E. R. MEINIG.

MACHINE FOR STRETCHING AND DRYING CLOTH.

APPLICATION FILED DEC. 23, 1912.

1,067,829. Patented July 22, 1913.

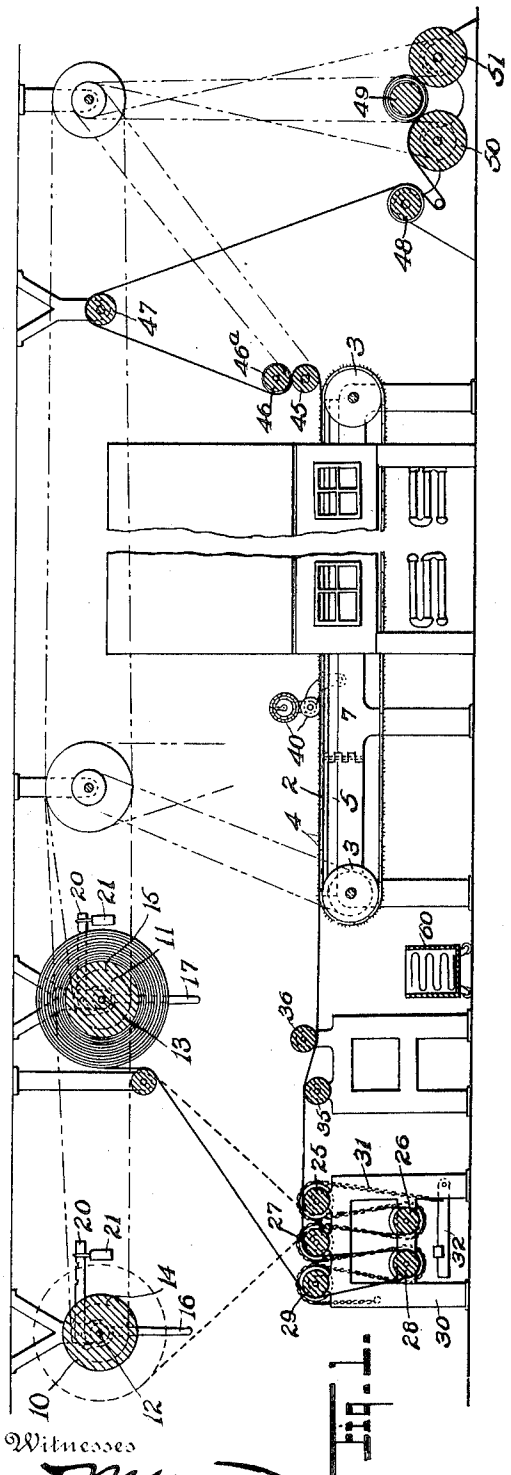


Fig. 1.

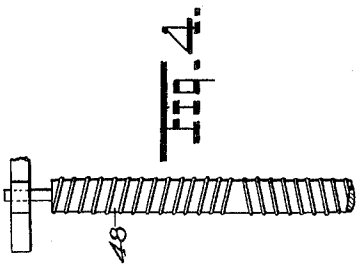


Fig. 4.

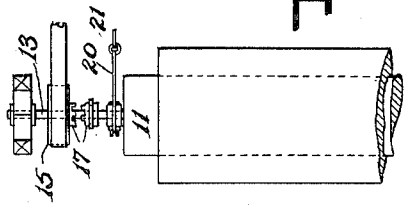


Fig. 3.

