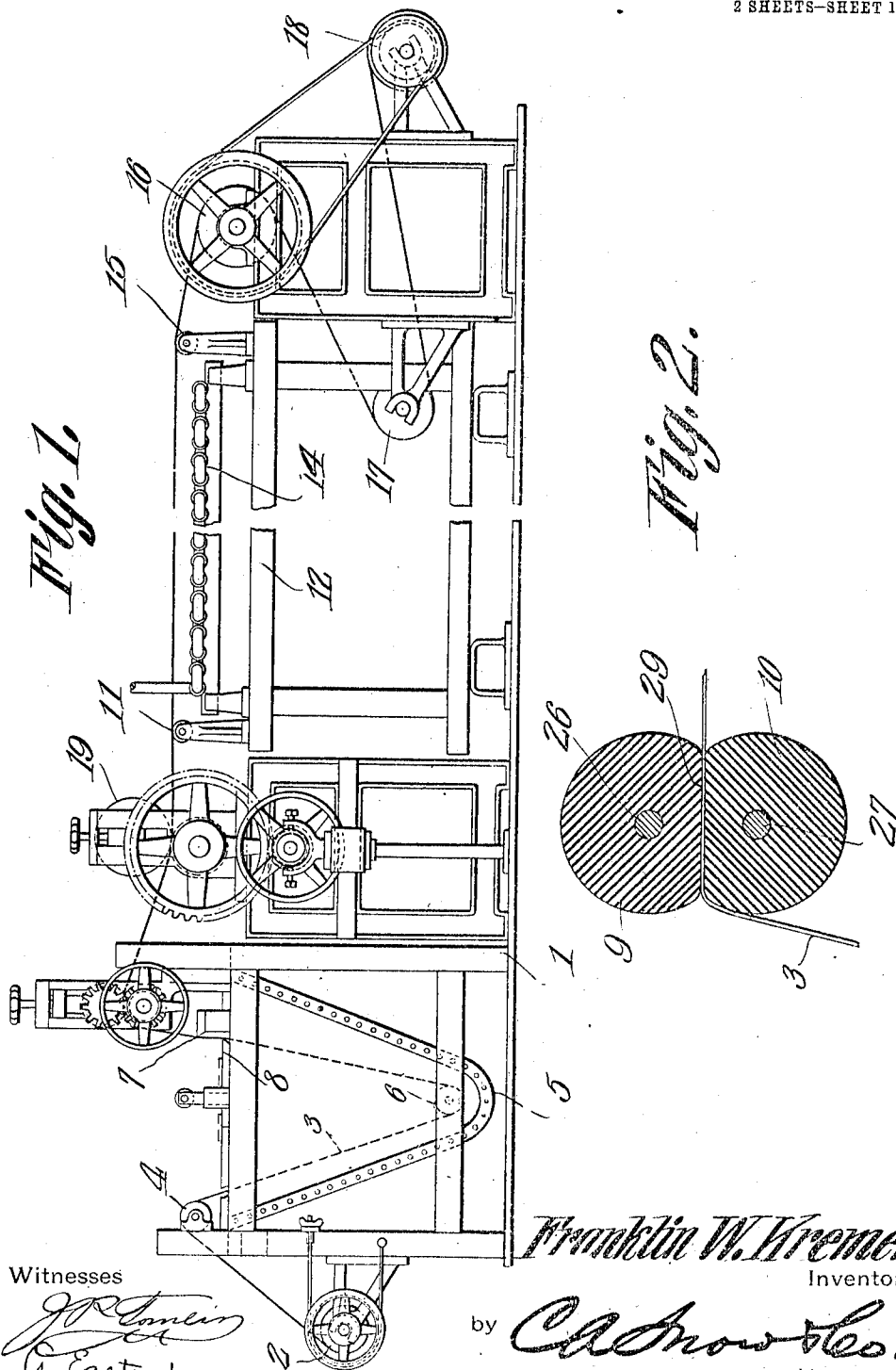


F. W. KREMER.  
SATURATING MACHINE.  
APPLICATION FILED APR. 22, 1911.

1,055,404.

Patented Mar. 11, 1913.

