature tends to creep under slight rolling pressure and when applied to the face of a cylinder will dip or "belly" at or near the middle of the cylinder of its own weight; it being understood that blankets of this type are merely clamped at their marginal portions to the offset cylinder or plate. This creeping of the blanket, somewhat increased on a cylinder by reason of the dip or belly of the blanket, makes it difficult to obtain a clear and clean impression from the bed or plate, or from the bed or plate cylinder, as the case may be. Impressions taken are therefore not true to the subject; the dots and lines of the original plate being different after the impression on the blanket is offset to the paper or other substances upon which the impression is made. This is also brought about by reason of the fact that the present form of rubber covering for an offset press cannot be applied smoothly enough around the offset cylinder, which added to the shifting, owing to the softness of the rubber surface and the backing, renders offset presses unsuitable for the finest grade of printing from plates. Moreover, the present form of offset blanket has its surface finely pitted, which to some extent prevents clear impression being made, and this pitted condition becomes exaggerated with the use of the blanket.

The primary object of my invention is to provide an offset blanket by means of which some of the objectionable features above mentioned are entirely eliminated, while others are lessened to a considerable extent.

A further object is to provide a blanket for offset presses having a non-stretchable or non-yielding base or backing and a thin fac-

ing of rubber, or other material having like qualities, mounted upon the non-stretchable or non-yielding base, preferably by cementing the same thereto in a stretched condition.

With these and other objects to appear hereinafter, my invention consists in an offset blanket having a non-yielding base or backing and a rubber or similar impression surface or layer applied to said base or backing in stretched condition.

It further consists in a blanket constructed of a non-stretchable base or backing and a thin sheet or film of rubber, or other material having like qualities, of smaller area than the base or backing stretched to cover the entire surface of the latter and cemented thereto at all points.

It further consists in the particular construction hereinafter described and claimed and in the method of making the same.

In the drawing,—Figure 1 is a fragmentary longitudinal section of an offset flat printing machine showing only such parts thereof as are intimately associated with my invention. Fig. 2 is a fragmentary cross section through a rotary offset printing machine showing only such parts thereof as are intimately associated with my invention. Fig. 3 is a perspective view of the two members of my preferred form of offset blanket showing approximately the relative sizes of the non-stretchable or non-yielding base or backing and the rubber or similar impression or facing member prior to applying the latter to said base or backing. Fig. 4 is a perspective view showing the rubber or similar facing or impression member of my blanket stretched to the size of the base or backing preparatory to cementing the same thereto. Fig. 5 is a perspective view of a complete offset blanket constructed according to my invention. Fig. 6 is a transverse section through the completed blanket, the facing member and base or backing being exaggerated in thickness to better disclose the construction of the blanket. Figs. 7 and 8 are transverse sections through modified forms of blankets embodying my invention.

Reference being had to the drawing in detail, similar numerals refer to similar parts in the several figures.

Reference being particularly had to Fig. 1, the numeral 7 designates the bed or frame of a flat offset printing machine on which is held a block or other body 8 to which a

flat plate 9 is applied. This plate may be termed the printing device and may consist of types, electrotypes, etchings or any other form of device used in the printing art, but for the finer grades of printing a thin zinc plate, such as shown in the drawing, is preferably employed. On the bed or frame a flat tympan or plate 10 is placed on which paper, tin, glass, or any other material adapted to receive the impression is to be placed.

11 designates the blanket-covered offset cylinder which may be constructed in the usual manner. This cylinder is adapted to travel back and forth over the printing device 9 and tympan or plate 10, and while thus traveling pass in contact with said printing device and said tympan or plate. On this cylinder my improved offset blanket 12 is shown, the same being tightly fitted around the cylinder and clamped, as shown at 13, or in any other suitable manner.

In the rotary offset printing machine partly shown in Fig. 2, which is the form of machine mostly used, 14 designates the bed or plate cylinder which is of the usual construction, and has the zinc printing plates 15 applied thereto in the usual manner. Rotating in contact with the bed or plate cylinder is the blanket-covered offset cylinder 16. This cylinder may be constructed in the same manner as that shown in Fig. 1, or in any other suitable manner, and my improved offset blanket 12 is applied to the offset cylinder 16 in the same manner as shown in Fig. 1.

