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E. L. FUCHS ET AL

1,817,184

PROCESS OF EMPOSSING FABRICS

Filed March 24, 1930

FIG. 1.

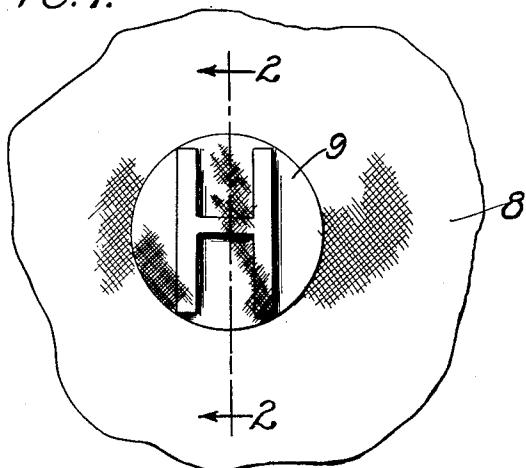


FIG. 2.

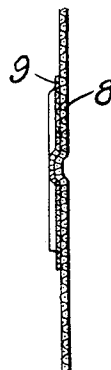


FIG. 3.

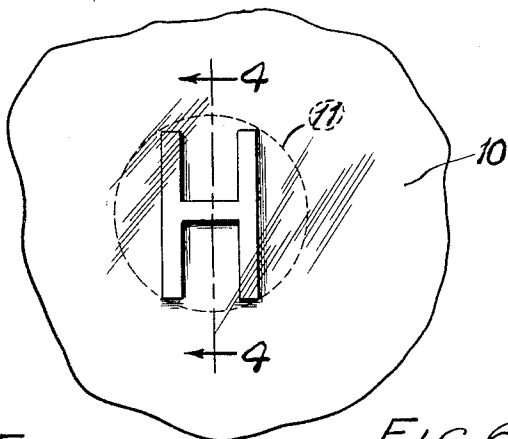


FIG. 4.

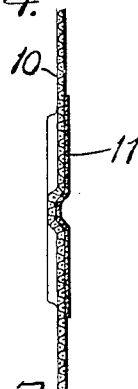


FIG. 5.

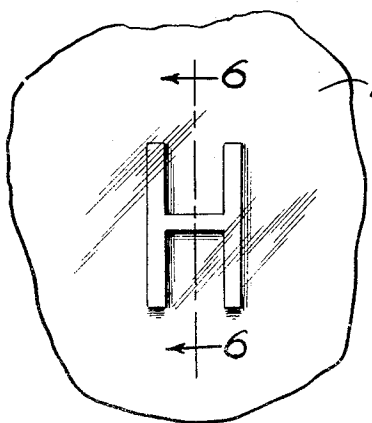


FIG. 6.

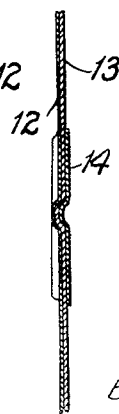
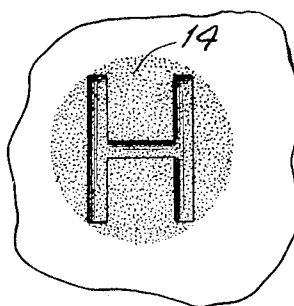


FIG. 7.



INVENTORS  
Edward L. Fuchs  
William L. Fuchs  
BY Edward E. Longene  
ATTORNEY.

# UNITED STATES PATENT OFFICE

EDWARD L. FUCHS AND WILLIAM L. FUCHS, OF ST. LOUIS, MISSOURI

## PROCESS OF EMBOSsing FABRICS

Application filed March 24, 1930. Serial No. 438,386.

Our invention relates to improvements in process of embossing fabrics and has for its primary object a process by means of which textile and enamel coated fabrics, imitation leathers and very thin leathers can be successfully embossed and retain such embossing.

A further object is the process of embossing fabrics in which that portion of the fabric having the impression is rendered more or less water-proof.

A still further object is the process of embossing in which a substance that becomes pliable under heat is partially forced into the fibers of the fabric and upon cooling sets so that the embossed impression will be retained.

In the drawings, Fig. 1 is a fragmental plan of a piece of fabric showing one way of carrying out our process.

Fig. 2 is a section of the same taken on the line 2—2 of Fig. 1.

Fig. 3 is a view similar to Fig. 1, showing another way of carrying out our process.

Fig. 4 is a section taken on the line 4—4 of Fig. 3.

Fig. 5 is a view similar to Fig. 1, showing still another way of carrying out our process.

Fig. 6 is a section taken on the line 6—6 of Fig. 5 and

Fig. 7 is a rear view of Fig. 5.