2 SHEETS—SHEET 1.



Witnesses

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Inventor,

by

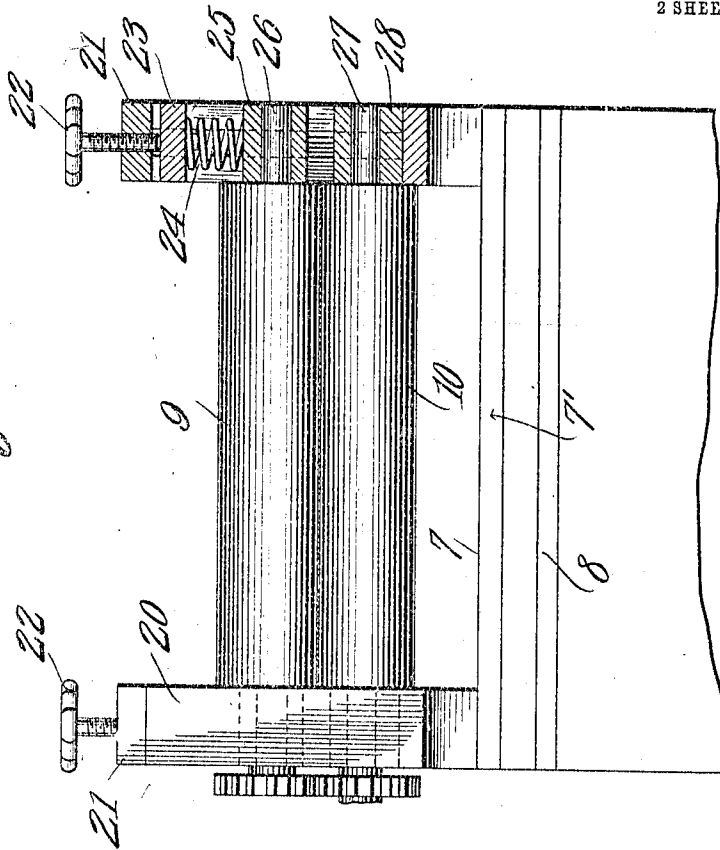
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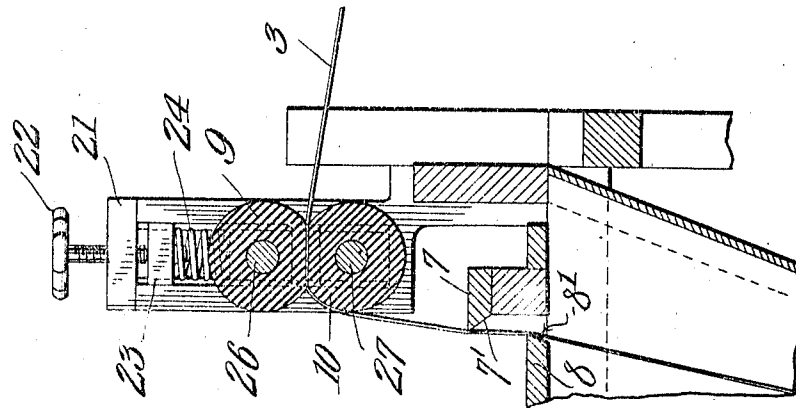
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*Fig. 4.*



*Fig. 3.*



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# UNITED STATES PATENT OFFICE.

FRANKLIN W. KREMER, OF RUTHERFORD, NEW JERSEY.

## SATURATING-MACHINE.

1,055,404.

Specification of Letters Patent.

Patented Mar. 11, 1913.

Application filed April 22, 1911. Serial No. 622,757.

*To all whom it may concern:*

Be it known that I, FRANKLIN W. KREMER, a citizen of the United States, residing at Rutherford, in the county of Bergen and State of New Jersey, have invented a new and useful Saturating-Machine, of which the following is a specification.

The device forming the subject matter of this patent, is a machine for saturating fabric with rubber, to produce a material of the sort commonly employed in the manufacture of vehicle tires, of rain-proof garments and the like, and it is one object of this invention to provide means whereby the fabric will be thoroughly saturated with rubber.

Another object of the invention is to provide means whereby the rubber will be spread evenly upon the fabric.

A further object of the invention is to provide a means whereby a maximum pressure may be exerted upon the fabric, without endangering a tearing of the fabric, when an irregularity in the fabric passes between the compression rolls.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of invention herein disclosed can be made within the scope of what is claimed without departing from the spirit of the invention.

In the drawings,—Figure 1 is a side elevation of a saturating machine, embodying the present invention; Fig. 2 is a diagrammatic representation of the compression rolls constituting a part of the subject matter of the present invention; Fig. 3 is an end elevation of the compression rolls and of the means whereby they are immediately supported and adjusted; and Fig. 4 is a side elevation of the compression rolls, together with their supporting mechanism.

In Fig. 1 of the drawings, a saturating machine is shown. This machine will be described generally, in the first instance; and subsequently that portion of the machine which constitutes the subject matter of this invention, will be dealt with in detail. Referring, then, to Fig. 1, the saturating machine embraces a frame 1, upon the forward end of which is journaled for rota-

tion, a reel 2, carrying the strip of fabric 3. The strip of fabric 3 passes upwardly over a frame-supported roller 4, and thence downwardly into a tank 5, containing the rubber in solution, the strip being passed beneath a roller 6, journaled for rotation near the bottom of the tank 5. Thence, the strip of fabric is carried upwardly, between oppositely disposed scraper blocks 7 and 8, suitably supported upon the frame 1, the strip of fabric 3 passing thence between compression rollers 9 and 10, to be described hereinafter.