17 designates the tympan or printing cylinder, between which and the blanket-covered offset cylinder the paper or other material 18 is to be passed which is to receive the impression from the offset. It is of course understood that in different forms of rotary offset printing presses the three cylinders are differently arranged, and that they need not necessarily lie in the same vertical plane, as shown in Fig. 2. The matter to be printed is transferred upon the zinc printing plates 9 or 15, the process for doing which is identical with the common process of lithographing and is well known to those skilled in the art to which this invention relates. Several other methods of transferring the matter to be printed upon the zinc printing plates are known, and may be used if desired.

The inking arrangement for the printing plate of the flat bed offset printing machine shown in Fig. 1; may be any of the common forms used for distributing ink over the face of the plate, and it is of course understood that in connection with the inking arrangement an arrangement is provided for dampening the surface of the plate, except the transfer parts or the substances to

be printed. These inking and dampening processes may be effected by the usual inking rollers and water rollers. The water from the water rollers will not adhere to nor act upon the transfer part or the substances to be printed, owing to the greasy nature of the transfer; consequently the inking rollers passing over the plate will deposit no ink where the plate is dampened but will ink the transfer to the required strengths. The inked up transfer then prints upon the offset blanket 12 of the offset cylinder when the latter is passed thereover, and in its travel forward said cylinder passes over and in contact with the paper or other material placed upon the tympan or plate 10, which material receives the impression from the rubber offset blanket.

The inking arrangement for the rotary offset printing machine shown in Fig. 2 is not unlike that of a web press, only that the inking rollers are leather or lithograph rollers and are provided with a greater distribution than the rollers of a web press. Inking rollers of this kind may also be used on the flat bed press shown in Fig. 1, and the method of dampening the printing plates of the rotary machine may be similar to that above described with reference to the flat bed machine shown in Fig. 1. The inking and dampening methods, however, form no part of my invention and may be performed in any suitable way.

Reference being particularly had to my improved blanket and the method of making the same, 19 designates the base or backing of the blanket, which is preferably of sheet metal and may be zinc of about the thickness of a two-ply cardboard, or any other thin sheet metal, and for certain classes of work I have found press-board to be most effective. On this base or backing, I apply a thin sheet or film of rubber, designated by the numeral 20. This sheet or film of rubber is cut to a size somewhat smaller than the base or backing, and preparatory to applying the same thereto it is carefully stretched to the size of the base or backing so as to completely cover the same and by means of suitable cement applied to the underside of the sheet or film of rubber, or to the upper side of the base or backing, or to the opposing faces of said sheet or film of rubber and said base or backing, said sheet or film is firmly secured to the base or backing; care being taken that the rubber is evenly stretched and that no surplus cement remains between the rubber and the base or backing.

When using press-board as a base or backing, it is rendered water-proof by saturating the same with oil, or in any other manner, thus preventing swelling of the press-board in the event of a break occurring in the rub-

ber covering and water passing through and reaching the press-board.

Zinc and press-board bases or backings are non-stretchable and non-yielding, and any material having such qualities may be substituted for the zinc or press-board. The stretching of the sheet or film of rubber eliminates all inequalities of the surface thereof, and when the rubber is applied and pressed in position on the base or backing it is perfectly smooth and to a very slight degree yielding under pressure, but not in length and width.

As stated, for some classes of work, press-board as a base or backing is desirable, and the degree to which the rubber is to be stretched before applying it to the base or backing depends considerably upon the class of work to be done. I have found from experience that different kinds of work require different blankets. For the ordinary run of work I do not consider it necessary to stretch the rubber sheet or film to so great an extent as where finer work is to be done. The finer and sharper the work is to be, the thinner the rubber cover or film must be and the more it should be stretched over the base or backing. The degree of tension applied to the work is also to be taken into consideration when applying a blanket to an offset cylinder and therefore the greater the tension applied to the blanket the stiffer should be the base or backing upon which the rubber sheet or film is mounted. It may here be stated, however, that if the base or backing is too stiff it will not properly hug the offset cylinder of the machine and imperfect work would result therefrom.

Press-board I have found admirably adapted for a base or backing of blankets for certain kinds of work, but I find that when using such material it is desirable to reduce the tension on the rubber since if the tension is too great it would pull on the press-board and cause the same to be drawn away from the offset cylinder.

In printing from type it is necessary to have a very thin film or cover applied to the base or backing and a hard base or backing is preferable in such cases, while for the offset on what is known as "litho-presses" upon which the finest work is done, zinc is preferably used as a base or backing, although in most cases press-board would suffice. When printing upon rough stock and when using zinc plates having a deep grain, a thicker film or sheet of rubber and less stretch thereto may be used.