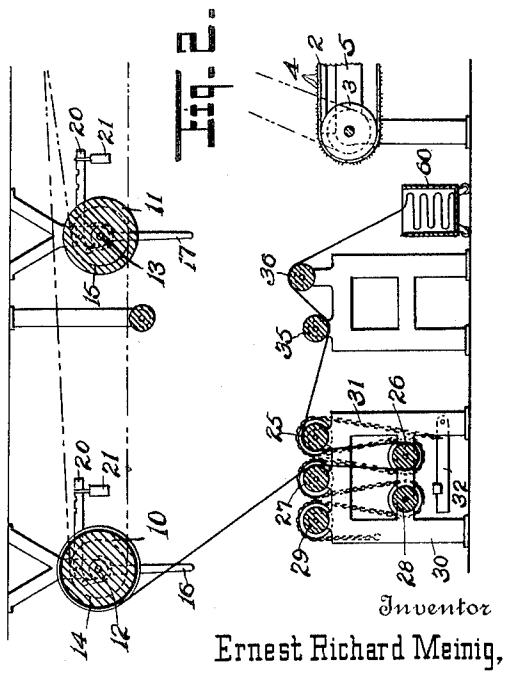


Fig. 2.

Witnesses

D. M. Stewart

Caleb J. Bieber.

Inventor

Ernest Richard Meinig,

By H. K. Stewart

Attorney

UNITED STATES PATENT OFFICE.

ERNEST RICHARD MEINIG, OF READING, PENNSYLVANIA.

MACHINE FOR STRETCHING AND DRYING CLOTH.

1,067,829. Specification of Letters Patent. Patented July 22, 1913.

Application filed December 23, 1912. Serial No. 738,193.

To all whom it may concern:

Be it known that I, ERNEST RICHARD MEINIG, a citizen of the United States, residing at Reading, in the county of Berks and State of Pennsylvania, have invented certain new and useful Improvements in Machines for Stretching and Drying Cloth, of which the following is a specification.

My invention relates particularly to improved feeding and delivery means applicable to stretching and drying mechanism through which the fabric under treatment is continuously carried.

It is fully described in connection with the accompanying drawings illustrating the essential features thereof in coöperative relation, and is specifically pointed out in the claims.

Figure 1 is a side elevation indicating the essential features of a stretching and drying mechanism embodying my improvements; the end portions of a known form of tentering machine through which the continuously fed fabric is carried being represented sufficiently to show the coöperative relation of my improvements thereto. Fig. 2 is a partial front-end view similar to Fig. 1, indicating a preliminary feeding operation. Figs. 3 and 4 are detail plan views.

The tentering machine indicated comprises a pair of endless chains 2, each of which passes over suitably operated chain wheels 3, 3, located at opposite ends of the machine, and is provided with tenter-hooks 4 upon which the respective selvage edges of the fabric are caught. These chains travel in side guide frames which have adjustably inclined fabric-entering sections 5 pivotally connected to main parallel sections 7, so as to effect any desired lateral stretching of the entering fabric; after which the stretched fabric is carried through the machine, and simultaneously subjected to the drying action of heated air, until it is released from the chains by the delivery mechanism at the exit end. Such machines are well known, and the particular construction thereof is immaterial to my invention which consists in the improved feed and delivery mechanism provided in coöperative relation therewith.

My improved mechanism, at the entering end of the machine, is adapted to facilitate the continuous furnishing of an indefinite length of fabric, ordinarily made up of connected pieces, to the tentering machine, with a determined lengthwise stretching action thereon, and with provision for accurately varying such stretching action as may be required; while the delivery mechanism is adapted to provide a further stretching action upon the discharging material for the purpose of producing a uniformly smooth surfacing of the treated fabric.