Beyond the compression rollers 9 and 10, the fabric is passed between other cooperating rollers 19, and thence over a guide roller 11, supported upon a frame 12, carrying a drying frame or table 14, at the rear end of which there is a roller 15, over which the fabric is passed. Thence, the fabric is carried over a roller 16, and continued downwardly about a roller 17, the fabric ultimately being wound upon a drum 18, journaled for rotation at the rear end of the structure.

The scrapers 7 and 8 are shown in detail in Fig. 3, the same being supported upon the frame 1. The forward edge of the scraper 7 is under cut, as shown at 7', the scraper 7 being supported at a slight distance above the scraper 8, the latter being mounted immediately upon the frame. The rear edge of the scraper 8 is under-cut, as shown at 8', and extends beneath the under-cut edge 7' of the scraper 7. It will be seen that as the strip of fabric 3 passes between the scrapers 7 and 8, the surplus material which may be upon the fabric, will be removed from the fabric, and be permitted to fall into the tank 5.

For a clear understanding of the compression rollers 9 and 10, Figs. 2, 3 and 4 may be examined in detail. Referring to these figures, it will be seen that suitable frame-supported brackets 20 are provided, these brackets carrying at their upper ends, caps 21, into which are threaded screws 22, engaging blocks 23, which are vertically slidable in the brackets 20. The blocks 23 bear against the compression springs 24, these springs 24 in their turn, engaging bearing blocks 25, slidably mounted in the brackets 20, and carrying for rotation, a shaft 26 upon which the roller 9 is mounted. The roller 9 cooperates with the roller 10, the latter being carried by a shaft 27, jour-

naled for rotation in bearing blocks 28, held against downward movement by the brackets 20.

The rollers 9 and 10 are fashioned from compressible material, preferably rubber, and when the screws 22 are rotated, the rollers 9 and 10 will engage, as clearly shown in Fig. 2, in a plane of considerable extent, as shown at 29. When the strip of fabric 3 is passed between the rollers 9 and 10, it is obvious that opposite faces of the fabric 3 will be engaged by the rollers 9 and 10, throughout relatively large areas, the rollers 9 and 10 yielding, under the action of the screws 22 until the large bearing surface denoted by the numeral 29, is obtained. After the strip of fabric 3 leaves the tank 5, being thoroughly coated with rubber therein, the strip will pass beneath the rollers 9 and 10, the surfaces 29 of which will co-act to force the rubber into all of the interstices of the fabric.

It frequently happens that there is in the fabric, a knot or other protuberance. When such protuberance passes between a pair of unyielding rollers, engaging each other along a single line only, the protuberance is frequently caught by the rollers and held back, the fabric itself being advanced, the result being that the fabric is torn. When rollers constructed as are the elements 9 and 10, are employed, any irregularities in the fabric, will pass readily between the rollers, without tearing the fabric, and without interfering with the thorough saturation of the remaining portions of the fabric.

When unyielding rollers are employed, in the room of the rollers 9 and 10, the fabric, after leaving the rollers, is invariably coated irregularly with rubber, it being frequently necessary to position an operator between the roller 9 and the rollers 19, for the purpose of striking off from the fabric 3, blubbers and irregular masses of rubber, which a pair of unyielding rollers are totally incapable of removing.

In the present invention, owing to the

fact that the rollers 9 and 10 are compressible, and owing to the fact that they engage opposite faces of the fabric 3, in parallel planes of appreciable extent, the fabric will pass from the rollers 9 and 10, thoroughly saturated with rubber, and in absolutely flawless condition, a result which experiments have proved to be absolutely impossible with compression rollers of the type now employed.

It will be understood, in connection with Figs. 3 and 4, that the means for mounting the rollers 9 and 10, and the means for securing a compression of the rollers, may be varied greatly, without jeopardizing the utility of the invention, it being requisite merely, that the compressible rollers 9 and 10 be forced together, to form the flat pressure planes 29.

Having thus described the invention, what is claimed is:—

1. In a machine for saturating fabric with rubber, a pair of shafts and opposed rollers upon the shafts, the diameters of the rollers being relatively large compared with the diameters of the shafts and the rollers being of soft, compressible construction, the rollers being of irregular peripheral outline and having flat, cooperating, fabric-engaging faces exerting continuous pressure upon each other, and movable with the fabric.

2. In a machine for saturating fabric with rubber, spaced supporting structures and opposed compression members carried by the supporting structures, and movable about points within the supporting structures, the compression members being of soft construction, and being provided with flat, cooperating, fabric-engaging faces exerting continuous pressure against each other, and movable with the fabric.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

FRANKLIN W. KREMER.

Witnesses:

FRANK DE WITT,  
HOWARD THORNE.