Aluminum, tin and other similar metallic substances of a non-yielding nature may be substituted for zinc as a base or backing for my offset blanket, and any stretchable material possessing the qualities of rubber may be substituted for the sheet or film of rubber.

I have experienced that on blankets used on large presses it is desirable to provide the same with a somewhat resilient underlay to take up the slight inequalities and also the so called "dip" found in the cylinder. Some of these inequalities are caused by the uneven thickness of the zinc printing plate, and to provide the desired resiliency I place a sheet of blotting paper, rubber or other material of a like nature to the underside of the base or backing, as shown in Fig. 7. This resilient underlay may also consist of a sheet of ordinary paper placed against the underside of the base or backing and a sheet of blotting paper applied to said sheet of ordinary paper. This underlay therefore is positioned between the base or backing and the surface of the cylinder when the blanket is applied to the latter, and while I prefer to mount this underlay directly onto the underside of the base or backing it may be placed between the blanket illustrated in Figs. 1 to 6 and the cylinder, and while the mounting of the underlay on the underside of the base or backing will save considerable time in applying the blanket to the machine, both forms of underlays referred to will take up spots that would not otherwise print because of the inequalities in the zinc printing plate or other printing device. This resilient underlay does not in any manner affect the working surface of the blanket but merely provides the necessary resiliency to assure even pressure against the zinc printing plate or other printing device throughout the length of the cylinder and at all points around its circumference.

Having thus described my invention, what I claim is,—

1. A blanket for offset printing presses having a non-yielding base or backing and a sheet or film of stretchable material stretched over and applied to said base or backing.

2. A blanket for offset printing presses comprising a non-stretchable base or backing and a sheet or film of stretchable material stretched and cemented at all points to said base or backing.

3. A blanket for offset printing presses comprising a non-yielding non-stretchable base or backing and a thin sheet or film of rubber stretched and cemented to said base or backing.

4. A blanket for offset printing presses comprising a flexible non-stretchable base or backing and a sheet or film of stretchable material of smaller size than said base or backing stretched to the size of the latter and cemented thereto.

5. A blanket for offset printing presses comprising a flexible non-stretchable base or backing and a sheet or film of stretched rubber, the two being joined together to prevent relative movement thereof.

6. A blanket for offset printing presses comprising a flexible non-stretchable base or backing and a sheet or film of stretched rubber, the two being joined together to prevent independent movement of said sheet or film of rubber.
7. A blanket for offset printing presses comprising a flexible non-stretchable base or backing and a sheet or film of stretched rubber, the two being joined together to prevent creeping of said sheet or film of rubber on said base or backing.
8. A blanket for offset printing presses comprising a flexible non-stretchable base or backing and a sheet or film of stretched rubber, the two being joined together to prevent the rubber moving away from said base or backing at any point thereof.
9. The method of making a blanket for offset presses which consists in stretching a sheet or film of rubber or similar stretchable material over a non-stretchable base and joining all points of opposing faces of the two together.
10. The method of making blankets for offset printing presses which consists in stretching a thin sheet or film of rubber or other stretchable material and cementing the same to one of the faces of a sheet of non-stretchable material.
11. The method of making blankets for offset printing presses comprising a base or backing and a covering slightly yielding under pressure, which consists in the use of a non-stretchable base or backing and a sheet or film of rubber of smaller size than said base or backing, and in stretching said sheet or film to the size of said base or backing and cementing the two together.
12. A blanket for offset printing presses having a non-yielding base or backing, a sheet or film of stretchable material stretched over and applied to one side of said base or backing, and a resilient underlay applied to the other side of said base or backing.
13. A blanket for offset printing presses comprising a non-yielding non-stretchable base or backing, and a sheet or film of stretchable material stretched over and applied to said base or backing.
14. A blanket for offset printing presses comprising a non-yielding base or backing, a stretched layer or film of material applied to one face of said base or backing, a sheet of paper applied to the other face of said base or backing, and a sheet of yielding material applied to said sheet of paper.
15. The method of making blankets for offset printing presses which consists in stretching a thin sheet or film of rubber or other stretchable material and cementing the same to one of the faces of a sheet of non-stretchable non-yielding material and in applying a sheet of yielding material to the other face of said sheet of non-stretchable non-yielding material.

In testimony whereof I affix my signature.

BERNARD W. HOERBELT.