In carrying out our invention, we employ a fabric 8 which may be either textile fabric plain, enamel coated or water-proofed. It may be imitation leather, very thin leather or similar substance as disclosed in Fig. 1.

In embossing a sheet of fabric as disclosed in Fig. 1, we take a second sheet of closely woven fabric 9. This fabric is relatively thin and has one face coated with an adhesive which is naturally hard, but which will soften under heat. This piece of fabric 9 is placed on the fabric 8 and then both fabrics are placed in an embossing press where the portion to be embossed is subjected to pressure and heat simultaneously. The heat softens the coating on the face of the fabric 9 which coating is placed next to fabric 8, permitting this adhesive to enter the

fibers of both fabrics thus vulcanizing them together.

It is understood, of course, that the impressions made are not deep enough to rupture the fibers. After the design is thus pressed into the fabrics, they are firmly set by reason of the partial absorption of the adhesive and then upon cooling, they will adhere together and at the same time, the hardening of the adhesive will retain the fibers in the form given them by the embossing dies.

In Figs. 3 and 4, we have disclosed another way of following our process in which 10 represents the fabric similar to the fabric 8. 11, represents the fabric similar to the fabric 9. This fabric 11, is of course, provided with an adhesive coating. In this instance, however, the fabric 11 is placed on the rear face of the fabric 10 and then the same process is repeated. In this way, the embossing on the fabric 10, can be retained in its original color.

In Figs. 5, 6 and 7, we have disclosed still another way of carrying out our process. This process is preferable where imitation leathers and enamel coated goods 12 are used which have a fabric backing 13.

In this instance, the portion to be embossed has the fabric side coated directly with the adhesive 14, no additional fabric being necessary and upon this adhesive drying, the fibers of the backing will be partially impregnated with the adhesive, then upon being placed in the embossing press, this adhesive will partially soften and permit the fibers of the fabric backing to assume the shape of the embossing die and upon cooling and the adhesive hardening, the impression will be retained.

When it is found desirable the embossed portion may be made in various colors, this of course, being done after the embossing has been finished.

Our process is especially useful in the embossing of tire covers for automobiles, because it permits the trademarks of the various automobile manufacturers or tire manufacturers to be embossed and colored on the tire covers. While we have shown merely a

single letter, it is to be understood of course, that any designs or lettering can be used.

Heretofore when embossing fabrics, as above described, it has been customary to first glue a sheet of paper on the reverse side of the fabric and then place the same in the embossing press relying upon the paper to hold the impression of the embossing die. This has been found detrimental, because the paper had to be relatively thick and consequently caused a hard spot to be formed where the embossing took place. Then again, the constant vibration of an automobile running over the road caused the tire to gradually rub off this paper with the result that the fabric composing the cover stretched and the embossing impression was lost. Then again, by using the paper, the paper absorbed moisture and consequently would readily peel and rub off, causing the impression of the embossing die to disappear.

With our process, however, in using a fabric together with the water-proof adhesive such wearing off of the color or wearing of fabric fibers is eliminated. No hard spots are formed in the tire cover and on account of the extreme thinness of the fabric, such as disclosed at 9 and 11, practically no wear occurs, because this fabric is of about the thickness of ordinary tracing cloth. Then again, this fabric can be readily rendered moisture-proof so that no absorption of moisture will take place at that point.

Having fully described our invention what we claim is:

1. The process of forming permanent designs on automobile tire cover material which consists in applying to a predetermined area of said material a thermoplastic, self-hardening, non-peeling, constantly flexible substance, said material being capable of resisting tensile strains and of retaining an embossed design without materially decreasing the flexibility of said material, and embossing said area by means of hot dies.

2. The process of forming permanent designs on tire cover material which consists in applying to a predetermined area of said material, a thermoplastic, self-hardening, non-peeling, constantly flexible substance, said material being capable of resisting tensile strains and of retaining an embossed design without materially decreasing the flexibility of said material, and embossing said area simultaneously from both sides of said material by means of hot dies.

3. The method of embossing a design in a predetermined area of an uncoated textile article subjected to repeated tensile strains and flexings in normal use, said method consisting in applying an impervious thermoplastic, self-hardening coating to only that area of the textile to be embossed, then impressing said design by means of hot dies through said coated area from both surfaces of said textile,

whereby the material of said coating will impregnate the textile, and thence releasing said heat and pressure and allowing to cool, whereby said embossed design will be impervious, will hold its shape through repeated tensile strains, and will flex without cracking.

In testimony whereof we have affixed our signatures.

EDWARD L. FUCHS.  
WM. L. FUCHS.