Lengthwise stretching of the fabric is effected preliminary to its engagement with the tentering hooks of the carrying chains referred to, by means of the improved feeding mechanism shown to the left of the latter. This mechanism, as shown, comprises a primary feed drum 10, and a secondary feed drum 11, each of which is provided with a shaft, 12 and 13 respectively, having a drive pulley 14 or 15, and a clutch device 16 or 17; whereby each of said drums may be either positively driven, or freed from the driving power, as desired. Each drum is also provided with a suitable brake mechanism adapted to frictionally control its rotation when freed from the driving power, said brake mechanism comprising in each case as shown, a brake lever 20 having a sliding or variable weight 21 thereon whereby to accurately vary the braking action. These drums are employed, as hereafter described, in connection with a cooperating series of guide rolls over which the fabric is passed; said guide rolls comprising, as indicated, a staggered series of rolls 25, 26, 27, 28, 29, mounted in suitably located supporting frames 30 and provided in well known manner with a brake-belt 31 and weight lever 32 for frictionally regulating their freedom of rotation by the passing fabric; an additional guide roll or rolls, 35, 36, being also provided, as indicated, adjacent the chain wheels 3, to lead the fabric into engagement with the carrying chains. Coöperating with this feed mechanism, as hereafter described, is a fabric-measuring device, comprising ordinary measuring wheels 40 mounted upon one of the side guide sections 7 for the carrier chains, and which is adapted to automatically indicate the length of the chain-carried fabric passing it so as to enable the operator to regulate the stretching tension of the feed mechanism as may be required to definitely secure the desired stretching effect.

As the chain-carried fabric reaches the forward chain-wheels 3, it is passed to a suitably mounted delivery roll 45, which is

power-driven at a slightly greater surface speed than that of the carrier chains 2; and then over an adjacent presser roll 46 arranged to directly coöperate with said driven roll 45 and preferably provided with a yielding surface material 46ª adapted to press the passing fabric into contact with said driven roll; the fabric being thus effectively smoothed after leaving the carrier chains. It is then passed, as indicated, over guide rolls 47, 48, to a winding drum 49 which is movably carried by a pair of frictional-drive rolls 50 51 therefor; the surface of said guide roll 48 being reversely grooved from the middle portion thereof in well known manner, so as to laterally spread the fabric and insure its being smoothly and tightly rolled upon the drum 49.

The operation of my improved mechanism is as follows: The dampened fabric is first wrapped upon the rotated primary feed drum 10, being passed thereto over one or more of the guide rolls described, from the container 60 as indicated in Fig. 2. The drum 10 is then freed from its driving means by operating its clutch 16, and the fabric is led therefrom, through all or certain of the friction controlled guide rolls, to the main feed drum 11; which latter is then driven so as to draw the fabric from the freed drum 10 against the resisting action of the adjusted brake devices on the latter, thereby subjecting the fabric to a regulated lengthwise stretching and tightly wrapping it upon the drum 11. Finally the drum 11 is freed from its driving means by operating the clutch 17, leaving its rotation under control of its brake mechanism 20, 21, and the fabric is passed over certain or all of the guide rolls to the engaging carrier chains. The pull of the latter then subjects the fabric to further lengthwise stretching between the drum 11 and the carrier chains, as determined mainly by the frictional resistance to rotation of the drum 11 due to the regulated brake action thereon. As the fabric passes the measuring wheel 40, the operator notes the recorded passing length of a marked portion thereof as indicating the need of more or less tension upon the feeding fabric to secure a predetermined amount of lengthwise stretch, and is enabled to accurately adjust the braking friction accordingly. As the fabric is released from the carrier chains, the speeded drum roll 45 with its coöperating adjacent roll 46 and the laterally-spreading guide roll 48, insure its smooth delivery to the frictionally operated winding drum 49.

What I claim is:—

1. In combination with a tentering machine comprising fabric carrier chains and friction-regulated guide rolls through which the fabric is fed to said carrier chains, primary and secondary fabric drums arranged to jointly or independently coöperate with said guide rolls substantially as described, each of said drums being independently driven and provided with means for freeing the same from its driving means and for frictionally controlling the rotation of the freed drum.

2. In combination with a tentering machine comprising fabric carrier chains; a feed mechanism at one end thereof comprising a friction-controlled feed drum and friction controlled guide rolls for the entering fabric; and a fabric delivery mechanism at the other end comprising a delivery roll actuated at greater surface speed than said carrier chains, a presser roll arranged to directly coöperate with said delivery roll as described, and a take-up drum.

In testimony whereof I affix my signature in presence of two witnesses.

E. RICHARD MEINIG.

Witnesses:

D. M. STEWART,

W. G. STEWART.